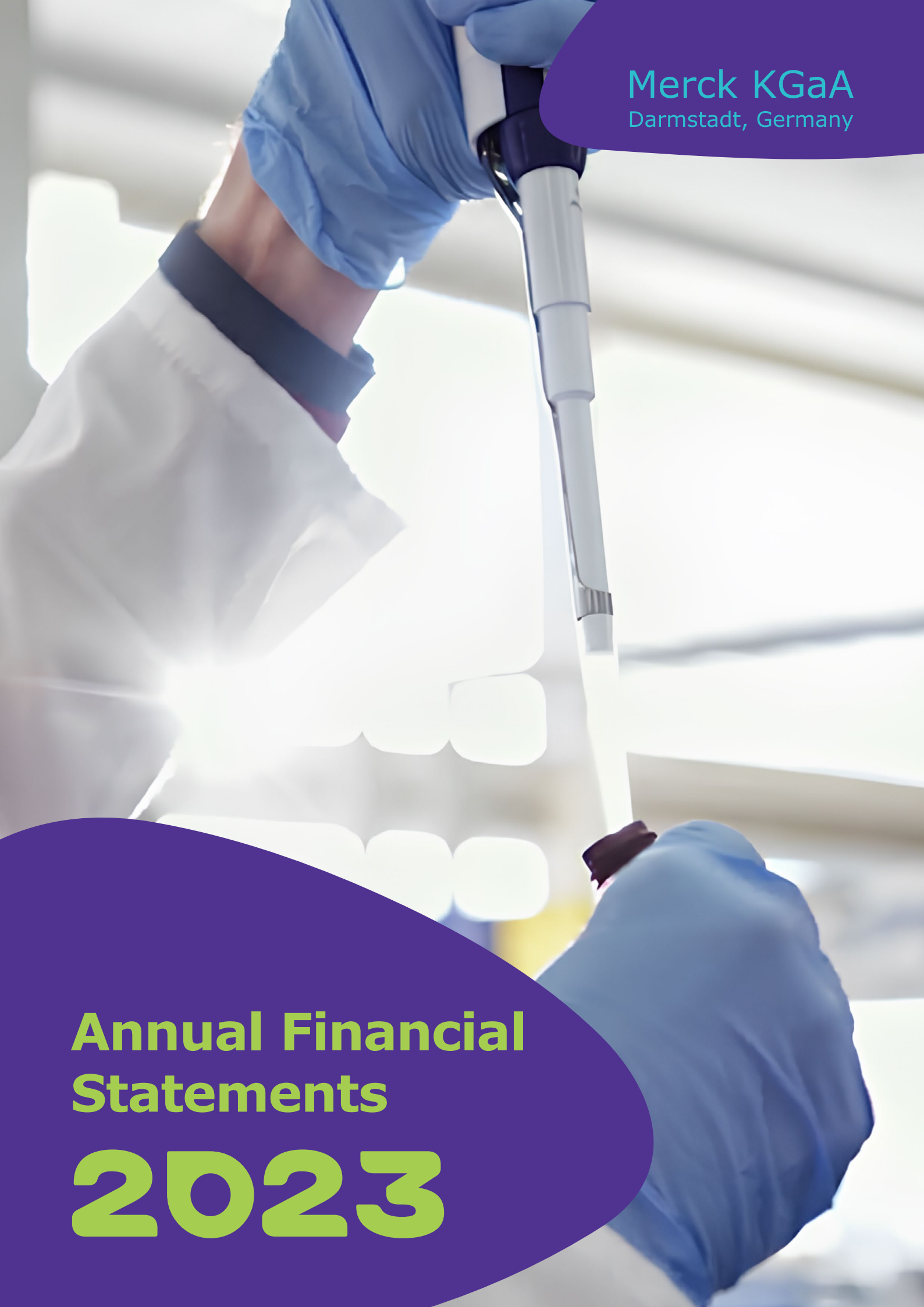

Merck KGaA
Darmstadt, Germany

Annual Financial Statements 2023

Combined Management Report*

* The management report of Merck KGaA, Darmstadt, Germany, has been combined with the Group management report and published in the 2023 Annual Report of Merck KGaA, Darmstadt, Germany, as well as in the annual financial statements of Merck KGaA, Darmstadt, Germany. The management report also contains the combined non-financial (Group) statement of Merck KGaA, Darmstadt, Germany, which we issue pursuant to sections 289b–289e and 315b–315c HGB. The 2023 Annual Report is an additional, non-official publication, which does not comply with the requirements of the European Single Electronic Format (ESEF). The official annual financial report for fiscal 2023, prepared in accordance with the ESEF format, has been filed with the electronic German Federal Gazette (elektronischer Bundesanzeiger) and is available on the **website of the German company register**.
This combined management report contains certain financial indicators such as operating result (EBIT), EBITDA, EBITDA pre, net financial debt and earnings per share pre, which are not defined by International Financial Reporting Standards (IFRS). These financial indicators should not be taken into account in order to assess the performance of the Group in isolation or used as an alternative to the financial indicators presented in the consolidated financial statements and determined in accordance with IFRSs.
The figures presented in this combined management report have been rounded. This may lead to individual values not adding up to the totals presented.
The Statement of Corporate Governance according to section 315d HGB in conjunction with section 289f (1) sentence 2 HGB is available at **https://www.emdgroup.com/en/investors/corporate-governance/reports.html**.
It is our aim to ensure that our communication is inclusive and so we strive to use language that is both non-discriminatory and easy to read. This report attempts to use gender-neutral language, which may not yet be consistent in all instances. Even if masculine forms are used, all genders are explicitly meant.

[1] German Commercial Code.

Fundamental information about the Group

The Group

We are a science and technology company. We are pioneers of human progress, driven by our curiosity. We are working toward a better future in a special organizational setup and are bringing together different disciplines under one roof with the three business sectors Life Science, Healthcare and Electronics.

Our Life Science business sector provides the tools, high-grade chemicals and consumables that accelerate scientific breakthroughs and enable the biopharmaceutical industry to ensure that medicines are safe and effective for a global population.

In our Healthcare business sector, we advance innovation through our research, enable life-changing therapies for serious illnesses, treat patients with cancer, cardiovascular, diabetes, thyroid disorders, and multiple sclerosis, and help people to realize their wish to have a child.

In our Electronics business sector, we are the company behind the companies, advancing digital living. Our semiconductor and display solutions are used in the manufacture of many components for electronic devices. We are thus changing the way in which information is processed and made accessible.

In addition, our specialists also explore visionary new solutions at the interfaces of our three diversified business sectors.

Ever since we were established in 1668, we have continuously reinvented ourselves and adopted a long-term mindset. This approach is rooted in responsibility, care and respect: for our work, our employees, our customers, patients, society, and our planet. We want to become the global 21st century science and technology pioneer and are committed to working towards a better future: sustainable progress for humankind.

The founding family, now in the 13th generation, is still the majority owner. This is made possible by our company structure: a corporation with general partners (Kommanditgesellschaft auf Aktien – KGaA). In a KGaA, the total capital is divided between general partners and limited partners. The founding family holds a 70.274% stake in the listed Merck Kommanditgesellschaft auf Aktien, Darmstadt, Germany (Merck KGaA, Darmstadt, Germany), as general partner via the Group's ultimate parent company, E. Merck Kommanditgesellschaft, Darmstadt, Germany. The remaining 29.726% of the share capital of Merck KGaA, Darmstadt, Germany, is traded on the regulated market of the Frankfurt Stock Exchange and other stock exchanges.

The assessment of business development and the allocation of financial resources are carried out by the entire management of the company for the Life Science, Healthcare and Electronics business sectors as well as the supporting corporate functions. In addition to the Chair of the Executive Board and CEO Belén Garijo, the Members of the Executive Board are Matthias Heinzel, CEO Life Science, Peter Guenter, CEO Healthcare, Kai Beckmann, CEO Electronics, and Helene von Roeder, Chief Financial Officer (CFO). Helene von Roeder was appointed CFO as of July 1, 2023, succeeding Marcus Kuhnert on the Executive Board of the Group.

Strategy*

Strategy fundamentals and ambition

We are curious minds dedicated to human progress. We believe that scientific exploration and responsible entrepreneurship are key to technological advances that benefit us all. Our values – courage, achievement, responsibility, respect, integrity, and transparency – guide us in every step we take and in every decision we make. Our company has a firm foundation with convictions and principles that the Merck family has lived by for generations. We always take them into consideration when discussing and deciding on our enterprise strategy.

Compared to last year, we face greater challenges as the increasingly complex global situation has also impacted some of our end markets. This poses challenges for the global economy and society. With a history of more than 355 years and a truly global footprint today, we have established a solid, resilient foundation that continues to bolster our confidence in our ambition for the future – to become the global 21st century science and technology pioneer. To achieve this, we continue to focus on our key growth drivers: Process Solutions, Life Science Services, Science & Lab Solutions, and Semiconductor Solutions as well as developing specialty drugs in our Healthcare business. Our must-win battles include building an organization with comprehensive data expertise and strengthening our ability to innovate. For instance, in our “Data & Digital” initiatives, we focus on identifying, prioritizing, and implementing technical capabilities across our businesses to promote future growth.

Through our multi-industry business model, we serve attractive global markets with secular growth trends as a trusted partner to advance human progress. Our diversified portfolio benefits from key megatrends. In Life Science, this includes a growing market for complex and novel modalities. In Healthcare, we develop and commercialize specialty pharmaceuticals in the Oncology and Neurology & Immunology franchises. These include the medicines Erbitux® (cancer), Bavencio® (cancer) and Mavenclad® (multiple sclerosis). In addition, we are conducting clinical trials with late-stage xevinapant (head and neck cancer) and further drug candidates in oncology, neurology and immunology in earlier stages of clinical development. With our comprehensive portfolio of semiconductor materials, we expect to benefit in the medium and long term from continuously increasing demand for chips due to the exponential growth of data volumes as well as the further implementation of artificial intelligence (AI) and the Internet of Things (IoT).

We strive to make a positive impact in our communities and on the planet while assessing and considering the ESG (environmental, social, governance) impact of our growth ambition. Since the launch of our sustainability strategy, we have achieved essential milestones in integrating sustainability as a foundational element of our overall governance and decision-making frameworks. We are diligently striving to achieve human progress for more than one billion people through sustainable science and technology by 2030. Fully integrating sustainability into our value chains by 2030 is at the forefront of our priorities. In addition, we are committed to achieving climate neutrality and minimizing resource consumption by 2040.

Active portfolio management is an integral part of our strategy. This has enabled us to transform over the last decades and our evolution into a global science and technology pioneer. In this sense, inorganic growth is a relevant element to accelerate strategic plans and to leverage business opportunities in our attractive end markets. Strengthening our key growth businesses remains the highest priority for which mergers and acquisitions (M&A) could serve as appropriate tools.

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Sustainability strategy

Leveraging science and technology

In our view, sustainable entrepreneurship and profitable growth go hand in hand; we can remain competitive only by creating added value for society. Through our innovative and high-quality products, we want to help meet global challenges. At the same time, these types of products secure our financial performance capability. Responsible action is an integral part of our company culture. This also includes respecting the interests of our employees, customers, investors, and society.

Safety and ethics matter just as much to us as business success. We mitigate ethical, economic, environmental, and social risks as far as possible. From the early stages of development through to disposal, we keep an eye on the entire life cycle of a product. We apply strict sustainability standards to our procurement activities. During product manufacture, it is important to us to keep the environmental impact as low as possible, which is why safe production, high environmental standards and strict quality management are of course so important to us. By supplying products that meet extensive sustainability criteria, we also help other companies to achieve their sustainability goals.

Sustainability is an essential element of our enterprise strategy. We have set ourselves three strategic sustainability goals: In 2030, we will achieve progress for more than one billion people through sustainable science and technology. By 2030, we will fully integrate sustainability into our value chains. By 2040, we will be climate neutral and reduce our resource consumption. With these goals, we are helping to achieve the UN Sustainable Development Goals (SDGs). Overall, our sustainability strategy is centered on seven focus areas within which we are realizing numerous initiatives and projects today and tomorrow, measuring our progress as we go.

Refining the sustainability strategy

In 2023, we revised our sustainability strategy, which we had communicated in 2020. In particular, we sharpened the second goal: Under the new heading “Partnering for sustainable business impact”, we want to strengthen our focus on the social aspects in our value chains and embed sustainability more comprehensively into our decision-making processes. Therefore, in addition to the existing focus area “Sustainable and transparent supply chain”, we are now also working on the new focus areas “Sustainability in our ways of working and decision-making” and “Our people and communities; providing a diverse and inclusive environment”. For the third goal, “Reducing our ecological footprint”, we modified two of our key indicators for waste and water. The two new indicators, which are valid as of 2024, use more common metrics and also include circular economy criteria.

We use 14 key indicators to record and assess our progress towards achieving our sustainability goals. Our annual Long-Term Incentive Plan (LTIP) for Executive Board members and senior executives contains a sustainability factor. We use it to measure performance over a period of three years based on selected key indicators for each of our three sustainability goals. Details on how this sustainability factor is calculated can be found in the “**Compensation Report**”. In 2023, the company tied 15% of variable employee compensation to sustainability parameters for the first time.

We are in the process of transforming the company and are integrating sustainability into the innovation process and all parts of the value chain. It is our aim to decouple the growth of our businesses from negative environmental impacts. More information on sustainability topics can be found in the “**Non-Financial Statement**”, which is also part of the management report.

Electronics

As a science and technology company, we strive to offer leading-edge products, services, and solutions.

Our R&D strategy follows our overall Electronics technology strategy, which aims to enhance and expand our capabilities, drive organic growth and enable new technology platforms. Our Chief Technology Office (CTO) is identifying trends and vetting technologies that are beyond the time horizon or scope of our business units. As a dedicated technology organization, the CTO is managing research partnerships, shaping our technology roadmaps, and managing our long-term R&D portfolio. Our Technology Leadership Board reviews and optimizes our technology investment across the business sector.

Our R&D is aligned to strengthen our existing position in the industry across many key material and innovation areas, with the addition of artificial intelligence (AI), data services, analytics, and sustainability to enhance our portfolio offering. As an essential part of our “Level Up“ growth program, we are continuing to invest significantly more than € 3 billion in innovation and capacity expansion. With our R&D investments within “Level Up”, we are also scaling up our research and development capabilities for next-generation semiconductor and display materials to further strengthen our position as one of the leading suppliers to the electronics industry.

Our R&D is focused on finding solutions for the needs that drive our industry: increase energy efficiency of devices, enhance performance of materials, reduce environmental impact on the planet. Consequently, sustainability, and the use of AI and machine learning are key focus areas of our R&D.

Sustainable technologies and materials*

We are continuing to drive sustainability in R&D to address the increasing push for lower emissions along the value chains. Ongoing key programs focus on, e.g. NF_3 abatement and more sustainable processes and manufacturing technologies as well as green solvents, sustainable etch gases and PFAS replacement.

NF_3 abatement

Nitrogen trifluoride (NF_3) accounts for about 60% of our global emissions, mainly from our specialty gases business. We developed and tested an abatement solution using a modified commercial thermal destruction technology and demonstrated the ability to destroy NF_3 with 99% efficiency.

PFAS

PFAS, a generic term that covers about 10,000 per- and polyfluoralkyl substances, is used for several critical applications in the manufacture of microchips, e.g. photolithography, plasma etching and wafer cleaning. While it is currently not possible to manufacture semiconductors without PFAS, we have already developed several alternative products for some applications in Electronics. One area in which we are highly advanced is the replacement of PFAS surfactants with non-PFAS alternatives in photoresists and related ancillary products such as rinse solutions.

Scorecard

To embed sustainable design into R&D and steer our portfolio in a more sustainable direction in the long term, we have developed a scorecard that focuses on sustainable criteria in the development of new products and solutions. The scorecard is a tool for driving a sustainability culture in R&D and considers every step of the value chain to identify opportunities and risks at an early stage and act accordingly.

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Academic research program

With the objective of enabling more sustainable semiconductor manufacturing solutions, we have joined forces with the Intel Corporation to jointly fund an academic research program over three years. The program will specifically leverage AI and machine learning technologies to achieve innovative breakthroughs in sustainable semiconductor manufacturing processes and technologies. Potential solutions include environmentally friendlier materials, more efficient use of resources, AI-based solutions for modeling chemical processes, and opportunities for reducing waste and emissions. The focus is on building open-source tools for the benefit of the entire scientific and industrial community.

R&D activities in the business units*

Semiconductor Solutions

In our R&D we are addressing critical material needs through every step of the wafer manufacturing process. Top R&D programs for our Semiconductor Solutions business units include:

Business field Thin Films

Our Thin Films business field is actively developing new dielectrics (organosilanes and spin-on dielectrics) and metallics offerings. Many of these new products are qualified by multiple customers and we are developing new materials for leading-edge nodes that will enable chips and chiplets used for generative AI. The integration of the chemical business of Mecaro into our business enables us to develop new precursors for high performance DRAM and provides us with unique capabilities to expand our development in Asia. In addition, we continued to expand our metallics portfolio to support our customers' roadmaps, providing innovative solutions for ALD (atomic layer deposition) and CVD (chemical vapor deposition). We achieved significant advancements in high-performance, conformal dielectric ALD films which address key customer pain points. Our spin-on-dielectrics platform focuses on developing new formulations for gap-fill applications in increasingly deep and narrow insulating features with the improved performance needed to enable next-generation V-NAND (vertical flash memory) and DRAM (dynamic random-access memory).

Business field Specialty Gases

Our etch gas technology program continues to develop new chemistries to enable more than 100-layer, single-stack etching for advanced memory devices such as V-NAND (vertical flash memory). We are also seeing good progress in our etch gas development work for new low-GWP (global warming potential) gases for etching applications and in our cooperation with customers to develop low-GWP gas solutions used in the production of semiconductors.

Business field Formulations (patterning and planarization)

The main driver of our R&D engagements in patterning is the manufacturing capability and costs associated with extreme ultraviolet (EUV) lithography systems. We are increasing our efforts in the development of EUV lithography materials to directly help our key customers address these challenges. Our Patterning Solutions team achieved a breakthrough in PFAS-free EUV rinse development, paving the way for a sustainable solution to prevent the collapse of structures in EUV lithography.

We are also investing in directed self-assembly (DSA) capabilities as we support customers' integration of DSA into advanced nodes, and we are beginning to sample photoresists and rinse materials from our PFAS-free portfolio development.

Our Planarization business is driving new product development across advanced oxide and metal segments. For example, we are achieving technical progress using dielectric high-performance cerium dioxide particles for advanced oxide CMP (chemical mechanical planarization).

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Display Solutions

With the proliferation of multiple applications and display trends, the display industry's technological requirements are significantly expanding. Our display materials are enabling the fast-growing market of innovative displays for current and future applications such as foldable smartphones, flexible displays for automotive or AR/VR (augmented reality/virtual reality) devices.

As our liquid crystals business remains a strong focus area, our R&D team is continuously working to develop new liquid crystal mixtures for our customers who need differentiated performance such as high transmittance, high contrast ratio, and high reliability to realize displays for new applications. We are working with our customers in the field of AR/VR to expand the application scenarios of liquid crystals and continue to enhance the user experience in small and micro-sized displays. We remain fully committed to advancing LCD technology and are working very closely with leading panel makers to develop next-generation products for the electronics market.

In the display industry, OLED is regarded as state-of-the-art technology for its excellent visual experience. It is also considered as the technology of the future of displays as it enables the production of flexible, foldable, rollable, and even transparent displays. We introduced new barrier materials that offer superior flexibility, higher reliability and a longer lifetime in flexible OLED devices compared with existing solutions. Devices with fully flexible OLED displays are one of the fastest-growing trends in data-driven electronics. Our innovative ALD material won the "Display Component of The Year 2023" award from Society for Information Display (SID), the world's largest display association. In addition, our innovative deuterated material won the "Technology Innovation Award" from LG Displays in September 2023.

Surface Solutions

In our Surface Solutions business, we offer our customers solutions for designing surfaces that meet their specific requirements. Together with our customers, we are consistently developing new formulations that, in combination with existing products and product innovations, provide customized solutions across various industries.

In our automotive pigments business, we are continuously expanding our portfolio of Colorstream® multicolor-effect pigments. A recent example is the development of Colorstream® F20-52 SW Mineral Red pigment, a new silica-based pigment that extends the red color palette of Surface Solutions into a more blueish-red range.

In our cosmetics business, we are further developing our range of high-color intensity pigments with metallic optical effects entirely without the use of metals. These Ronaflux® pigments are based on an entirely new proprietary technology employing fluidized bed processes for depositing ultrathin and highly stable carbon layers onto pearlescent pigments – a major precondition for spectacular shine effects. The carbon layers intensify the colors of the effect pigments, thus enabling brilliant shades of blue and green without the addition of chrome oxides, Prussian blue or other colorants. This new offering enables manufacturers of eye makeup and lipsticks to meet the strict regulatory requirements while offering brilliant metallic blue and green shades that do not contain any metal-based pigments.

To produce realistic color effects on electronic devices, we are focusing on methodologies to transfer coloristic measuring data into 3D visible effects. As a first step, we have introduced the first digital tool for visualizing car colors in various light conditions in a realistic way. Under controlled, calibrated conditions, color data, measured state-of-the-art technology, can be used to produce a realistic display.

The development of selected sector specific environments was as follows:

	Change 2023[1]	Change 2022
Life Science		
Growth in market for laboratory products[2]	-5.6%	4.2%
Growth in global sales of biopharmaceutical drugs[3]	16.9%	14.5%
Share of biopharmaceutical sales in the global pharmaceutical market[3]	38.2%	35.8%
Early clinical monoclonal antibody (mAb) pipeline growth[4]	17.4%	7.7%
Healthcare		
Global pharmaceutical market	9.2%	7.8%
Market for multiple sclerosis therapies[5]	-2.3%	2.5%
Market for type 2 diabetes therapies[5]	19.1%	18.1%
Market for fertility treatment[5]	10.9%	4.2%
Market for the treatment of colorectal cancer[6]	-0.1%	4.5%
Electronics		
Growth of wafer area for semiconductor chips	-14.1%	3.9%
Growth of display surface area[7]	-1.5%	-3.9%
Global sales of cosmetics and care products	4.2%	12.2%
Global number of produced light vehicles	10.1%	7.1%

[1] Predicted development. Final development rates for 2023 were not available for all industries when this report was prepared.

[2] Global Market for Laboratory Products, October 2023, Frost & Sullivan.

[3] Global pharmaceutical spending at a constant exchange rate. IQVIA market data based on the past 12 months as of the third quarter 2023.

[4] Number of programs in Phase I or Phase II clinical trials, Cortellis.

[5] Growth rates based on market data in local currency, translated at a constant euro exchange rate. The IQVIA market data on the growth of indications are based on current figures, including the third quarter of 2023. Annual growth based on the values for the past 12 months. The type 2 diabetes market excludes the United States since this market is insignificant to us.

[6] Growth rates based on market data stated in US dollars. Market data from EvaluatePharma on the growth of indications are based on published company reports and are subject to exchange rate fluctuations.

[7] Growth of display area is a pure volume indicator.

Life Science

Our Life Science business sector is one of the leading global suppliers of products, tools and services for research laboratories, pharma and biotech production, as well as industrial and testing laboratories. The convergence of several adverse developments (macroeconomics, capital constraints, declining Covid-19 pandemic demand, and high customer inventory) has challenged growth of life science companies compared with previous years.

Accordingly, the markets in which our Life Science business sector operates slowed down in 2023 compared with 2022. According to the market research firm Frost & Sullivan, the market for laboratory products, which is relevant to our Science & Lab Solutions business unit, declined by -5.6% in 2023 (2022: 4.2%). This decline is due to a challenging macroeconomic outlook (declining GDP growth and persistent inflation) and a sustained slowdown of investment in early stage biotech companies (according to Citi Research, venture capital and IPOs remain below pandemic highs).

Once capital markets stabilize, spending on laboratory products is likely to increase again. In the pharma and biotech production market, in which our Process Solutions and Life Science Services business units are active, demand is driven by the development and manufacture of therapeutics and vaccines. According to the pharmaceutical market research firm IQVIA, the end market for biopharmaceuticals grew by 16.9% in 2023 (2022: 14.5%) to € 496 billion (or 38.2% of the global pharmaceutical market). The number of monoclonal antibodies (mAbs) in phase I or II development grew by 17.4% (2022: 7.7%). While the biopharmaceutical market grew in 2023, laboratory consumables and materials used in manufacturing were pre-purchased to a significant extent in 2022, resulting in high inventories among our customers.

Healthcare

In its latest study from September, IQVIA forecasts growth of 9.2% in 2023 (2022: 7.8%) for the global overall pharmaceutical market. After the recovery from the Covid-19 pandemic, the pharmaceutical market is expected to see still high growth rates benefitting from accelerated approval pathways and increased access to innovative medicines globally. This is balanced by further increasing cost containment measures and policies driving biosimilar and generics uptake as well as stricter price reviews and prescription controls.

The developments at a regional level follow the described trend. EMEA (Europe, Middle East and Africa) grew by 9.2% in 2023 (2022: 8.2%) with the EU5 (Germany, France, UK, Italy, and Spain) growing by 7.8% (2022: 8.0%). North America grew by 10.2% (2022: 9.6%) with the United States growing at a rate of 10.3% (2022: 9.5%). In absolute terms, the pharmaceutical market in the United States remains the biggest and most important market by far. Latin America achieved double-digit growth of 19.2% (2022: 12.5%) impacted by high inflation. This is followed by the Asia-Pacific region (excluding China and Japan) with 8.2% growth (2022: 9.6%). Despite continued extension of price regulations (for example, volume-based procurement), China returned to growth with 4.3% in 2023 (2022: -0.8%) due to the lifting of Covid-19 pandemic measures, increased access to innovative products and growing healthcare infrastructure).

Not only the growth of the pharmaceutical sector as a whole, but also the market development for biotechnologically produced active ingredients is relevant to our business. According to IQVIA, these products accounted for 38.2% of the global pharmaceutical market in 2023 (2022: 35.8%), thus continuing the increase in market share of recent years. The most important market for biological pharmaceuticals remains the United States, with a 64.2% share of global biopharmaceutical market volumes.

The developments in the therapeutic areas of relevance to the Group saw differing trends in the reporting year. The global market for type 2 diabetes, excluding the United States, followed the growth trend of previous years and accelerated growth, achieving 19.1% in 2023 (2022: 18.1%). The therapeutic area of infertility grew 10.9% in the reporting year (2022: 4.2%). Colorectal cancer declined by -0.1% in 2023 (2022: increase of 4.5%) due to biosimilar penetration. The growth trend in the market for multiple sclerosis therapies declined slightly compared with previous year level by -2.3% (2022: 2.5%), as new product launches are counteracted by the effect of generic competition.

Electronics

The semiconductor industry is the most important market for our business with materials, solutions and services for the production of integrated circuits (Semiconductor Solutions). In particular, the growth in demand for semiconductor materials depends mainly on the wafer area produced for semiconductors. The silicon wafers required as raw materials are used as an indicator to estimate the demand for semiconductor materials overall.

According to the global industry association SEMI (forecast as of Q3 2023), the delivered silicon wafer area experienced a -14.1% decline in 2023, following moderate growth in 2022 (3.9%). The current cyclical industry downturn is amplified by macroeconomic challenges such as high interest rates and changing consumer buying behaviors with a preference for services. Semiconductor manufacturers have responded by reducing utilization rates to address excess inventory, resulting in declining demand for silicon wafers and related materials and services.

Despite the current downturn, we foresee a positive outlook for the Electronics business sector. We anticipate that the semiconductor market will regain momentum in 2024, driven by AI solutions, the Internet of Things, and the increase in data volumes related to big data.

With our Display Solutions business, we are a significant producer of liquid crystal mixtures and OLED materials for the display industry. After the Covid-19-pandemic-induced “stay at home boom,” the display industry underwent demand normalization in 2022. There are several indications that display market is slowly recovering after supply inventory adjustments. Due to sluggish demand in the fourth quarter of 2023, however, the market research company OMDIA (forecast as of Q3 2023) forecasted a slight decline in growth for 2023. In the medium to long term, liquid crystals will continue to play a key role in the display industry in the future. OLED technology, for which we have a strong position as material supplier, is becoming increasingly important in high-end display applications.

The markets for automotive coatings and cosmetics are crucial to our Surface Solutions business. According to the December 2023 report from GlobalData (formerly LMC), a leading global provider of automotive forecasts, global automobile production grew significantly by 10.1% in 2023 compared with growth of 7.1% in 2022. Underlying drivers include an unmet global demand, with China continuing to be one of the most important markets. According to Euromonitor’s report from October 2023, the market for cosmetics and care products grew more slowly in 2023 after a very strong development in 2022 with an overall growth of 4.2% in 2023 (2022: 12.2%).

Review of Forecast against Actual Business Developments

The forecast of the Group for fiscal 2023 published in the Annual Report for fiscal 2022 comprised the forecast for the Group as well as the forecast for the three business sectors: Life Science, Healthcare, and Electronics.

Net sales

We forecast slight to solid organic net sales growth for the Group in 2023. In particular, the macroeconomic, geopolitical and industry-specific conditions changed over the course of the year. Furthermore, the Life Science business sector saw sustained high inventory levels and a reluctance to invest on the part of customers, while the Electronics business sector was affected by the ongoing weakness of the market for semiconductor materials.

Waning demand for products in connection with the Covid-19 pandemic meant that, as expected, net sales declined sharply in fiscal 2023. All in all, we reported an organic decline in net sales of -1.6% in fiscal 2023, which fell within the forecast range of between -2% and +2% that we revised in the second quarter and confirmed in the third quarter. At the start of the year, we anticipated a negative exchange rate effect totaling between -1% and -4%, especially as a result of the expected development of the U.S. dollar and the Chinese renminbi. Several currencies, including the U.S. dollar and the Chinese renminbi as well as some currencies of emerging economies, saw less favorable development than expected as the year progressed. The negative exchange rate effect in 2023 as a whole was -4.1%, thus falling within the range of -3% to -6% which we most recently revised in the second quarter and confirmed in the third quarter. The slightly positive portfolio effect was negligible at +0.1%. All in all, net sales amounted to € 20,993 million, representing a year-on-year decrease of -5.6%. This was below the mid-point of the forecast range of € 20,500 million to € 21,900 million and thus was consistent with the more specific forecast issued together with the figures for the third quarter (trending slightly below the mid-point).

Life Science

Our Life Science business sector reported an organic decline in net sales of -7.9% in fiscal 2023. This was at the lower end of the forecast range of between -8% and -2%, which we adjusted in the second quarter and confirmed in the third quarter, meaning that Life Science fell below our original forecast of slight to moderate organic growth. All of the business units – Process Solutions, Life Science Services and Science & Lab Solutions – recorded a downturn in organic net sales. As expected, Process Solutions and Life Science Services saw the most pronounced organic decline in net sales, whereas the downturn in the Science & Lab Solutions business unit was only slight. All in all, net sales in the Life Science business sector fell by -10.6% to € 9,281 million including a negative exchange rate effect of -2.7% and a positive portfolio effect of 0.1%. This was in the lower half of the forecast range of € 9,100 million to € 9,950 million, which is consistent with the more specific forecast issued at the end of the third quarter (trending in the lower half of the forecast range).

Healthcare

We originally forecast moderate to solid organic sales growth for our Healthcare business sector compared with the previous year. We then quantified this organic sales growth forecast at between +5% and +9% when we published the figures for the first quarter. We raised this forecast range to between +6% and +9% with the publication of the figures for the second quarter and confirmed this at the end of the third quarter. With full-year organic growth of +8.5%, the business sector achieved the forecast for fiscal 2023. This development was driven in particular by the significant growth of the oncology business and, above all, the strong performance of our recently approved product Bavencio®. Neurology & Immunology made a substantial contribution to full-year organic sales growth in fiscal 2023 thanks to our recently approved product Mavenclad® in particular. Sales growth was also driven by our established portfolio, especially fertility products. Taking into account the negative exchange rate effect of -5.8%, net sales in the Healthcare business sector increased by +2.7% to € 8,053 million in fiscal 2023, thereby falling within the upper half of the forecast range. This was consistent with the more specific forecast issued together with the report on the third quarter (trending slightly above the mid-point).

Electronics

Despite the economically and geopolitically difficult conditions in the market for semiconductor materials, we forecast slight to solid organic net sales growth for our Electronics business sector at the start of the year based on the assumption that the semiconductor market would recover in the second half of 2023. We quantified our organic sales growth forecast at between -2% and +3% when we published the figures for the first quarter. Compared with the previous forecast, we anticipated an even more pronounced weakening of the market followed by a delayed but stronger recovery which should now only occur later in the second half of the year. We adjusted this forecast with the publication of the figures for the second quarter, stating that we expected an organic decline in net sales of between -6% and -1% in light of the further delay in the recovery of the semiconductor market. We then confirmed this forecast at the end of the third quarter. The organic decline in net sales for fiscal 2023 as a whole was -5.1%, which is in line with the lower end of the forecast range. Due to negative exchange rate effects of -4.1% and taking into account a portfolio effect of +0.3%, net sales in the Electronics business sector declined by -8.8% year-on-year to € 3,659 million, thereby falling within the forecast range of between € 3,500 million and € 3,800 million. This was consistent with the more specific forecast issued together with the report on the third quarter (trending around the mid-point).

EBITDA pre

Our original forecast for the Group's EBITDA pre for 2023 ranged from a moderate decline to roughly stable organic development compared with the previous year. This assumption was based on the expectation of a moderate decline to roughly stable organic development in the Life Science business sector, slight to moderate organic growth in the Healthcare business sector, and a slight to strong organic decline in the Electronics business sector. We originally expected negative exchange rate effects to impact EBITDA pre by between -1% and -4% compared with the prior year. With the presentation of the figures for the first quarter, we quantified our forecast at organic development of between -5% and 0%. In response to inflation-related cost increases and the underutilization of our production capacities, especially in the Life Science and Electronics business sector, we revised our forecast to between -9% and -3% at the end of the second quarter. This forecast was confirmed with the publication of the figures for the third quarter. Due to negative exchange rate effects, we revised our forecast for the impact of exchange rate effects twice in the course of fiscal 2023, ultimately ending with a forecast of between -6% and -3%. EBITDA pre amounted to € 5,879 million in fiscal 2023, representing an overall decline of -14.2% compared with the previous year (-9.0% organic, -4.9% from currency effects, -0.3% from portfolio effects). This is in the lower half of the forecast range of between € 5,800 million and € 6,400 million, and hence is consistent with the more specific forecast range (trending in the lower half of the range).

Life Science

In contrast to the expected net sales development, we originally expected EBITDA pre in Life Science to be in a range from a moderate decline to organically about stable in fiscal 2023 due to inflation-driven price increases weighing more heavily on earnings. At the end of the first quarter, we quantified our forecast for the organic decline in EBITDA pre at between -8% and -4%. In response to the underutilization of our production capacities, we then lowered this to between -21% and -12% with the publication of the figures for the second quarter. Along with the exchange rate effect that was most recently forecast at between -6% and -2% (originally: slightly negative exchange rate effect), this resulted in a forecast range for EBITDA pre in the Life Science business sector of between € 2,750 million and € 3,200 million. The business sector achieved this forecast with EBITDA pre of € 2,820 million in fiscal 2023 (2022: € 3,760 million). This corresponded to a decline of -25.0% compared with the previous year (-21.4% organic, -3.3% due to exchange rate effects). EBITDA pre therefore also fell within the more specific forecast range issued at the same time as the report on the third quarter (trending in the lower half of the range of € 2,750 million to € 3,200 million).

Healthcare

With our new products expected to continue to deliver a substantial earnings contribution, especially Mavenclad® and Bavencio®, we forecast slight to moderate organic growth in EBITDA pre for our Healthcare business sector. Largely because of the sustained high level of prices due to inflation, this original forecast was slightly below the expected organic growth in net sales (moderate to solid organic sales growth). With the publication of the figures for the first quarter, we quantified our forecast for organic growth in EBITDA pre at between +8% and +12% in fiscal 2023. We then raised this forecast to between +14% and +19% at the end of the second quarter, especially as business performance was expected to be stronger. We confirmed this forecast range at the end of the third quarter. Along with the exchange rate effect that was most recently forecast at between -17% and -13% (originally: negative exchange rate effect in a high single-digit to low double-digit percentage range), this resulted in a forecast range for EBITDA pre in the Healthcare business sector of between € 2,450 million and € 2,600 million. With EBITDA pre of € 2,543 million in fiscal 2023 (2022: € 2,477 million), the business sector came in at the upper end of this range. This was also consistent with the more specific forecast issued together with the report on the third quarter (trending at the upper end of the range). This corresponded to an increase of +2.7% compared with the previous year (+17.1% organic, -14.4% due to exchange rate effects, -0.7% from portfolio).

Electronics

We originally anticipated a slight to strong organic decrease in EBITDA pre for our Electronics business sector in fiscal 2023. We expected inflation-driven cost increases to have a particularly pronounced impact on material costs, and that we would only be able to pass on cost increases to a limited extent in the coming quarters due to the price pressure faced by our customers. With the presentation of the figures for the first quarter, we quantified our forecast for the organic decline in EBITDA pre as ranging from -12% to -3%. Having lowered our forecast considerably to between -18% and -10% with the report on the second quarter in response to inflation-related cost increases and the underutilization of our production capacities, we reiterated this guidance at the end of the third quarter. Along with the exchange rate effect that was most recently forecast at between -10% and -7% (originally: significantly negative exchange rate effect), this resulted in a forecast range for EBITDA pre in the Electronics business sector of between € 870 million and € 980 million. EBITDA pre of € 913 million in fiscal 2023 (2022: € 1,192 million) was in the lower half of the forecast range. This was consistent with the more specific forecast issued along with the report on the third quarter (trending in the lower half of the range) and corresponded to a decline of -23.4% compared with the previous year (-17.1% organic, -5.6% due to exchange rate effects).

Corporate and Other

The expenses for Corporate and Other in EBITDA pre amounted to € -397 million in fiscal 2023. This meant that EBITDA pre was slightly below the original forecast range of between € -370 million and € -330 million. However, we specified our forecast with the presentation of the figures for the third quarter. Due to substantially lower expected income from currency hedging transactions, we have forecast that EBITDA pre for corporate costs and other is expected to be slightly below the forecast range of -330 to -370 million €. The original forecast for fiscal 2023 provided for a significant decline in the expenses in this area. Compared with the prior-year figure of € -579 million, the expenses decreased significantly by -31.5%.

Operating cash flow

We originally anticipated a moderate decline to roughly stable development for the operating cash flow of the Group in 2023 (2022: € 4,259 million). We then specified the forecast range at between € 3,700 million and € 4,300 million with the publication of the figures for the first quarter. As we expected the development of operating cash flow to be largely in line with operating performance, we lowered our forecast to between € 3,500 million and € 4,100 million at the end of the second quarter and confirmed this forecast in our report on the third quarter. The operating cash flow amounted to € 3,784 million in fiscal 2023, which was within the most recent forecast range of between € 3,500 million and € 4,100 million. This corresponded to a decline of -11.2% compared with the previous year (2022: € 4,259 million). The decisive factor for this was the development of EBITDA pre.

Course of Business and Economic Position

Group

Group

Key figures

			Change	
€ million	**2023**	2022	€ million	%
Net sales	20,993	22,232	-1,239	-5.6%
Operating result (EBIT)[1]	3,609	4,474	-865	-19.3%
Margin (% of net sales)[1]	17.2%	20.1%		
EBITDA[2]	5,489	6,504	-1,015	-15.6%
Margin (% of net sales)[1]	26.1%	29.3%		
EBITDA pre[1]	5,879	6,849	-970	-14.2%
Margin (% of net sales)[1]	28.0%	30.8%		
Profit after tax	2,834	3,339	-505	-15.1%
Earnings per share (€)	6.49	7.65	-1.16	-15.2%
Earnings per share pre (€)[1]	8.49	10.05	-1.56	-15.5%
Operating cash flow	3,784	4,259	-475	-11.2%

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

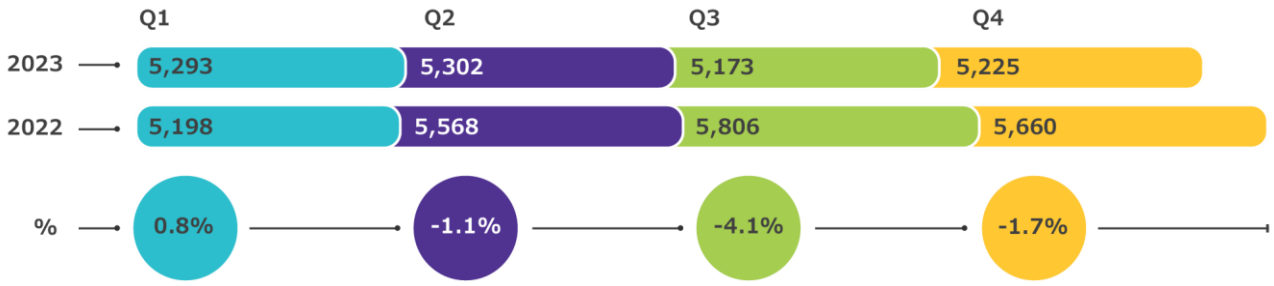
Development of sales and results of operations

The net sales in the individual quarters as well as the respective organic growth rates in 2023 are presented in the following graph:

Group

Net sales and organic growth[1] by quarter[2]

€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Quarterly breakdown unaudited.

In fiscal 2023, the net sales by business sector developed as follows:

Group

Net sales by business sector

€ million	**2023**	**Share**	**Organic growth[1]**	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	2022	Share
Life Science	9,281	44%	-7.9%	-2.7%	0.1%	-10.6%	10,380	47%
Healthcare	8,053	38%	8.5%	-5.8%	–	2.7%	7,839	35%
Electronics	3,659	18%	-5.1%	-4.1%	0.3%	-8.8%	4,013	18%
Group	**20,993**	**100%**	**-1.6%**	**-4.1%**	**0.1%**	**-5.6%**	**22,232**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

In fiscal 2023, the Group recorded the following regional sales performance:

Group

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	6,037	29%	-1.3%	-2.1%	–	-3.4%	6,248	28%
North America	5,952	28%	-3.8%	-2.7%	0.1%	-6.4%	6,361	29%
Asia-Pacific (APAC)	6,936	33%	-4.3%	-5.8%	0.2%	-9.9%	7,697	35%
Latin America	1,331	6%	18.6%	-10.5%	–	8.1%	1,231	5%
Middle East and Africa (MEA)	737	4%	8.8%	-2.7%	–	6.1%	695	3%
Group	**20,993**	**100%**	**-1.6%**	**-4.1%**	**0.1%**	**-5.6%**	**22,232**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

- In fiscal 2023, the Group generated net sales of € 20,993 million (2022: € 22,232 million), representing a year-on-year decline of € 1,239 million or -5.6%. Negative exchange rate effects served to reduce net sales by € 902 million or -4.1% in fiscal 2023. These effects largely resulted from the exchange rate development of the Chinese renminbi, the US dollar, and the Argentinian peso. Net sales fell by € 357 million or -1.6% organically. Net sales in the Life Science and Electronics business sectors declined, while the Healthcare business sector recorded organic growth. The portfolio-related net sales increase of € 19 million mainly resulted from the acquisition of M Chemicals Inc., Korea.
- Net sales in the Life Science business sector decreased by € 1,100 million or -10.6% year-on-year to € 9,281 million (2022: € 10,380 million). This development was mainly attributable to organic effects, which amounted to € 821 million or -7.9%. Exchange rate effects of € 285 million or -2.7% also contributed to the downturn in net sales. The Life Science business sector accounted for the largest share of Group net sales at 44% (2022: 47%), followed by Healthcare at 38% (2022: 35%). Net sales in the Healthcare business sector increased by € 214 million or 2.7% year-on-year to € 8,053 million (2022: € 7,839 million). Negative exchange rate effects of -5.8% were offset by organic growth of 8.5%. The € 354 million decline in net sales in the Electronics business sector to € 3,659 million (2022: € 4,013 million) was driven by organic effects of -5.1% and exchange rate effects of -4.1%. This was offset by a positive effect of 0.3% from the acquisition of M Chemicals Inc., Korea. The percentage contribution of Electronics to Group net sales was unchanged year-on-year at 18%.
- Orders already received by the reporting date that will result in net sales in future periods amounted to around € 4 billion as of December 31, 2023 (December 31, 2022: around € 6 billion), of which around € 3 billion related to the Life Science business sector (December 31, 2022: around € 4 billion).

The Consolidated Income Statement of the Group is as follows:

Group

Consolidated Income Statement

					Change	
€ million	2023	%	2022	%	€ million	%
Net sales	**20,993**	**100.0%**	**22,232**	**100.0%**	**-1,239**	**-5.6%**
Cost of sales	-8,600	-41.0%	-8,527	-38.4%	-73	0.9%
Gross profit	**12,392**	**59.0%**	**13,705**	**61.6%**	**-1,313**	**-9.6%**
Marketing and selling expenses	-4,510	-21.5%	-4,714	-21.2%	203	-4.3%
Administration expenses	-1,392	-6.6%	-1,306	-5.9%	-86	6.6%
Research and development costs	-2,445	-11.6%	-2,521	-11.3%	75	-3.0%
Impairment losses and reversals of impairment losses on financial assets (net)	-51	-0.2%	-6	–	-45	>100%
Other operating income and expenses	-385	-1.8%	-685	-3.1%	300	-43.8%
Operating result (EBIT)[1]	**3,609**	**17.2%**	**4,474**	**20.1%**	**-865**	**-19.3%**
Financial result	-125	-0.6%	-187	-0.8%	62	-33.0%
Profit before income tax	**3,484**	**16.6%**	**4,287**	**19.3%**	**-803**	**-18.7%**
Income tax	-650	-3.1%	-948	-4.3%	298	-31.4%
Profit after tax	**2,834**	**13.5%**	**3,339**	**15.0%**	**-505**	**-15.1%**
Non-controlling interests	-10	–	-14	-0.1%	3	-25.6%
Net income	**2,824**	**13.5%**	**3,326**	**15.0%**	**-502**	**-15.1%**

[1] Not defined by International Financial Reporting Standards (IFRS).

Group

Research and development costs by business sector[1] - 2023
€ million/%

[1] Not presented: research and development costs of € 94 million allocated to Corporate and Other.

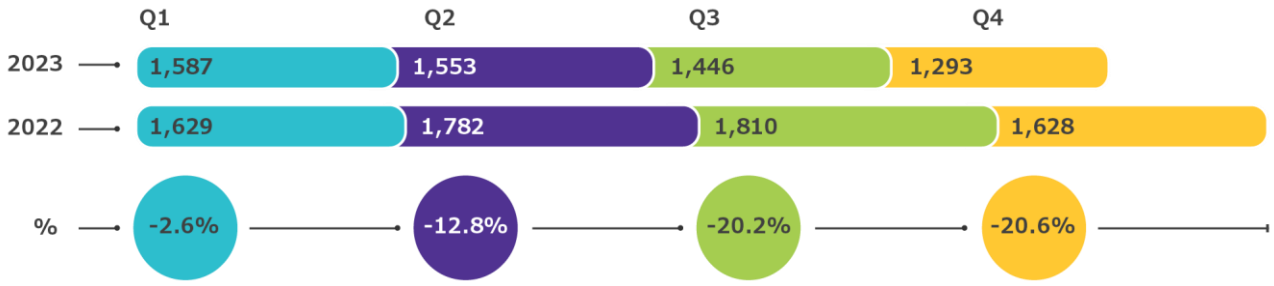
There was a year-on-year decline in the operating result (EBIT) in fiscal 2023. This was largely due to the lower level of gross profit, which was only partially offset by a reduction in operating expenses. In particular, the year-on-year decline in the gross margin was due to lower sales of high-margin products in the Life Science business sector that had experienced strong demand in conjunction with the Covid-19 pandemic. In addition, as a result of the agreement terminating the strategic alliance with Pfizer Inc., United States, the cost of sales included royalties for the Bavencio® product for the first time from July 1, 2023, which in turn reduced the gross margin.

- Marketing and selling expenses declined on the back of lower logistics costs in particular.
- Administration expenses increased as a result of a program to continuously improve processes and align the Group Functions more closely with the businesses in particular.
- Accounting for a 70% (2022: 70%) share of Group R&D spending (excluding research and development cost allocated to Corporate and Other), Healthcare was the most research-intensive business sector of the Group. Further information can be found in the "**Research and Development**" chapter.
- Other operating income and expenses fell compared with the previous year, mainly as a result of lower profit transfer expenses in the Healthcare business sector. Impairment losses on non-financial assets also declined.
- Overall, the aforementioned developments led to a reduction in the EBIT margin by around three percentage points, from 20.1% in the previous year to 17.2%.
- Compared to the previous year, EBITDA pre, the key financial indicator used to steer operating business, fell by € 970 million or -14.2% to € 5,879 million (2022: € 6,849 million).
- The financial result improved by 33.0% to € -125 million (2022: € -187 million). This was due in particular to the positive development of net interest income. Details about financial income and expenses can be found in Note (40) "**Finance income and expenses/Net gains and losses from financial instruments**" in the Notes to the Consolidated Financial Statements.
- Income tax expense amounted to € 650 million (2022: € 948 million) and resulted in a tax rate of 18.7% (2022: 22.1%). The downturn in earnings was accompanied by a corresponding reduction in taxes. Furthermore, a non-recurring deferred tax income had a reducing effect on the tax rate.
- The net income attributable to shareholders of Merck KGaA, Darmstadt, Germany, declined by 15.1% to € 2,824 million (2022: € 3,326 million) and resulted in a reduction in earnings per share to € 6.49 (2022: € 7.65).

The development of EBITDA pre in the individual quarters in comparison with 2022 as well as the respective growth rates are presented in the following overview:

Group

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Group

EBITDA pre[1] by business sector[2] - 2023
€ million/%

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not presented: Decline in Group EBITDA pre by € -397 million due to Corporate and Other.

Net assets and financial position

Group

Balance sheet structure

	Dec. 31, 2023		Dec. 31, 2022		Change	
	€ million	**%**	€ million	%	€ million	%
Non-current assets[1]	**36,102**	**74.4%**	**36,334**	**74.9%**	**-232**	**-0.6%**
thereof:						
Goodwill[1]	17,845		18,389		-544	
Other intangible assets[1]	6,551		7,335		-784	
Property, plant and equipment[1]	9,056		8,204		852	
Other non-current assets	2,650		2,406		244	
Current assets	**12,393**	**25.6%**	**12,201**	**25.1%**	**192**	**1.6%**
thereof:						
Inventories	4,637		4,632		5	
Trade and other current receivables	4,004		4,114		-110	
Other current financial assets	499		321		178	
Other current assets	1,271		1,280		-9	
Cash and cash equivalents	1,982		1,854		128	
Total assets[1]	**48,495**	**100.0%**	**48,535**	**100.0%**	**-40**	**-0.1%**
Equity	**26,754**	**55.2%**	**26,005**	**53.6%**	**749**	**2.9%**
Non-current liabilities[1]	**13,042**	**26.9%**	**13,015**	**26.8%**	**26**	**0.2%**
thereof:						
Non-current provisions for employee benefits	2,192		2,030		162	
Other non-current provisions	277		299		-22	
Non-current financial debt	9,239		9,200		39	
Other non-current liabilities[1, 2]	1,333		1,486		-153	
Current liabilities[1]	**8,699**	**17.9%**	**9,514**	**19.6%**	**-815**	**-8.6%**
thereof:						
Current provisions[2]	658		453		205	
Current financial debt	702		1,228		-526	
Trade and other current payables/ refund liabilities[1]	3,422		3,411		11	
Other current liabilities[2]	3,918		4,422		-504	
Total equity and liabilities[1]	**48,495**	**100.0%**	**48,535**	**100.0%**	**-40**	**-0.1%**

[1] Previous year's figures have been adjusted, see Note (6) "**Acquisitions and Divestments**" in the Notes to the Consolidated Financial Statements.

[2] Previous year's figures have been adjusted, see Note (2) "**Reporting principles**" in the Notes to the Consolidated Financial Statements.

- The total assets of the Group were essentially unchanged at € 48,495 million as of December 31, 2023 (December 31, 2022: € 48,535 million).
- Goodwill was down as against the previous year as a result of the depreciation of the U.S. dollar against the euro in particular.
- Other intangible assets were reduced by amortization and currency effects, in particular stemming from the U.S. dollar. Slightly higher investment than in the previous year, in particular from in-licensing in the Healthcare business sector (further information can be found under "**Other intangible assets**" in the Notes to the Consolidated Financial Statements), was not enough to offset this development.
- The year-on-year increase in property, plant and equipment was attributable to additions of € 1,981 million (2022: € 1,730 million), which significantly exceeded depreciation and disposals in the reporting period.
- Of the additions to property, plant and equipment in 2023, € 391 million (2022: € 279 million) related to strategic investments in Germany, including € 329 million for the expansion of the Darmstadt site. At the Darmstadt site, the Healthcare business sector invested € 51 million in a new research center and the Life Science business sector invested € 31 million in a new membrane production facility. Furthermore, the Life Science business sector invested € 50 million in a new filling and logistics center in Schnelldorf. Outside Germany, there were high levels of investment in strategic projects in the United States (€ 330 million), Ireland (€ 157 million) and China (€ 90 million) in particular. In the United States, the Life Science business sector invested € 69 million in expanding its capacities for biosafety testing and analytical development services in Rockville, while the Electronics business sector invested € 30 million in a new production facility for specialty gases for the semiconductor industry in Hometown. In Ireland, the Life Science business sector invested € 149 million in the expansion of membrane production capacities and the construction of a new filtration plant in Cork. In China, the Electronics business sector invested € 34 million in the establishment of a site for advanced semiconductor solutions in Zhangjiagang.
- Trade and other current receivables mainly developed in line with the business volume. At the same time, this item was reduced by exchange rate effects.
- In fiscal 2023, the equity of the Group rose by 2.9% to € 26,754 million (December 31, 2022: € 26,005 million). Profit after tax (€ 2,834 million) contributed to this development. By contrast, a negative currency translation difference (€ 1,003 million) and the dividend payments and profit distribution in the reporting year served to reduce equity (see "**Consolidated Statement of Changes in Net Equity**" in the Consolidated Financial Statements). Partially as a result of the ongoing reduction in net financial debt, the equity ratio improved by more than one percentage point to 55.2% (December 31, 2022: 53.6%).
- The increase in non-current provisions for employee benefits essentially resulted from actuarial losses in connection with the discount rate.
- Current provisions increased as a result of follow-on obligations in connection with the discontinuation of the development program for evobrutinib and ongoing efficiency programs (further information can be found in Note (27) "**Other provisions**" in the Notes to the Consolidated Financial Statements).
- Current financial liabilities were reduced by the repayment of a bond in the amount of € 600 million and an early partial repayment of hybrid bonds in the amount of € 275 million.

The composition and the development of net financial debt were as follows:

Group

Net financial debt[1]

			Change	
€ million	**Dec. 31, 2023**	Dec. 31, 2022	€ million	%
Bonds	7,802	8,726	-924	-10.6%
Bank loans	283	203	80	39.4%
Liabilities to related parties	1,196	919	276	30.1%
Loans from third parties and other financial debt	68	59	9	15.7%
Liabilities from derivatives (financial transactions)	77	30	47	>100.0%
Lease liabilities	515	491	24	5.0%
Financial debt	**9,941**	**10,428**	**-487**	**-4.7%**
less:				
Cash and cash equivalents	1,982	1,854	128	6.9%
Other current financial assets[2]	459	247	212	85.9%
Net financial debt[1]	**7,500**	**8,328**	**-828**	**-9.9%**

[1] Not defined by International Financial Reporting Standards (IFRSs).

[2] Excluding current derivatives (operational) and contingent considerations, which are recognized in the context of business combinations according to IFRS 3.

Bonds were reduced by the repayment of a bond in the amount of € 600 million in December 2023 and the partial repurchase of a nominal volume of € 275 million of hybrid bonds issued in 2019 and 2020.

Group

Reconciliation of net financial debt[1]

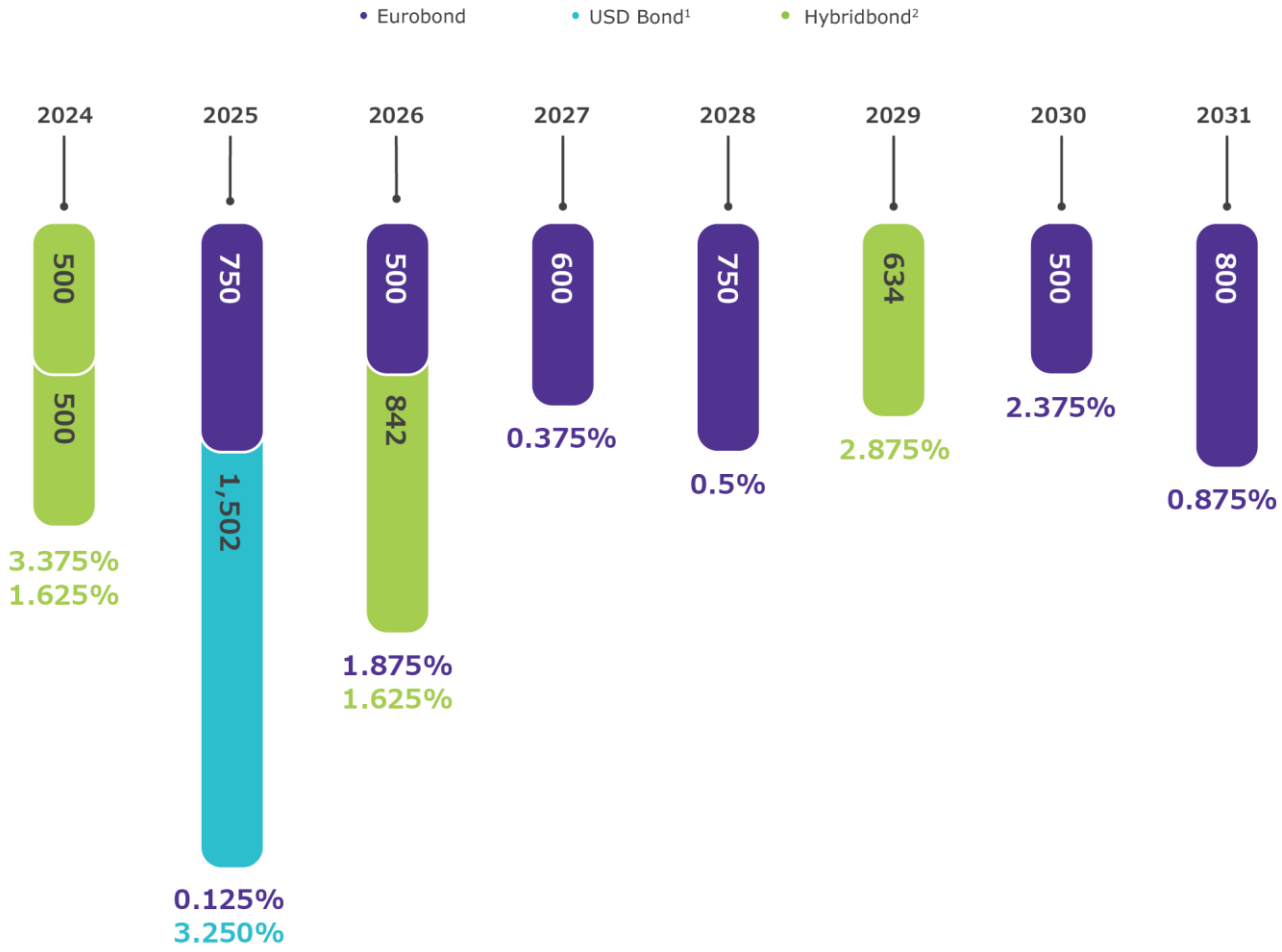
€ million	**2023**	**2022**
January 1	**8,328**	**8,753**
Operating Cash Flow	-3,784	-4,259
Payments for investments in intangible assets[2]	216	275
Payments from the disposal of intangible assets[2]	-136	-38
Payments for investments in property, plant and equipment[2]	1,807	1,531
Payments from the disposal of property, plant and equipment[2]	-19	-21
Acquisitions[2]	12	854
Payments from divestments[2]	–	-4
Change in lease liabilities	201	187
Dividend payments/profit withdrawals[2]	1,164	967
Currency translation difference	-30	86
Other	-258	-3
December 31	**7,500**	**8,328**

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] As reported in the Consolidated Cash Flow Statement.

- Traditionally, the capital market represents a major source of financing for the Group, for instance via bond issues. As of December 31, 2023, there were liabilities of € 3.9 billion from a debt issuance program most recently renewed in fiscal 2023 (December 31, 2022: € 4.5 billion).
- Loan agreements represent a further source of financing for the Group. A € 2.5 billion syndicated loan facility is in place until 2028 to cover unexpected cash needs. This credit line is a backup facility that is intended to be used in exceptional circumstances only. The Group also agreed upon several bilateral loan facilities.

- In addition, the Group has a commercial paper program with a volume of € 2.5 billion at its disposal. Within the scope of this program, the Group can issue short-term commercial paper with a maturity of up to one year.
- The maturities of our financial liabilities are aligned with our planned free cash flow. The repayment profile of the issued bonds was as follows:



[1] The nominal volumes of bonds denominated in U.S. dollars were converted into euros at the closing rate on December 31, 2023.
[2] For the hybrid bonds, repayment is assumed at the earliest possible date.

- The capital market uses the assessments published by rating agencies to help lenders assess the risks of a financial instrument used by the Group. The Group currently rated by Standard & Poor's and Moody's. Standard & Poor's has issued a long-term credit rating of A with a stable outlook, while Moody's has issued a rating of A3 with a stable outlook. An overview of the development of our rating in recent years is presented in the "**Report on Risks and Opportunities**".
- The financial debt was not secured by liens or similar forms of collateral. The loan agreements do not contain any financial covenants. There were no indications that the availability of extended credit lines was restricted. Cash and cash equivalents included restricted cash amounting to € 404 million (December 31, 2022: € 456 million). We pursue a sustainable dividend policy and aim for a target corridor of 20% to 25% of earnings per share pre when determining the amount of the dividend. The average borrowing cost on December 31, 2023, was 2.1% (December 31, 2022: 1.9%).

The development of key balance sheet figures was as follows:

Group

Key balance sheet figures

%		Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2020	Dec. 31, 2019
Equity ratio[1]	Total equity / Total assets	55.2%	53.6%	47.2%	40.7%	40.9%
Asset ratio[1]	Non-current assets / Total assets	74.4%	74.9%	75.8%	77.8%	79.4%
Asset coverage[1]	Total equity / Non-current assets	74.1%	71.6%	62.3%	52.3%	51.5%
Finance structure[1]	Current liabilities / Liabilities (total)	40.0%	42.2%	43.6%	37.3%	45.7%

[1] Not defined by International Financial Reporting Standards (IFRS).

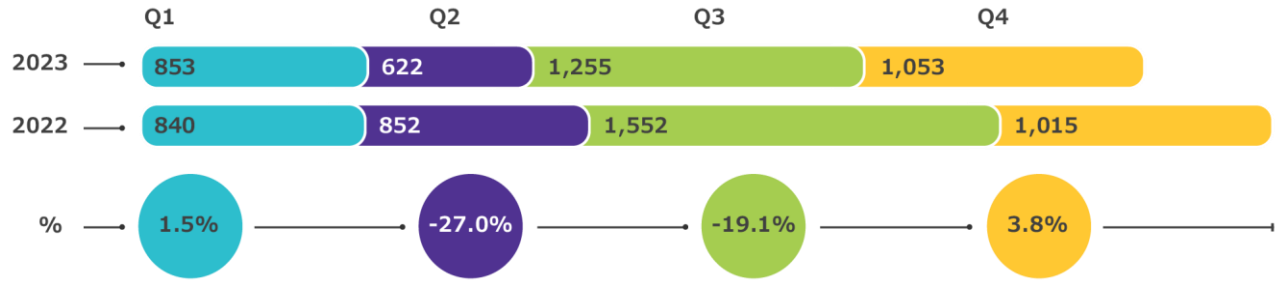
In the area of financial risks and opportunities, the Group uses an active management strategy to reduce the effects of fluctuations in exchange and interest rates. This also includes the use of derivative financial instruments. Further details on liquidity, counterparty and financial market risks and opportunities are presented in the "**Report on Risks and Opportunities**" in the "**Financial risks and opportunities**" section.

In fiscal 2023, operating cash flow, which is one of the three most important key performance indicators alongside net sales and EBITDA pre, decreased by -11.2% to € 3,784 million (2022: € 4,259 million). This was mainly due to the development of EBITDA pre. This was countered by a reduction in working capital and lower tax payments. Further information about the development of the operating cash flow can be found in the "**Internal Management System**" chapter in this Combined Management Report, under "**Consolidated Cash Flow Statement**" in the Consolidated Financial Statements and in Note (16) "**Operating cash flow**" in the Notes to the Consolidated Financial Statements.

The distribution of operating cash flow across the individual quarters and the percentage changes in comparison with 2022 were as follows:

Group

Operative cash flow[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Overall assessment of business performance and economic situation

- Despite the challenging macroeconomic environment and headwinds in individual markets, the Group can look back on a predominantly steady fiscal 2023 thanks to the diversified nature of its business sectors. As anticipated, Life Science business declined as a result of the forecast downturn in demand for products in connection with the Covid-19 pandemic and the slower than expected reduction in customer inventories in the Process Solutions business unit. Additionally, the economic slowdown in the semiconductor industry led to weak business performance in the Electronics business sector. However, Healthcare achieved strong organic growth that partially offset the negative development in the other business sectors.
- All in all, the Group's net sales declined by -5.6% or € -1.2 billion to € 21 billion in fiscal 2023. Our most important key performance indicator, EBITDA pre, fell by -14.2% to € 5.9 billion. Earnings were adversely affected by the challenging market conditions and exchange rate effects. We will propose to the Annual General Meeting an unchanged dividend payment of € 2.20 per share for fiscal 2023.
- The solid financing policies of the Group were reflected in its consistently good key balance sheet figures. The equity ratio remained at 55.2% as of December 31, 2023 (December 31, 2022: 53.6%). Net financial debt was reduced further, amounting to € 7.5 billion at the end of the fiscal year (2022: € 8.3 billion).
- Based on our solid net assets and financial position as well as our diversified operations, we view the economic situation of the Group as positive overall. Thanks to our resilient business model and our clear positioning as a science and technology company, we are well positioned even in economically challenging times.

Life Science

Life Science

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	9,281	10,380	-1,100	-10.6%
Operating result (EBIT)[1]	1,850	2,808	-958	-34.1%
Margin (% of net sales)[1]	19.9%	27.1%		
EBITDA[2]	2,731	3,678	-946	-25.7%
Margin (% of net sales)[1]	29.4%	35.4%		
EBITDA pre[1]	2,820	3,760	-940	-25.0%
Margin (% of net sales)[1]	30.4%	36.2%		

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

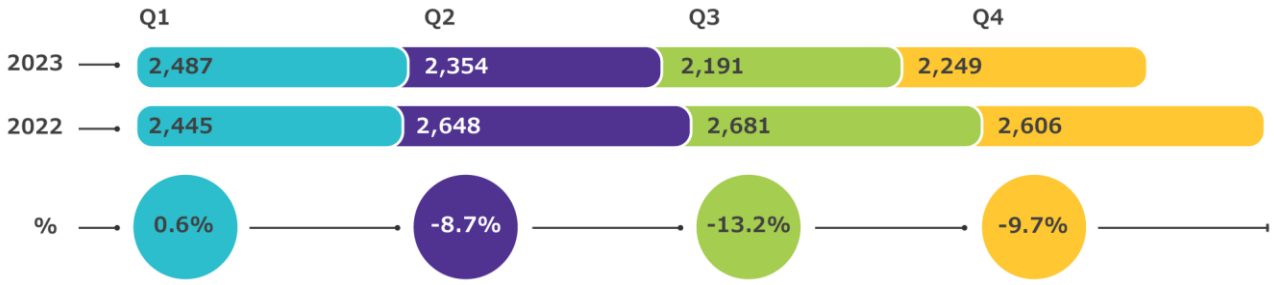
Development of sales and results of operations

The development of sales in the individual quarters in comparison with 2022 as well as the respective organic growth rates are presented in the following graph:

Life Science

Net sales and organic growth[1] by quarter[2]

€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Life Science

Net sales by business unit

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions / divestments	Total change	2022[2]	Share
Science & Lab Solutions	4,706	51%	-0.6%	-3.3%	–	-3.9%	4,898	47%
Process Solutions	3,782	41%	-14.4%	-2.3%	–	-16.7%	4,540	44%
Life Science Services	792	8%	-14.6%	-2.0%	0.6%	-15.9%	943	9%
Life Science	**9,281**	**100%**	**-7.9%**	**-2.7%**	**0.1%**	**-10.6%**	**10,380**	**100%**

[1] Not defined by International Financial Accounting Standards (IFRS).

[2] Previous year's figures were adjusted due to internal restructuring in the Life Science division.

The following table presents the composition of EBITDA pre for 2023 in comparison with 2022. The International Financial Reporting Standards (IFRS) figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Life Science

Reconciliation EBITDA pre[1]

	2023			2022			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**9,281**	**–**	**9,281**	**10,380**	**–**	**10,380**	**-10.6%**
Cost of sales	-4,236	6	-4,230	-4,280	7	-4,273	-1.0%
Gross profit	**5,044**	**6**	**5,050**	**6,100**	**7**	**6,107**	**-17.3%**
Marketing and selling expenses	-2,245	12	-2,232	-2,400	16	-2,384	-6.3%
Administration expenses	-425	53	-372	-400	22	-377	-1.4%
Research and development costs	-396	3	-393	-399	-0	-399	-1.5%
Impairment losses and reversals of impairment losses on financial assets (net)	-2	–	-2	-9	–	-9	-75.5%
Other operating income and expenses	-126	48	-78	-85	61	-24	>100.0%
Operating result (EBIT)[1]	**1,850**			**2,808**			
Depreciation/amortization/ impairment losses/reversals of impairment losses	881	-34	848	870	-24	845	0.3%
EBITDA[2]	**2,731**			**3,678**			
Restructuring expenses	30	-30	–	41	-41	–	
Integration expenses/IT expenses	53	-53	–	24	-24	–	
Gains (-)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	6	-6	–	18	-18	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[2]	**2,820**	**–**	**2,820**	**3,760**	**–**	**3,760**	**-25.0%**
of which: organic growth[1]							-21.4%
of which: exchange rate effects							-3.3%
of which: acquisitions/ divestments							-0.3%

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

- Adjusted gross profit for the Life Science business sector was lower in 2023 in comparison with 2022. This was attributable to the organic sales decline following the continued decrease in pandemic-related sales combined with a slowdown of the core business as well as plant fix costs. At 54.4%, the adjusted gross margin in 2023 was below the year-earlier period (2022: 58.8%).

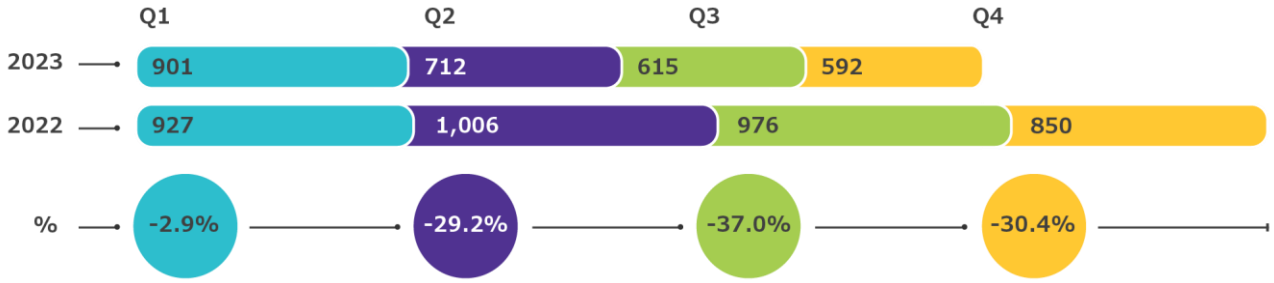
- The decrease in marketing and selling expenses in 2023 was largely driven by lower logistics costs following lower sales volume and a decline in personnel costs. In 2023, administration expenses and Research & Development costs remained organically largely stable in comparison to 2022. In addition to our organic development, positive foreign exchange effects impacted the development of costs compared to 2022. The net position of other operating income and expenses decreased compared to 2022 due to one-off effects in 2022 which did not repeat in 2023. Among other items, there was one-off income from a contractual arrangement with a supplier.

- In 2023, EBITDA pre saw an organic mid-twenties percentage decline compared to 2022, resulting in an EBITDA pre margin of 30.4% (2022: 36.2%).

The development of EBITDA pre in the individual quarters in comparison with 2022 is presented in the following overview:

Life Science

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Healthcare

Healthcare

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	8,053	7,839	214	2.7%
Operating result (EBIT)[1]	2,225	1,895	330	17.4%
Margin (% of net sales)[1]	27.6%	24.2%		
EBITDA[2]	2,545	2,385	160	6.7%
Margin (% of net sales)[1]	31.6%	30.4%		
EBITDA pre[1]	2,543	2,477	66	2.7%
Margin (% of net sales)[1]	31.6%	31.6%		

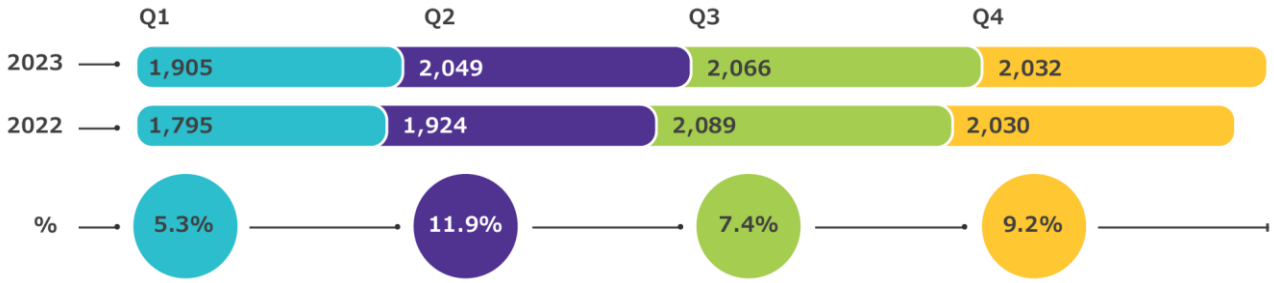
[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of sales and results of operations

The net sales in the individual quarters as well as the respective organic growth rates in 2022 are presented in the following graph:

Healthcare

Net sales and organic growth[1] by quarter[2]
€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Net sales of the key product lines and products developed as follows in 2023:

Healthcare

Net sales by major product lines/products

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Total change	2022	Share
Oncology	**1,819**	**22%**	**17.3%**	**-9.2%**	**8.1%**	**1,683**	**22%**
thereof: Erbitux®	1,025	13%	10.9%	-10.6%	0.3%	1,023	13%
thereof: Bavencio®	713	9%	23.4%	-6.8%	16.6%	611	8%
Neurology & Immunology	**1,665**	**21%**	**-0.9%**	**-3.5%**	**-4.5%**	**1,743**	**22%**
thereof: Mavenclad®	956	12%	15.9%	-4.3%	11.7%	856	11%
thereof: Rebif®	709	9%	-17.2%	-2.9%	-20.1%	887	11%
Fertility	**1,547**	**19%**	**14.9%**	**-7.8%**	**7.0%**	**1,446**	**18%**
thereof: Gonal-f®	847	11%	10.5%	-7.8%	2.7%	825	11%
Cardiovascular, Metabolism & Endocrinology	**2,786**	**35%**	**4.0%**	**-4.6%**	**-0.7%**	**2,805**	**36%**
thereof: Glucophage®	882	11%	-0.5%	-4.6%	-5.1%	930	12%
thereof: Concor®	571	7%	1.6%	-4.9%	-3.3%	590	8%
thereof: Euthyrox®	565	7%	5.4%	-3.2%	2.2%	553	7%
thereof: Saizen®	332	4%	35.7%	-10.6%	25.1%	266	3%
Other	**235**	**3%**				**161**	**2%**
Healthcare	**8,053**	**100%**	**8.5%**	**-5.8%**	**2.7%**	**7,839**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

- The cancer drug Erbitux® (cetuximab) saw low double-digit percentage organic net sales growth in 2023, largely on the back of increased demand in the Asia-Pacific (APAC), Latin America and Europe regions. By contrast, organic net sales performance in the Middle East and Africa region in the reporting period was negative.

- In immuno-oncology, net sales of the oncology drug Bavencio® (avelumab) saw organic growth in the low-twenties percentage range in the reporting period. This was driven by all regions, with Europe, North America and Asia-Pacific (APAC) enjoying particularly strong performance with double-digit organic growth rates. The main driver of this development was the continued growth in the drug's market share for first-line maintenance treatment for patients with locally advanced or metastatic urothelial carcinoma (UC).

- Mavenclad®, for the oral short-course treatment of highly active relapsing multiple sclerosis, recorded encouraging organic net sales growth in the mid-teen percentage range in the past fiscal year and reached blockbuster status with total net sales of more than US$ 1 billion. The North America region made a particularly strong contribution to the positive sales performance, but Latin America, Europe and the Middle East and Africa region also saw organic growth in net sales. Net sales in the Asia-Pacific (APAC) region remained essentially unchanged year-on-year in organic terms.

- The reporting period saw a high-teens percentage decline in net sales of Rebif®, which is used to treat relapsing forms of multiple sclerosis (MS). The sustained downturn in sales was anticipated and largely reflects the momentum on the interferon market, which is expected to remain negative in the future due to the persistently difficult competitive situation and the competition from oral dosage forms and high-efficacy MS therapies.

- The Fertility franchise recorded strong organic net sales growth in the mid-teen percentage range in the reporting period. Gonal-f®, a leading recombinant hormone used in the treatment of infertility, saw low double-digit percentage growth in net sales on the back of higher demand as well as supply bottlenecks affecting a rival product. Other Fertility products also contributed to the strong growth in the franchise with organic net sales growth in the mid-teen percentage range in some cases. This development was also attributable to supply bottlenecks affecting a rival product as well as higher demand.

- The Cardiovascular, Metabolism and Endocrinology franchise, which includes drugs for the treatment of cardiovascular, thyroid and growth disorders and diabetes, recorded solid year-on-year growth in net sales in the past financial year. Net sales of the diabetes drug Glucophage® were largely stable, with organic sales growth in Europe and Latin America not quite offsetting the organic downturn in the Asia-Pacific (APAC) and Middle East and Africa (MEA) regions. Net sales of the beta-blocker Concor® increased slightly in organic terms in the reporting period, while the thyroid product Euthyrox® enjoyed solid organic growth compared with the previous year. The franchise also benefited from encouraging organic growth in the net sales of Saizen® in the mid-thirty percentage range, which was due to rising demand as well as supply bottlenecks affecting a rival product.

Healthcare

Product sales and organic growth[1] of Erbitux®, Mavenclad® and Glucophage® by region – 2023

		Total	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
	€ million	1,025	421	–	464	87	53
Erbitux®	Organic growth[1]	10.9%	2.4%	–	14.2%	54.4%	-12.8%
	Share	100%	41%	–	45%	9%	5%
	€ million	956	360	490	20	45	41
Mavenclad®	Organic growth[1]	15.9%	3.4%	23.2%	-0.7%	62.6%	28.5%
	Share	100%	38%	51%	2%	5%	4%
	€ million	882	128	–	467	203	84
Glucophage®	Organic growth[1]	-0.5%	2.9%	–	-4.0%	14.9%	-12.8%
	Share	100%	14%	–	53%	23%	10%

[1] Not defined by International Financial Reporting Standards (IFRS).

Net sales in the Healthcare business sector by region in 2023 developed as follows:

Healthcare

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	2,541	31%	9.6%	-5.1%	–	4.5%	2,433	31%
North America	1,793	22%	3.9%	-3.2%	–	0.6%	1,781	23%
Asia-Pacific (APAC)	2,232	28%	6.4%	-7.7%	–	-1.3%	2,261	29%
Latin America	941	12%	23.1%	-10.8%	–	12.3%	838	10%
Middle East and Africa (MEA)	546	7%	5.1%	-1.3%	–	3.8%	527	7%
Healthcare	**8,053**	**100%**	**8.5%**	**-5.8%**	**–**	**2.7%**	**7,839**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The following table presents the composition of EBITDA pre in fiscal 2023 in comparison with 2022. The IFRS figures have been modified to reflect the elimination of adjustments included in the functional costs.

Healthcare

Reconciliation EBITDA pre[1]

	2023			2022			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**8,053**	**–**	**8,053**	**7,839**	**–**	**7,839**	**2.7%**
Cost of sales	-2,029	-1	-2,030	-1,925	4	-1,921	5.7%
Gross profit	**6,024**	**-1**	**6,023**	**5,914**	**4**	**5,917**	**1.8%**
Marketing and selling expenses	-1,668	29	-1,639	-1,644	13	-1,631	0.5%
Administration expenses	-314	20	-294	-313	18	-296	-0.7%
Research and development costs	-1,657	2	-1,655	-1,694	73	-1,622	2.0%
Impairment losses and reversals of impairment losses on financial assets (net)	-41	–	-41	2	–	2	>100.0%
Other operating income and expenses	-120	-41	-161	-370	172	-198	-18.7%
Operating result (EBIT)[1]	**2,225**			**1,895**			
Depreciation/amortization/ impairment losses/reversals of impairment losses	320	-10	310	490	-187	303	2.3%
EBITDA[2]	**2,545**			**2,385**			
Restructuring expenses	32	-32	–	91	-91	–	
Integration expenses/IT expenses	20	-20	–	16	-16	–	
Gains (-)/losses (+) on the divestment of businesses	-53	53	–	-15	15	–	
Acquisition-related adjustments	–	–	–	–	–	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**2,543**	**–**	**2,543**	**2,477**	**–**	**2,477**	**2.7%**
of which: organic growth[1]							17.1%
of which: exchange rate effects							-14.4%
of which: acquisitions/ divestments							–

[1] Not defined by International Financial Reporting Standards (IFRS).

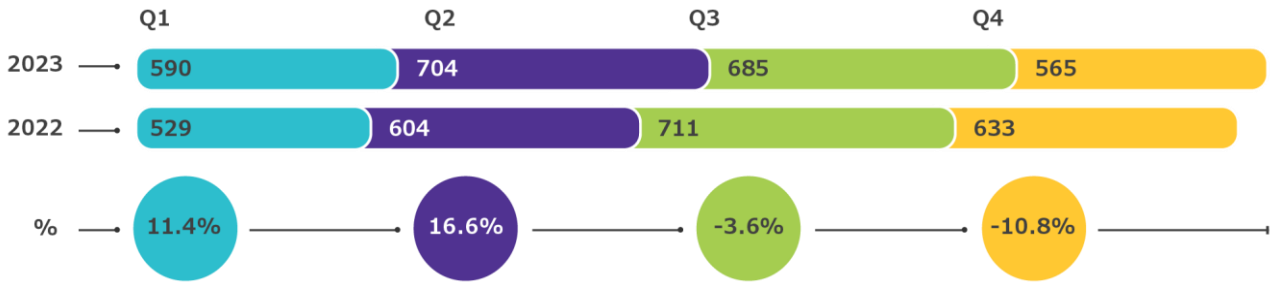
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

- Adjusted gross profit increased slightly in fiscal 2023, while the gross margin declined slightly to 74.8% (2022: 75.5%).
- Marketing and sales costs and administrative expenses were essentially unchanged year-on-year in the reporting period. The adjusted research and development costs increased slightly compared with the previous year, which was largely due to the provisions recognized for follow-on obligations in connection with the discontinuation of the development program for evobrutinib, a BTK inhibitor used in the treatment of relapsing multiple sclerosis (RMS).
- Net adjusted other operating expenses and income were negative but declined in fiscal 2023. This positive development was mainly driven by the end of the strategic alliance with Pfizer Inc., United States, on the co-development and co-commercialization of the oncology drug Bavencio® effective June 30, 2023. The royalties paid to Pfizer Inc., United States, instead of the profit share previously reported in other operating expenses have been reported in the cost of sales since July 2023, leading to a corresponding increase in this item. This development outweighed the year-on-year reduction in license income, meaning that the net figure improved as a result.
- The moderate increase in EBITDA pre in fiscal 2023 meant that the EBITDA pre margin amounted to 31.6% (2022: 31.6%).

The development of EBITDA pre in the individual quarters in comparison with 2022 is presented in the following overview:

Healthcare

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Electronics

Electronics

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	3,659	4,013	-354	-8.8%
Operating result (EBIT)[1]	248	572	-325	-56.8%
Margin (% of net sales)[1]	6.8%	14.3%		
EBITDA[2]	816	1,138	-322	-28.3%
Margin (% of net sales)[1]	22.3%	28.3%		
EBITDA pre[1]	913	1,192	-279	-23.4%
Margin (% of net sales)[1]	25.0%	29.7%		

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

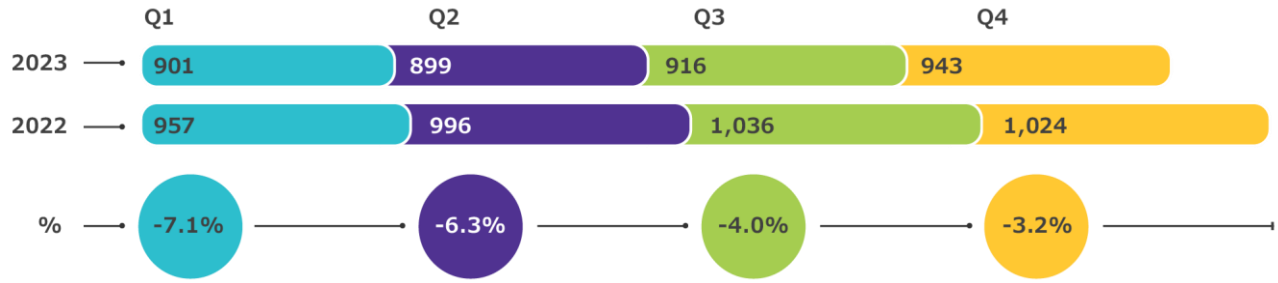
Development of net sales and results of operations

The net sales in the individual quarters as well as the respective organic growth rates in 2023 are presented in the following graph:

Electronics

Net sales and organic growth[1] by quarter[2]

€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Quarterly breakdown unaudited.

Electronics

Net sales by business unit

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Semiconductor Solutions	2,479	68%	-3.9%	-3.9%	0.5%	-7.3%	2,674	67%
Display Solutions	770	21%	-9.2%	-5.3%	–	-14.5%	900	22%
Surface Solutions	411	11%	-3.6%	-2.9%	–	-6.5%	439	11%
Electronics	**3,659**	**100%**	**-5.1%**	**-4.1%**	**0.3%**	**-8.8%**	**4,013**	**100%**

[1] Not defined by International Financial Accounting Standards (IFRS).

- The Semiconductor Solutions business unit, which comprises two businesses, namely Semiconductor Materials and Delivery Systems & Services (DS&S), reported a moderate decline in net sales in organic terms in fiscal 2023. The cyclical slow-down in the semiconductor industry, which has significantly impacted the sales volumes of the Semiconductor Materials business, is proving to be both longer and more severe than the industry initially expected and affected every quarter of 2023. DS&S partially compensated for the decline in Semiconductor Materials due to the strong demand for equipment and projects throughout 2023 as our key customers continue to invest in long-term capacity increases. The portfolio effect was due to the acquisition of the chemical business of Mecaro Co. Ltd., Korea, trading as M Chemicals Inc., Korea, on December 30, 2022.

- Net sales of the Display Solutions business unit, consisting mainly of the business with liquid crystals, photoresists for display applications as well as OLED materials, decreased sharply in organic terms in 2023. Even though utilization at key customers in Liquid Crystals improved in the second half of 2023, this was more than offset by the combined impact of lower first-half utilization, weaker pricing stemming from continued competitive pressure, and an unfavorable product mix.

- The Surface Solutions business unit reported a moderate organic net sales decline in 2023. While the Cosmetics business continued to show strength again in 2023, especially in Asia and EMEA, these gains were more than offset by weaker demand for Industrials and Coatings across all regions.

Net sales of the Electronics business sector by region developed as follows:

Electronics

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	318	9%	-13.6%	-0.6%	–	-14.2%	371	9%
North America	787	21%	25.2%	-3.8%	–	21.3%	649	16%
Asia-Pacific (APAC)	2,440	67%	-11.8%	-4.5%	0.4%	-15.9%	2,901	72%
Latin America	39	1%	-2.3%	-1.6%	–	-3.9%	40	1%
Middle East and Africa (MEA)	75	2%	53.6%	-11.2%	–	42.4%	53	2%
Electronics	**3,659**	**100%**	**-5.1%**	**-4.1%**	**0.3%**	**-8.8%**	**4,013**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The following table presents the composition of EBITDA pre for 2023 in comparison with 2022. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Electronics

Reconciliation EBITDA pre[1]

	2023			2022			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**3,659**	**–**	**3,659**	**4,013**	**–**	**4,013**	**-8.8%**
Cost of sales	-2,332	37	-2,295	-2,314	21	-2,292	0.1%
Gross profit	**1,327**	**37**	**1,364**	**1,700**	**21**	**1,721**	**-20.7%**
Marketing and selling expenses	-591	3	-588	-662	3	-659	-10.9%
Administration expenses	-147	29	-118	-128	8	-120	-1.0%
Research and development costs	-297	1	-297	-308	2	-306	-3.2%
Impairment losses and reversals of impairment losses on financial assets (net)	–	–	–	–	–	–	–
Other operating income and expenses	-44	70	26	-28	40	12	>100.0%
Operating result (EBIT)[1]	**248**			**572**			
Depreciation/amortization/ impairment losses/reversals of impairment losses	568	-42	526	565	-20	545	-3.5%
EBITDA[2]	**816**			**1,138**			
Restructuring expenses	60	-60	–	31	-31	–	
Integration expenses/IT expenses	24	-24	–	13	-13	–	
Gains (-)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	13	-13	–	11	-11	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**913**	**–**	**913**	**1,192**	**–**	**1,192**	**-23.4%**
of which: organic growth[1]							-17.1%
of which: exchange rate effects							-5.6%
of which: acquisitions/ divestments							-0.7%

[1] Not defined by International Financial Reporting Standards (IFRS).

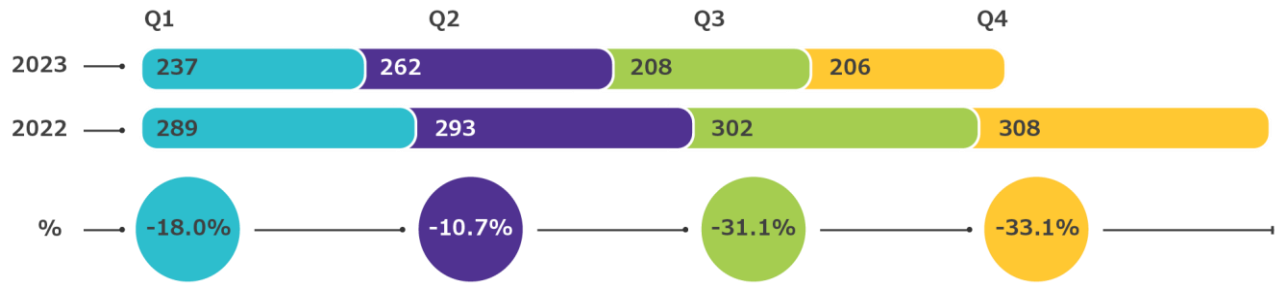
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

- Adjusted gross profit for the Electronics business sector decreased in 2023 driven by the aforementioned sales decline. At 37.3%, the adjusted gross margin declined compared with the previous year (2022: 42.9%) owing mainly to lower volumes to cover fixed costs, unfavorable price and mix in Liquid Crystals, rising raw material costs and adverse foreign exchange effects.
- Marketing and selling expenses decreased versus prior year, primarily due to lower logistics costs along with favorable foreign exchange effects and tighter personal cost management. Research and development costs were also favorable due to tighter cost management and project scrutiny and favorable foreign exchange effects. Adjusted other operating income improved in 2023 compared to the prior year due to the sale of a patent portfolio in the second quarter of 2023.
- As a result, EBITDA pre was down year-on-year in fiscal 2023. The EBITDA pre margin declined to 25.0% in the reporting period (2022: 29.7%), as the volume-based margin reduction and other factors affecting gross profit outlined above were only partially compensated by good operating cost management, the sale of a patent portfolio and lower logistics expenses.

The development of EBITDA pre in the individual quarters in comparison with 2022 is presented in the following overview:

Electronics

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Corporate and Other

Corporate and Other comprises administrative expenses for central Group functions that cannot be directly allocated to the business sectors.

Corporate and other

Key figures

			Change	
€ million	**2023**	2022	€ million	%
Operating result (EBIT)[1]	-713	-801	88	-11.0%
EBITDA[2]	-603	-696	93	-13.4%
EBITDA pre[1]	-397	-579	182	-31.5%

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

The year-on-year improvement in the operating result, EBITDA and EBITDA pre in fiscal 2023 was due in particular to the positive currency result from cash flow hedging. Cross-business research and development costs amounting to € 94 million (2022: € 119 million) were allocated to Corporate.

Risk and opportunity management

Group Controlling & Risk Management provides the organizational framework for risk management and reports to the Group Chief Financial Officer. We have established a holistic risk management system aimed at safeguarding the long-term achievement of our Group's goals and addressing risks to ensure our continued existence and future success. Within the scope of audits, Group Internal Auditing regularly reviews the performance of risk management processes within the units on local level and, at the same time, the communication of relevant risks from the operating businesses to Group Risk Management. Additionally, the external auditor examines the risk early warning system in accordance with section 317 (4) of the German Commercial Code (HGB) as part of the year-end audit of Merck KGaA, Darmstadt, Germany.

Our risk management activities aim to continuously and promptly identify, assess and manage risks so that appropriate measures can be implemented to mitigate their potential negative impact. The responsibilities, objectives, and procedures of risk management are outlined in our internal group standard for risk management. The designated risk owners, including business heads, managing directors of Group subsidiaries, and the heads of enabling Group functions, are responsible for overseeing and running local risk management processes. These processes encompass various requirements, such as identifying risks considering internal and external factors (impacting both financial and non-financial targets), analyzing risks, implementing appropriate mitigation actions, establishing preventive measures and contingency plans if applicable, and documenting risks and mitigation efforts.

The risk owners continuously assess the status of risks and report their risk portfolio to Group Risk Management twice a year. To facilitate and support these activities, we employ dedicated risk management tools. Group Risk Management coordinates and supervises the bottom-up risk reporting process. This includes validating the plausibility of the reported risks, assessing the effectiveness of mitigation measures and time frames, and determining the residual risk. The net risk is then presented in the internal risk report.

For the internal bottom-up risk reporting process, reporting is based on defined thresholds, and a variety of distribution functions are used to reflect scenarios with varied occurrence probabilities. Risks below the global reporting threshold are managed and monitored at a local level. The timeframe applied for internal risk and opportunity reporting is five years. It may extend beyond this timeframe in specific cases, such as for regulatory risks related to climate change. The outlined risks and their evaluation are based on respective annual values within the reporting period. The assessment of the risks presented relates to December 31, 2023. No significant changes occurred after the balance sheet date that would necessitate an amended presentation of the Group’s risk situation.

Group Risk Management analyzes the reported information to determine the current risk portfolio of the Group. This assessment is presented in a comprehensive report, accompanied by detailed explanations, to the Executive Board, the Supervisory Board, and relevant committees twice a year. This also encompasses a quantitative aggregation of risks at Group level, using a Monte Carlo simulation. Moreover, any notable changes in the assessment of existing risks or the identification of new significant risks can be reported at any time and promptly communicated to the Executive Board.

Our internal controlling processes incorporate the opportunity management process, which is aligned with the Group’s strategy within the operating units. As part of the strategy and planning processes, the business sectors analyze and evaluate possible business-related opportunities. In this context, investment opportunities are carefully examined and prioritized primarily in terms of their potential value proposition, ensuring optimal resource allocation. We target investment in growth markets to leverage the opportunities of dynamic development and customer proximity at a local level.

Identified opportunities that are deemed likely to occur are integrated into the business plans and forecasts. Additionally, trends and events that have the potential to positively impact EBITDA pre or Operating Cash Flow. These opportunities have the potential to have a positive effect on our medium-term prospects.

Risk and opportunity assessment

The significance of a risk is evaluated based on its potential unfavorable deviation from our financial and non-financial targets in conjunction with the probability of occurrence of the respective risk.

The underlying scales for measuring these factors are shown below:

Probability of occurrence

Probability of occurrence	Explanation
< 1%	Highly improbable
1 – 5%	Improbable
5 – 20%	Possible
20 – 50%	Likely
> 50%	More likely than not

Degree of impact

Degree of impact	Explanation
> € 500 million	Critical negative impact on EBITDA pre and/or Operating Cash Flow
€ 100 – 500 million	Significant negative impact on EBITDA pre and/or Operating Cash Flow
€ 25 – 100 million	Moderate negative impact on EBITDA pre and/or Operating Cash Flow
€ 10 – 25 million	Minor negative impact on EBITDA pre and/or Operating Cash Flow
< € 10 million	Immaterial negative impact on EBITDA pre and/or Operating Cash Flow

To enable a thorough evaluation of both financial and non-financial risks, a qualitative rating scale is available to evaluate the indirect financial impact. The use of this scale is mandatory for the assessment of non-quantifiable and qualitative risks such as Environmental, Social, and Governance (ESG), reputational, strategic, and operational risks as well as for material risks that also require a qualitative evaluation. The scale categorizes the risks as low, moderate, significant, or critical and provides a comprehensive reference for assessment.

Opportunities are assessed within their respective business environment. During short-term and strategic planning, general measures of business functions are quantified, typically in relation to EBITDA pre (earnings before interest, taxes, depreciation, and amortization), and operating cash flow. In addition, we identify and leverage opportunities as part of our regular business operations and through our daily observation of internal processes and markets.

Investment opportunities are primarily evaluated and prioritized using metrics such as net present value, internal rate of return, return on capital employed (ROCE), and the payback period of the investment. These indicators are used to assess the potential of investment projects and prioritize them accordingly. Similarly, scenarios are used to simulate the impact of possible fluctuations and changes in the respective parameters on results.

the demand shifting from Asia to other geographies (i.e. the United States and Europe). Also, given the considerable investments of several countries in the domestic chip industry (e.g. the U.S. Chips Act, EU Chips acts) to establish local supply of this critical component. Besides that, strategic geopolitical risk management is in place at the Group and business sector levels to continuously monitor and assess the global developments and to prepare us holistically for foreseeable risks.

Global economic growth is projected to slow down with growing regional divergences. Weak economic growth or even a recession could lead to less government spending or other cost-containment policies. Global inflation declined gradually in 2023, but remained significantly above target levels, keeping costs at an elevated level which could negatively impact our business. Persistently high inflation could increase our operating expenses (e.g. raw materials, operating costs and logistics) as well as capital expenditures. It could also prompt central banks to increase interest rates further and curb fiscal policy for some economies. In the course of 2022 and 2023, the European Central Bank as well as the U.S. Federal Reserve increased key interest rates significantly, which may affect our refinancing costs. Financial markets remain volatile, which could have numerous potential impacts.

The net risks of negative geopolitical and macroeconomic developments are seen as possible and might have significant to critical effects. However, our assumptions on geopolitical developments exclude extreme scenarios with severe escalation of tensions. The materialization of such scenarios would jeopardize entire industries and the balance of geopolitical and economic structures, posing a substantial challenge for us, as for any other company.

Further details on the macroeconomic development can be found under “Macroeconomic and Sector-Specific Environment”.

Market risks and opportunities

We compete with numerous companies in the pharmaceutical, chemical, and life science sectors. Rising competitive pressure can have a significant impact on the quantities that can be sold and prices attainable for our products.

Risks and Opportunities in Life Science

The portfolio of our Process Solutions business unit encompasses a broad range of pharmaceutical development and manufacturing solutions, including filtration devices, chromatography resins, single-use assemblies and systems as well as processing chemicals and excipients. We have strategically positioned ourselves to capture numerous opportunities from the industry’s shift towards biologics, coupled with the growing demand for bioproduction driven by many drug candidates and more regulatory approvals. In addition, we are well-prepared to benefit from our customers’ investments in expanding bioreactor capacity. Our commitment to innovation and our customer-focused approach positions us to advance the field of biomanufacturing.

The growing use of biologics is creating a need for more efficient and higher-yield manufacturing processes. This represents an opportunity for us to enable continuous and intensified processing through our ongoing innovation in single-use technologies and advancements in bioproduction.

Consequently, faster market growth driven by the aforementioned industry shifts can lead to a more positive development compared with our latest plan.

Our Life Science Services business unit fully integrates Contract Testing, Development, and Manufacturing Organization (CTDMO) services to meet the evolving needs of our global customers across all stages of drug development, from preclinical to commercialization. Our CTDMO services cover a wide range of modalities, including monoclonal antibodies (mAbs), high-potency active pharmaceutical ingredients (HP-APIs), antibody-drug conjugates (ADCs), viral and gene therapies (VGTs), and end-to-end mRNA offerings. We continually invest in expanding our portfolio and production capabilities to offer specialized solutions for both traditional and innovative therapies. This positions us to capitilize on the potential of the growing biopharmaceutical market by providing leading CTDMO services to our customers. Through quicker establishment of model modalities on the market in combination with our broad and integrated portfolio, we can increase the potential beyond the assumptions reflected in our plan.

Our Science & Lab Solutions business unit serves customers in the pharmaceutical and biotech industries and other industries in production, testing and research, as well as public authorities and research institutions. Despite current headwinds – a complex macroeconomic environment, and softer market demand, especially in the United States and China – the business unit is well-positioned to deliver long-term, profitable growth. We aim to offer our customers a streamlined experience and a comprehensive portfolio of offerings to facilitate their research and analytical processes. This includes several customer solutions in the area of innovative digitalization and automation. A faster recovery from the aforementioned macroeconomic adverse development as well as greater commercial success of our innovative digital and automation solutions could imply an increased potential compared to our latest plans.

Further details on the industry, market developments and associated risks, such as the challenging market environment in the life science industry, can be found under "**Risks due to increased competition and customer technology changes as well as related opportunities**" and "**Macroeconomic and Sector-Specific Environment**".

Risks and opportunities in the semiconductor industry

Our Semiconductor Solutions business unit leverages a broad portfolio of independent technologies. This enables us to supply products for all essential production steps of wafer processing, helping our customers to achieve their technology roadmaps.

The underlying semiconductor industry is cyclical by nature. The current downturn has been exacerbated by a post-Covid-19 pandemic recession. The economic weakening has led to a temporary weakness of the traditional industry growth drivers such as PCs, smartphones and traditional data centers, while the new growth drivers such as AI and automotive are still too small to compensate for these effects. The multi-layered macro-economic effects and poor transparency throughout the supply chain cause a certain degree of uncertainty when estimating the timing and shape of the industry recovery. However, it may also imply upsides compared with our plan if the industry recovers faster and stronger than expected. The semiconductor cyclical correction risk is considered as likely with a significant impact.

Irrespective of the current turbulent macroeconomic situation, the positive medium- and long-term growth prospects of our markets remain unchanged. We see long-term growth opportunities in the semiconductor market due to the significantly accelerating global demand for innovative semiconductor materials with potential growth upside beyond the assumptions reflected in our plan, driven by a faster market adaptation and penetration. This demand is driven by exponential data growth and highly impactful technology trends such as autonomous driving, electric vehicles, Internet of Things (IoT) and 5G. We will benefit from the high material requirement of these AI chips and are working with our customers on almost all of these groundbreaking technological innovations in the semiconductor sector. That is why we are investing in our highly attractive growth markets and purposefully expanding production capacities with a smart localization of our footprint to further boost customer proximity and ensure supply stability. Having the right capacity in the right place to bring new products and higher volumes to our customers enables us to stay flexible about the timing of the market upswing and can serve as a competitive advantage.

The aforementioned trends and the continued announcements of major capacity expansions in the industry in the coming years also benefit our DS&S business. With this portfolio of gas and chemical cabinets and the potential to provide our largest customers with turnkey solutions for the delivery of bulk gases in the manufacturing process, we are well positioned to capture upcoming opportunities.

Risks due to increased competition and customer technology changes as well as related opportunities

In the Healthcare business sector, both our biopharmaceutical products and classic pharmaceutical business are exposed to increased competition from other rival products, especially in the form of biosimilars and generics but also in innovative R&D. We compete with other pharmaceutical companies in various therapeutic indications and rely on high quality data to successfully market our products. For this reason, we closely observe our competitive landscape and make assumptions with regard to future competitor entries that pose competition to our products. Due to the uncertainty that is inherent to clinical trials, there is the possibility that competitor trials fail to meet primary endpoints in their studies or deliver inferior data than we initially anticipated. If there

are no new competing products or if our competitors deliver less promising data, this could represent opportunities for us in therapeutic areas in which we are active.

In the Life Science and Electronics business sectors, risks are posed by not only cyclical business fluctuations but also changes in the technologies used or customer sourcing strategies. We use close customer relationships and in-house further developments as well as market proximity, including precise market analyses, as mitigating measures. Overall, the occurrence of these risks is possible to likely and could have a significant impact.

Further details on the industry and market development can be found under "**Macroeconomic and Sector-Specific Environment**", e.g. on the market challenging environment in the life science industry.

Risks and opportunities of research and development

Innovation driven by R&D is a major element of the Group strategy – including fostering innovation at the intersection of our business sectors – and is particularly important in the Healthcare business sector. In regular portfolio management reviews, we continually evaluate and, if necessary, realign research areas and R&D pipeline projects to focus our investments in areas where patient needs are served best. Nevertheless, R&D projects can experience delays, expected budgets can be exceeded, or targets can remain unmet. Sometimes, development projects are discontinued after high levels of investment at a late phase of clinical development. Decisions – such as those relating to the transition to the next clinical phase – are taken with a view to balance risks and opportunities.

In addition to in-house R&D efforts, strategic alliances with external partners and the in- and out-licensing of programs also form part of the catalog of measures to develop innovative medicine and ensure the efficient allocation of resources. Strategic alliances with partners as well as in- and out-licensing transactions always follow a stringent selection process along clear strategic and financial decision criteria. An example of such in-licensing deals is the recently announced partnership with Jiangsu Hengrui Pharmaceuticals Co. Ltd. for a next-generation selective PARP1 (poly (ADP-ribose) polymerase 1) inhibitor and ADC (antibody drug conjugate) which represents a strong strategic fit leveraging our internal DNA damage response expertise and in-house ADC capabilities. This agreement provides the opportunity to advance more therapeutic options for patients with difficult-to-treat cancers. However, in general, there is a possibility that we may not be able to identify a sufficient number of in-licensing assets on financially acceptable terms.

The aforementioned development opportunities are associated with different types of risks. There is the risk that regulatory authorities either do not grant or delay approval or grant only restricted approval. The risk that undesirable side effects of a pharmaceutical product could remain undetected until after approval or registration could result in a restriction of approval or withdrawal from the market. Furthermore, we cannot guarantee that all the assets we are currently developing will achieve the desired commercial success. The failure to meet targets in this area could have significant effects, for example due to lower net sales or the non-occurrence of milestone payments from collaboration agreements. These risks are evaluated with probabilities ranging from possible to likely.

Moreover, in Electronics, we will also continue to invest heavily in R&D in leading-edge material solutions. The aim is to seize growth opportunities arising from the increasing global demand for innovative semiconductors. Promising opportunities for innovation are constantly arising throughout our Semiconductor Solutions business. We work closely with our customers to exploit these. Technology inflection points bring opportunities to our material solutions and the chance to differentiate from competition. We are further developing new dielectric platforms in cooperation with our key customers for 3D NAND applications.

In addition, we see opportunities in organic light-emitting diode (OLED) materials in high-quality display applications. We have been conducting R&D in the area of OLED technology for more than 15 years and have grown into a well-positioned material supplier for OLEDs. Through our semiconductor and display knowledge, we will be able to contribute to the new display devices including foldable displays and Augmented Reality/ Virtual Reality applications, which require a broad set of materials.

More detailed descriptions on our R&D activities worldwide can be found under "**Research and Development**" in "**Fundamental Information about the Group**".

Risks and opportunities related to the quality and availability of products

Opportunities arising from capacity expansion

We make targeted investments worldwide to expand our regional capacities and drive sustainable growth in all three of our business sectors.

During the Covid-19 pandemic, supply chains experienced unprecedented disruption, with customers placing greater emphasis on supply security. In Life Science, we responded to this trend by actively diversifying our global presence by moving to a production network in the region and for the region to increase resiliency and meet the local needs of customers in North America, Europe and Asia-Pacific.

In fiscal 2023, we announced several new investments to expand capacity and product capabilities at facilities around the world. These include investments in biosafety testing, the expansion of our production for highly purified reagents and expanded lab space and production capability to manufacture cell culture media. Having the right capacity in the right place to ensure supply security, to bring new products to the market and to serve higher customer demand offers us the opportunity to capture higher market shares and can serve as a competitive advantage. However, market dynamics naturally influence our expansion activities as well as utilization. We therefore regularly review our expansion plans and adapt them accordingly.

Risks arising from project execution

In today's dynamic business environment, we prioritize innovation and growth. Projects are essential for achieving our strategic objectives, driving expansion, and promoting sustainable development. To effectively support further business growth and enhance efficiency, we continuously invest in projects, such as IT systems, distribution centers, office buildings and other projects. However, project execution involves significant capital expenditures, making effective project management crucial to avoid delays and higher spending. Inadequate planning, execution errors, and ineffective change management can lead to inefficiencies and disruptions, resulting in increased costs and lower sales.

In a rapidly evolving market, there is also a risk of missing out on market growth and development by delaying or deferring investments. To mitigate this risk, we actively monitor industry trends, conduct market research, and maintain a flexible project portfolio. By aligning our investment decisions with market dynamics, we aim to capture opportunities and minimize the risk of being left behind. This is particularly important in industries like semiconductors, where market cycles present substantial risks.

To proactively address project execution risks, we apply well-established project planning and internal control practices, collaborate closely with stakeholders, and conduct regular project reviews through teams and steering committees. This approach enables us to detect risks early on and implement corrective actions or discontinue projects that are unlikely to succeed. Through comprehensive planning, accurate cost estimations and re-evaluations, we monitor costs and ensure efficient resource allocation. Effective project governance and prioritization further contribute to desired project outcomes.

By employing these strategies, we mitigate project execution risks, ensuring successful project delivery, improved efficiency, and alignment with our strategic objectives. Overall, the possible risks could have a moderate to significant impact.

Risk of a temporary ban on products/production facilities or of non-registration of products due to non-compliance with quality standards

We are required to comply with the highest standards of quality in the manufacturing of pharmaceutical products (Good Manufacturing Practice or official pharmacopoeia). In this regard, we are subject to the supervision of the regulatory authorities. Conditions imposed by national regulatory authorities could result in a temporary ban on products/production facilities and possibly affect new registrations with the respective authority. We make the utmost effort to ensure compliance with regulations, regularly perform own internal audits, and carry out external inspections. Thanks to these quality assurance processes, the occurrence of a risk with a significant impact is improbable to possible; however, it cannot be entirely ruled out and depends on the product concerned and the severity of the objection.

Risks of production availability

Further risks include operational failures due to fire or force majeure, for example natural disasters such as floods, droughts or earthquakes, which could lead to a substantial interruption or restriction of business activities. As far as possible and economically viable, the Group limits its damage risks with insurance coverage, the nature and extent of which is constantly adapted to current requirements. Likewise, we are exposed to risks of production outages and the related supply bottlenecks that can be triggered by technical problems in production facilities with very high-capacity utilization. Furthermore, there are risks of supply bottlenecks due to a lack or disappearance of capacity. We work towards continual mitigation of such risks by making regular investments, setting up alternative sourcing options and maintaining sufficient inventory levels.

Although the occurrence of these risks is considered improbable, an individual event could have a critical negative effect.

Risks of dependency on suppliers and opportunities from supply reliability

Like many other market players in other industries, we have been exposed in the recent past to unprecedented events such as the Covid-19 pandemic and other geopolitical events. Throughout these challenging times, we have been able to avoid any major supply disruptions for our customers. A significant part of this success is rooted in our efforts to build resilient supply chains over the years with our strategic suppliers and reduce the probability of these risks. These strong and esteemed relationships have enabled us to respond to the changes in a difficult environment and adapt to the new circumstances quickly.

For example, the promise of our Healthcare business sector to reliably serve our patients is a top priority for us and requires a strong and resilient supply chain. In 2023, we proved that we could continue to reliably supply our patients with highly needed drugs while competitors in Fertility and Endocrinology ran out of stock. This stock-out situation faced by competitors could continue in the near future and would provide us with opportunities to gain additional market share by serving patient demand.

However, part of our supply chain remains vulnerable to certain events. Therefore, we continue to invest in the improvement of our supply chain, by for example, avoiding single-source situations wherever possible and economically sensible, and by increasing stock levels for essential materials in close collaboration with our suppliers. Through these measures we keep our dependencies on individual partnerships as low as possible within the highly regulatory environment we operate in. Overall, the likely risks might have a moderate to significant impact.

Risks due to product-related crime

As a leading global science and technology company and manufacturer of innovative products of the highest quality, we are exposed to various security- and crime-related risks. Due to the complexity of international trade and global supply chains, our products are at risk of being counterfeited, stolen, illegally diverted and misused. If left unaddressed, this would not only lead to financial loss, reputational damage and business disruption, but also compromise patient and customer safety. Consequently, we have implemented technical, operational and procedural measures aimed at protecting the integrity of our products and supply chains, while also ensuring that new threats are identified and managed appropriately.

Overall, the threat resulting from product-related crime is likely with a moderate impact.

Risks from the use of social media

We and our employees are active on numerous social media platforms. The consistent and legally compliant use of such platforms and their content is important in terms of increasing awareness of our brand, among other things. We take all necessary precautions and have implemented processes to ensure awareness regarding the proper handling of social media as well as actively manage and control our publications and communication.

Nevertheless, reputational risks could result, for instance through public dialogues on social media. On the qualitative rating scale, we thus rate this risk as significant.

Financial risks and opportunities

As we operate internationally, and due to our presence in the capital markets, we are exposed to various financial risks and opportunities. Above all, these are liquidity and counterparty risks, financial market risks and opportunities, and risks of fluctuations in the market values of operational tangible and intangible assets as well as risks and opportunities from pension obligations.

In the area of financial risks and opportunities, we use an active management strategy to reduce the effects of fluctuations in exchange and interest rates. The management of financial risks and opportunities by using derivatives is regulated through extensive guidelines. Speculation is prohibited, and derivative transactions are subject to constant risk controls. The strict separation of functions between trading, settlement, and control functions is ensured.

Liquidity risks

To ensure continued existence, we must be able to fulfill our commitments arising from operating and financial activities at any time. Therefore, to reduce potential liquidity risks, we have a central Group-wide liquidity management system in place, and a balanced maturity profile. The maturities of our financial liabilities are aligned with our planned free cash flow. Furthermore, we have a syndicated loan facility of € 2.5 billion with a term until 2028, which ensures continuing solvency if any liquidity bottlenecks occur. As our loan agreements do not contain any financial covenants, these agreed lines of credit can be accessed even if our credit rating should deteriorate. Additionally, we have a commercial paper program with a maximum volume of € 2.5 billion.

Counterparty risks

Counterparty risks arise from the potential default by a partner in connection with financial investments, loans, and financing commitments on the one hand and receivables in operating business on the other.

As for counterparty risks from financial transactions, we review all central positions relating to trading partners and their credit ratings daily. We manage financial risks of default by diversifying our financial positions and through the related active management of our trading partners. Significant financial transactions involving credit risk are entered into with banks and industrial companies that have a good credit rating. Moreover, our large banking syndicate – the renewed syndicated loan facility of € 2.5 billion was syndicated among 15 banks in 2023 – reduces possible losses in the event of default.

The solvency and operational development of trading partners are regularly reviewed as part of the management of operational counterparty risks. Sovereign risks are also analyzed. The volume of receivables of each customer is capped in line with their credit ratings. Risk-mitigating measures, such as credit insurance, are utilized as appropriate. Nevertheless, defaults by isolated trading partners, even those with outstanding credit ratings, cannot be entirely ruled out, although rated as unlikely.

Counterparty risks are classified as possible risks and might have moderate effects.

Financial market risks and opportunities

As a result of our international business activities and global corporate structure, we are exposed to risks and opportunities from fluctuations in exchange rates. These result from financial transactions, operating receivables, and liabilities as well as future cash flows from sales and costs in foreign currency. We use derivatives to manage and reduce these risks and opportunities (further information can be found under "**Derivative financial instruments**" in the "**Notes to the Consolidated Financial Statements**"). Foreign exchange rate risks are rated as possible with a significant effect on EBITDA pre or operating cash flow.

Variable interest and current financial liabilities are exposed to the risks and opportunities of interest rate fluctuations. Interest rate risks have a negative impact, are considered possible, and pose a minor negative risk overall.

Risks due to the divestment, acquisition and integration of companies and businesses

Successfully acquiring and subsequently integrating new businesses entails risks. These are primarily centered around the uncertainty of achieving business targets and synergy goals as well as remaining within the planned integration budget. Divestments, on the other hand, could lead to liabilities and additional expenses related to potential indemnifications and commitments guaranteed in the sale transaction. We leverage our solid acquisition track record to reduce the probability of any transaction-associated risks by integrating lessons learned from past transactions, strong due diligence, and closely managed integration processes. Currently, we are not aware of any significant risks in this area.

Tax risks

The Group and its subsidiaries operate worldwide and are consequently subject to different national tax laws and regulations. National tax audits of our entities are conducted on an ongoing basis by the tax authorities of the respective countries in which we operate. Tax risks originate particularly from the changes in national tax laws and regulations, and case laws and interpretations by national tax authorities as well as from significant transactions such as acquisitions, divestments and reorganizations.

Findings of the national audit authorities of the various countries may lead to higher tax expenses and payments and may also have an impact on the amount of tax receivables, and tax liabilities as well as on deferred tax assets and liabilities.

The Group's tax function regularly and systematically assesses the relevant tax risks. Appropriate standards are put in place to identify tax risks at an early stage in order to review, assess and mitigate them effectively and efficiently. Group Tax coordinates mitigation measures with the subsidiaries. Risks in addition to those already accounted for in the balance sheet are classified as improbable to possible with moderate to significant impact.

Information on the accounting and measurement policies for income taxes can be found under "**Income tax**" in the "**Notes to the Consolidated Financial Statements**".

Legal risks

Generally, we strive to minimize and control our legal risks. To this end, we have taken the necessary precautions to identify threats and defend our rights where necessary. Nevertheless, we are still exposed to risks from litigations or legal proceedings. In particular, these include risks in the areas of product liability, competition and antitrust law, pharmaceutical law, patent law, trademark law, data protection law, tax law, and environmental protection. As a research-based company, we have a valuable portfolio of industrial property rights, patents, and brands that could become the target of attacks and infringements. The outcome of future proceedings or those currently pending is difficult to foresee. For instance, we are currently involved in litigation with Merck & Co. Inc., Rahway, New Jersey (USA) (outside the United States and Canada: MSD), against whom we have filed lawsuits in various countries. This company has also sued us in the United States for trademark infringement, among other things.

Due to long statutes of limitations or in some cases the absence thereof, it is not possible to rule out that we will face third-party claims arising from the same issue despite the conclusion of legal proceedings. Court or official rulings or settlements that we consider as "highly improbable" to "more likely than not" could lead to expenses with a significant to critical impact on our business and earnings. Despite extensive precautionary measures, non-compliance with laws and regulations leading to related consequences can never be completely excluded. In our opinion, the lawsuits described below constitute the most significant legal risks. This should not be seen as an exhaustive list of all legal disputes currently ongoing.

Cyber Security is part of our Group Corporate Security Office. In addition, we have a Group Chief Information Security Officer and a network of Information Security Officers within the business sectors, each supported by dedicated networks. The individual sectors hold risk ownership and act as our first line of cyber security defense. Our Global Cyber Security function acts as a second line of defense and has responsibilities regarding cyber security risk governance and oversight. Our third line of defense consists of internal audits.

Globally used IT applications form the basis for the contractual delivery of products and solutions. The failure of business-critical IT applications could therefore have a direct influence on our ability to deliver and on the quality of our products. This also applies to the failure of a data center. To achieve the required service quality, we use a quality management system certified to ISO 9001 that also applies to the provision of IT. In addition, to reduce the risk of failure, we operate several redundantly designed data centers. Furthermore, insurance solutions for cybercrime offenses are in place at Group level.

Likewise, complications with the changeover of IT systems could negatively impact the earnings situation. Close monitoring of critical IT projects serves to mitigate this risk.

Despite the mitigation measures applied and functional continuity plans, the effects of cybercrime or the failure of business-critical IT applications and their influence on EBITDA pre and operating cash flow are considered to be possible and with a significant impact.

Environmental, climate-related, and safety risks

Risks arising from environment, climate as well as plant and equipment

As a company with global production operations, we are exposed to risks of possible damage to personnel, goods and our reputation. These include physical risks stemming from exposure to droughts, storms, and floods. Mitigation measures such as audits, consultations and trainings on environmental protection, occupational health and safety minimize these risks to people as well as the environment. In order to ensure the continuity of plant and equipment, we monitor these risks both at our own sites as well as at suppliers and contract manufacturers. By adhering to high technical standards, our rules of conduct, and all legal requirements in environmental protection as well as occupational health and safety, we ensure the preservation of goods and assets.

We have taken sufficient appropriate accounting measures for the environmental risks known to us. We monitor regulatory risks in connection with the transition to a low-carbon economy, which could materialize in the mid- and long-term through rising carbon prices through emissions trading systems, taxes or energy legislation. We mitigate those risks with our energy and CO_2 management measures. Mainly, we classify these as possible risks with moderate impacts. However, a critical impact on EBITDA pre or operating cash flow cannot fully be ruled out.

Risks due to climate change

In 2022, we performed a qualitative climate risk and vulnerability assessment to identify transitional and physical climate-related risks that are material to our activities. In 2023, in accordance with TCFD recommendations, we conducted a quantitative climate scenario analysis to identify climate-related risks and opportunities. Consequently, we conducted an evaluation in relation to impacts of transition risks and the exposure related to physical hazards.

During this assessment, we utilized two climate pathways (1.5°C and 4°C) considering different time horizons (2030 and 2050) to identify climate-related risks and opportunities. Based on our findings, we determined the potential effects of physical risks on our key sites and evaluated the impact of transitional risks on our business.

In line with our ongoing dedication to risk mitigation, we continuously develop innovative and sustainable approaches. As a result, we foresee no significant deviations from our expectations regarding impacts on EBITDA pre or operating cash flow.

For further details on climate-related risks, please see “**Increased uncertainty due to climate risks**” in the “**Notes to the Consolidated Financial Statements**”.

Report in Accordance with Section 315a of the German Commercial Code (HGB)

The following information is provided in accordance with section 315a of the German Commercial Code (HGB) in connection with section 289a HGB and the explanatory report pursuant to section 176 (1) sentence 1 of the German Stock Corporation Act (AktG).

As of December 31, 2023, the company's subscribed capital is divided into 129,242,251 no-par value bearer shares plus one registered share. Each share therefore corresponds to € 1.30 of the share capital. The holder of the registered share is E. Merck Beteiligungen KG, Darmstadt, Germany, a related party of E. Merck KG, Darmstadt, Germany. It is entitled and obliged to appoint one-third of the members of the Supervisory Board representing the limited liability shareholders. If the holder of the registered share is a general partner, he or she has no such right of appointment. The transfer of the registered share requires the company's approval. The approval is granted at the sole discretion of the personally liable general partner with an equity interest, namely E. Merck KG, Darmstadt, Germany.

Pursuant to the information on voting rights submitted to us in accordance with the German Securities Trading Act (WpHG), on December 31, 2023, no shareholders owned direct or indirect investments exceeding 10% of the voting rights.

According to the Articles of Association of the Group, the general partners not holding an equity interest who form the Executive Board are admitted by E. Merck KG, Darmstadt, Germany, with the consent of a simple majority of the other general partners. A person may be a general partner not holding an equity interest only if he or she is also a general partner of E. Merck KG, Darmstadt, Germany. In addition, at the proposal of E. Merck KG, Darmstadt, Germany, and with the approval of all general partners not holding an equity interest, further persons who are not general partners not holding an equity interest may be appointed to the Executive Board.

The Articles of Association can be amended by a resolution at the Annual Meeting that requires the approval of the general partners. Notwithstanding any statutory provisions to the contrary, the resolutions of the Annual General Meeting are adopted by a simple majority of the votes cast. Where the law requires a capital majority in addition to the voting majority, resolutions are adopted by a simple majority of the share capital represented in the vote. The Articles of Association of the company encompass authorized and contingent capital.

The Executive Board is authorized to increase the company's share capital with the approval of the Supervisory Board and of E. Merck KG, Darmstadt, Germany, on one or more occasions, up to and including April 21, 2027, by a total of up to € 56,521,124.19 by issuing new no-par value bearer shares in exchange for cash and/or non-cash contributions (Authorized Capital 2022). Limited liability shareholders are generally granted statutory rights to subscribe to the new shares. However, the Executive Board is authorized, with the approval of the Supervisory Board, to exclude limited liability shareholders' subscription rights, either in full or in part, in the case of a capital increase in exchange for cash contributions pursuant to or by analogous application of section 186 (3) sentence 4 AktG, if the issue price of the new shares is not substantially lower than the stock exchange price of the company's shares already listed and if the new shares issued under exclusion of these subscription rights do not exceed a proportional amount of 10% of the share capital either at the time of Authorized Capital 2022 taking effect or being utilized.

This restriction to 10% of the share capital shall include the proportional amount of the share capital that is attributable to shares that are issued under exclusion of subscription rights or sold during the term of Authorized Capital 2022, based on an authorization to issue new shares or sell own shares by direct or analogous application of section 186 (3) sentence 4 AktG. This restriction shall also include the proportional amount of the share capital that is attributable to shares which may or must be issued in order to service bonds carrying a conversion or option right or a conversion or option obligation, if the bonds are issued during the term of Authorized Capital 2022 under exclusion of limited liability shareholders' subscription rights by analogous application of section 186 (3) sentence 4 AktG.

It is likewise possible to exclude the subscription rights of limited liability shareholders with the approval of the Supervisory Board in the case of capital increases in exchange for non-cash contributions, particularly for the purpose of acquiring enterprises, parts of enterprises, or interests in enterprises. In addition, with the approval of the Supervisory Board, limited liability shareholders' subscription rights can be excluded in order to enable E. Merck KG, Darmstadt, Germany, to exercise its right pursuant to article 32 (3) of the company's Articles of Association to participate in a capital increase by issuing shares or freely transferable share subscription rights.

It is likewise possible to exclude, with the approval of the Supervisory Board, the subscription rights of limited liability shareholders in order to enable E. Merck KG, Darmstadt, Germany, to exercise its right pursuant to article 33 of the Articles of Association to convert its equity interest into share capital, either in full or in part.

Moreover, with the approval of the Supervisory Board, the subscription rights of limited liability shareholders can be excluded if and to the extent this is necessary to grant the holders or creditors of conversion or option rights, and/or the holders or creditors of financing instruments carrying conversion or option obligations, which were or are issued by the company or by a domestic or foreign company in which the company directly or indirectly holds the majority of the votes and capital, subscription rights to the extent to which they would be entitled after the exercise of the conversion or option rights or after the performance of a conversion or option obligation.

Finally, with the approval of the Supervisory Board, the subscription rights of limited liability shareholders can be excluded in order to offset any fractional amounts resulting from a capital increase.

The sum of shares issued on the basis of Authorized Capital 2022 under exclusion of limited liability shareholders' subscription rights must not exceed a proportional amount of 10% of the share capital, taking into account other shares of the company which, during the term of Authorized Capital 2022, are sold or issued under exclusion of subscription rights or which are to be issued under bonds issued after April 22, 2022, under exclusion of subscription rights; this limitation shall apply both at the time of this authorization taking effect and at the time of this authorization being exercised.

To the extent that subscription rights are not excluded under the above provisions, they may also be granted to limited liability shareholders by way of indirect subscription rights pursuant to section 186 (5) AktG or, in part, by way of direct subscription rights, and otherwise by way of indirect subscription rights pursuant to section 186 (5) AktG. Furthermore, the Executive Board is authorized, with the approval of the Supervisory Board, to determine the additional details of the capital increase and its implementation, including the content of rights attached to the shares as well as the terms and conditions of the share issue.

The Articles of Association also encompass contingent capital. The share capital is contingently increased by up to € 66,406,298.40 composed of 51,081,768 shares (Contingent Capital I). The contingent capital increase serves to grant exchange rights to E. Merck KG, Darmstadt, Germany, in accordance with article 33 of the Articles of Association to enable the conversion of its equity interest. The shares carry dividend rights from the beginning of the fiscal year following the year in which the conversion option is exercised.

Non-financial statement**

The combined management report of Merck KGaA, Darmstadt, Germany, and the Group for the fiscal year 2023 includes a combined non-financial statement in accordance with sections 315b and 315c in conjunction with 289b to 289e of the German Commercial Code (HGB) in the form of a separate chapter. The scope of consolidation of this non-financial statement corresponds to that of the Annual Report for 2023. The concepts and results presented relate to both Merck KGaA, Darmstadt, Germany, and the Group. We explicitly state when, in individual cases, the information provided deviates from this. Our non-financial statement orients towards the requirements of the Global Reporting Initiative (GRI) standards. It also includes our reporting in accordance with the EU taxonomy regulation.

Deloitte GmbH Wirtschaftsprüfungsgesellschaft conducted a limited assurance engagement of the combined non-financial statement. References to information not included in the management report are not part of the non-financial statement. The additional content provided on both the company's websites as well as external websites that are linked in this report are not part of the information assured by Deloitte. Our Sustainability Report 2023 is produced in accordance with GRI Standards. It will be available **online** as of April 11, 2024 and will also be subject to a separate limited assurance engagement by Deloitte. With this, we also disclose topics set forth by the Sustainability Accounting Standards Board (SASB) and the Task Force on Climate-related Financial Disclosures (TCFD).

Description of our business model

Our business model as well as our Group structure, governance and strategy are described under "**Fundamental Information about the Group**".

Governance

The requirements we place on responsible corporate governance are derived from our **company values** on the one hand and from the regulations, external initiatives, and international guidelines to which we are committed on the other hand. We have integrated these requirements into our **sustainability strategy** and our **Group-wide guidelines**. These guidelines comprise charters and principles that are valid for the entire company as well as specific standards and procedures for individual business sectors and sites.

Some examples: Our **Human Rights Charter** aligns with the **UN Guiding Principles** for Business and Human Rights. Our Group-wide **Social and Labor Standards Policy** reflects the labor standards of the International Labour Organization (**ILO**). Our **EHS Policy** (Corporate Environment, Health and Safety Policy) for environmental impact mitigation and health and safety forms the basis for implementing the chemical industry's **Responsible Care® Global Charter** within our company. Our standard entitled Corporate Chemicals Regulations Governance describes the processes and management structures required to ensure global compliance with the pertinent chemical and product safety regulations.

We endeavor to comply with all applicable laws as a matter of principle. Where necessary, we review our internal guidelines, standards and instruction manuals on compliant behavior and adapt them to reflect changes in the regulatory landscape.

** The summarized non-financial statement was not subject to a content review as part of the audit of the financial statements but was subject to a separate limited assurance audit by Deloitte.

Topics for the non-financial statement

Pursuant to section 289c (3) and section 315c (2) of the German Commercial Code (HGB), we are obligated to review topics for their double materiality. The principle of double materiality requires companies to disclose non-financial information as soon as the following two criteria are met: Firstly, the information makes it possible to understand how the company's activities affect non-financial aspects. And secondly, the information is necessary to understand the course of business, results of operations and economic position of Merck KGaA, Darmstadt, Germany, and the Group. In 2023, we examined the topics identified within the scope of a materiality analysis in accordance with the Global Reporting Initiative standards (GRI) for their double materiality.

The following topics achieved the relevance threshold for double materiality in 2023. They cover fiscal year 2023 and pertain to our entire Group. Any deviations from the reporting framework are indicated on a case-by-case basis.

Aspect	Topic
Environmental matters	• Environmental management • Climate action • Water management • Plant, process and transport safety • Chemical product safety
Employee-related matters	• Attracting and retaining talent • Diversity, equity and inclusion • Health and safety
Social matters	• Responsible supply chain (including the mica supply chain) • Patient safety • Prices of medicines • Clinical studies • Bioethics • Digital ethics • Data protection and cyber security
Respect for human rights	• Human rights
Anti-corruption and anti-bribery	• Governance and compliance (including anti-corruption anti-competitive behavior) • Interactions with health systems (including responsible marketing)
Other topics	• Sustainable innovation and research & development

As part of our approach to comprehensive risk and opportunity management, we also identify current and potential risks and opportunities resulting from environmental, social and governance aspects. This includes tracking information on the gross risks in terms of potential damage and probability, as well as the residual net risks remaining after mitigation measures have been executed. As of the reporting date and pursuant to the risk analysis of the material non-financial topics, no significant risks within the meaning of section 289c (3) sentence 1 no. 3 and 4 of the German Commercial Code (HGB) from the company's own business activities or from business relationships are known that are very likely to have or will have serious negative effects on non-financial aspects. Additional risks are described in the "**Report on Risks and Opportunities**" in the combined management report.

Environmental Matters

Environmental protection

Minimizing negative environmental impacts and taking meaningful climate action require a holistic approach while also constantly monitoring practices and performance. Our goal is to decouple business growth from negative environmental impacts wherever possible. Our production sites are located in established industrial and commercial zones. Before acquiring a company – and thus its facilities – we first conduct an environmental risk assessment.

Roles and responsibilities

The Chair of the Executive Board and CEO of our company is responsible for environmental protection, which also covers climate action, water management, waste and recycling, air emissions, biodiversity, and plant and process safety. Her duties include approving overarching Group-wide guidelines such as our Environment, Health and Safety (EHS) Policy. Furthermore, our Sustainability Board (MSB) monitors the Group-wide implementation of environmental protection goals.

The Group function Corporate Sustainability, Quality and Trade Compliance (SQ) is responsible for steering all the related measures globally. SQ senior leadership approves operational standards and regularly reports on environmental protection to our Sustainability Board. Every year, SQ prepares a comprehensive environment, health and safety report covering topics such as climate action, water management and waste and recycling as well as plant and process safety. Our Sustainability Board uses this report to steer the strategic direction and provide verification for our ISO 14001 and ISO 45001 certifications.

Across our business sectors, the Operations Leadership Committee (OLC) makes strategic decisions on issues pertaining to emissions, energy, water, and waste. This body comprises representatives from Life Science, Healthcare and Electronics as well as SQ. Decisions made by the OLC and any resulting actions are implemented by the respective business sector. Once per quarter, the OLC members update their leaders on matters relating to environmental protection and this information, if relevant, is then shared with the MSB.

Our commitment: Standards and standard operating procedure

Our approach to environmental management is founded on our **Group EHS (Environment, Health and Safety) Policy**, which has been approved by our Executive Board. Aligned with the requirements of the chemical industry's **Responsible Care® Global Charter** and the ISO 14001 environmental management standard, this policy underscores our leaders' responsibility for environmental protection and health and safety. It is also aimed at our suppliers, calling on them to likewise adopt high environmental sustainability and safety standards. Our EHS policy thus complements the **Supplier Code of Conduct** of our Group Procurement function. Through our Contractor EHS Management Standard, we aim to ensure that our contract partners also take environment, health and safety aspects into account.

Material investments in environmental impact mitigation

Efforts to prevent and monitor air, water and soil emissions entail significant expense on our part, as does proper waste disposal. Moreover, we set up provisions for groundwater and soil remediation to ensure that we can execute all the necessary measures. As of December 31, 2022, our provisions for environmental protection totaled € 149 million (2022: € 148 million), 96% (2022: 94%) of which was attributable to Merck KGaA, Darmstadt, Germany. For details see Notes to the Consolidated Financial Statements under (27) "**Other provisions**".

Assessing environmental impacts

As a matter of principle, we conduct risk-based assessments along with audits of all our production facilities every three years with the goal of analyzing and minimizing our environmental footprint. Conducted by SQ, these assessments serve to ensure that our requirements are being met, with appropriate corrective measures being implemented as needed. In our Group EHS audits, we assess our sites' performance on a five-tier scale ("excellent", "good", "fair", "poor", and "critical"), which in turn determines how frequently audits are conducted. If the findings are deemed to be good, we audit the facility less often, while incompliances can increase the frequency. In 2023, we commissioned a total of 34 audits (2022: 41), one of them "excellent", 23 of them "good" and 10 of them "fair".

Reporting incidents and violations

To review critical situations, near misses and environmental incidents as quickly as possible and take countermeasures, we have a set of reporting procedures in place that allow us to track the respective incident, its degree of severity and all risk mitigation efforts. We record all incidents Group-wide and report them to the Executive Board annually.

In the event of a major occurrence, our digital Rapid Incident Report System (RIRS) promptly notifies the SQ and Group Communications functions, which, if necessary, inform the Executive Board. Major incidents could include fatalities, accidents with multiple casualties, incidents that impact neighboring communities, or natural disasters such as earthquakes and flooding. Through the RIRS, we can quickly coordinate with all those involved and inform the other sites immediately of the respective event. In addition, employees as well as external stakeholders can report any violations of our standards to Group Compliance.

In 2023, we recorded no (2022: two) significant incident-related releases of substances.

ISO 14001:2015 Group certificate

Since 2009, our company has held an ISO 14001 Group certificate that requires all production sites with more than 50 employees to implement an environmental management system with predefined indicators such as greenhouse gas emissions and water consumption. Other facilities are not obligated to undergo certification. The annual internal audit reports and management reviews carried out under the Group certificate give us a better overview of how all our sites are performing. As in the previous year, 95 of our sites worldwide were covered by the ISO 14001 certificate in 2023.

Annual external audits are used to monitor our certifications. As part of a defined sample procedure for the Group certificate, a total of 34 sites were externally audited in 2023, with all audited facilities passing (2022: 12). In addition to external inspections, internal audits serve to ensure Group-wide compliance with our requirements.

Climate action

We want to do our part to preserve the climate and comply with the Paris Agreement on climate change. Therefore, we have set our own objectives:

By 2030, we intend to lower our direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions by 50% compared with the base year 2020. We aim to achieve this mainly by reducing process-related emissions, implementing energy efficiency measures and purchasing more electricity from renewable sources.

In May 2022, this goal for 2030 was approved by the Science Based Targets initiative (**SBTi**), which independently assesses and approves company targets based on its strict climate science criteria. This approval by SBTi confirms that we are contributing to limiting global warming to 1.5 °C, thus complying with the requirements of the Paris Agreement.

We also aim to cover 80% of our purchased electricity with renewables by 2030.

Moreover, we aim to reduce our Scope 3 emissions across the entire value chain by 52% compared with 2020 (per euro of gross profit) by 2030. This target was also approved by SBTi.

By 2040, we intend to have achieved climate-neutral operations throughout our entire value chain; this target covers our Scope 1, 2 and 3 emissions.

Roles and responsibilities

Corporate Sustainability, Quality and Trade Compliance is responsible for overseeing all climate action efforts throughout the Group, with our individual sites and business sectors worldwide implementing the necessary measures at the local level. More information can be found under "**Environmental protection**".

Our commitment: Standards and legal frameworks

We have three EHS standards in place to manage energy and process-related emissions consistently across the Group, specifically "Energy Management", "Air Emissions" and "Emissions of Refrigerants". We use an internal audit process to randomly check compliance with all EHS standards.

Emissions reduced further

In 2023, we reduced our greenhouse gas emissions by nearly 17% compared with the previous year, emitting a total of approximately 1,463,000 metric tons of CO_2 equivalents (CO_2eq) (2022: 1,760,000).

Our direct emissions (Scope 1) totaled 1,236,000 metric tons of CO_2eq (2022: 1,518,000), with process-related emissions accounting for 990.000 metric tons of CO_2eq and fuel use accounting for the remainder. Indirect emissions (Scope 2) totaled roughly 227,000 metric tons of CO_2eq (2022: 242,000) calculated according to the market-based method (approximately 381,000 metric tons of CO_2eq according to the location-based method). Greenhouse gas emission intensity (Scope 1 and 2) amounted to 0.07 Kg of CO_2eq per € of net sales in this period (2022: 0.08).

The Greenhouse Gas Protocol defines 15 categories for Scope 3 emissions from upstream and downstream activities. In 2023, these emissions totaled around 4,594,000 metric tons of CO_2eq (2022: 6,680,000). Categories 1 and 2 (Purchased Goods and Services and Capital Goods) accounted for 62% (2022: 69%) of our total Scope 3 emissions in this period.

Total greenhouse gas emissions (Scope 1 and 2 of the GHG Protocol)[1,2]

metric kilotons	2020[3]	2021	2022	2023 Group	2023 thereof: Merck KGaA, Darmstadt, Germany
Total CO_2eq[3] emissions[4]	**2,152**	**1,951**	**1,760**	**1,463**	**22**
thereof:					
direct CO_2eq emissions (Scope 1)[5]	1,827	1,626	1,518	1,236	15
indirect CO_2eq emissions (Scope 2)[6]	325	325	242	227	7
Biogenic CO_2 emissions[7]	**14**	**15**	**14**	**14**	**0**

[1] In line with the Greenhouse Gas Protocol, for all previous years greenhouse gas emissions were calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).
[2] Baseline for our emission targets is 2020.
[3] eq = equivalent.
[4] In 2023, we adjusted our Scope 1 and Scope 2 calculations to reflect minor data corrections.
[5] In 2023, we adapted the Scope 1 calculations to the modified global warming potentials of the IPCC 6th assessment report (previously IPCC 5th assessment report) and restated previous years accordingly.
[6] The figures presented here have been calculated in accordance with the market-based method.
[7] We adapted the calculations to the complete Greenhouse Gas Protocol requirements.

We have included the following gases in our calculation of direct and indirect CO_2eq emissions:
Direct CO_2 emissions: CO_2, HFCs, PFCs, CH_4, N_2O, NF_3, SF_6.
Indirect CO_2 emissions: CO_2.

Other relevant indirect greenhouse gas emissions (Scope 3 of the GHG Protocol)[1]

	2020	2021	2022	2023
Total gross other indirect emissions (metric kilotons CO_2 equivalents)	**5,103**	**5,799**	**6,680**	**4,594**
Purchased goods & services (category 1)[2]	3,040	3,572	4,200	2,517[3]
Capital goods (Category 2)[2]	293	291	388	340[3]
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	102	143	121	115
Upstream transportation & distribution (category 4)	264	264[4]	319	236[5]
Waste generated in operations (category 5)	85	79	57[6]	32[6]
Business travel (category 6)	32	26	78	86
Employee commuting (category 7)	90	94	99	76[7]
Upstream leased assets (category 8)[8]	-	-	-	-
Downstream transportation & distribution (category 9)	8	8[4]	6	10[5]
Processing of sold products (category 10)[9]	-	-	-	-
Use of sold products (category 11)[10]	1,164	1,296	1382[11]	1,137
End-of-life treatment of sold products (category 12)	23	23[4]	26[11]	42
Downstream leased assets (category 13)	2	2	2	2
Franchises (category 14)[12]	-	-	-	-
Investments (category 15)	0	1	2	1

[1] In line with the Greenhouse Gas Protocol, for all previous years, greenhouse gas emissions were calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).
[2] The reported figures contain 95-97% of our total spend. The difference stems from smaller sites that are not integrated in our Group-wide purchase volume data. 2020 data are slightly over-reported (approx. 3%) as the currency conversion factor (USD to EUR) from 2021 was used. Non-categorized spends are distributed pro rate to category 1 and 2.
[3] We updated environmentally extended input-output analysis (EEIO) factors, and we adjusted our emission calculation approach for service categories using primary supplier data.
[4] Due to high efforts for data preparation, we reference 2020 data for 2021.
[5] In 2023, we introduced a new and improved calculation methodology based on primary data from suppliers/logistics service providers and an energy-based bottom-up calculation approach.
[6] We adjusted our calculation methodology to remove non-GHG relevant waste streams.
[7] We adjusted our calculation methodology to take into account the results of an internal employee survey on home office use.
[8] Already covered under Scope 1 and 2 emissions.
[9] Our company produces a huge variety of intermediate products for various purposes. Due to their many applications and our customer structure, the associated greenhouse gas emissions cannot be tracked in a reasonable fashion.
[10] In 2023, we adapted the Category 11 calculations to the modified global warming potentials of the IPCC 6th assessment report (previously IPCC 5th assessment report) and restated previous years accordingly.
[11] Due to high efforts for data preparation, we partly use 2020 data for 2022.
[12] This category is not relevant for us as we do not operate franchises, i.e. businesses operating under a license to sell or distribute another company's goods or services. Out-licensing in the pharmaceutical sector is not regarded as franchising.

Biogenic emissions (Scope 3), if present, are not being recorded.

Transparency on CO_2 emissions and energy consumption

We report to **CDP** on an annual basis. This organization assesses the ways in which companies are working to lower greenhouse gas emissions and minimize the risks and consequences of climate change, along with their strategy for doing so. Companies are rated from A to D-, with A being the top score. In 2023, we scored A- (2022: B) for climate change.

Energy consumption and renewable energy

We consumed 2,337 gigawatt hours of energy in 2023 compared with 2,432 gigawatt hours in 2022. As in the previous year, our energy intensity relative to sales remained at 0.11 kWh/€ in 2023.

In 2023, we further strengthened our focus on purchasing electricity from renewable sources. In this period, we sourced 51% of our purchased electricity from renewable energies, meaning direct supply contracts and energy attribute certificates (2022: 47%). The share of our total energy consumption by renewable energies increased to 23% in 2023 (2022: 20%).

In 2023, we signed virtual power purchase agreements (VPPAs) in Europe for a total of around 300 gigawatt hours (GWh) of renewable energy per year. This means that 100% of our electricity currently purchased in the European Union (EU) and Switzerland will be covered with renewable energy certificates as of 2025.

Energy consumption[1]

In GWh	2020	2021	2022	2023 Group	2023 thereof: Merck KGaA, Darmstadt, Germany
Total energy consumption	**2,382**	**2,463**	**2,432**	**2,337**	**78**
Direct energy consumption	**1,269**	**1,321**	**1,294**	**1,245**	**68**
Natural gas	1,182	1,235	1,188	1,164	59
Liquid fossil fuels[2]	52	48	70	43	9
Biomass and self-generated renewable energy	35	38	36	38	0
Indirect energy consumption	**1,113**	**1,142**	**1,138**	**1,092**	**10**
Electricity	950	964	984	982	10
Steam, heat, cold	163	178	154	110	0
Total energy sold	**0.2**	**0.1**	**0.01**	**0.00**	**0.0**
Electricity	0.2	0.1	0.01	0.00	0.0
Steam, heat, cold	0.0	0.0	0.00	0.00	0.0

[1] In line with the Greenhouse Gas Protocol, for all previous years energy consumption has been calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

[2] Light and heavy fuel oil, liquefied petroleum gas (LPG), diesel, biodiesel, gasoline and kerosene.

We use photovoltaics to produce power at multiple sites.

We currently only record purchased secondary energy – this is primarily electricity and, to a lesser extent, heat, steam and cold. Details on the local energy mix, including the respective percentage of primary energy, renewable energy, etc. are not available. Data on local energy efficiency in electricity or heat generation are not available either. Our production sites are located in countries with a widely varying energy mix.

Water management

To us, sustainable water management means obtaining freshwater or discharging treated wastewater without negatively impacting aquatic ecosystems. We are also concerned with addressing water scarcity. To determine whether a site is in a water-stressed area, we apply a risk factor of the Aqueduct Water Risk Atlas of the World Resources Institute (**WRI**). We want to reduce the environmental impact of our wastewater and make our processes more water efficient. In the medium term, we will also consider water-related risks in our supply chain when purchasing important raw materials. In the long term, we aim to transparently map water use and environmental impacts throughout the entire life cycle of our products.

To this end, we have defined two targets: Firstly, we originally aimed to achieve a 10% reduction in our Water Intensity Score by 2025 compared with the baseline of 2020. In 2023, we met and surpassed this target, successfully lowering our Water Intensity Score by 25% in comparison with the baseline year 2020. Consequently, we have set a new target based on a new and more transparent calculation. By 2030, we strive to achieve a 50% reduction in our water efficiency ratio of water intake per revenues compared with the 2020 baseline. The new target covers the complete water intake of our company. Our 2020 baseline year was chosen to align this new target with other existing environmental goals. Our second objective focuses on mitigating our environmental impact. Specifically, we are committed to reducing potentially harmful residues in our wastewater to levels below the established no-effect threshold.

Our regular EHS audits at our production and development facilities also review site-specific water management practices. Our water management efforts focus more heavily on our manufacturing sites than our administrative facilities as production generally poses a higher risk to aquatic ecosystems.

Roles and responsibilities

The Group function Corporate Sustainability, Quality and Trade Compliance is responsible for water management. At our sites, engineers work closely with our EHS managers to reduce water consumption and treat wastewater. Further information can be found under "**Environmental protection**".

Our commitment: Standards and procedures

Our **Sustainable water management principles** set the framework for three Group-wide standards that detail how we integrate mechanisms of sustainable water management into our management system: Sustainable Water Management Part 1 – Wastewater; Sustainable Water Management Part 2 – Water Use; and Sustainable Management Part 3 – Water Risk Management. All three standards are based on the commitments we made under the **Responsible Care® initiative**.

Our Wastewater Standard defines criteria for assessing our wastewater discharges into ecosystems. It also helps us achieve our targets regarding trace substances in wastewater from our operations. The Water Use Standard sets out mandatory Group-wide requirements for the responsible consumption of water. The Water Risk Management standard establishes a way for us to manage the risks that arise from direct or indirect water extraction and covers risks such as contaminated rainwater and flooding. We perform internal EHS audits to verify that our sites comply with our three standards. All sites are required to measure and assess the risks and impacts of the hazardous substances in their wastewater. Moreover, they must also analyze withdrawal and wastewater risks and comply with the respective requirements of the local authorities.

Water withdrawals from our own wells and local suppliers

For the most part, we draw water used for our production processes from our own wells and source drinking water from local suppliers. In doing so, we do not want water extraction to impair any protected areas, sensitive ecosystems or habitats. We extract less water from our own wells than the amounts permitted. We simultaneously monitor potential trends that could lead to the reclassification of water sources, which involves assigning heightened levels of protection to specific regions.

The cooling water used in our production processes generally runs in a circular system. Depending on regulatory standards and the energy footprint, we sometimes use freshwater for cooling in a once-through system. However, this is only done in regions with high freshwater availability. For certain applications, we treat production wastewater and reuse it. In 2023, we recycled a total of 20.5 million m^3 of water (2022: 20.7).

Keeping a close eye on safety

We track EHS performance indicators at all production and warehouse facilities, as well as at major research sites, including both accidents and near misses. We investigate each individual incident and then devise appropriate countermeasures in an effort to reduce the likelihood of such events reoccurring in the future. EHS performance indicator data are reported once a month within each business sector, with the Executive Board receiving reports on the topic once per year. Four indicators are particularly important to us:

- Under our EHS Incident Rate (EHS IR), we track and evaluate all major and minor accidents and incidents as well as further EHS-relevant incidents. The EHS IR covers both our own employees as well as those of contractors. To calculate it, we state the number of incidents and the severity of the event in relation to the number of hours worked. The lower the EHS Incident Rate, the safer the site is. In 2023, the ratio was 2.4 (2022: 2.8).
- The EHS IR also contains our Loss of Primary Containment (LoPC) indicator. In 2023, we did not record any significant incident-related releases of substances (2022: two).
- The EHS Leading Rate (EHS LR) reflects the number and the results of the analyses of near misses and hazardous conditions or behaviors, as well as other proactive safety activities such as risk assessments.
- For the **Lost Time Injury Rate (LTIR)** we set ourselves the goal of lowering our Group-wide LTIR to under 1.0 by 2025 (number of accidents Group-wide resulting in at least one missed day of work per million hours worked). In 2023, our LTIR was 1.3 (2022: 1.2).

Chemical product safety

Product safety is one of our top priorities. During the product development phase, we investigate the potential adverse impacts of chemical substances. Along the entire value chain of our products – from raw materials to manufacture and commercialization – we provide relevant information on their hazardous properties and how to deal with them. These instructions facilitate the safe handling and use of our products in line with pertinent regulatory requirements. We publish this information primarily on the relevant digital channels. As paper safety data sheets are still common in some countries, we can also provide these upon request through our customer service.

Roles and responsibilities

Our Life Science, Healthcare and Electronics business sectors have organizational structures in place to implement our product safety strategy in line with their respective business requirements and customer needs. This approach includes registering chemicals, classifying hazardous substances and highlighting risks using safety data sheets, labels and digital communication tools.

Our Group standard provides a framework for governing the setup of effective operational processes for product safety, hazard communication and chemical regulatory compliance throughout our business sectors. In addition, the Group Chemicals Regulations Council fosters cross-sectoral alignment of strategic regulatory activities required for existing and emerging chemicals regulations as well as sustainability and identifies potential impacts for our company.

This approach also applies to innovative fields of development such as nanomaterials, which we use with the greatest of care in line with the precautionary principle. Furthermore, our Group-wide **Policy for Use and Handling of Nanomaterials** provides the necessary guidance on the use of these materials.

Legal requirements and internal guidelines

Our internal standard defines the roles, responsibilities and basic processes required to comply with national and international regulations. In addition, we have also endorsed voluntary commitments of the chemical industry such as the **Responsible Care® Global Charter**.

Using the Globally Harmonized System for Classification and Labelling of Chemicals (**GHS**) for hazard communication enables us to streamline our internal processes and provide consistent, harmonized and high-quality information to our customers.

In 2023, there was one incident of non-compliance with regulations concerning potential health and safety impacts and the labeling of our chemical products. Some information and the REACH registration number was missing on a safety data sheet which resulted in a fine in Italy. In this regard, to the best of our knowledge, there were no negative impacts on human health or the environment.

Safety analysis of our products

Safe and sustainable by design implies that product safety starts during development. Therefore, at an early stage of our product development process, we analyze innovations in terms of their impacts on human health and the environment. We continuously evaluate the intrinsic hazards of both our existing and new products to create relevant product safety information in line with applicable rules.

Product safety information

Chemical product safety is all about protecting human health and the environment from adverse impacts resulting from the use of chemical products throughout their life cycle. To achieve this, we provide relevant information to our customers and the public, which helps to raise awareness of the hazards and build a greater understanding of how to mitigate risks and use the products safely.

To obtain the relevant information on hazard profiles, we employ industry-standard digital tools through which we gather information available on the substances we use.

Employee-Related Matters

Attracting and retaining talent

To ensure our ongoing success, we are focusing on the future by creating meaningful impacts and building needed capabilities. At the same time, we must respond to changing demographics and adapt to the behaviors and expectations of the highly competitive talent market. Therefore, in 2023, we continued to enhance our talent acquisition strategy with a more personal, employee-focused approach. Our talent sourcing approach aims to build inclusive pipelines and effectively recruit diverse talent with the needed competencies and capabilities to our organization. In addition, our talent retention approach is inclusive in targeting various employee groups. In 2023, we intensified our efforts to support internal mobility. For example, we launched a dedicated project to improve organizational agility, up-skilling and re-skilling, retention, and engagement. Specific modules went live in 2023, and we will roll out the complete platform with all functionalities during the course of 2024.

We have designed our compensation structure to provide valuable benefits to our employees and their families. Our benefits offerings recognize the diversity and uniqueness of our employees while providing flexibility wherever possible. Additionally, our international employee mobility programs create an environment suited to the needs of a rapidly evolving workforce.

Total number of employees

As of Dec. 31	2020	2021	2022	**2023 Group[1]**	**2023 thereof: Merck KGaA, Darmstadt, Germany[2]**
Total number of employees	58,127	60,348	64,243	62,908	3,924
Men	33,204	34,274	36,452	35,499	2,387
Women	24,923	26,074	27,791	27,409	1,537

[1] Our company also employs people at sites of subsidiaries that are not fully consolidated. For the 2023 reporting year, we have aligned the scope of consolidation also for the employee data in the non-financial reporting with the financial reporting. As of now, the figures relate to all employees who are employed in fully consolidated subsidiaries that manage personnel.

[2] The sharp decline in comparison with the previous year (8,485 employees) is attributable to the fact that in addition to Healthcare KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

Employee age by region

As of Dec. 31

Number of employees	Worldwide	North America	Europe	Merck KGaA, Darmstadt, Germany	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2022							
Up to 29 years old	9,926	2,753	3,530	1,181	2,999	476	168
thereof: women	4,637	1,178	1,655	441	1,441	264	99
30 to 49 years old	38,423	7,811	16,216	4,549	11,174	2,333	890
thereof: women	16,909	3,278	7,528	1,664	4,498	1,196	409
50 or older	15,894	5,283	8,498	2,755	1,239	681	192
thereof: women	6,245	2,045	3,437	870	412	255	96
Average age	**41.6**	**43.3**	**43.1**	**43.1**	**37.3**	**41.1**	**40.3**
Total employees	**64,243**	**15,847**	**28,244**	**8,485**	**15,412**	**3,490**	**1,250**
2023							
Up to 29 years old	8,743	2,233	3,294	535	2,634	440	142
thereof: women	4,150	995	1,521	213	1,323	224	87
30 to 49 years old	38,006	7,352	16,304	2,085	11,218	2,301	831
thereof: women	16,798	3,084	7,565	857	4,562	1,203	384
50 or older	16,159	5,133	8,706	1,304	1,407	717	196
thereof: women	6,461	2,034	3,595	467	472	266	94
Average age	**41.5**	**43.5**	**42.9**	**43.0**	**37.4**	**40.8**	**40.5**
Total employees	**62,908**	**14,718**	**28,304**	**3,924**	**15,259**	**3,458**	**1,169**

Internationality of employees

As of Dec. 31	2020	2021	2022	**2023 Group**	**2023 thereof: Merck KGaA, Darmstadt, Germany**
Number of nationalities	141	142	139	141	70
Number of nationalities in management positions (Role 4 or above)	75	79	78	77	30
% of non-Germans in management positions (Role 4 or above)	66	66	66	66	12

Staff turnover[1,2]

	2020[3]	2021	2022	2023 Group	2023 thereof: Merck KGaA, Darmstadt, Germany
Total turnover rate	**8.22**	**10.82**	**10.16**	**9.96**	**3.48**
Turnover rate by gender					
Men	8.22	10.69	10.40	10.11	3.24
Women	8.22	11.00	9.93	9.76	3.87
Turnover rate by age group					
Up to 29 years old	11.30	16.64	15.91	14.39	5.79
30 to 49 years old	7.74	10.05	9.55	9.48	3.41
50 or older	7.52	9.22	8.05	8.49	2.62
Turnover rate by region					
Europe	5.64	6.00	5.91	5.52	3.48
North America	9.79	15.44	14.33	15.02	not applicable
Asia-Pacific (APAC)	10.60	14.66	12.84	11.90	not applicable
Latin America	11.40	12.95	13.38	13.19	not applicable
Middle East and Africa (MEA)	11.80	16.57	13.04	15.63	not applicable
Total number of leavers	**4,721**	**6,354**	**6,358**	**6,336**	**152**
by gender					
Men	2,697	3,575	3,673	3,639	87
Women	2,024	2,779	2,685	2,697	65
by age group					
Up to 29 years old	974	1,451	1,542	1,358	32
30 to 49 years old	2,677	3,545	3,569	3,624	82
50 or older	1,070	1,358	1,247	1,354	38
by region					
Europe	1,490	1,601	1,640	1,560	152
North America	1,281	2,078	2,182	2,305	not applicable
Asia-Pacific (APAC)	1,394	2,015	1,905	1,824	not applicable
Latin America	398	449	467	460	not applicable
Middle East and Africa (MEA)	158	211	164	187	not applicable

[1] The table contains unadjusted turnover rates. The rate excludes employees who pause due to parental leave or a long-term illness, as well as employees who are transitioning to the non-working phase of partial retirement.

[2] The employee turnover rate is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount multiplied by 100.

[3] The figures do not reflect the approximately 500 Allergopharma employees, who were not included in the employee turnover rate due to the divestment of the business.

In 2023, the average length of service for employees Group-wide was 9.7 years (2022: 9.2 years), with 15.2 years (2022: 15.4 years) for employees of Merck KGaA, Darmstadt, Germany.

Roles and responsibilities

Group Human Resources (HR) supports and advises all business sectors and Group functions within our organization regarding our human capital, especially topics related to recruiting, vocational training and advanced training. Across all our sites, HR employees work with leaders from various functions and business sectors to employ strategies that engage our people in line with Group-wide HR guidelines and requirements, including attractive compensation models and benefits. In accordance with the audit plan, we conduct internal audits every two to three years to ensure that we implement our guidelines effectively.

The Chair of the Executive Board and CEO is responsible for Group Human Resources. Our Chief HR Officer, who leads the HR function and oversees all our HR activities, reports directly to the Chair of the Executive Board and CEO. Our Business Services unit oversees the operational tasks of HR work, such as drafting contracts and payroll accounting. The Chief Financial Officer is responsible for this unit.

Social Matters and Respect for Human Rights

Responsible supply chain

With our supplier management endeavors, we aim for compliance with fundamental environmental and social standards in addition to high quality, reliable delivery and competitive prices. Therefore, we have introduced relevant strategies, processes and guidelines to prevent violations of supply chain standards and continuously improving our sustainability performance. Unless stated otherwise, the approaches presented apply to tier-1 suppliers, i.e. direct suppliers. Furthermore, our supplier management activities include special measures particularly for tier-n suppliers, i.e. indirect suppliers, working in the area of conflict minerals.

To achieve our sustainability goals, our Procurement team is working closely with our suppliers. We aim to create transparency in all our sourcing regions and fully integrate sustainability into all our value chains. To this end, we have defined two key indicators to measure our journey towards increasing this transparency by reviewing the sustainability performance of our relevant suppliers based on valid sustainability assessments. Our definition of valid sustainability assessment includes assessments carried out over the last three years and performed by a reliable, approved source. In accordance with our risk management approach, we define relevant suppliers as suppliers, which either indicate a specific country and/or industry risk or contribute to a significant percentage of our supplier spend (at least 50%). For the country risk evaluation, we have developed our own comprehensive country risk score.

In 2023, 66% (2022: 46%) of our relevant suppliers were covered by a valid sustainability assessment; 94% (2022: 82%) of our spend attributable to these suppliers was covered by suppliers with a valid sustainability assessment.

We consider all applicable legal requirements, such as the German Supply Chain Due Diligence Act, and initiate corresponding measures where necessary. Among other things and in conjunction with the implementation of the German Supply Chain Due Diligence Act, we have implemented a risk management approach focusing on human rights and environmental risks along our supply chain. This risk assessment is conducted annually and ad-hoc when required.

Risk management process

To ensure security of supply, we select our suppliers based on criteria such as country risk, material risk, supplier risk, and their strategic importance to the business. This process helps our Category Sourcing teams to identify potential mitigation actions with relevant suppliers and supports them in making improvements. Our risk management approach comprises four main elements:

- Supplier Risk Assessments: to capture the overarching risks at the supplier level we consider multiple risk domains.
- Alert system: to notify our Procurement organization about risk events arising with any of our suppliers.
- Material Risk Assessments: to identify and mitigate the risks of the materials used in our most significant finished products. This element focuses on our business sector Life Science. In 2023 we conducted assessments for more than 2,500 of our critical materials.
- Risk Response Tracker: a system to create and monitor risk mitigation activities in inter-disciplinary teams.

We calculate risk factors for suppliers and raw materials by multiplying risk probability and risk impact according to current human rights risk standards. We also include criteria for identifying supplier relationships impacted by key sustainability risks, such as mineral sourcing and animal welfare.

Our **Social and Labor Standards Policy** defines the corresponding commitments and principles as they relate to specific topics and sites. We regularly check compliance with the requirements using a risk-based approach. Among other things, this takes into account risks that may arise if relevant laws and regulations change or if there are violations of internationally recognized labor rights by governments and companies, as assessed by the **International Trade Union Confederation** and documented in the annual ITUC Global Rights Index. If we identify a violation during the audit, we define remedial actions together with the responsible Managing Director and/or local HR staff.

We also assess human rights aspects at our sites through security audits and as part of the risk analysis. The audits are one control mechanism of our security governance framework. Through increased risk transparency and central follow-up of corrective and preventive actions (CAPA) we help ensure that our sites comply with safety-related human rights aspects. Through the Together for Sustainability (**TfS**) initiative, we determine whether our strategically important suppliers comply with human rights standards.

Creating awareness among our employees

An online course trains our Managing Directors and senior management in how to meet the requirements of our **Social and Labor Standards Policy** in their area of responsibility.

Our reporting practices

We inform the public about our approaches and measures as well as the results of our human rights due diligence. We provide information on this annually in our Sustainability Report. Under laws in Australia, the United Kingdom and Norway, we are additionally required to publish information in these countries on our measures to combat forced labor and human trafficking. Apart from the **UK Modern Slavery Statement** and our **Australia Modern Slavery Statement**, we also published the Norway Transparency Statement for the first time in 2023.

Our complaint mechanisms

We have set up a Group-wide whistleblowing and complaints system that can be used to report potential violations of human rights, legal provisions and environmental issues, among other things. Our compliance hotline is a central element of this. Our employees as well as external stakeholders can report suspected cases via this Group-wide whistleblowing system in their respective national language, free of charge and anonymously, either by telephone or a web-based application. We are committed to thoroughly investigate all complaints that we receive and take countermeasures if necessary. More information on the compliance hotline can be found under "**Compliance Management**".

In addition, we published **Rules of Procedure**. These apply to tips or complaints that refer to human rights and certain environmental risks or violations at our company and along the supply chain in line with the German Supply Chain Due Diligence Act. In the reporting year, 184 violations of the **Social and Labor Standards Policy** were reported to us in our own business operations, 60 of which were confirmed. Furthermore, based on the complaint channels specified in the Rules of Procedure, there were no indications of child or forced labor or violations of the right to collective bargaining or freedom of association in our own business operations or in the supply chain in 2023.

Human rights violations

	2020	2021	2022	**2023**
Number of reported violations of Social and Labor Standards Policy	108	121	136	184
Number of confirmed Violations of Social and Labor Standards Policy	29	41	68	60
thereof: number of incidents of discrimination	2	6	7	7[1]

[1] As of 2023, the incidents of discrimination also include cases of harassment as a specific form of discrimination.

Patient safety

Through a rigorous benefit-risk management process, we help to ensure that the benefits of our medicinal products always outweigh the risks for patients. Every new medicine goes through a series of precisely defined development stages. Before any medicinal product is administered to human subjects, we conduct extensive preclinical testing both in vitro and in vivo. During clinical development, we diligently use all the collected data to continuously evaluate the medicinal product's benefit-risk profile. If we consider the medicinal product's benefit-risk profile to be positive, we then submit an application for marketing authorization to the relevant regulatory authorities.

Continual monitoring of product safety risk profiles

Once we launch a new medicinal product, the number of patients being treated with the product increases significantly. In rare circumstances, there may be adverse and potentially serious effects that were not detected during clinical development, which is why we continuously monitor risks and assess the benefit-risk profiles of the products after their market launch. Pharmacovigilance includes the process of monitoring a medicinal product on an ongoing basis to detect and assess safety signals as part of signal management activities. Our pharmacovigilance system and our pharmacovigilance business continuity management help to ensure continuous monitoring of adverse effects, allowing us to proactively and transparently minimize and communicate any risks. Emergency response procedures for business continuity are managed in accordance with global and local business continuity plans, tested in regular, defined intervals or with mock scenarios. In addition, we provide healthcare professionals and patients with the latest information on the safety of our marketed medicinal products. The scope of continuous safety monitoring covers the entire life cycle of a product, ranging from development, market launch and commercialization to the expiration or cancellation of its marketing authorization.

By 2025, we aim to deliver product specific safety and benefit-risk strategies to support the execution of all key priority programs in line with internal and external stakeholders' expectations. These strategies will enable us to understand in greater detail the benefit-risk profiles at each stage of product development and post-marketing. During the reporting year, we worked toward achieving this goal by providing high-level safety and benefit-risk contributions for development programs with priority in oncology, neurology and immunology.

Roles and responsibilities

Our Global Patient Safety unit is responsible for drug safety. It continuously collects current safety data from a wide variety of sources across the globe, including clinical studies, early access programs, spontaneous reports on adverse effects, patient support programs, and articles published in medical and scientific journals. Our vision is to embed a deep knowledge of safety into early decision-making as we evolve to practice predictive safety.

Our experts help to ensure that all information on the risks and adverse effects of our medical products are properly documented, tracked and reported to the respective health authorities in accordance with regulatory requirements. Our Global Patient Safety unit analyzes all data and reassesses the benefit-risk profile based on these data, where required. We then inform regulatory authorities, healthcare professionals and patients about new risks, additional risk mitigation measures and potential changes in the benefit-risk profile. We convey this information through stipulated regulatory reports, safety communications (as applicable) and corresponding product label updates.

Our Global Patient Safety unit hosts a Pharmacovigilance Intelligence Council that focuses on changes in pharmacovigilance legislation and their impacts on our global and local pharmacovigilance systems. This council enables us to make strategic decisions and govern changes in pharmacovigilance requirements, which fosters our target to ensure continuous compliance with regulatory requirements.

Our Medical Safety and Ethics Board

Our Medical Safety and Ethics Board (MSEB) is the governance board that oversees the safety and benefit-risk assessments of our medicinal products throughout their clinical development and commercialization. This internal board is chaired by our Chief Medical Officer and comprises experienced physicians, scientists and

experts from our company. Throughout a medicinal product's entire life cycle, the MSEB reviews and assesses important medical safety risks and benefit-risk issues and endorses appropriate measures to minimize risks, such as updates to product information. The MSEB also assess human-related bioethical matters as appropriate and is accountable for the use of our medicinal products in early and post-study access.

Our commitment: Guidelines and statutory requirements

We rigorously aim to follow international guidance and standard procedures. These include the International Council for Harmonisation (ICH) guidelines, the Good Pharmacovigilance Practices (GVP) established by the European Medicines Agency (EMA), Title 21 of the Code of Federal Regulations governed by the U.S. Food and Drug Administration (FDA), and other pharmacovigilance regulations issued by national health authorities. We also aim to comply with relevant new statutory pharmacovigilance regulations in the countries where we market our products.

Inspections and audits for drug safety monitoring

Regulatory authorities conduct periodic inspections to verify that we comply with statutory requirements as well as our own internal pharmacovigilance standards. We follow up on the findings of health authority inspections and take necessary actions to ensure the ongoing compliance of our pharmacovigilance system. In 2023, we had five pharmacovigilance inspections (2022: four).

We also perform audits to our systems and processes to ensure that all our units and subsidiaries involved in pharmacovigilance consistently meet all global requirements. In 2023, we conducted a total of seven pharmacovigilance audits (2022: 19) and found no significant deviations in our pharmacovigilance systems from these requirements and standards. We also conducted twelve external audits (2022: 16) at our vendors and licensing partners involved in pharmacovigilance, helping us to improve our pharmacovigilance processes and to comply with regulatory requirements.

Applying our proactive safety strategy to benefit-risk assessments

Regarding product safety risk assessments, we have successfully implemented in the past years an improved benefit-risk management strategy to become a more proactive and benefit-risk-focused organization. This strategy firmly establishes the concepts and principles for conducting benefit-risk assessments at each stage of product development and post-marketing. In addition, our Benefit-Risk Action Team co-leadership model, created in 2022, enables us to understand in even greater detail the benefit-risk profiles of our products and enable early decision-making within our organization to protect patient safety. Ultimately, we aim to provide the right medicine to the right patient at the right time.

Up-to-date labeling and product information

Our product information explains to healthcare professionals and patients how to correctly use the respective product and make informed treatment decisions. We review and update product information documents, such as package leaflets, thereby, we want to ensure our medicinal products contain the latest information on safety, efficacy and pharmaceutical formulation. In accordance with regulatory requirements, we submit modifications to our leaflets to the respective regulatory authorities for approval. In 2023, there were no reportable incidents of non-compliance with regulations concerning the labeling of our medicinal products.

Internal and external training

Our pharmacovigilance experts are regularly trained so that they gain and maintain the required experience and knowledge to carry out their activities. We manage our training via a global learning platform and verify compliance with our training requirements by producing training completion reports.

Our approximately 25,000 internal and external Healthcare employees receive basic pharmacovigilance training once a year that covers the procedure for reporting adverse effects or special circumstances associated with the use of our medicinal products.

Prices of medicines

The prices of our products reflect the value they deliver to patients as well as broader society. We price our products responsibly and work to prevent costs from becoming a barrier to treatment. In doing so, we strive to deliver on our steadfast commitment to providing the broadest possible patient access. We also continue to invest in meaningful scientific innovation to address the high number of unmet medical needs still faced by many patients and their caregivers. Therefore, we adapt the prices of our medicines in different geographic and socioeconomic segments according to people's ability to pay.

We acknowledge the affordability challenges many healthcare systems face amid growing financial pressures. We recognize the unique characteristics of each health system and adapt our pricing based on local market considerations, including unmet medical and treatment needs, health system capacity, infrastructure, socioeconomic standards as well as affordability within the respective healthcare system and the ability of patients to pay. We apply intra-country and inter-country equitable pricing approaches to all our brands.

This approach involves working closely with governments and other stakeholders. In addition, we continuously monitor dynamic healthcare environments and markets, pricing and reimbursement systems as well as legal and regulatory guidelines, adjusting our prices as necessary. We conduct annual price analyses to validate price thresholds and provide guidance on local pricing to our subsidiaries for the following year. We aim to ensure that they meet patient access needs by taking a consistent, data-driven approach.

To increase the availability, accessibility and affordability of our medicines in Africa, Asia, Latin America, and the Middle East, we have adopted a new systematic approach known as the SHAPE program. This will enable us to address these access barriers for underserved patient populations in low- and middle-income countries.

Additionally, we support innovative risk-sharing agreements and are working to improve data efficiency in health systems to help distribute funds and resources more optimally.

Roles and responsibilities

Our Global Value Demonstration, Market Access & Pricing (GVAP) unit, formerly called GMAP, reporting directly to a member of our Healthcare Executive Committee, evaluates market launch prices in coordination with the respective franchises. In addition, the GVAP unit systematically evaluates our medicine portfolios and applies equal access initiatives to them. Our local affiliates are responsible for managing prices and adapting them to evolving local conditions in compliance with our pricing governance and the defined price approval process.

Our commitment: Medicine price guidelines and principles

The affordability of our health solutions is part of our broader patient value proposition. Our medicine pricing adheres to the stipulations of our overarching **Charter on Access to Health in Developing Countries** and is defined in detail in an internal guideline. Additionally, our Patient Access Programs Policy sets out standards for offering medicines at affordable prices.

Value-based contracting models

We are committed to advancing value-based healthcare through pricing and contracting mechanisms that comply with applicable local laws and regulations. In collaboration with payers, such as health insurance companies, we have developed various product- and market-specific reimbursement and contracting models. These help to provide patients with prompt access to our innovations.

In 2023, we continued to implement and maintain innovative risk-sharing agreements (RSAs) that provide immediate access to Mavenclad® for patients with multiple sclerosis (MS). We broadened access to this medicine through specific agreements in eligible countries across Europe, Latin America and the Middle East including Argentina, Hungary, Kuwait, South Africa and the United Arab Emirates.

Programs for low- and middle-income countries

We have set ambitious goals for our SHAPE program to improve access to our medicines for underserved patient populations in low- and middle-income countries. The program covers both existing and upcoming products, focusing on therapeutic areas such as head and neck, colorectal and bladder cancers as well as thyroid disorders.

In 2023 we served more than 57 million patients in low- and middle-income countries with our healthcare portfolio. Boosted by our SHAPE program, we aim to reach 80 million patients per year by 2030. As of 2023, 15 pilots have been initiated in countries such as Argentina, Brazil, Egypt, Indonesia, and Mexico as well as several countries of Central America.

Tenders constitute a significant percentage of our global sales and are a crucial growth driver for our established portfolio. We participate in government tenders for products used in public hospitals serving low-income patients, often in low- and middle-income countries.

For some of our existing high-quality products, we offer second brands at affordable prices, particularly in countries with a large percentage of low-income patients.

Patient access programs (PAPs) are self-sustaining commercial programs that provide registered medicinal products for underserved populations. They primarily seek to address affordability challenges. We operate PAPs in several countries.

Clinical studies

Our aim is to conduct high-caliber clinical research that is in compliance with applicable laws and regulations. We set Group-wide requirements that aim to ensure that high ethical and scientific standards are met when conducting clinical trials.

We only conduct clinical studies to investigate issues relevant to patients, healthcare professionals or society, and only when our established methodology finds the given medicines show significant therapeutic promise and a positive benefit-risk ratio. Accordingly, to ensure patient safety and avoid interrupting the development of promising products, we carefully select patients based on known risk factors. These include age and comorbidities, which we reflect in the design of our clinical studies. Notably, we only enroll the specific number of patients needed to answer the posed scientific and medical questions. We reconcile and review the safety reports from our clinical studies and marketed products and immediately address any unforeseen risks. Senior boards such as the Pharmacovigilance Advisory Board and the Medical Safety and Ethics Board maintain oversight of any emerging safety concerns. In addition, cross-functional Benefit Risk Assessment teams adapt the benefit-risk assessment and development strategy of each product to ensure it delivers maximum safety and efficacy to our patients. In addition, a sound, established scientific methodology must be available to investigate these scientific or medical questions.

Protecting the safety, well-being, dignity, and rights of the patients and healthy volunteers participating in our clinical studies is of utmost importance to us. We do not intentionally expose study participants to undue risk or irreversible harm. Data privacy is also very important to us, and we maintain a strong focus on data protection and confidentiality in compliance with statutory regulations.

Diversity, equity and inclusion in clinical trials

Based on our Standard on Human Research, we aim to conduct clinical studies that adequately represent the diverse patient populations expected to use our products once they are approved. To ensure fair, balanced and scientifically justified study representation, we cemented our commitment to Diversity, Equity and Inclusion in clinical trials by collaborating with healthcare providers and community advocates to eliminate common barriers to clinical trial participation.

Patient-focused drug development

We are improving our approach to research and development by committing to patient-focused drug development that more actively involves patients, caregivers, and their advocates in our work. Their valuable insights into disease and treatment management will help us make more informed decisions at each stage of the medicine development process. We aim to make our studies easy for patients to understand while ensuring all participants have positive experiences as they contribute to our understanding of the particular disease and its treatment. At every level of our organization and based on the function, we are additionally either offering or mandating to educate staff about the value of a close, more consistent patient interaction and the requirements to protect our patients' independence and privacy.

Roles and responsibilities

Clinical development, including clinical studies and their related governance processes, are the responsibility of our Global Development unit. The Head of Global Research & Development reports to the CEO Healthcare, who is a member of the Executive Board.

We have established two internal committees to oversee our clinical studies. The Integrated Protocol Review Committee is responsible for the studies performed by the company on products that are under clinical development, while the Global Medical Decision Board is responsible for our own studies with approved products as well as for all studies performed by independent investigators and supported by us (so-called investigator-sponsored studies). Both bodies consist of medical-scientific experts and executives with long-standing experience in clinical research.

Before administering a new product to humans, there must be sufficient evidence that it offers a potential therapeutic benefit, is sufficiently safe for use in humans and has a positive benefit-risk ratio. We only take the critical step of a first-in-human clinical trial after diligently conducting extensive preclinical testing. The decision lies with a separate committee, the Human Exposure Group, chaired by our Global Chief Medical Officer.

We continuously analyze potential risks for study participants before and during our clinical studies. Our Medical Safety and Ethics Board (MSEB) oversees the safety of the participants in our clinical studies and, as necessary, reviews the benefit-risk profiles of investigational products.

Our commitment: International guidelines and requirements

Our Quality Policy defines the strategic framework that ensures our products, services and systems deliver high quality, safety and efficacy to our patients. It details the most relevant laws and codes, criteria and guidance (e.g. for product development and manufacturing), and our senior management's responsibility to ensure quality is embedded in everything we do.

Our Standard on Human Research provides the framework for conducting clinical studies and helps ensure we adhere to all applicable legal, ethical and scientific standards. Further quality documents detail for instance the strategic direction of all quality related activities or disclose our position on data privacy. In addition to the relevant national laws and regulations, these documents also include:

- The **Good Clinical Practice** (GCP) guidelines of the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH),
- The **Declaration of Helsinki**, published by the World Medical Association,
- Good Pharmacovigilance/Laboratory/Manufacturing/Distribution Practices (GVP/GLP/GMP/GDP),
- The **International Ethical Guidelines for Health-related Research Involving Humans**, published by the Council for International Organizations of Medical Sciences (**CIOMS**),

- The **Joint Position on the Disclosure of Clinical Trial Information via Clinical Trial Registries and Databases** and the **Joint Position on the Publication of Clinical Trial Results in the Scientific Literature**, published by the International Federation of Pharmaceutical Manufacturers & Associations (**IFPMA**), the European Federation of Pharmaceutical Industries and Associations (**EFPIA**), and the Pharmaceutical Research and Manufacturers of America (**PhRMA**),
- The **Principles for Responsible Clinical Trial Data Sharing**, published by EFPIA and PhRMA, and the IFPMA Principles for Responsible Clinical Trial Data Sharing.

Regular supervision of clinical studies

Our clinical study processes and procedures are regularly inspected by relevant regulatory authorities to verify their compliance with applicable laws and guidelines.

The Research & Development Quality and Risk Management (RDQRM) unit applies a risk-based identification strategy to determine areas that need to be audited. Quality assurance audits are performed internally within Healthcare R&D (for example, process audits) and externally (e.g. investigator sites and vendor audits). We respond immediately to observations made during audits by investigating their root causes and, according to their criticality, defining and implementing corrective and preventive actions to improve processes, prevent reoccurrence of irregularities and ensure compliance. As planned, in 2023, RDQRM concluded most of the audits of the Annual Audit Plan.

Conducting clinical studies responsibly

Every clinical study follows defined procedures to ensure it is conducted to high quality standards in line with good working practices (GxP) for the development and manufacturing of drugs, the ethical principles of the **Declaration of Helsinki** and other international guidelines and regulations. As in the previous year, in 2023, none of the regulatory inspections conducted on our clinical research activities resulted in regulatory action.

Disclosure of clinical studies and publication of results

We are obligated to disclose findings from our clinical studies. We strive to do this publicly in a complete, accurate, balanced, transparent, and timely manner as laid out in our Standard on Clinical Trial Data Transparency. We publish results from our clinical studies in medical journals in line with applicable laws and industry codes. In particular, we adhere to the current version of the Good Publication Practice (**GPP3**) and align with the recommendations of the International Committee of Medical Journal Editors (**ICMJE**). Our **Standard on Clinical Trial Data Transparency** underscores our strong commitment in this area.

Enabling early access to new medicines

Not all patients have the opportunity to take part in a clinical study and must therefore wait for a new pharmaceutical product to be approved. Through our Early Access Program, we can, under specific circumstances, enable patients to gain early access to new, potentially life-saving products. The offer is aimed at people with serious conditions who have already received all available therapies without success. It allows them to be treated with products that have already been clinically tested but have not yet been approved. Furthermore, we offer patients who participated in one of our clinical studies post-study access to the investigational product, provided that certain conditions are met. Here, too, we meet stringent statutory, ethical and scientific standards. By performing a thorough assessment of all available data, we ensure that the potential benefits outweigh the potential risks for patients.

Bioethics

Our goal is to conduct research in a responsible manner, which is why we develop ethical guidelines – also in close collaboration with external experts – in order to make well-founded decisions for responsible research. Moreover, we discuss in our committees the ethical aspects of providing products such as organoids for both academic research purposes and the biopharmaceutical industry. We carefully evaluate our position when it comes to controversial topics. We always prioritize the well-being of and benefit for various groups of patients, whether in clinical studies or during treatment with our medicines.

Roles and responsibilities

Since 2010, our Ethics Advisory Panel for Science and Technology (MEAP) has been making clear recommendations on ethical questions in science and technology as well as on questions extending beyond the field of traditional bioethics, in line with our transformation into a science and technology company. The recommendations of the MEAP guide our actions and business activities.

The members of the MEAP are renowned international experts from the fields of bioethics, medicine, philosophy, law, and the natural sciences as well as technology and sustainability. The MEAP has its mandate from the Executive Board and is chaired jointly by the two members of the Executive Board with responsibility for the Healthcare and Life Science business sectors.

All employees may address their concerns to the Bioethics team via our **compliance hotline** and a dedicated e-mail address (accessible via the intranet).

A further board, the Stem Cell Oversight Committee (SCROC), reviews and decides on all planned in-house research activities involving the use of human embryonal or pluripotent stem cells, ensuring compliance with legal requirements as well as our ethical guidelines. This also applies to joint projects with external partners. Up until the end of 2022, the SCROC consisted of internal experts from our business sectors as well as external advisors from the fields of bioethics, medicine, and law. In 2023 and in line with a resolution by the MEAP, we transformed the SCROC into a primarily internal board. The reason for this is that research plans that call for separate committee approval pursuant to the SCROC charter are currently not being carried out within the company.

Furthermore, for ethical questions arising for instance in the context of forward-looking business decisions, targeted Ethics Foresight projects can be initiated. We specifically engage external experts to work on these projects. No Ethics Foresight projects were commissioned in 2023.

Our commitment to policies and standards

Our **Genome Editing Principle** provides a binding ethical and operational framework for our employees. Apart from our position on genome editing, it includes information on human germline editing. It sets clear boundaries for us both as a supplier of customized CRISPR/Cas nucleases and genetically modified cell lines and as a company that uses genome editing technologies in our research.

This is complemented by further guidelines that form the ethical framework of our research and business activities. Our **Stem Cell Principle** sets the ethical boundaries for the use of human stem cells in our research. Our **Fertility Principle** regulates our fertility treatment and in-vitro fertilization research activities.

Using genome-editing techniques

CRISPR/Cas opens up new possibilities in genetic engineering research that could bring about major advances in the treatment of serious diseases. Laws in different countries allow for a varying degree of latitude in applying this technique. Bioethical positions on germline editing have been evolving for years through academic and social discourse. Our position on human germline editing is as follows:

“In accordance with the German Embryo Protection Act, we do not support the use of genome editing in human embryos and clinical applications of germline interventions in humans. We recognize that there may be value in responsibly conducted related research.”

Stem cell research

We neither participate in clinical programs that utilize human embryonic stem cells or cloned human cells for the treatment of diseases, nor do we pursue such approaches ourselves. However, we use human embryonic stem cells in our research and offer our customers several select stem cell lines. In both applications, we allow the use of human embryonic stem cells only if clearly defined conditions have been met. For instance, we only utilize stem cells for research purposes if our SCROC has reviewed the respective project and given approval. In fiscal 2023, no projects required the approval of the SCROC (2022: one project). We exclusively make use of cell lines that have been approved by the United States National Institutes of Health (NIH) and are allowed under the German Embryo Protection Act as well as the German Stem Cell Law.

Digital ethics

As it is our aim is to develop and use new digital technologies responsibly, we evaluate ethical issues that may arise from algorithms, artificial intelligence (AI) and data-based business models in an early stage. Since 2021, our Digital Ethics Advisory Panel (DEAP) has been focusing on complex ethical issues surrounding digital technologies.

Roles and responsibilities

One of the main tasks of the DEAP is to support us in developing digital applications responsibly while addressing ethics questions that could result from collecting and processing data as well as from the use of these innovative technologies. It issues recommendations for our entrepreneurial activities.

The panel comprises external international science and industry experts from the fields of digital ethics, law, Big Data technologies, digital health, medicine, and data governance. In addition, we involve bioethics experts as well as representatives from patient organizations as needed. The DEAP has its mandate from the Executive Board; our employees may submit topics for the panel to discuss. As in the previous year, the panel held four meetings in 2023. These focused on issues concerning the use of generative AI. Summary minutes of the DEAP meetings have been accessible on our intranet since 2023 insofar as they do not contain any business secrets. They also document the recommendations issued.

Our commitment: Guidelines and standards

As a company, we want to position ourselves in the digital ethics sphere. We are therefore developing clear ethical standards in this new field, primarily for critical areas, for instance handling health data. In this effort, we collaborate with various stakeholders and experts.

Together with the DEAP, we apply our Code of Digital Ethics (**CoDE**) in order to address questions pertaining to the ethical use of data and algorithms. The CoDE serves as a guideline for our digital business models, as a tool for analyzing ethical challenges, and a basis for practical DEAP recommendations. As one of our overarching governance documents, it applies to all employees and is publicly accessible as well.

Developments in the field of generative AI, for instance ChatGPT, are growing in importance. All our business sectors are developing applications based on generative AI. To apply these innovative technologies responsibly and to the benefit of all, an ethical framework is currently being developed. The DEAP is intensively evaluating the guidelines. The aim is to roll out this framework company-wide in 2024.

Ethical use of data and algorithms

In June 2023, online training on the CoDE was assigned to approximately 12,000 managers with personnel responsibility who can access the training in eight languages via our internal training platform. In addition, an advanced training course is available specifically for employees working in the fields of data science, AI and other digital areas of specialization. The course serves to illustrate the importance of the CoDE and empowers participants to make responsible decisions concerning the ethical aspects of data use and algorithms in digital products and business models.

Since 2022, we have been looking at potential ethical risks that could result from projects by the Life Science Data Intelligence and Analytics unit of our Life Science business sector with the aim of developing suitable processes. The unit analyzes data from the business sector in order to obtain insights for our business.

Data privacy and cyber security

The mandate and goal of our Group Data Privacy unit is to mitigate risks and create a global framework for data privacy-compliant business operations. This unit helps train our employees to handle data responsibly and with clear accountability. It safeguards our company by providing data privacy risk assurance and ensuring compliance with relevant data privacy laws globally. Group Data Privacy also contributes to creating value for the development of digital business models.

It is of critical importance to our business to protect our information systems, their contents and our communication channels against any criminal or unwanted activities. These include e-crime and cyberattacks, such as unauthorized access, information leakage and misuse of data or systems.

Roles and responsibilities

Group Data Privacy is an independent function, organizationally integrated into Group Compliance and Data Privacy. We have a Group Data Privacy Officer and a network of local Data Privacy Officers at various sites Group-wide. In line with external regulations, the Data Privacy Officers and their respective teams act independently and without receiving internal or external instructions. Group Data Privacy regularly prepares data privacy updates and a comprehensive data privacy report. This report is submitted to the Executive Board and the Supervisory Board.

Cyber security is part of our Group Corporate Security Office. In addition, we have a Group Chief Information Security Officer and a network of Information Security Officers within the business sectors and Group functions who hold risk ownership, act as our first line of cyber security defense and are supported by dedicated networks. Our global Cyber Security function acts as a second line of defense and has responsibilities regarding cyber security risk governance and oversight. Our third line of defense consists of internal audits.

Our Cyber Security organization strengthens resilience against cyberattacks and data breaches. It defines policies and standards for cyber security (including data security) while providing oversight, tools and systems to manage and monitor our overall cyber security risk exposure. The organization is also responsible for providing cyber security monitoring and incident response capabilities across the entire company. Additionally, we train our employees on how to protect data properly.

Our commitment: Guidelines and standards

Our Data Privacy Policy and the corresponding standards and procedures define our principles for processing personal data. This approach allows us to achieve a high level of data protection for our employees, contract partners, customers, and suppliers as well as patients and participants in clinical studies. Our Group-wide understanding of data privacy is based on European legislation, in particular the European Union General Data Protection Regulation (EU GDPR). We are also taking steps to meet local data privacy requirements, where these are stricter than our Group-wide standards.

Our Group cyber security governance framework contains organizational, process-related and technical information security countermeasures based on recognized international standards. In addition, we apply harmonized electronic and physical security controls (e.g. access controls and security monitoring) to bolster our ability to securely handle sensitive data, such as trade secrets.

Training and IT tools

In line with the EU GDPR and our global approach to data privacy, we regularly conduct e-learning training courses in ten languages. In 2023, the completion rate for our e-learning courses was 99%.

We maintain a central IT tool to provide a single source for data privacy processes, such as registering data processing activities and reporting potential data privacy incidents. In 2023, we reported seven cases of minor personal data breaches to the supervisory authority. One of them related to identified data leaks, theft, or loss of customer data. However, none of these cases were sanctioned.

Data Privacy

	2020	2021	2022	2023 Group	2023 thereof: Merck KGaA, Darmstadt, Germany
Reported violations of Data Privacy Guidelines	3	3	4	7	0
Customer Privacy[1]					
Total number of substantiated complaints received from outside parties	0	0	0	0	0
Total number of complaints from regulatory bodies	0	0	0	0	0
Total number of identified leaks, thefts, or losses of customer data	0	0	0	1	0

[1] These data only reflect incidents classified as significant.

Anti-Corruption and Anti-Bribery

Compliance management

As a global company, we have stringent requirements for effective compliance management. Importantly, we seek to emphasize compliance by acting in line with our company values and believe that profitable business operations should go hand in hand with the highest ethical standards.

Roles and responsibilities

Our Group Compliance function is responsible for the framework of the following core topics: our Code of Conduct, anti-corruption and anti-bribery (including healthcare compliance, third-party due diligence, transparency reporting), anti-money laundering, and conflicts of interest.

To cover these topics, we have Group-wide policies, standards and procedures in place that ensure our business activities comply with the relevant laws, regulations and international ethical standards. Other compliance-related issues, including the respective internal regulations and guidelines, such as Pharmacovigilance, Export and Import Controls, and Environment, Health, Safety, Security, Quality, are managed by the responsible functions.

Our Group Compliance function is responsible for our compliance portfolio, which consists of the following elements:

- Risk Assessment: Identifying internal and external critical risks in regular business operations
- Policies & Procedures: Global policies, procedures and standards to mitigate identified risks
- Compliance Committee/Forums: Platform for compliance-related discussion and decision making, including relevant key functions
- Training & Awareness: Appropriate training and additional measures to educate and keep awareness high
- Programs & Tools: Comprehensive compliance programs and supporting tools contributing to internal controls and overall governance
- Monitoring & Reporting: Tracking of compliance-related data; perform internal and external reporting
- Case Management: Timely response to reports of misconduct and implementation of corrective actions
- Continuous Improvement: Based on and applicable to all compliance program elements

Our Chief Compliance Officer reports on the status of our compliance activities, potential risks and serious compliance violations to the Executive Board and Supervisory Board twice a year at a minimum. As part of our regular reporting processes, we compile a comprehensive compliance and data privacy report annually for the Executive Board. This includes the status of our compliance program, continuous improvement initiatives and key figures on compliance and data privacy cases. Additionally, we prepare a mid-year update to highlight ongoing developments and the status of relevant projects and initiatives.

Our Chief Compliance Officer oversees all Compliance departments and the subordinate Compliance Officers and Compliance experts around the world. The Compliance Officers implement our compliance program within their respective areas of responsibility (adapting to local regulations) and receive guidance from our Group Compliance Center of Expertise. This is a centralized body that drives the design and evolution of our compliance program across all business sectors and Group functions.

Our commitment: Guidelines and standards

Our compliance program builds on our company values and integrates these into our compliance framework, which consists of Group-wide policies, standards and procedures for entrepreneurial conduct. The following are mandatory for all our employees:

- **Code of Conduct**
- **Human Rights Charter**
- Anti-Corruption Standard
- Anti-Money Laundering Group Standard
- Conflict of Interest Policy
- Antitrust and Competition Law Policy
- Whistleblowing and Investigations Standard
- **Supplier Code of Conduct**

Risk assessment

Proper compliance risk management is crucial to identify undetected risks and ensure our company remains protected. For this purpose, we have a compliance risk assessment process covering all of our business sectors. The assessment is based on a comprehensive risk matrix that improves objectivity and enables a data-driven risk approach. It focuses on bribery and corruption risks, illustrated through in-depth risk categorization and risk scenarios. It also utilizes country risk segmentation, classifying countries where we actively operate in terms of their risk exposure regarding bribery and corruption by applying objective and consistent criteria. We use the outcome as a model to prioritize initiatives and intensify activities in countries with higher risk levels.

Conflicts of interest

We take all potential conflicts of interest seriously. Employees must avoid situations where their professional judgment could come into conflict with their personal interests. They must also disclose every potential conflict of interest to their supervisor and document the disclosure. Such issues are typically resolved directly between the employee and the supervisor but can also be routed to Human Resources, Legal, Compliance or other relevant functions.

Management and requirements of third parties

For compliance management to be effective, it must not be restricted to the boundaries of our own company. While our supplier management processes focus on vendor compliance with our standards, our global Third Party Risk Management process governs interactions with sales parties, such as commercial agents, distributors, dealers, and high-risk vendors. We expect our third parties worldwide to adhere to our compliance principles. We collaborate only with parties who pledge to comply with relevant laws, reject all forms of bribery, and adhere to environmental, health and safety guidelines.

We apply a risk-based approach to select the third parties with whom we do business. The greater the estimated risk regarding a particular country, region, or type of service, the more in-depth we examine the third party before entering into a business relationship. We also explore background information from various databases and information reported by third parties.

If we encounter compliance concerns, we further analyze and verify the relevant information. Based on the outcome, we decide whether to reject the potential third party, impose conditions to mitigate identified risks or terminate the existing relationship.

Compliance training

We provide regular compliance training (both classroom and online) on our Code of Conduct and critical compliance topics such as anti-corruption, conflict of interest, antitrust, data privacy, anti-money laundering and healthcare compliance standards. We require employees to take these courses based on their exposure to risk. Some courses also apply to independent contractors and supervised workers, such as temporary employees. In 2023, we launched a new Anti-Corruption, Anti-Bribery and Anti-Money Laundering e-learning course based on the updated Global Anti-Corruption and Anti-Money Laundering standards introduced in 2022.

Anti-money laundering

We have implemented a global anti-money laundering (AML) program consisting of a global Anti-Money Laundering Group Standard, training and a dedicated process to report and investigate red flags and any high-risk transactions. Suspicious transactions are reported to the German Financial Intelligence Unit or other authorities as required. We continuously work to improve our AML program. Following in-depth AML risk assessments of jurisdictions with stricter regulatory frameworks than our AML program, we implemented additional local AML programs where required.

Reporting potential compliance violations

We encourage all employees worldwide to report potential compliance violations. Depending on the type of misconduct and the reporting person's preference, they can choose from various reporting channels. We recommend using one of our central channels that are directly received and reviewed by a dedicated, independent and qualified team within Group Compliance. Depending on the nature, content and type of report, Compliance may investigate a submission directly or assign it to another responsible function for further investigation. One central reporting channel is our global whistleblowing compliance hotline, which can be used free of charge and anonymously to report violations. It is available in several languages by telephone or as a web-based application. The compliance hotline is also available to external stakeholders. The relevant information can be found in the "contact us" and the Compliance and Ethics section of our **website**.

Compliance-relevant cases with a particular risk profile are presented to the Compliance Case Committee, comprising senior members of our Compliance, Legal, Data Privacy, Internal Auditing, and Human Resources departments. The Committee's duties include assessing and classifying specific compliance issues and addressing identified issues using appropriate measures.

In all Compliance-relevant cases, based on the investigation outcome and recommendations from Compliance or the Compliance Case Committee, we aim to take appropriate remediation measures. These can include disciplinary actions against employees who have committed a compliance violation. If the investigation identifies a root cause that could lead to the risk of further compliance violations, we take additional preventive and corrective actions.

Both the number of new Compliance-relevant cases and the number of cases with confirmed compliance violations increased compared with the previous year. In 2023, 106 Compliance-relevant new cases with reports via the compliance hotline and other channels were created. In 32 concluded cases, it was confirmed that the principles of the Code of Conduct or other internal or external guidelines had been violated.

Reported compliance violations

	2020	2021	2022	2023 Group	2023 thereof: Merck KGaA, Darmstadt, Germany
Total number of reported compliance violations					
Number of reported compliance incidents	81	79	79	106	9
Number of confirmed cases	41	42	28	32	1
Confirmed cases by category					
Bribery and corruption	6	1	2	1	0
Violation of cartel laws and fair competition rules	0	0	1	0	0
Fraudulent actions against the Group	11	6	11	3	0
Other violations of the Group Compliance Principles for the relations with business partners	0	0	2	3	0
Other violations of Group values, internal guidelines or legal requirements	24	35	12	25	1

Compliance audits

Compliance is ensured by Group Compliance and Group Internal Auditing as the second and third lines of defense. As part of the audits, Group Internal Auditing regularly reviews functions, processes and legal entities worldwide. These reviews include an assessment of the effectiveness of the respective compliance guidelines, processes and structures in place. The units also check for violations of our Code of Conduct, Anti-Corruption Standard, Anti-Money Laundering Group Standard, and Antitrust and Competition Law Policy.

Our audit planning aims to provide comprehensive risk assurance through the best possible audit coverage of our processes, countries and projects. We take a risk-based approach to our annual audit planning process, considering factors such as sales, employee headcount, systematic stakeholder feedback and the Corruption Perceptions Index (CPI) published by the non-governmental organization Transparency International. If an internal audit gives rise to recommendations, Group Internal Auditing performs a systematic follow-up and monitors the implementation of the recommended corrective actions. In 2023, Group Internal Auditing conducted 80 internal audits involving bribery and corruption-related risks (2022: 79), including 52 operational and 27 IT audits and 1 special audit which may be conducted to meet legal requirements.

Interactions with health systems

We support health systems by collaborating with our healthcare stakeholders, such as professional medical associations, patient and carer organizations, university clinics and other institutions that provide healthcare. We follow clearly defined internal approval requirements and procedures for each type of interaction, in line with applicable laws and codes. In countries with statutory or industry obligations on the disclosure of transfers of value to healthcare stakeholders, we aim to comply with these obligations.

In some countries we inform consumers directly. For example, in the United States direct-to-consumer (DTC) advertising for prescription medicines is permitted. In line with applicable local laws, we use DTC advertising in these countries to help increase people’s awareness of certain diseases and the available therapies.

Roles and responsibilities

For all interactions with healthcare stakeholders, we have established internal policies and review processes and tools, such as record-keeping systems. Thereby, we want to ensure adherence to statutory requirements and transparency obligations.

Our Global Regulatory Affairs unit has established a dedicated standard and corresponding process document on the review and approval of our promotional materials for our Healthcare business sector. At the operational level, the relevant business and all employees involved in our sales and marketing activities must adhere to our internal policies, standards and procedures. To ensure that all promotional materials meet our standards as well as local regulations end-to-end, we apply a harmonized Group-wide review and approval system.

Our commitment: Group-wide guidelines and industry standards

In addition to applicable laws and our own internal standards, we also strive to comply with the codes of conduct of various international industry organizations, such as the **Code of Practice** published by the International Federation of Pharmaceutical Manufacturers & Associations (**IFPMA**) and the Code of Practice of the European Federation of Pharmaceutical Industries and Associations (**EFPIA**) or the regulations of the U.S. Pharmaceutical Research and Manufacturers of America **(PhRMA)**.

Moreover, we apply various specific internal rules and regulations:

- Pharma Code for Conducting Pharmaceutical Business and Pharmaceutical Operations (Pharma Code)
- Healthcare Ethical Guiding Principles
- Standard on Medical Activities

For the collaboration with patient organizations:

- Policy on Interactions with Patients, Patient Opinion Leaders, and Patient Organizations
- Guideline Good Practice and Process Guidance: Engagement with Patients, Patient Opinion Leaders, and Patient Organizations

Transparent reporting

We publish the financial and non-financial contributions we make to healthcare stakeholders in the healthcare industry, such as healthcare professionals and healthcare organizations, as appropriate and in accordance with local laws and codes. The published information includes the names of individual recipients, their addresses, the purpose, and the contributed amount or value as required by the applicable laws and codes. In addition, before publishing, we secure all necessary informed consent forms, as required by the applicable data privacy regulations.

Regular employee training

In 2023, we continued our Code of Conduct training curriculum on managing dilemmas in sector-specific situations. Moreover, employees who are responsible for the promotion of our pharmaceutical products receive regular training on current guidelines. Depending on their roles and responsibilities, new employees participate in onboarding training dealing with the review and approval of promotional materials. Based on their roles and responsibilities and in order to remain up-to-date, employees participate in mandatory e-learning courses and classroom training on our policies and guidelines as well as important changes to the reporting requirements for transfers of value.

Other Topics

Sustainable innovation and technology

The sustainable innovation that we envision and drive forward must align with and support the three goals of our sustainability strategy. We define sustainable innovation as new or improved products, services, technologies, or processes that generate economic benefits and have positive environmental and social impacts. Therefore, we develop long-term solutions for our innovation and research activities that consider the entire value chain and evaluate each product's impact over its lifecycle.

Today, our products are already having positive impact on human progress and global health, namely our medicines and our biological and chemical innovations that utilize the latest technologies. We want to continuously improve the way we measure our progress by adapting to upcoming regulations and integrating quantitative sustainability criteria into our product development processes across all business sectors.

In 2023, we continued our partnership with the patent information platform LexisNexis® PatentSight® and evaluated the sustainability impact of our intellectual property. In the reporting year, 29% (2022: 40%) of our patent families published had a positive sustainability impact. However, this key indicator is not comparable with the previous year's figure as LexisNexis® PatentSight® updated the underlying **evaluation methodology**.

Roles and responsibilities

The organizational set-up of our R&D activities reflects the overall structure of our company. All three of our business sectors operate in independent R&D units that pursue their own innovation strategies. Group Corporate Sustainability supports our business sectors and Group functions to advance sustainability within the R&D and innovation processes. This includes the coordination and alignment of common core sustainability criteria in line with our shared goals as well as quality and quantification requirements. In 2022, we created a Group-wide dashboard, showing the potential contribution of our R&D portfolio to sustainable solutions. In 2023, we integrated a procedure describing the global sustainability evaluation in our R&D process.

Our Group Science & Technology Office leads the implementation of our combined strategy for innovation as well as data and digital, enabling innovation across our business sectors while harnessing the power of advanced data and digital capacities. It aims to identify and integrate transformative and strategically relevant technology trends into our business sectors while maintaining a Group-wide overview of our technology roadmap and innovation portfolio. Fostering data and digital capacities is key to accelerating sustainable innovation and enabling rapid action and personalized offerings. Innovation projects are incubated either through our corporate innovation teams or in the business sectors.

Our venture capital fund, M Ventures, prioritizes sustainable innovations through equity investments. The fund's mandate is to invest in innovative technologies and products that have the potential to significantly impact our core business areas. In addition, the fund focuses on investments in two areas of high strategic relevance to our company: digital technology and sustainability.

M Ventures' sustainability investment strategy follows two fundamental approaches. First, it invests in sustainable solutions relevant to our three business sectors, such as novel solutions for reducing emissions and waste, green life science technologies and green electronics technologies. These solutions may be more energy- or resource-efficient or may create products designed for circularity or with a lower carbon footprint. As many of these technologies are still in their early stages, M Ventures is partnering with **SEMI.org** along with the leading corporate venture capital funds to help accelerate the innovation and adoption of potential sustainable semiconductor solutions. The second approach involves making investments that leverage our core competencies to drive sustainability in other markets. These may include start-ups addressing sustainable foods, bio-manufacturing or carbon capture and utilization.

Our commitment: Aiming for circularity

Within our R&D processes, we are committed to continuously improving and integrating sustainability and circular economy criteria to assess the sustainability performance of our products and portfolio, enabling us to create more sustainable products for our customers and society. We have integrated and tailored Design for Sustainability (DfS) across all business sectors and use our overarching dashboard to monitor progress on key sustainability criteria. In 2023, we assessed almost all relevant R&D projects and thus enhanced transparency around the sustainability performance of our global R&D portfolio. We integrated a sustainability in R&D key indicator to track progress and continued advancing the use of evaluation tools such as **DOZN™** and GreenSpeed. We aim to combine the insights from the R&D dashboard with those gained from our commercial portfolio evaluation to steer our future R&D activities.

We have dedicated corporate resources for our circular economy strategy and we are driving several circular economy pilots and initiatives throughout the organization. In addition, we held a global circular economy summit to provide a platform for best practice sharing with internal and external participants.

Reporting in accordance with the EU Taxonomy Regulation

Fundamentals

The EU taxonomy for sustainable activities (hereinafter "EU Taxonomy") is a classification system that translates the climate and environmental objectives of the European Union (EU) into criteria for sustainable economic activities. For this purpose, the EU Taxonomy defines various key performance indicators and qualitative information that the Group must disclose. The introduction of the disclosure obligation under Article 8 of Regulation (EU) 2020/852 of the European Parliament and of the European Council dated June 18, 2020 on establishing a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 (hereinafter "EU Taxonomy Regulation") and the Delegated Acts adopted in this regard is being carried out in multiple phases:

- For the 2021 reporting period, key performance indicators were stated only for so-called taxonomy-eligible economic activities and were limited to those that make a substantial contribution to climate change mitigation or climate change adaptation as defined by the EU Taxonomy Regulation. An economic activity qualifies as taxonomy-eligible if it is within the scope of the EU Taxonomy.
- For the 2022 reporting period, apart from the degree of taxonomy-eligible economic activities making a substantial contribution to climate change mitigation or climate change adaptation within the meaning of the EU Taxonomy Regulation, it is also necessary to report the taxonomy-aligned share of the identified economic activities. According to the EU Taxonomy, an economic activity qualifies as taxonomy-aligned if it is taxonomy-eligible and makes a substantial contribution to one or more of the environmental objectives without doing significant harm to the other objectives or failing to fulfill minimum social standards.
- As well as the aforementioned information, the degree of taxonomy-eligible economic activities making a substantial contribution to the following four additional environmental objectives of the EU will be included in the disclosure obligation from the 2023 reporting period: 1) sustainable use and protection of water and marine resources, 2) transition to a circular economy, 3) pollution prevention and control, and 4) protection and restoration of biodiversity and ecosystems. Furthermore, new economic activities for the environmental objectives of climate change mitigation and climate change adaptation have been added for which the degree of taxonomy eligibility will be required to be disclosed in the 2023 reporting year. Reporting on the degree of taxonomy alignment for the newly added environmental objectives is not planned for the time being.
- From the 2024 reporting year, the degree of taxonomy eligibility and the degree of taxonomy alignment will have to be reported for all six environmental objectives.

Approach

To ensure the legally compliant fulfillment of its disclosure obligations, the Group has established an interdisciplinary project team that is continuously analyzing the existence of taxonomy-eligible and taxonomy-aligned activities in close coordination with the representatives of the business sectors and various Group functions.

Identification of taxonomy-eligible economic activities

In the course of implementing the EU Taxonomy requirements, the Group business model underwent a comprehensive analysis. Taxonomy-eligible economic activities were identified in line with a top-down approach using structured inquiries submitted to the relevant specialist departments. For the environmental objectives of climate change mitigation and climate change adaptation, the results of this analysis were supplemented by big data-supported analyses as part of a bottom-up approach. Among other things, information was used that can also be found in connection with the requirements of the REACH regulation as well as in the context of customs declarations. The economic activities for the other four environmental objectives were also identified by reference to existing reporting structures and hierarchies.

As a result of this process, taxonomy-eligible activities generating net sales were identified only in conjunction with the following economic activities:

- Manufacture of energy-efficient building equipment in the Electronics business sector (environmental objective “climate change mitigation”),
- Manufacture of active pharmaceutical ingredients in the Healthcare and Life Science business sectors (environmental objective “pollution prevention and control”),
- Manufacture of medical products in the Healthcare business sector (environmental objective “pollution prevention and control”), and
- Manufacture of electrical and electronic equipment in the Life Science business sector (environmental objective “transition to a circular economy”).

With respect to capital expenditure, the EU Taxonomy Regulation differentiates between three categories of capital expenditure:

- Capital expenditure that relates to assets or processes associated with taxonomy-aligned economic activities (category A),
- Capital expenditure that is part of a plan to expand taxonomy-aligned economic activities or to transform taxonomy-eligible economic activities into taxonomy-aligned economic activities (category B), and
- Capital expenditure related to the acquisition of products from taxonomy-eligible economic activities and individual measures that carry out the target activities in a low-carbon manner or reduce greenhouse gas emissions (category C).

Owing to its business model, the Group only engages in taxonomy-eligible economic activities in conjunction with the manufacture of active pharmaceutical ingredients, manufacture of medical products, the manufacture of electrical and electronic equipment and, to a small extent, the manufacture of energy-efficient building equipment, it has only limited taxonomy-eligible capital expenditure in category A. There is no capital expenditure in category B to date as the Group does not prepare any capital spending plans to transform taxonomy-eligible economic activities into taxonomy-aligned economic activities. Furthermore, the Group has capital expenditure resulting from the acquisition of products classified as taxonomy-eligible economic activities or attributable to qualifying individual measures (category C). In order to be taxonomy-eligible, this capital expenditure must correspond to one of the economic activities named in the Delegated Acts and be implemented and operational within 18 months.

In the Group, such capital expenditure exists especially in connection with the environmental objective of climate change mitigation in the following areas:

- Electricity generation using solar photovoltaic technology (activity 4.1 of the Delegated Act on the “climate change mitigation” environmental objective),
- Transport by motorbikes, passenger cars and light commercial vehicles (activity 6.5 of the Delegated Act on the “climate change mitigation” environmental objective), and
- Renovation of existing buildings (activity 7.2 of the Delegated Act on the “climate change mitigation” environmental objective and activity 3.2 of the Delegated Act on the “circular economy” environmental objective).

Determination of taxonomy alignment

Technical screening criteria

In order to check the taxonomy alignment of the taxonomy-eligible economic activities, the relevant regulations for the technical screening criteria under which certain economic activities qualify as contributing substantially to the environmental objective as well as for determining whether the activity causes no significant harm to any of the other environmental objectives were systematically analyzed. The basis for this was the Delegated Acts on the EU Taxonomy, which were used for the identification of taxonomy-eligible economic activities. In these, corresponding requirements are defined for the respective economic activities, which must be fulfilled for a classification as taxonomy-aligned. For this purpose, interviews were conducted with business and project managers and the physical climate risks at the sites were analyzed. Furthermore, operating permits, product data sheets, environmental product declarations, energy performance certificates and internal training documents were inspected, among other things.

Net sales, capital expenditure and operating expenditure in connection with the “climate change mitigation” environmental objective were identified as taxonomy-aligned economic activities to a very small extent only. No additional taxonomy-eligible and taxonomy-aligned net sales, capital expenditure or operating expenditure were identified for the “climate change adaptation” environmental objective. From 2024, the degree of taxonomy alignment will have to be reported for the other four environmental objectives in addition to the degree of taxonomy eligibility. Based on the information currently available, the degree of taxonomy alignment for the other four environmental objectives will also be very low. A more accurate statement is not yet possible owing to the uncertain questions regarding the interpretation of the regulations and the current progress of the project.

Minimum safeguards

The minimum safeguard frameworks include the OECD Guidelines for Multinational Enterprises, the United Nations Guiding Principles on Business and Human Rights, the fundamental conventions of the International Labour Organization, and the International Bill of Human Rights. The requirements profile of the frameworks was systematized and compared with internal documents. This included an analysis of the Code of Conduct, work instructions, guidelines and training documents. Compliance with the due diligence process required by the framework in the area of human rights is ensured with respect to the individual business activities. Risk analyses are carried out with regard to the minimum safeguard requirements and appropriate measures are derived from these.

Determination of the taxonomy KPIs

The three key performance indicators (KPIs), namely net sales, capital expenditure and operating expenditure, were mainly derived from existing financial reporting systems; for capital expenditure inquiries were made to the Investment Controlling unit in some instances. The principle of materiality was applied.

Accounting and measurement policies

The EU Taxonomy Regulation and the corresponding Delegated Acts contain wording and requirements which, even taking into account the supplementary publications of the EU Commission and the "EU Platform on Sustainable Finance", are subject to interpretation and/or for which clarifications have not yet been published in every case. The most significant interpretive issues and Our approach are presented below.

Taxonomy eligibility

Ancillary activities that are operationally necessary for our core business do not qualify as independent taxonomy-eligible economic activities. This applies, for example, to the transport of our products to our customers, research and development activities, and the acquisition or construction of production buildings in areas that cannot be allocated to a taxonomy-eligible target activity.

To check the taxonomy eligibility of an economic activity, the Group applies an end-product oriented approach for manufacturing-related activities. This means that the end product must result from one of the economic activities specified in the Delegated Act in order to qualify as being taxonomy-eligible. In the case of organic basic chemicals, the corresponding economic activities qualify as taxonomy-eligible in the interpretation of the Group only if the manufacturing activities of the named chemical products involve a significant transformation process. In our interpretation, products that are merely passed on for sale, repackaged or mixed do not qualify as taxonomy-eligible within the meaning of the EU Taxonomy Regulation.

The purchase or performance of contract manufacturing services for active pharmaceutical ingredients or medical products in the Healthcare and Life Science business sectors typically does not give rise to a taxonomy-eligible economic activity, as the Group does not control the circumstances under which the contract manufacturing is performed in many cases.

In the area of fossil gas, the Group operates a gas turbine and a co-generation facility to generate electricity and heat from fossil gaseous fuels. The facilities serve to generate our own power and heat. These activities in the area of electricity generation from fossil gaseous fuels as well as the operation of co-generation units with fossil gaseous fuels have been classified as not material. Additional activities in the field of nuclear energy and fossil gas are not performed or are performed to an insignificant extent only.

Net sales

The net sales KPI represents the ratio of net sales from taxonomy-eligible or taxonomy-aligned economic activities in a fiscal year to the total net sales of the same fiscal year. The definition of relevant net sales for the purposes of the EU Taxonomy Regulation corresponds to the definition of net sales in the consolidated financial statements (see Note (9) "**Net sales**" in the Notes to the Consolidated Financial Statements).

Capital expenditure

The share of capital expenditure on assets or processes associated with economic activities classified as taxonomy-eligible or taxonomy-aligned is determined as follows: Share of total capital expenditure that is taxonomy-eligible or taxonomy-aligned divided by total capital expenditure according to the EU Taxonomy Regulation. In the Group and within the meaning of the EU Taxonomy Regulation, capital expenditure in the reporting period comprises additions to property, plant and equipment (IAS 16), rights of use from leases (IFRS 16), and intangible assets (IAS 38) with the exception of goodwill. Apart from the additions, advance payments for the named assets are also included. The denominator also includes additions to property, plant and equipment and intangible assets resulting from business combinations. The additions can be seen in the changes in property, plant and equipment and intangible assets disclosed in the consolidated financial statements (see Note (20) "**Property, Plant and Equipment**" and Note (19) "**Other Intangible Assets**" in the Notes to the Consolidated Financial Statements).

In order to exclude double counting, capital expenditure on products from taxonomy-aligned economic activities and individual measures that have already been checked under category A (i.e. capital expenditure that relates to assets or processes associated with taxonomy-aligned economic activities) are included under this category only. Against this background, capital expenditure for production buildings, for example, is subject to a taxonomy-eligibility check under category A only, while capital expenditure for administrative buildings is included under category C.

Operating expenditure

The share of operating expenditure for assets or processes associated with economic activities classified as taxonomy-eligible or taxonomy-aligned is determined as follows: Share of total operating expenditure that is taxonomy-eligible or taxonomy-aligned divided by total operating expenditure according to the EU Taxonomy Regulation. Operating expenditure relevant within the scope of reporting under the EU Taxonomy Regulation includes direct, non-capitalized research and development costs, low-value leases, building renovations, maintenance and repair, and all other direct internal and external expenses related to the day-to-day maintenance of property, plant and equipment that are necessary to ensure the continuous and effective functioning of these assets. During the clinical and preclinical development phases in the Healthcare business sector, it is unclear as to whether the activities will ever lead to regulatory approval and hence to marketable products. Accordingly, the corresponding research and development activities have not been included as taxonomy-eligible operating expenditure in the numerator for the economic activities of pharmaceutical ingredients and medical products.

Taxonomy KPIs

The following tables present the share of sales, capital expenditure and operating expenditure attributable to taxonomy-eligible and taxonomy-aligned economic activities in respect of the environmental objective "climate change mitigation". The tables also contain information on the share of taxonomy-eligible economic activities for the four additional environmental objectives:

Economic activities	Code	Turnover 2023	Proportion of Turnover 2023	Criteria for a substantial contribution: Climate change mitigation	Climate change adaptation	Water	Pollution	Circular Economy	Biodiversity	DNSH criteria ("Do no significant harm"): Climate change mitigation	Climate change adaptation	Water	Pollution	Circular Economy	Biodiversity	Minimum safeguards	Proportion of Taxonomy-aligned or eligible turnover 2022	Category enabling activity	Category transitional activity
	([a])	€ million	%	Y; N; N/EL ([b])	Y; N; N/EL ([b])	Y; N; N/EL ([b])	Y; N; N/EL ([b])	Y; N; N/EL ([b])	Y; N; N/EL ([b])	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (taxonomy-aligned)																			
Manufacture of energy efficiency equipment for buildings (A1)	CCM 3.5	7	0.03	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	Y	0.03	E	
Turnover of environmentally sustainable activities (taxonomy-aligned) (A.1)																			
Of which enabling		7	0.03	0.03	-	-	-	-	-								0.03	E	
Of which transitional		-	-	-													-		T
A.2 Taxonomy-eligible, but not environmentally sustainable activities (not taxonomy-aligned activities)				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Manufacture of active pharmaceutical ingredients (API) or active substances	PPC 1.1	99	0.47	N/EL	N/EL	N/EL	EL	N/EL	N/EL								0.00		
Manufacture of medicinal products	PPC 1.2	5,778	27.52	N/EL	N/EL	N/EL	EL	N/EL	N/EL								0.00		
Manufacture of electrical and electronic equipment	CE 1.2	98	0.47	N/EL	N/EL	N/EL	N/EL	EL	N/EL								0.00		
Turnover of taxonomy-eligible but not environmentally sustainable activities (not taxonomy-aligned activities) (A.2)		**5,975**	**28.46**	**-**	**-**	**-**	**27.99**	**0.47**	**-**								0.00		
A. Turnover of taxonomy eligible activities (A.1 + A.2)		**5,982**	**28.49**	**0.03**	**-**	**-**	**27.99**	**0.47**	**-**										
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Turnover of taxonomy-non-eligible activities (B)		**15,011**	**71.51**																
Total (A + B)		**20,993**	**100.00**																

Economic activities	Code	CapEx 2023	Proportion of CapEx 2023	Criteria for a substantial contribution						DNSH criteria ("Do no significant harm")							Proportion of taxonomy aligned or eligible CapEx 2022	Category enabling activity	Category transition-al activity
				Climate change mitigation	Climate change adaptation	Water	Pollution	Circular Economy	Biodiversity	Climate change mitigation	Climate change adaptation	Water	Pollution	Circular economy	Biodiversity	Minimum safeguards			
		€ million	%	Y; N; N/EL [b]	Y; N; N/EL [b]	Y; N; N/EL [b]	Y; N; N/EL [b]	Y; N; N/EL [b]	Y; N; N/EL [b]	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1 Environemtally sustainable activities (taxonomy-aligned)																			
Manufacture of energy efficiency equipment for buildings	CCM 3.5	1	0.06	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	Y	0.06	E	
Electricity generation using solar photovoltaic technology	CCM 4.1	4	0.17	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	Y	0.00	E	
Renovation of existing buildings	CCM 7.2	10	0.43	Y	N/EL	N/EL	N/EL	N	N/EL		Y	Y	Y	Y	Y	Y	0.51		T
CapEx of environmentally sustainable activities (taxonomy aligned) (A.1)		**16**	**0.66**	**0.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**								**0.58**		
Of which enabling		5	0.23	0.23	0.00	0.00	0.00	0.00	0.00									E	
Of which transitional		10	0.43	0.43															T
A.2 Taxonomy-eligible, but not environmentally sustainable activities (not taxonomy-aligned activities)				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Transport by motorbikes, passenger cars and light commercial vehicles (A.2)	CCM 6.5	32	1.35	EL	N/EL	N/EL	N/EL	N/EL	N/EL								1,26		
Manufacture of active pharmaceutical ingredients (API) or active substances	PPC 1.1	1	0.04	N/EL	N/EL	N/EL	EL	N/EL	N/EL								0.00		
Manufacture of medicinal products	PPC 1.2	101	4.27	N/EL	N/EL	N/EL	EL	N/EL	N/EL								0.00		
CapEx of taxonomy-eligible but not environmentally sustainable activities (not taxonomy-aligned activities) (A.2)		**135**	**5.67**	**1.35**	**0.00**	**0.00**	**4.31**	**0.00**	**0.00**								1,26		
A. CapEx of taxonomy eligible activities (A.1 + A.2)		**150**	**6.33**	2.02	0.00	0.00	4.31	0.00	0.00										
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
CapEx of taxonomy-non-eligible activities (B)		**2,226**	**93.67**																
Total (A + B)		**2,377**	**100.00**																

Economic activities	Code	OpEx 2023	Proportion of OpEx 2023	Criteria for a substantial contribution						DNSH criteria ("Do no significant harm")							Proportion of taxonomy aligned or eligible OpEx 2022	Category enabling activity	Category transition-al activity
				Climate change mitigation	Climate change adaptation	Water	Pollution	Circular Economy	Biodiversity	Climate change mitigation	Climate change adaptation	Water	Pollution	Circular economy	Biodiversity	Minimum safeguards			
	(a)	€ million	%	Y; N; N/EL (b)	Y; N; N/EL (b)	Y; N; N/EL (b)	Y; N; N/EL (b)	Y; N; N/EL (b)	Y; N; N/EL (b)	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1 Environemtally sustainable activities (taxonomy-aligned)																			
Manufacture of energy efficiency equipment for buildings	CCM 3.5	1	0.02	Y	N/EL	N/EL	N/EL	N/EL	N/EL		Y	Y	Y	Y	Y	Y	0.00	E	
Renovation of existing buildings	CCM 7.2	0	0.00	Y	N/EL	N/EL	N/EL	N	N/EL		Y	Y	Y	Y	Y	Y	0.00		T
OpEx of environmentally sustainable activities (taxonomy aligned) (A.1)		**1**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**								**0.00**		
Of which enabling		1	0.02	0.02	-	-	-	-	-								0.00	E	
Of which transitional		0	0.00	0.00	-	-	-	-	-								0.00		T
A.2 Taxonomy-eligible, but not environmentally sustainable activities (not taxonomy-aligned activities)				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Manufacture of active pharmaceutical ingredients (API) or active substances	PPC 1.1	3	0.11	N/EL	N/EL	N/EL	EL	N/EL	N/EL								0.00		
Manufacture of medicinal products	PPC 1.2	49	1.73	N/EL	N/EL	N/EL	EL	N/EL	N/EL								0.00		
Manufacture of electrical and electronic equipment	CE 1.2	4	0.16	N/EL	N/EL	N/EL	N/EL	EL	N/EL								0.00		
OpEx of taxonomy-eligible but not environmentally sustainable activities (not taxonomy-aligned activities) (A.2)		**56**	**1.99**	**0.00**	**0.00**	**0.00**	**1.83**	**0.16**	**0.00**								0.00		
A. OpEx of taxonomy eligible activities (A.1 + A.2)		**57**	**2.02**	0.02	0.00	0.00	1.83	0.16	0.00										
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
OpEx of taxonomy-non-eligible activities (B)		**2,761**	**97.98**																
Total (A + B)		**2,817**	**100.00**																

(a) The Code constitutes the abbreviation of the relevant objective to which the economic activity is eligible to make a substantial contribution, as well as the section number of the activity in the relevant Annex covering the objective, i.e.:
Climate Change Mitigation: CCM
Climate Change Adaptation: CCA
Water and Marine Resources: WTR
Circular Economy: CE
Pollution Prevention and Control: PPC
Biodiversity and ecosystems: BIO

(b) Y – Yes, Taxonomy-eligible and Taxonomy-aligned activity with the relevant environmental objective
N – No, Taxonomy-eligible but not Taxonomy-aligned activity with the relevant environmental objective
N/EL – not eligible, Taxonomy-non-eligible activity for the relevant environmental objective.

Research and development expenses accounted for 2,445 Mio. € (2022:2,521 Mio. €) of the reported operating expenditure, with 1,657 Mio. € (2022: 1,694 Mio. €) of this being attributable to the Healthcare business sector.

Additional information in accordance with the German commercial code (HGB)

The Management Report of Merck KGaA, Darmstadt, Germany, has been combined with the Group Management Report. The Annual Financial Statements and the Combined Management Report of the Group and Merck KGaA, Darmstadt, Germany, for fiscal 2023 are filed with the electronic German company register and are available on its website.

Merck KGaA, headquartered in Darmstadt, Germany, is the parent company of the Group.

Following the transfer of the Life Science, Healthcare and Electronics business sectors into separate legal entities, Merck KGaA, Darmstadt, Germany, primarily performs a holding company function for the Group. As part of the strategic management of the Group, this function makes strategically important decisions and ensures that compliance provisions are observed by the central enabling Group Functions on a Group-wide basis. It also performs Group-wide services for Group companies in the areas of information technology, strategic management and site management, especially at the Darmstadt site. Merck KGaA, Darmstadt, Germany, employs around 4,000 of the more than 11,000 employees at the Darmstadt site.

The financial statements of Merck KGaA, Darmstadt, Germany, have been prepared in accordance with the provisions of the German Commercial Code (HGB), the German Stock Corporation Act (AktG), and the supplementary requirements of the Articles of Association. The full version of the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, together with the unqualified auditor's opinion has been submitted to the electronic company register and published there.

Effects of material company agreements on the net assets, financial position, and results of operations

Hive-down of the operating activities of the business sectors

As part of the strategic further development of Merck KGaA, Darmstadt, Germany, the existing operating activities of the Life Science, Healthcare, and Electronics business sectors within Merck KGaA, Darmstadt, Germany, together with the relevant assets and liabilities (hereinafter: "operating units"), were hived down at their carrying amounts into three separate legal entities (hereinafter: "OpCo" or plural "OpCos") with the legal form of a GmbH or German limited liability corporation and with economic effect from January 1, 2018 (operating hive-down).

Since the technical system requirements for the rollout of the business sector-specific enterprise resource planning systems (hereinafter "ERP") were not in place at the OpCos at the time of the hive-down, the business activities hived down to the OpCos have been temporarily leased back by the relevant OpCos to Merck KGaA, Darmstadt, Germany. Under the terms of a business lease agreement, Merck KGaA, Darmstadt, Germany, leased the entire operations from each of the three OpCos with economic effect from January 1, 2018. In this context, it also leased all fixed assets and acquired the current assets as well as certain liabilities and provisions at their carrying amounts under German commercial law.

The business lease agreement under which the Healthcare business sector was leased back to Merck KGaA, Darmstadt, Germany, was terminated with economic effect from March 31, 2019. Merck Healthcare KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany (formerly the Healthcare OpCo) assumed the power of operational management for the Healthcare business sector from Merck KGaA, Darmstadt, Germany, with effect from April 1, 2019. As a result of the termination of the business lease agreement, the leased objects allocated to the Healthcare business sector at the end of the lease were transferred to Merck Healthcare KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany.

The business lease agreement for the Electronics business sector (EL business lease agreement) was terminated with economic effect from December 31, 2019 for the part of the distribution and sales function belonging to the Electronics business sector. Accordingly, these functions were transferred from Merck KGaA, Darmstadt, Germany, to the EL OpCo (then Merck Performance Materials Germany GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany) with economic effect from January 1, 2020. The contractual, process, procedural, and working relationships and leased objects allocated to the function were transferred to the EL OpCo as a result. The EL business lease agreement for the other functions of the Electronics business sector remained in place until December 31, 2022.

To facilitate the implementation and operation of the new ERP systems for the LS OpCo (then Merck Life Science Germany GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany) and the EL OpCo, the EL OpCo transferred the Darmstadt-based “Organics” and “OLED” production operations, including the production-related Electronics shared functions (EL Production, hereinafter: “ELP”), to the LS OpCo by way of a chain transformation in multiple steps on August 31, 2022. The function that was spun off from the EL business lease agreement via EL Production (the ELP business lease agreement) had been in place between Merck KGaA, Darmstadt, Germany, as the lessee and the LS OpCo as the lessor since this date.

By way of entries in the commercial register on November 1, 2022 (LS OpCo) and December 29, 2022 (EL OpCo), the LS OpCo and the EL OpCo changed their legal form to that of a German corporation with general partners (Kommanditgesellschaft auf Aktien) and have since been operating under the names Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany.

As a result of the aforementioned hive-down and restructuring measures and the existing EL and ELP business lease agreements, Merck KGaA, Darmstadt, Germany, continued to manage the operating business of the Electronics business sector with the exception of part of the distribution and sales function until December 31, 2022. Furthermore, as a result of the Life Science business lease agreement, Merck KGaA, Darmstadt, Germany, also ran the operating business of the Life Science business sector.

Termination of the temporary business lease of the Life Science and Electronics business sectors

Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, went live on January 1, 2023. It assumed the power of operational management for the Life Science operating business and ELP from Merck KGaA, Darmstadt, Germany, at this date. Merck KGaA, Darmstadt, Germany, therefore terminated the LS and ELP business lease agreements with effect from January 1, 2023.

Merck KGaA, Darmstadt, Germany, also terminated the EL business lease agreement with effect from January 1, 2023. The power of operational management for the Electronics business sector, with the exception of EL Production, was therefore transferred from Merck KGaA, Darmstadt, Germany, to Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, at this date. As a result of the termination of the business lease agreements, the leased objects allocated to the Life Science and Electronics business sectors and EL Production – comprising current and non-current assets as well as certain liabilities and provisions – were transferred to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, respectively. In exchange, Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck

KGaA, Darmstadt, Germany, paid compensation in the amount of the balance of the transferred carrying amounts under German commercial law. In addition, around 3,400 employees were transferred from Merck KGaA, Darmstadt, Germany, to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and around 1,000 employees were transferred to Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany. The remaining around 4,000 employees in Group functions remained with Merck KGaA, Darmstadt, Germany.

Additional transfers involving the Life Science business sector

By way of a contribution agreement dated December 2, 2022, Merck KGaA, Darmstadt, Germany, also transferred the assets and liabilities allocated to the Life Science business sector that were not previously included in the operating hive-down of the Life Science business sector or the LS business lease agreement to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, with effect from January 1, 2023. This related to the "Packaging & Container" functional unit and the assets and liabilities of the Hohenbrunn site. The assets and liabilities mainly included property, plant, and equipment, cash and cash equivalents, pension provisions and other provisions and were contributed at their carrying amounts under German commercial law in exchange for the grant of new shares in Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany.

Due to the hive-downs and transfers described above in connection with the termination of the business lease agreements (collectively referred to hereinafter as the "transfer of operating activities"), some balance sheet items for 2023 are only comparable with the prior-year figures to a limited extent. To improve comparability, additional information on the impact of the transfer of operating activities to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, on individual balance sheet items of Merck KGaA, Darmstadt, Germany, is provided. The following table shows the balance sheet of Merck KGaA, Darmstadt, Germany, before (December 31, 2022) and after (January 1, 2023) the transfer of operating activities. In terms of the income statement of Merck KGaA, Darmstadt, Germany, for fiscal 2023, the transfer of operating activities resulted in lower net sales, material costs, personnel expenses and other operating expenses in particular (for details see the disclosures on the income statement in the "**Business development and results of operations**" section.

€ million	**Merck KGaA, Darmstadt, Germany 01.01.2023**	Merck KGaA, Darmstadt, Germany 31.12.2022	Change € million	Change %
Assets				
A. Fixed assets				
Intangible assets	192	192	–	0.0%
Tangible assets	961	969	-8	-0.8%
Financial assets	22,809	22,804	5	0.0%
	23,962	**23,965**	**-3**	**0.0%**
B. Current assets				
Inventories	25	546	-521	-95.4%
Trade accounts receivable	76	126	-50	-39.8%
Other receivables and other assets	1,347	968	379	39.2%
Cash and cash equivalents	0	0	–	0.0%
	1,448	**1,641**	**-192**	**-11.7%**
C. Prepaid expenses	74	74	–	0.0%
Total assets	**25,485**	**25,680**	**-195**	**-0.8%**
Equity and liabilities				
A. Net equity				
Subscribed capital	168	168	–	0.0%
General partner's equity	397	397	–	0.0%
Capital reserves	3,814	3,814	–	0.0%
Retained earnings	702	702	–	0.0%
Profit carried forward E. Merck KG, Darmstadt, Germany	80	80	–	0.0%
Net retained profit: shareholders	318	318	–	0.0%
	5,479	**5,479**	**–**	**0.0%**
B. Provisions				
Provisions for pensions and other post-employment benefits	1,487	1,509	-22	-1.5%
Other provisions	688	774	-86	-11.1%
	2,175	**2,283**	**-108**	**-4.7%**
C. Liabilities				
Financial liabilities	2,751	2,751	–	0.0%
Trade accounts payable	222	308	-86	-28.0%
Other liabilities	14,847	14,848	-1	0.0%
	17,819	**17,907**	**-87**	**-0.5%**
D. Deferred income	11	11	–	-1.7%
Total equity and liabilities	**25,485**	**25,680**	**-195**	**-0.8%**

Business development and results of operations

Net sales of Merck KGaA, Darmstadt, Germany, decreased to € 1,628 million in fiscal 2023. The € 1,552 million reduction was mainly due to the transfer of operating activities of the Life Science and Electronics business sectors into separate legal entities with effect from January 1, 2023 (see "**Effects of material company agreements on the net assets, financial position, and results of operations**"). Following the transfer, Merck KGaA, Darmstadt, Germany, no longer generates any income from operating product and service business (2022: € 1,813 million).

In the past fiscal year, net sales of Merck KGaA, Darmstadt, Germany, exclusively comprised income from the intragroup on-charging of services. This primarily related to site management services, IT services, strategic management costs and license fees for the Group umbrella brand. All in all, the intragroup on-charging of services was higher than in the previous year due to the increase in on-charged site and administrative services in particular.

Results of operations

			Change	
€ million	**2023**	2022	€ million	%
Net sales	1,628	3,180	-1,552	-48.8
Other income	105	184	-79	-43.0
Cost of materials	-721	-1,269	548	-43.2
Personnel expenses	-581	-1,256	675	-53.7
Depreciation, amortization, and write-downs	-132	-142	11	-7.5
Other operating expenses	-821	-1,150	329	-28.6
Investment result	2,203	2,015	188	9.3
Other financial result	-685	-414	-272	65.7
Profit before profit transfers and taxes	**996**	**1,148**	**-152**	**-13.2**
Profit transfers	-696	-677	-18	2.7
Taxes	-16	-228	213	-93.1
Profit after profit transfers and taxes	**285**	**242**	**43**	**17.7**

The year-on-year change in individual items of the income statement of Merck KGaA, Darmstadt, Germany, was substantially impacted by the transfer of operating activities. These effects are discussed below and above in the "**Effects of material company agreements on the net assets, financial position, and results of operations**" section. As a result, the income statement for fiscal 2023 mainly saw a decline in expense and income items relating to operating activities, such as net sales, material costs, personnel expenses and other operating expenses.

In addition to the effects of the transfer of operating activities, higher profit transfers from subsidiaries and lower tax expense in particular more than offset the higher level of other financial expenses, resulting in an increase in total profit after taxes and profit transfers.

The reduction in **other income** primarily resulted from the fact that the prior-year figure included changes relating to certain inventory items that were transferred as of January 1, 2023, as well as from the lower level of insurance compensation payments.

The transfer of operating activities meant the total **cost of materials** decreased in line with net sales. By contrast, the cost of materials in relation to sales increased to 44.3% (2022: 39.9%), as net sales in the past fiscal year resulted solely from the intragroup oncharging of services whose performance involves a proportionally higher level of material costs (see "**Effects of material company agreements on the net assets, financial position, and results of operations**").

The lower level of **personnel expenses** was due in particular to the transfer of around 4,400 employees to different legal entities as the result of the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**"). The level of additions to pension provisions was also lower. This was offset by salary increases for employees covered by and exempt from collective agreements, as well as the collectively agreed inflation allowance.

Depreciation, amortization, and adjustments remained essentially unchanged as against the previous year. The transfer of operating activities did not have a material impact on the amount of fixed assets (see "**Effects of material company agreements on the net assets, financial position, and results of operations**").

The reduction in other **operating expenses** was due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**") and mainly resulted from the lower level of external services for sales and advertising as well as other external services and procurements.

Following the transfer of operating activities, the relevance of **investment income** as the largest income item is increasing. It increased by € 188 million to € 2,203 million (2022: € 2,015 million) on the back of higher income from profit and loss transfer agreements with subsidiaries in the Healthcare business sector. The general rise in interest rates also led to an increase in the profit transfer from the Group financing company, Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany. This was offset by lower dividends from other subsidiaries and higher expenses from profit and loss transfer agreements.

The increased interest expense in the **other financial result** was primarily due to higher interest expenses in respect of the Group financing company, Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, as a result of rising interest rates; this was offset by positive adjustments to the fair value of the plan assets in connection with pension provisions.

Additions to provisions for uncertain tax obligations in particular led to a higher **tax** expense in the previous year, whereas these did not occur to the same extent in 2023.

Net assets and financial position

Assets

			Change	
€ million	**Dec. 31, 2023**	Dec. 31, 2022	€ million	%
Fixed assets	**24,065**	**23,965**	**99**	**0.4**
Intangible assets	181	192	-11	-5.6
Tangible assets	1,076	969	107	11.0
Financial assets	22,808	22,804	3	0.0
Current assets	**1,708**	**1,641**	**68**	**4.1**
Inventories	29	546	-517	-94.7
Trade accounts receivable	62	126	-64	-50.9
Other receivables and other assets	1,617	968	649	67.1
Cash and cash equivalents	0	0	–	–
Prepaid expenses	**78**	**74**	**4**	**5.5**
	25,851	**25,680**	**171**	**0.7**

Equity and liabilities

			Change	
€ million	**Dec. 31, 2023**	Dec. 31, 2022	€ million	%
Net equity	**5,481**	**5,479**	**2**	**0.0**
Provisions	**2,198**	**2,283**	**-85**	**-3.7**
Provisions for pensions and other post-employment benefits	1,415	1,509	-94	-6.2
Other provisions	783	774	9	1.2
Liabilities	**18,162**	**17,907**	**256**	**1.4**
Financial liabilities	2,476	2,751	-275	-10.0
Trade accounts payable	152	308	-156	-50.5
Other liabilities	15,534	14,848	686	4.6
Deferred income	**10**	**11**	**-1**	**-12.1**
	25,851	**25,680**	**171**	**0.7**

The year-on-year change in individual items of the balance sheet of Merck KGaA, Darmstadt, Germany, was substantially impacted by the transfer of operating activities. These effects are discussed below and above in the "**Effects of material company agreements on the net assets, financial position, and results of operations**" section. In terms of the balance sheet for fiscal 2023, this primarily resulted in a reduction in inventories and trade accounts receivable on the asset side of the balance sheet and in trade payables on the equity and liabilities side, while other receivables increased.

Largely irrespective of the transfer of operating assets, one notable increase on the asset side of the balance sheet related to fixed assets (€ +99 million). This was mainly due to the investments in property, plant and equipment at the Darmstadt site.

The higher level of income from profit and loss transfers meant that other receivables and other assets also increased (€ +649 million). On the equity and liabilities side, the biggest increase related to other liabilities (€ +686 million), whereas financial liabilities decreased (€ -275 million). All in all, net assets rose slightly by 0.7%.

Inventories declined as a result of the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**"). At the balance sheet date, they comprised the consumables and supplies required for site operations.

Merck KGaA, Darmstadt, Germany, was financed by equity in the amount of € 5,481 million (2022: € 5,479 million). This corresponds to an equity ratio of 21.2% (2022: 21.3%). Equity increased in particular as a result of the net income generated in fiscal 2023, which offset the dividend payments made during the year.

Merck KGaA, Darmstadt, Germany, is also financed via the Group financing company, Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, which provides Merck KGaA, Darmstadt, Germany, with sufficient financial resources and hence ensures liquidity. Other liabilities rose by € 686 million and primarily relate to current loans and clearing account liabilities in respect of Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, in the amount of € 14,476 million (2022: € 13,963 million). Financial liabilities of € 2,476 million relate to bonds issued in previous years to finance the acquisitions of Sigma-Aldrich and Versum Materials, Inc., United States, in particular. The € -275 million reduction in financial liabilities was attributable to the repayment of bonds, which resulted in an increase in other liabilities from intragroup financing. Additional information on the financing conditions and maturity structure of the bonds can be found in Note (21) "**Financial liabilities**" of the Notes to the Financial Statements in accordance with HGB.

The reduction in provisions was due in particular to the lower level of pension provisions, which primarily resulted from pension payments and employees being transferred to other legal entities within the Group.

Research and development

Research and development (R&D) expenditure declined to € 69 million in fiscal 2023 (2022: € 289 million), largely as a result of the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**"). Merck KGaA, Darmstadt, Germany, continues to recognize expenses for global R&D services.

Dividend

For fiscal 2023, we are proposing to the Annual General Meeting the payment of a dividend of € 2.20 per share.

Personnel

Merck KGaA, Darmstadt, Germany, had 3,924 employees as of December 31, 2023 (2022: 8,485). The year-on-year decline of 4,561 employees was largely attributable to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**").

The average number of employees by functional area:

Personnel

Average number of employees during the year	**2023**	2022
Administration	2,615	3,085
Production and site operations	869	2,940
Research	341	1,091
Logistics	66	614
Marketing and sales	43	523
Other	74	122
Total	**4,008**	**8,375**

Risks and opportunities

As the parent of the Group, Merck KGaA, Darmstadt, Germany, is largely subject to the same opportunities and risks as the Group. Merck KGaA, Darmstadt, Germany, participates in these risks and opportunities via its equity investments and subsidiaries. This can have consequences for its investment income or the valuation of shares in subsidiaries. More information can be found in the Group "**Report on Risks and Opportunities**".

Forecast for Merck KGaA, Darmstadt, Germany

Deviations of actual business development in fiscal 2022 from the previously reported guidance

The Combined Management Report for 2022 initially forecast a downturn in net sales in fiscal 2023 due to the transfer of operating activities and the fact that the product-related sales of the transferred business sectors are no longer recognized. The remaining business sector was expected to see a similar level of sales to 2022. Net income was forecast to be slightly higher than in 2022.

Net sales declined from € 3,180 million in the previous year to € 1,628 million, largely as a result of the € 1,813 million in sales from operating product and service business that were no longer recognized as anticipated following the transfer of operating activities. Sales in the reporting year relate solely to the intragroup on-charging of services. The increase in on-charged site and administrative services in particular meant that these were higher than the prior-year forecast of € 1,366 million.

Net income was above the forecast level due to higher investment income and lower taxes in particular. Taken together, these more than offset the higher level of other financial expenses.

Forecast for 2024

Following the transfer of operating activities, net sales are becoming less relevant for Merck KGaA, Darmstadt, Germany, while the relevance of investment income as the largest income item is increasing. With this in mind, investment income is replacing net sales as a key financial performance indicator starting from fiscal 2023, and a forecast for the next fiscal year is provided below.

In line with the Group’s development, we expect investment income to see moderate growth compared with the figure recorded in fiscal 2023. Accordingly, net income is forecast to be slightly higher than in 2023 overall.

Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, will provide the company with sufficient financial resources as needed and thus ensure liquidity.

No risks that could jeopardize the continued existence of the company have been identified.

Annual financial statements

Income statement

for the Period from January 1 to December 31, 2023

€ million	Note	2023	2022
Sales	**1**	**1,628.0**	**3,179.9**
Increase of stocks of finished goods and work in progress		–	54.6
Other own work capitalized		32.9	20.5
Other operating income	2	71.9	108.7
Total operating income		**1,732.8**	**3,363.7**
Cost of materials	3	-721.0	-1,269.0
Personnel expenses	4	-580.7	-1,255.8
Depreciation, amortization and write-downs for intangible assets of the fixed assets and tangible assets		-131.7	-142.4
Other operating expenses	5	-821.0	-1,150.0
Total operating expenses		**-2,254.3**	**-3,817.2**
Investment result	6	2,202.8	2,014.8
Other financial result	7	-685.1	-413.5
Profit transfer to E. Merck KG, Darmstadt, Germany	8	-691.9	-684.2
Loss transfer from E. Merck KG, Darmstadt, Germany (2022: Profit transfer from E. Merck KG, Darmstadt, Germany)	8	-3.7	6.8
Income tax	9	-15.7	-228.4
Profit after tax/net income		**284.9**	**242.0**
Profit carried forward from the previous year		33.8	76.2
Net retained profit		**318.7**	**318.2**

Balance sheet
as of December 31, 2023

Assets

€ million	Note	Dec. 31, 2023	Dec. 31, 2022
Fixed assets			
Intangible assets	10	181.2	192.0
Tangible assets	11	1,076.2	969.3
Financial assets	12	22,807.5	22,804.0
		24,064.9	**23,965.3**
Current assets			
Inventories	13	29.2	546.2
Receivables and other assets			
Trade accounts receivable	14	61.9	126.1
Other receivables and other assets	15	1,617.0	967.9
Cash and cash equivalents	16	0.2	0.2
		1,679.1	**1,094.2**
		1,708.3	**1,640.4**
Prepaid expenses	**17**	**77.9**	**73.9**
		25,851.1	**25,679.6**

Equity and liabilities

€ million	Note	Dec. 31, 2023	Dec. 31, 2022
Net equity	**18**		
Subscribed capital		168.0	168.0
General partner's equity		397.2	397.2
Capital reserves		3,813.7	3,813.7
Retained earnings		701.6	701.6
Profit carried forward: E. Merck KG, Darmstadt, Germany		81.3	80.0
Net retained profit: shareholders		318.7	318.2
		5,480.6	**5,478.7**
Provisions			
Provisions for pensions and other post-employment benefits	19	1,414.9	1,508.9
Other provisions	20	783.3	774.0
		2,198.3	**2,282.9**
Liabilities			
Financial liabilities	21	2,475.6	2,750.6
Trade accounts payable	22	152.4	308.2
Other liabilities	23	15,534.1	14,847.7
		18,162.2	**17,906.5**
Deferred income		**10.1**	**11.5**
		25,851.1	**25,679.6**

Notes for the Fiscal Year 2023

General Disclosures

The Annual Financial Statements of MERCK Kommanditgesellschaft auf Aktien, Darmstadt, Germany (hereinafter: Merck KGaA, Darmstadt, Germany) have been prepared in accordance with the relevant provisions of the German Commercial Code (HGB) and the German Stock Corporation Act (AktG) and the supplementary provisions of the Articles of Association. The provisions for large corporations are applied. The income statement has been prepared in accordance with the total cost (nature of expense) method. Items are reported in millions of euro (€ million) unless stated otherwise. Deferred taxes are not reported, as there is an excess of deferred tax assets. Plan assets are offset against the corresponding provisions in accordance with section 246 HGB. Assets and liabilities denominated in foreign currency have been translated at the average spot exchange rate at the reporting date. Where items have a remaining term of more than one year, the realization principle in accordance with section 252 (1) no. 4 second half of sentence HGB and the historical cost convention in accordance with section 253 (1) sentence 1 HGB have been applied. For details, please see the notes on the respective balance sheet and income statement items. Merck KGaA, Darmstadt, Germany, prepares consolidated financial statements. Merck KGaA, Darmstadt, Germany, is also included in the consolidated financial statements of E. Merck KG, Darmstadt, Germany. Both sets of financial statements are filed with the company register (Unternehmensregister) and are available at **www.unternehmensregister.de**.

In line with the presentation in the Combined Management Report, the income statement is presented before the balance sheet in the Annual Financial Statements, and the individual items are discussed in this order in the Notes to the Financial Statements. Certain income statement and balance sheet items have been combined and their names adjusted in order to enhance the clarity of presentation. These items are presented separately in the Notes to the Annual Financial Statements, as are disclosures on “thereof” information. Notes that may optionally be disclosed in the balance sheet or income statement or in the Notes to the Annual Financial Statements are disclosed in the Notes to the Annual Financial Statements.

Merck KGaA, Frankfurter Str. 250, 64293 Darmstadt, Germany, is entered in the commercial register under HRB 6164. The responsible registry court is the Darmstadt Local Court.

Due to the hive-downs at carrying amounts under German commercial law described in the Combined Management Report and the transfers in connection with the termination of the business lease agreements as of January 1, 2023 (collectively referred to hereinafter as the “transfer of operating activities”), some balance sheet and income statement items for 2023 are only comparable with the prior-year figures to a limited extent. To improve comparability, additional information on the impact of the transfer of operating activities to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, on individual balance sheet and income statement items of Merck KGaA, Darmstadt, Germany, is provided in the Combined Management Report and disclosed in the relevant section of the Notes to the Financial Statements (see the information in the Combined Management Report under “**Additional information on Merck KGaA, Darmstadt, Germany, in accordance with the German Commercial Code (HGB)**” in the “**Effects of material company agreements on the net assets, financial position, and results of operations**” section and in the “**Course of business and results of operations**” and “**Net assets and financial position**” section). In terms of the income statement of Merck KGaA, Darmstadt, Germany, for fiscal 2023, the transfer of operating activities resulted in lower net sales, material costs, personnel expenses and other operating expenses in particular. In the balance sheet, the transfer mainly resulted in a reduction in inventories (€ -521.0 million), trade accounts receivables (€ -50.2 million), and trade accounts payables (€ -86.4 million) as well an increase in other receivables (€ +379.3 million).

Notes to the Income Statement

(1) Net sales

€ million	2023	2022
By sales market		
Germany	971.2	996.0
Rest of Europe	349.0	835.3
North and Latin America	204.2	559.0
Asia-Pacific	97.8	753.3
Rest of world	5.8	36.3
	1,628.0	**3,179.9**

In 2023, net sales consist exclusively of sales from intercompany cost transfers. These relate to cost transfers to other Group companies for site management services, IT services, strategic management costs and license fees for the Group's umbrella brand in particular. The net sales of Merck KGaA, Darmstadt, Germany, decreased in 2023 due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report).

(2) Other operating income

€ million	2023	2022
Exchange rate gains from operating activities	36.0	29.2
Income from the reversal of provisions	14.2	28.9
Gains from the disposal of fixed assets	11.3	12.3
Income from insurance compensation	4.5	31.9
Grants received	1.9	3.7
Other income	4.0	2.7
	71.9	**108.7**

Income from other accounting periods relates almost exclusively to income from the reversal of provisions and gains from the disposal of fixed assets.

(3) Cost of materials

€ million	2023	2022
Cost of raw materials, production supplies, and goods purchased for resale	27.6	451.0
Cost of purchased services	693.4	817.9
	721.0	**1,269.0**

The cost of materials for Merck KGaA, Darmstadt, Germany, decreased in 2023 due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report). The cost of materials reported in 2023 relates to intercompany services charged to subsidiaries.

(4) Personnel expenses and employees

€ million	2023	2022
Wages and salaries	465.8	862.4
Compulsory social security contributions and special financial assistance	114.9	393.4
– thereof pension expenses	51.3	267.9
	580.7	**1,255.8**
Average number of employees during the year		
Administration	2,615	3,085
Production and site operations	869	2,940
Research	341	1,091
Logistics	66	614
Sales and marketing	43	523
Others	74	122
	4,008	**8,375**

The reduction in personnel expenses and the number of employees was mainly due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report). The level of additions to pension provisions was also lower. This was offset by salary increases for employees covered by and exempt from collective agreements, as well as the collectively agreed inflation allowance.

The reported employee figures do not include trainees. In 2023, an average of 561 employees were enrolled in vocational training (2022: 544).

(5) Other operating expenses

€ million	2023	2022
Other purchased services and procurements	508.5	604.8
Purchased repair services	138.5	86.8
Fees, contributions, and insurance premiums	45.3	115.2
Exchange rate losses from operating activities	37.2	26.4
Purchased research services	15.0	77.8
Purchased sales and advertising services	14.8	197.6
Addition to provisions for litigations	–	11.5
Others	61.7	29.9
	821.0	**1,150.0**

The reduction in other operating expenses was mainly due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report). There were no significant prior-period expenses. Other purchased services and procurements comprises mainly expenses for IT services, rental and lease services, and consulting services.

(6) Investment result

€ million	2023	2022
Investment income from affiliates	1,364.1	1,590.0
Income from profit and loss transfer agreements	1,098.9	460.7
Expenses from profit and loss transfer agreements	-260.2	-35.9
	2,202.8	**2,014.8**

The year-on-year increase in the investment result was due to higher income from profit and loss transfer agreements. This was offset by lower dividends from subsidiaries and higher expenses from profit and loss transfer agreements.

(7) Other financial result

€ million	2023	thereof affiliates	2022	thereof affiliates
Other interest and similar income	42.0	13.8	29.8	6.6
Interest and similar expenses	-742.0	-674.6	-354.0	-281.2
Net interest	**-700.0**	**-660.8**	**-324.2**	**-274.6**
Exchange rate differences from financing activities	0.1	–	0.2	–
Interest component of the addition to pension provisions	14.8	–	-89.5	–
	-685.1	**-660.8**	**-413.5**	**-274.6**

Interest income mainly includes payments for a credit default guarantee provided within the Group in connection with the acquisition of Sigma-Aldrich. It also includes income from the repayment of bonds issued to third parties resulting from the difference between the discounted repayment amount and the nominal amount. The interest component of other non-current provisions amounts to € 2.2 million. The higher level of interest expense in the financial result was due to higher interest expenses to the Group financing company Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany. The interest component of the addition to pension provisions (€ -21.9 million) is offset against interest income and changes in the fair value of plan assets (€ 36.7 million).

(8) Profit transfers between Merck KGaA, Darmstadt, Germany, and E. Merck KG, Darmstadt, Germany

In accordance with Articles 26 to 30 of the Articles of Association, the profit of Merck KGaA, Darmstadt, Germany, is attributed between E. Merck KG, Darmstadt, Germany, and the limited liability shareholders as follows:

Profit transfer to E. Merck KG, Darmstadt, Germany

€	
Net income of Merck KGaA, Darmstadt, Germany (before reciprocal profit transfers)	980,435,493.35
Plus corporation tax	4,104,775.67
Basis for calculation of the profit transferred between Merck KGaA, Darmstadt, Germany, and E. Merck KG, Darmstadt, Germany	984,540,269.02
Share of E. Merck KG, Darmstadt, Germany, in the profit of Merck KGaA, Darmstadt, Germany, is (proportionate equity interest: 397,196,314/565,211,242)	691,875,421.36

Loss transfer from E. Merck KG, Darmstadt, Germany

€	
Net loss for the year of E. Merck KG, Darmstadt, Germany (before reciprocal profit transfers, adjusted for trade income tax), basis for calculation of the profit transferred between E. Merck KG, Darmstadt, Germany, and Merck KGaA, Darmstadt, Germany	-12,376,632.62
Share of Merck KGaA, Darmstadt, Germany, in the loss of E. Merck KG, Darmstadt, Germany, is (proportionate equity interest: 168,014,928/565,211,242)	-3,679,082.93

(9) Income tax

Income tax consists of trade tax expense of € 11.6 million and corporate tax expense of € 4.1 million. The prior-period tax expense/income results from the change in risk provisions, which relate in particular to general risks in connection with tax audits and risks in connection with controlled foreign corporation rules. The carrying amounts of assets, liabilities, and deferred items under commercial and tax law resulted in an excess of deferred tax assets. The company exercised its option in accordance with section 274 (1) sentence 2 HGB not to recognize this excess. Material differences in the carrying amounts of assets and liabilities relate to pension provisions and other provisions. If recognized, a tax rate of 20.25% would largely be applied. For financial assets, a tax rate of 1.01% would apply as a result of special tax treatment according to section 8b (2) of the German Corporate Income Tax Act (KStG) in accordance with section 8b (5) KStG.

The legislation on global minimum taxation was published in the German Federal Law Gazette on December 27, 2023, and became effective on January 1, 2024. This did not yet have a tax impact for Merck KGaA, Darmstadt, Germany, in 2023. Under the regulations on global minimum taxation, the Group is obliged to determine the effective tax rate for each country in which its business units operate within the meaning of the legislation and, where the effective tax rate is lower than the minimum tax rate of 15%, to pay a top-up tax in the amount of the difference. Jurisdictions where the Group has material operating activities and where the nominal tax rate is below 15% include Ireland and Switzerland. The Group is currently taking action to ensure that it satisfies the reporting obligations and tax compliance requirements arising from the legislation. Based on the information currently available, Merck KGaA, Darmstadt, Germany, will be classified as a “partially owned parent entity” (POPE) in the future, meaning that it will be liable for and required to declare any minimum taxes on the part of its relevant subsidiaries (“constituent entities”). The complexity of applying the legislation, the extensive additional data requirements as a result and changes to the tax rules of individual nations mean that it is not yet possible to precisely and fully quantify the impact at the reporting date. Based on a preliminary calculation and taking account of the data available as of the reporting date, Merck KGaA, Darmstadt, Germany, anticipates an additional annual tax expense in a mid-double-digit million euro amount.

Notes to the Balance Sheet

(10) Intangible assets

€ million	Concessions acquired against payment, industrial property rights and similar rights and assets as well as licenses to such rights and assets	Advance payments	**Total**
Accumulated acquisition costs as of Jan. 1, 2023	**476.6**	**53.1**	**529.7**
Additions	15.9	29.5	45.4
Disposals	-6.3	–	-6.3
Transfers	31.3	-31.3	–
Accumulated acquisition costs as of Dec. 31, 2023	**517.5**	**51.3**	**568.8**
Accumulated amortization and write-downs as of Jan. 1, 2023	**330.2**	**7.5**	**337.7**
Amortization and write-downs	55.0	–	55.0
Disposals	-5.1	–	-5.1
Reversals of write-downs	–	–	–
Accumulated amortization and write-downs as of Dec. 31, 2023	**380.1**	**7.5**	**387.6**
Net carrying amount as of Dec. 31, 2023	**137.4**	**43.8**	**181.2**
Net carrying amount as of Dec. 31, 2022 / Jan. 1, 2023	146.4	45.6	192.0

Acquired intangible assets are carried at acquisition cost and amortized on a straight-line basis over their expected useful life. Internally generated intangible fixed assets and research and development expenses are not capitalized. Write-downs are recognized in the case of expected permanent impairment. Write-downs of intangible assets amounted to € 0.1 million in fiscal 2023 (2022: € 3.2 million).

The useful life of the reported intangible assets is shown in the following table:

Useful life of intangible assets

	Useful life in years
Concessions acquired against payment, industrial property rights and similar rights and assets as well as licenses to such rights and assets	3–15

(11) Tangible assets

€ million	Land, land rights, and buildings, including buildings on third-party land	Plant and machinery	Other facilities, operating and office equipment	Construction in progress and advance payments to vendors and contractors	**Total**
Accumulated acquisition and production costs as of Jan. 1, 2023	**1,212.6**	**437.1**	**487.6**	**178.1**	**2,315.4**
Additions	7.9	2.0	16.9	191.7	218.5
Disposals	-5.0	-15.7	-38.4	-20.5	-79.6
Transfers	12.8	8.6	8.9	-30.3	–
Accumulated acquisition and production costs as of Dec. 31, 2023	**1,228.3**	**432.0**	**475.0**	**319.0**	**2,454.3**
Accumulated depreciation and write-downs as of Jan. 1, 2023	**604.3**	**363.5**	**375.5**	**2.8**	**1,346.1**
Depreciation and write-downs	34.9	10.8	31.0	–	76.7
Disposals	-2.0	-10.1	-32.6	–	-44.7
Reversals of write-downs	–	–	–	–	–
Accumulated depreciation and write-downs as of Dec. 31, 2023	**637.2**	**364.2**	**373.9**	**2.8**	**1,378.1**
Net carrying amount as of Dec. 31, 2023	**591.2**	**67.8**	**101.1**	**316.2**	**1,076.2**
Net carrying amount as of Dec. 31, 2022 / Jan. 1, 2023	608.3	73.6	112.1	175.3	969.3

Tangible assets are carried at the acquisition or production cost less scheduled straight-line depreciation. The production costs of internally generated tangible assets are calculated on the basis of directly attributable unit costs plus an appropriate share of overheads of the depreciation of fixed assets and company pension costs. General administrative expenses and costs for statutory and voluntary social benefits are not capitalized, while interest on borrowed capital is not included. Low-value depreciable fixed assets with a net individual value of up to € 1,000 are written off in full in the year of acquisition. Write-downs for impairment are recognized if other than temporary impairments are expected. Write-downs of € 1.2 million were recognized in 2023 (2022: € 1.6 million).

The useful life of the reported tangible assets is shown in the following table:

Useful life of tangible assets

	Useful life in years
Buildings: Production facilities	25
Buildings: Administrative and social buildings	33–40
Plant and machinery	10–15
Other facilities, operating and office equipment	2–20

(12) Financial assets

	Investments in:		Loans to:		
€ million	affiliates	other companies	affiliates	others	**Total**
Accumulated acquisition costs as of Jan. 1, 2023	**22,810.0**	**1.5**	**–**	**3.7**	**22,815.2**
Additions	4.7	–	–	0.3	5.0
Disposals	-10.9	–	–	–	-10.9
Transfers	–	–	–	–	–
Accumulated acquisition costs as of Dec. 31, 2023	**22,803.8**	**1.5**	**–**	**4.0**	**22,809.3**
Accumulated write-downs as of Jan. 1, 2023	**10.3**	**0.9**	**–**	**–**	**11.2**
Write-downs	–	–	–	0.8	0.8
Disposals	-10.2	–	–	–	-10.2
Reversals of write-downs	–	–	–	–	–
Accumulated write-downs as of Dec. 31, 2023	**0.1**	**0.9**	**–**	**0.8**	**1.8**
Net carrying amount as of Dec. 31, 2023	**22,803.7**	**0.6**	**–**	**3.2**	**22,807.5**
Net carrying amount as of Dec. 31, 2022 / Jan. 1, 2023	22,799.7	0.6	–	3.7	22,804.0

Financial assets are carried at acquisition cost and written down to the lower fair value in the case of expected permanent impairment. If the reasons for a lower valuation of the financial assets no longer apply, the write-downs are reversed up to the acquisition cost of the respective items. The list of shareholdings as of December 31, 2023, can be found in the section "**List of Shareholdings of Merck KGaA, Darmstadt, Germany**" in the Notes to the Annual Financial Statements.

(13) Inventories

€ million	**Dec. 31, 2023**	Dec. 31, 2022
Raw materials and production supplies	29.2	129.0
Work in progress	–	143.1
Finished goods and goods purchased for resale	–	267.1
Advance payments	–	7.0
	29.2	**546.2**

In 2023, inventories are carried at acquisition cost (2022: acquisition and production cost). Where necessary, inventories are written down to the lower fair value in line with the principle of the lower of cost of market. The reduction in inventories in 2023 was due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report).

(14) Trade accounts receivable

€ million	**Total Dec. 31, 2023**	thereof due after more than 1 year	Total Dec. 31, 2022	thereof due after more than 1 year
Receivables from affiliates	42.2	–	75.1	–
Receivables from other companies	19.8	–	51.0	–
	61.9	**–**	**126.1**	**–**

Trade accounts receivable are carried at their nominal amount. Adequate specific and global valuation allowances are charged for default and transfer risks unless these are covered by insurance. Short-term receivables denominated in foreign currencies were translated at the closing rates. The reduction in trade accounts receivable in respect of other companies was mainly due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report).

(15) Other receivables and other assets

€ million	**Total Dec. 31, 2023**	thereof due after more than 1 year	Total Dec. 31, 2022	thereof due after more than 1 year
Receivables from affiliates	1,310.3	–	666.2	–
Other assets	306.8	1.4	301.7	–
– thereof tax receivables	267.0	–	226.7	–
	1,617.0	**1.4**	**967.9**	**–**

Other receivables and other assets are carried at their nominal amount. Any default or other risks are covered by appropriate valuation allowances. Short-term receivables denominated in foreign currencies were translated at the closing rates. This item primarily comprises profit transfer receivables from subsidiaries, clearing accounts and short-term loans with other Group companies, recoverable taxes, and other advance payments. The receivable for compensation in connection with the transfer of operating activities that was recognized as of January 1, 2023, was settled in 2023 (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report).

(16) Cash and cash equivalents

Cash and cash equivalents primarily comprise credit balances at various banks in a variety of currencies. Foreign currency amounts are measured at the closing rate.

(17) Prepaid expenses

Expenses are recognized before the balance sheet date if they represent expenses for a certain period after the balance sheet date. Any difference between the settlement amount and the lower issue amount of liabilities is capitalized and amortized over the term of the liabilities. Prepaid expenses mainly contain advance payments for IT services.

(18) Equity

The share capital is reported under subscribed capital. The total capital consists of the share capital (Article 5 (1) of the company's Articles of Association) of € 168,014,927.60, composed of shares, and the equity interest held by the general partner E. Merck KG, Emanuel-Merck-Platz 1, 64293 Darmstadt, Germany (Article 8 (1) of the company's Articles of Association) of € 397,196,314.35. The company's share capital is composed of 129,242,251 shares and one registered share. The accounting par value of one share is € 1.30. The Executive Board is authorized to increase the share capital with the approval of the Supervisory Board and of E. Merck KG, Darmstadt, Germany, on one or more occasions, up to and including April 21, 2027, by up to a total of € 56,521,124.19 by issuing new no-par value bearer shares against cash and/or non-cash contributions (hereinafter: "Authorized Capital 2022"). Limited liability shareholders are generally granted statutory rights to subscribe to the new shares. However, the Executive Board is authorized, with the approval of the Supervisory Board, to exclude the limited liability shareholders' subscription right in full or in part, on one or more occasions, in accordance with the following provisions:

- in the case of a capital increase against cash contributions pursuant to or by analogous application of section 186 (3) sentence 4 AktG, if the issue price of the new shares is not substantially lower than the stock exchange price of the company's shares already listed and if the new shares that are issued under exclusion of the subscription right do not exceed a proportional amount of 10% of the share capital at the time of the Authorized Capital 2022 taking effect or being utilized. This restriction to 10% of the share capital shall include the proportional amount of the share capital that is attributable to shares that are issued under exclusion of subscription rights or sold during the term of Authorized Capital 2022, based on an authorization to issue new shares or sell own shares by direct or analogous application of section 186 (3) sentence 4 AktG. Further, this restriction shall also include the proportional amount of the share capital that is attributable to shares that may or must be issued in order to service bonds carrying a conversion or option right or a conversion or option obligation, if the bonds are issued during the term of the Authorized Capital 2022 under the exclusion of the limited liability shareholders' subscription right by analogous application of section 186 (3) sentence 4 AktG;

- in the case of capital increases through non-cash contributions, particularly for the purpose of acquiring enterprises, parts of enterprises, or interests in enterprises;

- to enable E. Merck KG, Darmstadt, Germany, to exercise its right in accordance with Article 32 (3) of the company's Articles of Association to participate in a capital increase by issuing shares or freely transferable share subscription rights;

- to enable E. Merck KG, Darmstadt, Germany, to exercise its right in accordance with Article 33 of the company's Articles of Association to convert, in full or in part, its equity interest into share capital;

- if and to the extent this is necessary to grant the holders or creditors of conversion or option rights, and/or the holders or creditors of financing instruments carrying conversion or option obligations, which were or are issued by the company or by a domestic or foreign company in which the company directly or indirectly holds the majority of the votes and capital, a subscription right to the extent to which they would be entitled after the exercise of the conversion or option rights or after the performance of a conversion or option obligation;

- to offset any fractional amounts resulting from a capital increase.

The sum of shares issued on the basis of the Authorized Capital 2022 under exclusion of the limited liability shareholders' subscription right must not exceed a proportional amount of 10% of the share capital, by taking into account other shares of the company which, during the term of the Authorized Capital 2022, are sold or issued under exclusion of the subscription right or are to be issued under bonds issued after April 22, 2022, under exclusion of the subscription right; this limitation shall apply both at the time of this authorization taking effect and at the time of this authorization being exercised. To the extent that the subscription right is not excluded under the above provisions, it may also be granted to the limited liability shareholders by way of an indirect subscription right pursuant to section 186 (5) AktG or, in part, by way of a direct subscription right, and otherwise by way of an indirect subscription right pursuant to section 186 (5) AktG. Furthermore, the Executive Board is authorized, with the approval of the Supervisory Board, to determine the additional details of the capital increase and its implementation, including the content of rights attached to the shares as well as the terms and conditions of the share issue. The Supervisory Board is authorized to amend the wording of Article 5 (3) of the Articles of Association to reflect the issue of new shares from the Authorized Capital 2022 and, if the Authorized Capital 2022 is not utilized in full or at all by April 21, 2027, after the term of the authorization expires.

The share capital is contingently increased by up to € 66,406,298.40, divided into 51,081,768 shares (Contingent Capital I). The contingent capital increase serves to grant exchange rights to E. Merck KG, Darmstadt, Germany, in accordance with Article 33 of the company's Articles of Association to enable it to convert its equity interest into shares. The shares carry dividend rights from the beginning of the fiscal year following the year in which the conversion option is exercised. The share capital is contingently increased by up to € 16,801,491.20, composed of up to 12,924,224 no-par value bearer shares (Contingent Capital II). This increase in contingent capital is only to be implemented insofar as the bearers or creditors of option or conversion rights or with an obligation to convert warrant bonds, option participation certificates, option participation bonds, convertible bonds, convertible participation certificates, or convertible participation bonds that are issued or guaranteed by the company or a subordinate Group company on the basis of the authorization resolution of the Annual General Meeting of April 28, 2023, to April 27, 2028, utilize their option or conversion rights or, to fulfill their conversion obligation or obligation to exercise options insofar as they are obliged to fulfill their conversion or option exercise obligation, or insofar as the company exercises an option, wholly or in part, of granting shares in the company instead of paying the sum of money due and to the extent that in each case a cash settlement is not granted, or own shares or other forms of fulfillment are used. Each issue of new shares shall take place at the determined option or conversion price, pursuant to the aforementioned authorization resolution. The new shares participate in the profit from the beginning of the fiscal year in which they are created; insofar as this is legally permissible, the Executive Board may, with the approval of the Supervisory Board, and in deviation from section 60 (2) AktG, stipulate that the new shares also participate in the profit for a past fiscal year. The Executive Board is authorized, with the approval of the Supervisory Board and of E. Merck KG, Darmstadt, Germany, to stipulate the further details of the implementation of the increase in contingent capital.

€ million	Jan. 1, 2023	Capital ratios Jan. 1, 2023	Dividend distribution 2023	Net income 2023	Allocation to profit carried forward	**Dec. 31, 2023**	Dividend distribution (proposal)	Expected status April 26, 2024	Expected Capital ratios April 26, 2024
Share capital	168.0	(29.726%)	–	–	–	168.0	–	168.0	(29.726%)
General partner's equity E. Merck KG, Darmstadt, Germany	397.2	(70.274%)	–	–	–	397.2	–	397.2	(70.274%)
Total capital	**565.2**	**(100%)**	**–**	**–**	**–**	**565.2**	**–**	**565.2**	**(100%)**
Capital reserves	3,813.7		–	–	–	3,813.7	–	3,813.7	
Other retained earnings	701.6		–	–	–	701.6	–	701.6	
Profit carried forward: E. Merck KG, Darmstadt, Germany	80.0		–	–	1.3	81.3	–	81.3	
Net retained profit: shareholders	318.2		-284.3	284.9	–	318.7	-284.3	34.4	
Total	**5,478.7**		**-284.3**	**284.9**	**1.3**	**5,480.6**	**-284.3**	**5,196.3**	

The general partners and the Supervisory Board will propose to the Annual General Meeting the payment of a dividend of € 2.20 per share from the reported net retained profit of € 318.7 million. Based on the existing share capital, this corresponds to a total dividend payment of € 284.3 million. The remaining net retained profit of € 34.4 million is to be carried forward to new account. In the expectation that the Annual General Meeting will resolve that the net retained profit established as of December 31, 2023, in accordance with Article 31 (3) in conjunction with Article 31 (1) of the company's Articles of Association, shall be utilized to distribute a dividend of € 2.20 per share, E. Merck KG, Darmstadt, Germany, will transfer an amount of € 1.3 million to the profit carried forward in proportion to its equity interest. This transfer was already recognized in the balance sheet in the reporting period. In the event that, contrary to this expectation, the Annual General Meeting passes a different resolution on the utilization of the net retained profit, the corresponding difference will be transferred or withdrawn by E. Merck KG, Darmstadt, Germany, accordingly.

Provisions

Provisions are recognized for all foreseeable risks in connection with executory contracts and uncertain obligations. They are based on the estimated settlement amounts for the respective commitments according to prudent business judgment and taking into account any price and cost increases. Non-current provisions are discounted at the average market interest rate for the past seven years corresponding to their remaining term, or for the past ten years in the case of provisions for pensions and other post-employment benefits.

			Other provisions				
€ million	Provisions for pensions and other post-employment benefits	Provisions for tax liabilities	Provisions for environmental protection measures	Obligations relating to personnel expenses	Provisions for outstanding supplier invoices	Other provisions	**Total**
Jan. 1, 2023	**1,508.9**	**249.1**	**152.3**	**166.0**	**107.5**	**99.1**	**2,282.9**
Utilization[1]	-126.1	-3.5	-4.2	-125.1	-101.8	-43.5	-404.2
Reversals	-0.1	-26.4	-0.2	-6.8	-2.7	-4.5	-40.7
Additions	32.2	40.2	1.7	59.4	103.9	122.9	360.3
Dec. 31, 2023	**1,414.9**	**259.4**	**149.6**	**93.5**	**106.9**	**174.0**	**2,198.3**

[1] Includes transfers to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany.

(19) Provisions for pensions and other post-employment benefits

The pension provisions are based on actuarial calculations. They are calculated using the internationally recognized projected unit credit method. The carrying amounts in the financial statements under German commercial law are based on the 2018 G Heubeck mortality tables. The amount calculated is discounted as a lump sum using the average market interest rate for an assumed term of 15 years. The discount rate was determined using a ten-year average of 1.83% (2022: 1.79%) in accordance with the Deutsche Bundesbank. Effects from changes in interest rates are reported in the financial result. The difference in the discount rate resulting from the change in 2016 from a seven-year average to a ten-year average amounted to € 25.3 million as of December 31, 2023 (December 31, 2022: € 136.7 million), and is barred from distribution in accordance with section 253 (6) HGB. In response to the sharp rise in the inflation forecast for Germany, the pension trend for obligations granted prior to 2005 was increased to 2.15% and the salary trend for employees covered by collective agreements was increased to 2.75% as of December 31, 2022; these figures were applied unchanged in 2023. Due to the inflationary trend in Germany, the pension level for cohorts of pensioners that are not scheduled for adjustment has also been increased by the inflation accrued since the last pension adjustment in 2022. As in 2022, the other key parameters are a salary trend of 3.00% for employees exempt from collective agreements and a pension trend of 1.00% for obligations under the Pension Plan 2005 and follow-up plans.

After adjusting for the partial transfer of plan assets to the OpCos, Merck KGaA, Darmstadt, Germany, made a one-off payment in previous years of € 408.6 million (2022: € 503.1 million) to Merck Pensionstreuhand e. V. Darmstadt, Germany, for its share of contributions under a trust agreement in order to secure employees' future pension entitlements. These contributions qualify as plan assets, which must be offset against pension provisions in accordance with section 246 (2) sentence 2 HGB. The plan assets mainly consist of exchange-traded securities and were measured at their current fair value. As of December 31, 2023, they had a fair value of € 628.7 million (2022: € 611.2 million) and were fully offset against pension provisions. The increase in fair value of € 36.5 million (2022: € -55.2 million) was offset against the interest expense resulting from the additions to pension provisions under interest expense and similar expenses. In 2023, plan assets with a market value of € 19.0 million were transferred to subsidiaries as part of business transfers. In accordance with section 268 (8) HGB, an amount of € 148.3 million (2022: € 108.1 million) is barred from distribution. The settlement amount of pension obligations disclosed in the balance sheet amounted to € 2,043.5 million (2022: € 2,120.1 million).

Merck KGaA, Darmstadt, Germany, established a new pension plan (PP 2021) for employees joining the company on or after January 1, 2021. In order to fund and secure employees' pension entitlements, the regular contributions are transferred to a trust and invested on the basis of a trust agreement. This trust (plan assets) is offset against pension provisions in accordance with section 246 (2) sentence 2 HGB. The pension obligations amounted to € 4.4 million (2022: € 2.0 million), while the acquisition cost of the plan assets offset against the obligations amounted to € 4.1 million. These plan assets had a fair value of € 4.3 million as of December 31, 2023 (2022: € 2.0 million). The € 0.2 million increase in the fair value of the plan assets was offset against the interest expense resulting from the additions to pension provisions under interest expense and similar expenses. In accordance with section 268 (8) HGB, an amount of € 0.2 million (2022: € 0.0 million) is barred from distribution.

(20) Other provisions

Provisions for tax liabilities

The addition to tax liabilities includes taxes for previous years and liabilities for uncertain tax obligations. Uncertain tax obligations may result from tax authorities interpreting matters differently when applying and interpreting tax rules.

In 2023, provisions of € 16.4 million for one matter were reversed in the fiscal year, while € 22.4 million was added to provisions for other matters for the first time.

Obligations relating to personnel expenses

Obligations relating to personnel expenses include provisions of € 64.8 million (2022: € 115.1 million) for bonuses, anniversaries, and vacation and working time balances. The pensions for anniversaries are based on actuarial calculations.

A demographic fund, mainly consisting of exchange-traded securities and measured at their current fair value, was set up for all employees on the basis of the “Lebensarbeitszeit und Demografie Chemie” (Working Life and Demographic Change – Collective Agreement for the German Chemical Industry) dated April 16, 2008. Payments are regularly made into this fund and are invested with a trust under a trust agreement. The corresponding provisions were offset against associated receivables from the trust arising from the amounts invested (plan assets) in accordance with section 246 (2) sentence 2 HGB. The acquisition cost of the offset plan assets amounted to € 84.2 million (2022: € 76.6 million), while the fair value amounted to € 85.9 million (2022: € 74.8 million). The settlement amount the offset liabilities is € 85.9 million (2022: € 75.7 million). In line with the capital preservation guarantee, a provision of € 0.9 million was recognized for potential additional payments by the Group in 2022. As the fair value in 2023 exceeded the amounts paid in, the provision was reversed again. Further obligations of € 10.2 million (2022: € 9.1 million) reported in this item relate to employees’ vacation entitlements in connection with the future utilization of long-term time accounts.

Other provisions

Other provisions mainly comprise provisions for litigation and provisions in connection with an efficiency program to continuously improve processes and align the Group functions more closely with the businesses.

Liabilities

Liabilities are generally carried at their settlement amount, with pension and installment liabilities carried at their present value. Short-term liabilities denominated in foreign currencies were translated at the closing rates. No securities have been provided other than standard retention of title.

(21) Financial liabilities

€ million	Remaining maturity up to 1 year	Remaining maturity 1 to 5 years	Remaining maturity more than 5 years	**Total Dec. 31, 2023**	Total Dec. 31, 2022
Bonds	1,000.0	841.7	633.9	2,475.6	2,750.6
	1,000.0	**841.7**	**633.9**	**2,475.6**	**2,750.6**

In 2014, the company issued hybrid bonds with a volume of € 1,500.0 million and a term of 60 years to finance the Sigma-Aldrich acquisition. Bonds with a volume of € 500.0 million paying a coupon of 3.375% were still outstanding at the reporting date. The Group has the option of early redemption ten years after the issue date.

Additional hybrid bonds totaling € 1,500.0 million with a maturity of 60 years were issued by the company in June 2019 to finance the acquisition of Versum Materials, Inc., United States. The first tranche with a volume of € 500.0 million pays a coupon of 1.625%, and has a redemption option after 5.5 years. The € 1,000.0 million second tranche carries a coupon of 2.875% with the option of early redemption after ten years. A partial buyback of this second tranche amounting to € 249.4 million took place in September 2022. Another partial buyback amounting to € 116.7 million took place in November 2023.

In September 2020, Merck KGaA, Darmstadt, Germany, issued another bond with a nominal volume of € 1,000.0 million for refinancing purposes. This bond has a term of 60 years, an early redemption option in September 2026, and a nominal interest rate of 1.625%. A partial buyback of this bond amounting to € 158.3 million took place in November 2023.

The company intends to repay all of the issued hybrid bonds at the earliest possible redemption date.

(22) Trade accounts payable

€ million	Remaining maturity up to 1 year	Remaining maturity 1 to 5 years	Remaining maturity more than 5 years	**Total Dec. 31, 2023**	Dec. 31, 2022
to affiliates	–	–	–	–	111.7
to other companies	151.8	0.6	–	152.4	196.5
	151.8	**0.6**	**–**	**152.4**	**308.2**

In 2022, trade accounts payable with a remaining term of up to one year amounted to € 306.5 million. The reduction in trade accounts payable in 2023 was mainly due to the transfer of operating activities (see "**Effects of material company agreements on the net assets, financial position, and results of operations**" in the Combined Management Report).

(23) Other liabilities

€ million	Remaining maturity up to 1 year	Remaining maturity 1 to 5 years	Remaining maturity more than 5 years	**Total Dec. 31, 2023**	Dec. 31, 2022
to affiliates	15,497.2	–	–	15,497.2	14,795.5
– thereof to the general partner E. Merck KG, Darmstadt, Germany	(694.3)	–	–	(694.3)	(777.6)
Advance payments from customers	–	–	–	–	0.1
Other liabilities	36.9	–	–	36.9	52.1
– thereof tax liabilities	(17.7)	–	–	(17.7)	(21.3)
– thereof social security liabilities	(0.1)	–	–	(0.1)	(0.2)
	15,534.1	**–**	**–**	**15,534.1**	**14,847.7**

As in 2022, all other liabilities have a remaining term of up to one year.

The liabilities to affiliates primarily relate to short-term loans amounting to € 11.9 billion as well as liabilities of € 2.6 billion from the clearing account with Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany.

Other Disclosures

Contingent liabilities

€ million	Dec. 31, 2023	thereof for affiliates	Dec. 31, 2022	thereof for affiliates
Guarantees	5,739.5	5,739.5	7,596.5	7,596.5
Warranties	–	–	–	–
	5,739.5	**5,739.5**	**7,596.5**	**7,596.5**

In order to fully ensure the Group financing activity of the Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, Merck KGaA, Darmstadt, Germany, provided guarantees for Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, to financing partners of our Group. The type and scope of these are in line with the financial obligations actually entered into by the Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany. The company has also issued letters of comfort in the form of funding obligations for indirect subsidiaries. On account of the Group's good credit rating, the probability of the guarantees and warranties being utilized is estimated as very low. Guarantees include warranties amounting to US$ 1.6 billion (€ 1.45 billion) for EMD Finance LLC, United States, and amounting to € 3.9 billion for Merck Financial Services GmbH, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, which primarily relate to the acquisition of Sigma-Aldrich and Versum Materials.

Other financial obligations

€ million	Dec. 31, 2023	thereof for affiliates	Dec. 31, 2022	thereof for affiliates
Purchase commitments	390.7	–	181.2	–
Rental and lease obligations	16.7	–	23.0	–
Acceptance obligations from orders	52.4	–	73.0	–
	459.8	**–**	**277.2**	**–**

Corporate governance

The Statement of Compliance in accordance with section 161 AktG was published on our website **www.emdgroup.com/en/investors/corporate-governance/reports** and made permanently available.

Derivative financial instruments

We use derivative financial instruments solely to hedge currency and interest rate positions in order to limit currency risks and financing costs caused by exchange rate or interest rate fluctuations. The instruments used are standard market forward exchange transactions and currency options. Corresponding valuation units were recognized. The changes in the value of the derivatives are reported in the balance sheet item “Other assets” or in other provisions respectively. The effectiveness of these valuation units is determined using the critical term match method.

The use of such derivatives is governed by internal regulations. Derivative transactions are subject to constant risk controls. The trading, settlement, and control functions are strictly separated, and this separation is monitored by our internal audit department. Derivative contracts are only entered into with banks with good credit ratings and are restricted to the hedging of our business operations and related financing transactions.

The following derivative financial positions were held as of December 31, 2023:

	Nominal amount		Fair value	
€ million	**Dec. 31, 2023**	Dec. 31, 2022	**Dec. 31, 2023**	Dec. 31, 2022
Forward exchange contracts	178.2	82.4	-0.5	-1.3
– thereof operating	(178.2)	(82.4)	(-0.5)	(-1.3)
	178.2	**82.4**	**-0.5**	**-1.3**

€ million	Remaining maturity up to 1 year	Remaining maturity more than 1 year	**Total Dec. 31, 2023**	Remaining maturity up to 1 year	Remaining maturity more than 1 year	Total Dec. 31, 2022
Forward exchange contracts	178.2	–	178.2	82.4	–	82.4
	178.2	**–**	**178.2**	**82.4**	**–**	**82.4**

The nominal amount is the aggregate of all buy and sell amounts relating to derivative financial transactions. The “thereof operating” item comprises the derivative exposures used to hedge probable future cash flows, which primarily consist of expected future sales and receivables and liabilities in respect of third parties reported in the balance sheet. As of the reporting date, hedges against foreign exchange risks mainly related to reported obligations.

Financial transactions with the following fair values were combined to form valuation units in the form of macro hedges:

	Nominal amount	Maturity	Fair value	
€ million			Underlying	Hedging transaction
Forward exchange contracts	178.2	March 2024	0.5	-0.5
	178.2		**0.5**	**-0.5**

The fair values are determined by measuring open positions at market prices, ignoring any opposite movements in the value of the underlying. They correspond to the income or expenses that would result if the derivatives were closed out at the balance sheet date. The fair values are calculated using recognized mathematical methods on the basis of current market data provided by an information service or quoted prices.

The reported operating forward exchange transactions are used to hedge exchange rate fluctuations in respect of future sales in the following currencies with their corresponding nominal volume: GBP (€ 22.2 million), USD (€ 152.0 million), CHF (€ 3.5 million), and INR (€ 0.5 million).

A theoretical default risk for the existing derivative financial instruments exists up to the amount of the positive fair values. The fair values amounted to € -0.5 million at the reporting date (2022: € -1.3 million) and related solely to Group companies.

Further information

In accordance with the provisions of the German Public Disclosure Act (Publizitätsgesetz), E. Merck Kommanditgesellschaft, Darmstadt, Germany (E. Merck KG, Darmstadt, Germany), which is the ultimate parent company within the Group, prepares consolidated financial statements that include Merck KGaA, Darmstadt, Germany, and its subsidiaries. Merck KGaA, Darmstadt, Germany, which manages the operations of the Group, prepares consolidated financial statements for the smallest group of companies within the Group. Both sets of consolidated financial statements as of December 31, 2023, are available at www.unternehmensregister.de.

The information relating to the German Securities Trading Act (WpHG), the Executive Board, and the Supervisory Board is published in the sections “Members of the Executive Board of Merck KGaA, Darmstadt, Germany”, “Members of the Supervisory Board of Merck KGaA, Darmstadt, Germany”, and “Disclosures in accordance with Section 160 (1) No. 8 of the German Stock Corporation Act (AktG)” of the Notes to the Annual Financial Statements of Merck KGaA, Darmstadt, Germany.

Compensation of the Executive Board

The compensation of the Executive Board of Merck KGaA, Darmstadt, Germany, is basically paid by the general partner E. Merck KG, Darmstadt, Germany.

€ million	**2023**	2022
Fixed compensation	6.3	6.3
Variable compensation	18.5	17.7
Other compensation	0.6	0.4
Additional benefits	0.2	0.2
Short-term benefits	**25.6**	**24.6**
Post-employment benefits	2.6	2.4
other long-term benefits	0.7	–
Termination benefits	–	–
Share-based payment	3.8	5.8
Total compensation	**32.7**	**32.8**

The total compensation paid to members of the Executive Board as referred to by section 285 no. 9 a) HGB amounted to € 30.1 million in fiscal 2023 (2022: € 30.4 million).

Payments to former members of the Executive Board and their surviving dependents in accordance with section 285 no. 9 b) HGB were made as pension payments, as profit sharing, under the long-term incentive plan and waiting allowance for a post-contractual non-competition clause. These payments amounted to € 14.4 million in fiscal 2023 (2022: € 21.7 million). Provisions for defined benefit pension commitments in the balance sheet of E. Merck KG, Darmstadt, Germany, amounted to € 123.8 million as of December 31, 2023 (December 31, 2022: € 123.1 million).

Total compensation of the Supervisory Board

The compensation of the Supervisory Board amounting to € 960.6 thousand (2022: € 967.9 thousand) consisted of a fixed portion of € 807.7 thousand (2022: € 814.9 thousand), meeting attendance compensation of € 57.8 thousand (2022: € 48.0 thousand), and committee compensation of € 95.1 thousand (2022: € 105.0 thousand). As in the previous year, no compensation was paid to former members of the Supervisory Board in fiscal 2023.

As in the previous year, the members of the Executive Board and the Supervisory Board did not receive any advances or loans in fiscal 2023 from the company. As in the previous year, no contingent liabilities were entered into for the benefit of these persons in fiscal 2023.

Auditor’s fees

The auditor of the financial statements changed to Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich, in fiscal 2023.

Information on the statutory auditor’s fees is contained in the Consolidated Financial Statements of Merck KGaA, Darmstadt, Germany. In addition to the audit of the financial statements, the auditor also performed other audit-related services, which essentially arose for the audit of the non-financial statement and the sustainability report.

Subsequent events

No events of particular importance that could have a material impact on the net assets, financial position, or results of operations occurred subsequent to the balance sheet date.

Proposal for the appropriation of net retained profit

A proposal will be made to the Annual General Meeting for the payment of a dividend of € 2.20 per no-par value share from the portion of net retained profit to which limited liability shareholders are entitled, amounting to € 318,714,622.70 (see Note 18). Based on the current share capital, the resulting total dividend payment for fiscal 2023 is thus € 284,332,954.40. It is also proposed to carry forward to new account the remaining portion of the shareholders' net retained profit in the amount of € 34,381,668.30.

Darmstadt, February 14, 2024

Belén Garijo

Kai Beckmann

Peter Guenter

Matthias Heinzel

Helene von Roeder

Members of the Executive Board of Merck KGaA, Darmstadt, Germany

Information on memberships of statutory supervisory boards and comparable German and foreign supervisory bodies (section 285 no. 10 HGB in conjunction with section 125 (1) sentence 5 AktG).

Member	Memberships of (a) statutory supervisory boards and (b) comparable German and foreign supervisory bodies of corporations
Belén Garijo Frankfurt am Main, Chair	(b) • Banco Bilbao Vizcaya Argentaria S. A., Bilbao, Spain (listed) • L'Oréal S. A., Clichy, France (listed)
Kai Beckmann Darmstadt, CEO Electronics	(a) • Bundesdruckerei GmbH, Berlin, Germany (not listed) • Bundesdruckerei Gruppe GmbH, Berlin, Germany (not listed)
Peter Guenter Berlin, CEO Healthcare	(b) • Galapagos N.V., Mechelen, Belgium (listed) • Zentiva Group a.s., Prague, Czech Republic (not listed)
Matthias Heinzel Weinheim, CEO Life Science	No mandates
Marcus Kuhnert (until June 30, 2023) Königstein, Chief Financial Officer	(b) • Döhler Group SE, Darmstadt, Germany (not listed)
Helene von Roeder (as of July 1, 2023) Frankfurt am Main, Chief Financial Officer	No mandates

Members of the Supervisory Board of Merck KGaA, Darmstadt, Germany

The Supervisory Board has 16 members. The Supervisory Board was composed as follows in fiscal 2023:

Member	Memberships of (a) other statutory supervisory boards and (b) comparable German and foreign supervisory bodies of corporations	Member of the Supervisory Board since	Attendance of meeting of the Supervisory Board
Wolfgang Büchele **(Chair of the Supervisory Board)** Römerberg, Chair of Exyte GmbH, Stuttgart (Independent Shareholder Representative)	(a) • Gelita AG, Eberbach, Germany (Chair) (not listed) • Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (not listed) • Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (Chair) (not listed) (b) • E. Merck KG, Darmstadt, Germany[1] (not listed) • Wegmann Unternehmens-Holding GmbH & Co. KG, Fürstenfeldbruck, Germany (Chair) (not listed) • KNDS NV, Amsterdam, Netherlands (not listed)	Jul. 1, 2009	5/5
Sascha Held **(Vice Chair of the Supervisory Board)** Riedstadt, Application Consultant (full-time member and Chair of the Joint Works Council of Merck KGaA, Darmstadt, Germany)	No board positions	Apr. 26, 2019	5/5
Birgit Biermann Bochum, Member of the Central Board of Executive Directors of the German Mining, Chemical and Energy Industrial Union (IG BCE), Hannover	(a) • adidas AG, Herzogenaurach, Germany (listed)	Jul. 14, 2022	5/5
Gabriele Eismann Seeheim-Jugenheim, full-time member of the Works Council	No board positions	May 09, 2014	5/5
Jürgen Glaser Bingen, former Regional Director of the German Mining, Chemical and Energy Industrial Union (IG BCE), Darmstadt	(a) • SIRONA Dental Systems GmbH, Wals, Austria (not listed) (b) • The BKK of Merck KGaA, Darmstadt, Germany (not listed)	Apr. 26, 2019	5/5
Michael Kleinemeier Heidelberg, Managing Director of e-mobiligence GmbH, Heidelberg	(a) • Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (Chair) (not listed) (b) • E. Merck KG, Darmstadt, Germany[1] (not listed) • SRH Holding (SdbR), Heidelberg (not listed)	Apr. 26, 2019	5/5
Renate Koehler Darmstadt, Pharmacist and until January 02, 2024, Manager of Engel-Apotheke pharmacy, Darmstadt (Independent Shareholder Representative)	No board positions	Apr. 26, 2019	5/5
Barbara Lambert Givrins (Switzerland), Supervisory and Administrative Board Member (Independent Shareholder Representative)	(a) • Deutsche Börse AG, Eschborn, Germany (listed) • Synlab AG, Munich, Germany (listed) (b) • Implenia AG, Opfikon, Switzerland (listed) • UBS Switzerland AG / Credit Suisse AG (Group Mandate), Zurich, Switzerland (not listed)	Aug. 11, 2023	1/1
Anne Lange Riedstadt, Application Engineer (full-time member and Vice-Chair of the Joint Works Council of Merck KGaA, Darmstadt, Germany)	No board positions	Apr. 26, 2019	5/5

Footnotes follow at the end of the table.

Member	Memberships of (a) other statutory supervisory boards and (b) comparable German and foreign supervisory bodies of corporations	**Member of the Supervisory Board since**	**Attendance of meeting of the Supervisory Board**
Peter Emanuel Merck[2] Hamburg, Managing Partner of Golf-Lounge GmbH, Hamburg (Independent Shareholder Representative)	No board positions	Apr. 26, 2019	5/5
Dietmar Oeter Seeheim-Jugenheim, Vice President Corporate Quality Assurance	No board positions	May 09, 2014	5/5
Alexander Putz Michelstadt, Chemical Laboratory Assistant (full-time member of the Joint Works Council of Merck KGaA, Darmstadt, Germany)	(a) • Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (not listed)	May 28, 2020	5/5
Christian Raabe Höchst, IT Business Partner Darmstadt Site	No board positions	Apr. 26, 2019	5/5
Helene von Roeder Frankfurt am Main, at that time Member of the Executive Board (CTO) of Vonovia SE, Bochum (Independent Shareholder Representative)	(a) • AVW Versicherungsmakler GmbH, Hamburg, Germany (not listed) • Deutsche Wohnen SE, Berlin, Germany (listed) (b) • E. Merck KG, Darmstadt, Germany[1] (not listed) • AVW Versicherungsmakler GmbH, Hamburg, Germany (not listed)	Apr. 26, 2019 until Apr. 17, 2023	1/1
Helga Rübsamen-Schaeff Düsseldorf, Member of the Supervisory Board of AiCuris Anti-infective Cures AG, Wuppertal	(a) • Merck Healthcare KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (Chair) (not listed) • Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (not listed) • 4SC AG, Martinsried, Germany (listed) • AiCuris Anti-Infective Cures AG, Wuppertal, Germany (not listed) (b) • E. Merck KG, Darmstadt, Germany[1] (not listed)	May 09, 2014	5/5
Daniel Thelen Cologne, Program Manager Infrastructure at DB InfraGO AG, Frankfurt am Main (Independent Shareholder Representative)	(b) • E. Merck KG, Darmstadt, Germany[1] (not listed)	Apr. 26, 2019	5/5
Simon Thelen[2] Cologne, Senior Physician at the Clinic for Trauma and Hand Surgery, University Hospital Düsseldorf (Independent Shareholder Representative)	(a) • Merck Healthcare KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (not listed) • Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (not listed) • Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany[1] (not listed) (b) • E. Merck KG, Darmstadt, Germany[1] (not listed)	Apr. 26, 2019	5/5

[1] Internal board position.

[2] Members delegated according to article 6 (5) of the Articles of Association.

Disclosures in Accordance with Section 160 (1) No. 8 of the German Stock Corporation Act (AktG)

In accordance with the German Securities Trading Act (WpHG), any shareholder whose equity interest reaches, exceeds, or falls below the thresholds of 3%, 5%, 10%, 15%, 20%, 25%, 30%, 50%, or 75% of the voting rights in a listed company must notify the company and the German Federal Financial Supervisory Authority (BaFin) of this without delay. The company was informed of the existence of the following equity interests up until the preparation of the Annual Financial Statements (the number of shares or the percentage equity interest is taken from the most recent voting rights notification sent to the Group and may therefore no longer be correct):

BlackRock, Inc., Wilmington, Delaware, United States, notified us that its share of the voting rights amounted to 7.43% on December 8, 2023. 7.32% of the voting rights (9,461,663 voting rights) were attributed to BlackRock, Inc., in accordance with section 34 WpHG. 0.10% of the voting rights (127,106 voting rights) were attributed to BlackRock, Inc., as instruments pursuant to section 38 (1) no. 1 WpHG (lent securities). 0.01% of the voting rights (10,242 voting rights) were attributed to BlackRock, Inc., as instruments pursuant to section 38 (1) no. 2 WpHG (contract for difference).

We received the following notification on July 17, 2015, in accordance with section 21 (1) WpHG:
On July 16, 2015, the share of the voting rights of Sun Life Global Investments Inc., Toronto, Ontario, Canada, in Merck KGaA, Darmstadt, Germany, fell below the threshold of 5% of the voting rights due to the disposal of shares and amounted to 4.91% (6,342,586 voting rights) on that date. 4.91% of the voting rights (6,342,586 voting rights) are attributed to the company in accordance with section 22 (1) sentence 1 no. 6 WpHG in conjunction with section 22 (1) sentence 2 WpHG.[1]

On July 16, 2015, the share of the voting rights of Sun Life Assurance Company of Canada – U.S. Operations Holdings, Inc., Wellesley Hills, Massachusetts, United States, in Merck KGaA, Darmstadt, Germany, fell below the threshold of 5% of the voting rights due to the disposal of shares and amounted to 4.91% (6,342,586 voting rights) on that date. 4.91% of the voting rights (6,342,586 voting rights) are attributed to the company in accordance with section 22 (1) sentence 1 no. 6 WpHG in conjunction with section 22 (1) sentence 2 WpHG.[1]

On July 16, 2015, the share of the voting rights of Sun Life Financial (U.S.) Holdings, Inc., Wellesley Hills, Massachusetts, United States, in Merck KGaA, Darmstadt, Germany, fell below the threshold of 5% of the voting rights due to the disposal of shares and amounted to 4.91% (6,342,586 voting rights) on that date. 4.91% of the voting rights (6,342,586 voting rights) are attributed to the company in accordance with section 22 (1) sentence 1 no. 6 WpHG in conjunction with section 22 (1) sentence 2 WpHG.[1]

On July 16, 2015, the share of the voting rights of Sun Life Financial (U.S.) Investments LLC, Wellesley Hills, Massachusetts, United States, in Merck KGaA, Darmstadt, Germany, fell below the threshold of 5% of the voting rights due to the disposal of shares and amounted to 4.91% (6,342,586 voting rights) on that date. 4.91% of the voting rights (6,342,586 voting rights) are attributed to the company in accordance with section 22 (1) sentence 1 no. 6 WpHG in conjunction with section 22 (1) sentence 2 WpHG.[1]

[1] Obsolete version; the numbering of the WpHG changed as of January 3, 2018. The sections of the obsolete version correspond to the following sections of the current version:
section 21 WpHG (obsolete version) corresponds to section 33 WpHG (new version)
section 22 WpHG (obsolete version) corresponds to section 34 WpHG (new version)
section 25 WpHG (obsolete version) corresponds to section 38 WpHG (new version)

On July 16, 2015, the share of the voting rights of Sun Life of Canada (U.S.) Financial Services Holdings, Inc., Boston, Massachusetts, United States, in Merck KGaA, Darmstadt, Germany, fell below the threshold of 5% of the voting rights due to the disposal of shares and amounted to 4.91% (6,342,586 voting rights) on that date. 4.91% of the voting rights (6,342,586 voting rights) are attributed to the company in accordance with section 22 (1) sentence 1 no. 6 WpHG in conjunction with section 22 (1) sentence 2 WpHG.[1]

Massachusetts Financial Services Company, Boston, Massachusetts, United States, notified us that its share of the voting rights exceeded the threshold of 5% on April 21, 2023, due to the purchase of shares and amounted to 5.06% on this date. 5.06% of these voting rights (6,536,955 voting rights) are attributed to Massachusetts Financial Services Company in accordance with section 34 WpHG.

Amundi S.A., Paris, France, notified us that its share of the voting rights fell below the threshold of 3% on December 13, 2023, due to the sale of shares and amounted to 2.99% on this date. 2.99% of these voting rights (3,858,766 voting rights) are attributed to Amundi S.A., Paris, France, in accordance with section 34 WpHG.

FMR LLC, Wilmington, Delaware, United States, notified us that its share of the voting rights exceeded the threshold of 3% on September 19, 2022, due to the purchase of shares and amounted to 3.02% on this date. 3.02% of these voting rights (3,902,150 voting rights) are attributed to FMR LLC in accordance with section 34 WpHG.

DWS Investment GmbH, Frankfurt am Main, Germany, notified us that its share of the voting rights fell below the threshold of 3% on July 21, 2023, due to the sale of shares and amounted to 2.95% on this date. 2.95% of these voting rights (3,806,894 voting rights) are attributed to DWS Investment GmbH in accordance with section 34 WpHG.

[1] Obsolete version; the numbering of the WpHG changed as of January 3, 2018. The sections of the obsolete version correspond to the following sections of the current version:
section 21 WpHG (obsolete version) corresponds to section 33 WpHG (new version)
section 22 WpHG (obsolete version) corresponds to section 34 WpHG (new version)
section 25 WpHG (obsolete version) corresponds to section 38 WpHG (new version)

List of Shareholdings of Merck KGaA, Darmstadt, Germany, as of December 31, 2023

						in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Germany									
Germany	Alcan Systems GmbH	Darmstadt	1.54	0.00	EUR	b)	b)	b)	b)
Germany	AmpTec GmbH[a)]	Hamburg	100.00	0.00	EUR	3.67	-0.34	3.67	-0.34
Germany	AZ Electronic Materials GmbH[a)]	Darmstadt	100.00	0.00	EUR	623.73	-3.47	623.73	-3.47
Germany	Azelis Deutschland Kosmetik GmbH	Ratingen	10.00	0.00	EUR	b)	b)	b)	b)
Germany	beeOLED GmbH	Dresden	21.76	0.00	EUR	b)	b)	b)	b)
Germany	Biochrom GmbH[a)]	Berlin	100.00	0.00	EUR	5.40	0.17	5.40	0.17
Germany	Chemitra GmbH[a)]	Darmstadt	100.00	100.00	EUR	625.28	0.00	625.28	0.00
Germany	DISCO Pharmaceuticals GmbH	Cologne	14.57	0.00	EUR	b)	b)	b)	b)
Germany	Emedia Export Company mbH[a)]	Gernsheim	100.00	0.00	EUR	0.04	0.01	0.04	0.01
Germany	Ferroelectric Memory GmbH	Dresden	10.03	0.00	EUR	b)	b)	b)	b)
Germany	Formo Bio GmbH	Berlin	7.60	0.00	EUR	b)	b)	b)	b)
Germany	GreenTech Accelerator Gernsheim GmbH	Gernsheim	20.00	20.00	EUR	b)	b)	b)	b)
Germany	InfraServ GmbH & Co. Wiesbaden KG	Wiesbaden	15.00	0.00	EUR	b)	b)	b)	b)
Germany	Inuru GmbH	Berlin	2.07	0.00	EUR	b)	b)	b)	b)
Germany	IOmx Therapeutics AG	Martinsried	2.07	0.00	EUR	b)	b)	b)	b)

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Germany	Merck 12. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	12,473.69	0.00	12,473.69	0.00
Germany	Merck 13. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	0.00	EUR	12,258.60	-61.06	12,258.60	-61.06
Germany	Merck 15. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	6,021.54	0.00	6,021.54	0.00
Germany	Merck 16. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	3,740.60	0.00	3,740.60	0.00
Germany	Merck 20. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	4,034.93	0.00	4,034.93	0.00
Germany	Merck 21. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	0.00	EUR	3,325.77	11.94	3,325.77	11.94
Germany	Merck 24. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	5,000.05	0.00	5,000.05	0.00
Germany	Merck 25. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 26. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 27. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 28. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 29. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 37. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	0.00	EUR	b)	b)	b)	b)
Germany	Merck 38. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	0.00	EUR	b)	b)	b)	b)
Germany	Merck 39. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 40. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 41. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Germany	Merck 42. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 43. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 44. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 45. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 46. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 47. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 48. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck 49. Allgemeine Beteiligungs-GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck Chemicals GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	26.44	3.88	26.44	3.88
Germany	Merck Consumer Health Holding Germany GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	217.54	-6.80	217.54	-6.80
Germany	Merck Display Trading GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	USD	1.48	0.50	1.64	-0.80
Germany	Merck Electronics KGaA, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	451.10	27.29	451.10	27.29
Germany	Merck Export GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	-30.10	-11.02	-30.10	-11.02
Germany	Merck Financial Services GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	452.60	11.75	452.60	11.75
Germany	Merck Financial Trading GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Gernsheim	100.00	0.00	EUR	4,717.31	-28.99	4,717.31	-28.99
Germany	Merck Foundation gGmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	b)	b)	b)	b)
Germany	Merck Gernsheim Holding GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	4.40	0.00	4.40	0.00

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Germany	Merck Healthcare Germany GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Weiterstadt	100.00	100.00	EUR	57.49	2.25	57.49	2.25
Germany	Merck Healthcare Holding GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	356.07	-0.20	356.07	-0.20
Germany	Merck Healthcare KGaA, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	760.58	-18.93	760.58	-18.93
Germany	Merck Holding GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Gernsheim	100.00	100.00	EUR	9,471.06	1,877.81	9,471.06	1,877.81
Germany	Merck International GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	3,609.57	421.12	3,609.57	421.12
Germany	Merck Internationale Beteiligungen GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	3,374.01	0.00	3,374.01	0.00
Germany	Merck Life Science Holding GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	309.86	-1.07	309.86	-1.07
Germany	Merck Life Science KGaA, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	626.94	32.38	626.94	32.38
Germany	Merck LS RTU GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	18.42	-1.37	18.42	-1.37
Germany	Merck Patent GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	0.00	EUR	-2.34	0.18	-2.34	0.18
Germany	Merck Performance Materials GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Wiesbaden	100.00	0.00	EUR	41.05	-1.72	41.05	-1.72
Germany	Merck Performance Materials Holding GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Darmstadt	100.00	100.00	EUR	328.22	-0.12	328.22	-0.12
Germany	Merck Real Estate GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	13.07	-0.02	13.07	-0.02
Germany	Merck Schuchardt OHG, a subsidiary of Merck KGaA, Darmstadt, Germany	Hohenbrunn	100.00	0.00	EUR	c)	c)	c)	c)
Germany	Merck Site Management GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Gernsheim	100.00	100.00	EUR	19.38	-1.41	19.38	-1.41
Germany	Merck Surface Solutions GmbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Gernsheim	100.00	0.00	EUR	58.22	-0.07	58.22	-0.07
Germany	Merck Vierte Allgemeine Beteiligungsgesellschaft mbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Gernsheim	100.00	0.00	EUR	7,577.24	0.00	7,577.24	0.00

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Germany	Merck Wohnungs- und Grundstücksverwaltungsgesellschaft mbH, a subsidiary of Merck KGaA, Darmstadt, Germany[a)]	Darmstadt	100.00	100.00	EUR	9.16	0.00	9.16	0.00
Germany	micropsi industries GmbH	Berlin	6.75	0.00	EUR	b)	b)	b)	b)
Germany	pharma mall Gesellschaft für Electronic Commerce mbH	Sankt Augustin	19.44	0.00	EUR	b)	b)	b)	b)
Germany	PharmLog Pharma Logistik GmbH	Boenen	16.67	0.00	EUR	b)	b)	b)	b)
Germany	Sigma-Aldrich Biochemie GmbH	Steinheim	100.00	0.00	EUR	54.05	1.68	54.05	1.68
Germany	Sigma-Aldrich Chemie GmbH	Steinheim	100.00	0.00	EUR	97.33	9.88	97.33	9.88
Germany	Sigma-Aldrich Chemie Holding GmbH	Taufkirchen	100.00	0.00	EUR	74.89	15.75	74.89	15.75
Germany	Sigma-Aldrich Grundstücks GmbH & Co. KG	Steinheim	100.00	0.00	EUR	39.57	0.64	39.57	0.64
Germany	Sigma-Aldrich Logistik GmbH	Steinheim	100.00	0.00	EUR	0.52	-1.25	0.52	-1.25
Germany	Sigma-Aldrich Verwaltungs GmbH	Steinheim	100.00	100.00	EUR	0.06	-0.09	0.06	-0.09
Germany	Versum Materials Germany GmbH	Darmstadt	100.00	0.00	EUR	13.46	3.07	13.46	3.07
Other European countries									
Austria	Merck Chemicals and Life Science GesmbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Vienna	100.00	0.00	EUR	34.16	5.32	34.16	5.32
Austria	Merck Gesellschaft mbH, a subsidiary of Merck KGaA, Darmstadt, Germany	Vienna	100.00	0.00	EUR	17.91	1.82	17.91	1.82
Austria	Sigma-Aldrich Handels GmbH	Vienna	100.00	0.00	EUR	6.03	0.93	6.03	0.93
Belgium	Merck Chemicals NV/SA, a subsidiary of Merck KGaA, Darmstadt, Germany	Hoeilaart	100.00	0.00	EUR	69.11	14.34	69.11	14.34
Belgium	Merck Life Science BV, a subsidiary of Merck KGaA, Darmstadt, Germany	Hoeilaart	100.00	0.00	EUR	40.83	9.71	40.83	9.71
Belgium	Merck NV/SA, a subsidiary of Merck KGaA, Darmstadt, Germany	Hoeilaart	100.00	0.00	EUR	26.28	3.17	26.28	3.17
Belgium	ReWind Therapeutics NV	Leuven-Heverlee	25.72	0.00	EUR	b)	b)	b)	b)
Bulgaria	Merck Bulgaria EAD, a subsidiary of Merck KGaA, Darmstadt, Germany	Sofia	100.00	0.00	BGN	11.02	0.68	21.56	1.33
Croatia	Merck d.o.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Zagreb	100.00	0.00	EUR	2.21	0.23	2.21	0.23

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Czech Republic	Merck Life Science spol. s r.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Prague	100.00	0.00	CZK	14.44	2.47	356.69	59.51
Czech Republic	Merck spol. s r.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Prague	100.00	0.00	CZK	57.38	7.06	1,417.91	173.69
Denmark	Merck A/S, a subsidiary of Merck KGaA, Darmstadt, Germany	Soborg	100.00	0.00	DKK	4.36	0.73	32.52	5.45
Denmark	Merck Life Science A/S, a subsidiary of Merck KGaA, Darmstadt, Germany	Soborg	100.00	0.00	DKK	32.03	10.15	238.77	75.63
Estonia	Merck Serono OÜ, a subsidiary of Merck KGaA, Darmstadt, Germany	Tallinn	100.00	0.00	EUR	0.44	0.02	0.44	0.02
Finland	Merck Life Science OY, a subsidiary of Merck KGaA, Darmstadt, Germany	Espoo	100.00	0.00	EUR	7.16	1.73	7.16	1.73
Finland	Merck OY, a subsidiary of Merck KGaA, Darmstadt, Germany	Espoo	100.00	0.00	EUR	6.34	0.55	6.34	0.55
Finland	Uniogen OY	Turku	1.11	0.00	EUR	b)	b)	b)	b)
France	Astraveus SAS	Paris	9.87	0.00	EUR	b)	b)	b)	b)
France	Aveni SACS	Massy	10.95	0.00	EUR	b)	b)	b)	b)
France	DIACCURATE SA	Paris	8.72	0.00	EUR	b)	b)	b)	b)
France	DNA Script S.A.S.	Le Kremlin-Bicêtre	5.25	0.00	EUR	b)	b)	b)	b)
France	Gonnon S.A.S.	Lyon	100.00	0.00	EUR	2,571.14	232.06	2,571.14	232.06
France	Iktos SA	Paris	11.12	0.00	EUR	b)	b)	b)	b)
France	MERCK 8ème S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Lyon	100.00	0.00	EUR	b)	b)	b)	b)
France	Merck Biodevelopment S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Lyon	100.00	0.00	EUR	133.51	7.27	133.51	7.27
France	Merck Chimie S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Fontenay s/Bois	100.00	0.00	EUR	88.46	8.90	88.46	8.90
France	MERCK Holding S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Lyon	100.00	0.00	EUR	b)	b)	b)	b)
France	Merck Performance Materials S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Trosly Breuil	100.00	0.00	EUR	31.71	1.36	31.71	1.36
France	Merck S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Lyon	99.86	0.00	EUR	2,216.01	351.31	2,216.01	351.31

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
France	Merck Santé S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Lyon	100.00	0.00	EUR	187.68	25.30	187.68	25.30
France	Merck Serono S.A.S., a subsidiary of Merck KGaA, Darmstadt, Germany	Lyon	100.00	0.00	EUR	82.78	9.08	82.78	9.08
France	Millipore S.A.S.	Molsheim	100.00	0.00	EUR	1,144.27	151.20	1,144.27	151.20
France	Scipio Bioscience S.A.S.	Montrouge	21.69	0.00	EUR	b)	b)	b)	b)
France	Sigma-Aldrich Chimie S.a.r.l.	Saint Quentin Fallavier	100.00	0.00	EUR	46.63	4.16	46.63	4.16
France	Sigma-Aldrich Chimie SNC	Saint Quentin Fallavier	100.00	0.00	EUR	14.29	0.02	14.29	0.02
France	Sigma-Aldrich Holding S.a.r.l.	Saint Quentin Fallavier	100.00	0.00	EUR	-0.05	-0.03	-0.05	-0.03
Greece	Merck Commercial Industrial Pharmaceutical Chemical Single Member S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Maroussi	100.00	0.00	EUR	20.48	-0.07	20.48	-0.07
Hungary	Merck Kft., a subsidiary of Merck KGaA, Darmstadt, Germany	Budapest	100.00	0.00	HUF	27.64	-1.53	10,568.79	-601.91
Hungary	Merck Life Science Kft., a subsidiary of Merck KGaA, Darmstadt, Germany	Budapest	100.00	0.00	HUF	9.40	1.44	3,595.36	551.06
Ireland	Merck Finance Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Carrigtwohill	100.00	0.00	USD	0.27	-0.04	0.30	-0.04
Ireland	Merck Life Science Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Arklow	100.00	0.00	EUR	99.26	85.56	99.26	85.56
Ireland	Merck Millipore Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Carrigtwohill	100.00	0.00	EUR	1,204.30	295.54	1,204.30	295.54
Ireland	Merck Serono (Ireland) Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Dublin	100.00	0.00	EUR	11.96	1.44	11.96	1.44
Ireland	Millipore Cork Unlimited Company	Carrigtwohill	100.00	0.00	EUR	52.12	60.20	52.12	60.20
Ireland	Sigma-Aldrich Ireland Ltd.	Arklow	100.00	0.00	EUR	74.51	16.85	74.51	16.85
Ireland	Versum Materials Ireland Limited	Dublin	100.00	0.00	EUR	7.47	6.36	7.47	6.36
Italy	BioIndustry Park Silvano Fumero S.p.A.	Colleretto Giacosa	13.55	0.00	EUR	b)	b)	b)	b)
Italy	H-BIO Puglia S.c.r.l.	Bari	2.50	0.00	EUR	b)	b)	b)	b)

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Italy	Istituto di Ricerche Biomediche Antoine Marxer RBM S.p.A.	Colleretto Giacosa	100.00	0.00	EUR	24.00	3.44	24.00	3.44
Italy	Merck Life Science S.r.l., a subsidiary of Merck KGaA, Darmstadt, Germany	Milan	100.00	0.00	EUR	47.46	9.30	47.46	9.30
Italy	Merck S.r.l., a subsidiary of Merck KGaA, Darmstadt, Germany	Milan	100.00	0.00	EUR	45.23	26.51	45.23	26.51
Italy	Merck Serono S.p.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Rome	99.74	0.00	EUR	515.12	15.15	515.12	15.15
Italy	Versum Materials Italia S.r.l.	Milan	100.00	0.00	EUR	10.13	-0.24	10.13	-0.24
Latvia	Merck Serono SIA, a subsidiary of Merck KGaA, Darmstadt, Germany	Riga	100.00	0.00	EUR	9.40	0.57	9.40	0.57
Lithuania	Merck Serono, UAB, a subsidiary of Merck KGaA, Darmstadt, Germany	Vilnius	100.00	0.00	EUR	0.39	0.02	0.39	0.02
Luxembourg	Merck Chemicals Holding S.à r.l., a subsidiary of Merck KGaA, Darmstadt, Germany	Luxembourg	100.00	0.00	EUR	1,518.88	915.43	1,518.88	915.43
Luxembourg	Merck Finance S.à r.l., a subsidiary of Merck KGaA, Darmstadt, Germany	Luxembourg	100.00	0.00	USD	367.83	2.88	407.04	3.10
Luxembourg	Merck Finanz S.à.r.l., a subsidiary of Merck KGaA, Darmstadt, Germany	Luxembourg	100.00	0.00	EUR	3,329.04	0.15	3,329.04	0.15
Luxembourg	Merck Holding S.à r.l., a subsidiary of Merck KGaA, Darmstadt, Germany	Luxembourg	100.00	0.00	EUR	485.71	377.17	485.71	377.17
Luxembourg	Merck Invest SCS, a subsidiary of Merck KGaA, Darmstadt, Germany	Luxembourg	100.00	0.00	USD	2.42	0.52	2.68	0.56
Luxembourg	Merck Re S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Luxembourg	100.00	100.00	EUR	92.41	18.13	92.41	18.13
Luxembourg	Millipore International Holdings S.à r.l.	Luxembourg	100.00	0.00	EUR	4,828.78	1,483.32	4,828.78	1,483.32
Luxembourg	Sigma-Aldrich Global S.a.r.l.	Luxembourg	100.00	0.00	EUR	14.22	-0.28	14.22	-0.28
Luxembourg	Sigma-Aldrich S.a.r.l.	Luxembourg	100.00	0.00	USD	11.70	-0.46	12.95	-0.50
Malta	Merck Capital Holding Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Pietà	100.00	50.29	EUR	859.28	-0.16	859.28	-0.16
Malta	Merck Capital Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Pietà	100.00	0.00	EUR	913.06	72.35	913.06	72.35

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Netherlands	Anavo Therapeutics B.V.	Leiden	19.29	0.00	EUR	b)	b)	b)	b)
Netherlands	Calypso Biotech B.V.	Amsterdam	27.49	0.00	EUR	b)	b)	b)	b)
Netherlands	eyrise B.V.	Veldhoven	100.00	100.00	EUR	2.56	0.38	2.56	0.38
Netherlands	iOnctura B.V.	Amsterdam	32.41	0.00	EUR	b)	b)	b)	b)
Netherlands	Kivu BioScience B.V.	Naarden	21.66	0.00	EUR	b)	b)	b)	b)
Netherlands	Merck B.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Schiphol-Rijk	100.00	0.00	EUR	1,334.29	172.81	1,334.29	172.81
Netherlands	Merck Chemicals B.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Amsterdam	100.00	0.00	EUR	1,943.83	922.99	1,943.83	922.99
Netherlands	Merck Europe B.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Amsterdam	100.00	0.00	EUR	0.06	0.57	0.06	0.57
Netherlands	Merck Holding Netherlands B.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Schiphol-Rijk	100.00	0.00	EUR	3,743.00	-0.27	3,743.00	-0.27
Netherlands	Merck Life Science N.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Amsterdam	100.00	0.00	EUR	326.29	17.11	326.29	17.11
Netherlands	Merck Ventures B.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Amsterdam	100.00	0.00	EUR	509.18	-9.36	509.18	-9.36
Netherlands	Mosa Meat B.V.	Maastricht	18.07	0.00	EUR	b)	b)	b)	b)
Netherlands	Serono Tri Holdings B.V.	Schiphol-Rijk	100.00	0.00	EUR	383.85	-0.16	383.85	-0.16
Netherlands	Sigma-Aldrich B.V.	Amsterdam	100.00	0.00	EUR	75.48	0.00	75.48	0.00
Netherlands	Versum Materials Asia B.V.	Amsterdam	100.00	0.00	USD	475.70	6.62	526.41	7.20
Netherlands	Versum Materials Holdings Nederland B.V.	Amsterdam	100.00	0.00	USD	60.37	5.11	66.81	5.46
Netherlands	Versum Materials International B.V.	Amsterdam	100.00	0.00	USD	75.19	56.46	83.21	61.42
Netherlands	Versum Materials Netherlands B.V.	Amsterdam	100.00	0.00	USD	832.08	122.41	920.78	131.90
Netherlands	Versum Materials Netherlands International B.V.	Amsterdam	100.00	0.00	USD	738.73	120.69	817.48	129.17
Netherlands	Versum Materials Pacific B.V.	Amsterdam	100.00	0.00	USD	111.10	35.77	122.95	39.01
Norway	Merck Life Science AS, a subsidiary of Merck KGaA, Darmstadt, Germany	Oslo	100.00	0.00	NOK	6.85	0.82	77.36	10.16

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Poland	Merck Business Solutions Europe Sp. z o.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Wroclaw	100.00	0.00	PLN	5.79	1.72	25.13	7.10
Poland	Merck Life Science Sp. z o.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Poznan	100.00	0.00	PLN	16.32	2.52	70.77	10.86
Poland	Merck Sp. z o.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Warsaw	100.00	0.00	PLN	55.61	1.58	241.20	3.82
Portugal	Merck, S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Algés	100.00	0.00	EUR	23.62	2.90	23.62	2.90
Romania	Merck Romania S.R.L., a subsidiary of Merck KGaA, Darmstadt, Germany	Bucharest	100.00	0.00	RON	8.97	2.28	44.64	11.41
Russia	Chemical Trade Limited LLC	Moscow	100.00	0.00	RUB	b)	b)	b)	b)
Russia	Merck Life Science LLC, a subsidiary of Merck KGaA, Darmstadt, Germany	Moscow	100.00	0.00	RUB	3.45	-0.14	343.38	-9.53
Russia	Merck LLC, a subsidiary of Merck KGaA, Darmstadt, Germany	Moscow	100.00	0.00	RUB	149.16	12.53	14,860.34	1,374.66
Serbia	Merck d.o.o. Beograd, a subsidiary of Merck KGaA, Darmstadt, Germany	Beograd	100.00	0.00	RSD	10.97	2.54	1,285.71	297.74
Slovakia	Merck Life Science spol. s r.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Bratislava	100.00	0.00	EUR	1.12	0.24	1.12	0.24
Slovakia	Merck spol. s r.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Bratislava	100.00	0.00	EUR	15.44	0.60	15.44	0.60
Slovenia	Merck d.o.o., a subsidiary of Merck KGaA, Darmstadt, Germany	Ljubljana	100.00	0.00	EUR	2.35	0.17	2.35	0.17
Spain	Merck Chemicals and Life Science S.A.U., a subsidiary of Merck KGaA, Darmstadt, Germany	Madrid	100.00	0.00	EUR	83.07	1.63	83.07	1.63
Spain	Merck Life Science S.L.U., a subsidiary of Merck KGaA, Darmstadt, Germany	Madrid	100.00	0.00	EUR	30.09	8.79	30.09	8.79
Spain	Merck, S.L.U., a subsidiary of Merck KGaA, Darmstadt, Germany	Madrid	100.00	0.00	EUR	253.19	40.81	253.19	40.81
Sweden	Merck AB, a subsidiary of Merck KGaA, Darmstadt, Germany	Solna	100.00	0.00	SEK	6.86	0.19	75.82	2.65
Sweden	Merck Life Science AB, a subsidiary of Merck KGaA, Darmstadt, Germany	Solna	100.00	0.00	SEK	129.62	47.07	1,432.03	540.83

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c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Switzerland	Ares Trading SA	Aubonne	100.00	0.00	EUR	1,212.73	1,059.55	1,212.73	1,059.55
Switzerland	Asceneuron SA	Lausanne	21.54	0.00	CHF	b)	b)	b)	b)
Switzerland	CAMAG Chemie-Erzeugnisse und Adsorptionstechnik AG	Muttenz	39.11	0.00	USD	b)	b)	b)	b)
Switzerland	Chord Therapeutics SA	Eysins	100.00	0.00	CHF	80.00	0.01	74.49	0.01
Switzerland	Cridec SA	Eclepens	0.15	0.00	CHF	b)	b)	b)	b)
Switzerland	FoRx Therapeutics AG	Basel	12.87	0.00	CHF	b)	b)	b)	b)
Switzerland	Inthera Bioscience AG	Zurich	16.22	0.00	CHF	b)	b)	b)	b)
Switzerland	Merck & Cie KmG, a subsidiary of Merck KGaA, Darmstadt, Germany	Altdorf	51.63	51.63	CHF	-16.69	57.07	-15.54	55.35
Switzerland	Merck (Schweiz) AG, a subsidiary of Merck KGaA, Darmstadt, Germany	Zug	100.00	0.00	CHF	15.60	1.63	14.52	1.56
Switzerland	Merck Performance Materials (Suisse) SA, a subsidiary of Merck KGaA, Darmstadt, Germany	Eysins	100.00	0.00	CHF	364.20	89.80	339.10	85.52
Switzerland	Merck Serono SA, a subsidiary of Merck KGaA, Darmstadt, Germany	Aubonne	100.00	0.00	EUR	2,683.40	1,491.79	2,683.40	1,491.79
Switzerland	Nouscom AG	Basel	7.93	0.00	CHF	b)	b)	b)	b)
Switzerland	Repronovo SA	Lausanne	19.55	0.00	CHF	b)	b)	b)	b)
Switzerland	SeRomer Holding SA	Eysins	100.00	0.00	EUR	3,286.03	1,162.45	3,286.03	1,162.45
Switzerland	Sigma-Aldrich (Switzerland) Holding AG	Buchs	100.00	0.00	CHF	6,664.42	270.14	6,205.24	257.90
Switzerland	Sigma-Aldrich Chemie GmbH	Buchs	100.00	0.00	CHF	156.47	31.41	145.69	30.87
Switzerland	Sigma-Aldrich International GmbH	Buchs	100.00	0.00	USD	5,161.09	90.72	5,711.27	94.93
Switzerland	Sigma-Aldrich Production GmbH	Buchs	100.00	0.00	CHF	80.18	7.72	74.66	7.08
Switzerland	UNISERS AG	Zurich	11.24	0.00	CHF	b)	b)	b)	b)
Türkiye	Merck Ilac, Ecza Ve Kimya Ticaret Anonim Sirketi, a subsidiary of Merck KGaA, Darmstadt, Germany	Istanbul	100.00	0.00	TRY	45.99	-2.52	1,503.39	-82.33
United Kingdom	Artios Pharma Limited	Cambridge	7.68	0.00	GBP	b)	b)	b)	b)
United Kingdom	BioReliance Limited	Aberdeen	100.00	0.00	GBP	144.04	42.30	125.04	36.75
United Kingdom	Epichem Group Limited	Gillingham	100.00	0.00	GBP	34.78	7.08	30.19	6.17
United Kingdom	Lightcast Discovery Ltd.	Cambridge	8.25	0.00	GBP	b)	b)	b)	b)
United Kingdom	Macrophage Pharma Limited	London	22.21	0.00	GBP	b)	b)	b)	b)

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c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
United Kingdom	Merck Cross Border Trustees Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	b)	b)	b)	b)
United Kingdom	Merck Holding Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	EUR	1,518.82	915.12	1,518.82	915.12
United Kingdom	Merck Investments Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	-0.07	0.00	-0.07	0.00
United Kingdom	Merck Life Science UK Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Gillingham	100.00	0.00	GBP	80.99	17.88	70.30	15.43
United Kingdom	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	b)	b)	b)	b)
United Kingdom	Merck Pension Trustees Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	b)	b)	b)	b)
United Kingdom	Merck Performance Materials Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	1.97	0.60	1.71	0.51
United Kingdom	Merck Serono Europe Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	0.00	0.02	0.00	0.02
United Kingdom	Merck Serono Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Feltham	100.00	0.00	GBP	52.18	3.33	45.29	2.81
United Kingdom	Millipore (U.K.) Limited	Feltham	100.00	0.00	GBP	184.60	-0.96	160.25	-0.85
United Kingdom	MM Domain Holdco Limited	London	50.00	50.00	GBP	b)	b)	b)	b)
United Kingdom	NanoSyrinx Ltd.	Coventry	13.87	0.00	GBP	b)	b)	b)	b)
United Kingdom	Nucleome Therapeutics Limited	Oxford	4.40	0.00	GBP	b)	b)	b)	b)
United Kingdom	Outrun Therapeutics Limited	Dundee	35.40	0.00	GBP	b)	b)	b)	b)
United Kingdom	Peratech HoldCo Limited	Catterick Garrison	0.07	0.00	GBP	b)	b)	b)	b)
United Kingdom	SAFC Biosciences Limited	Gillingham	100.00	0.00	GBP	11.67	1.64	10.13	1.44
United Kingdom	SAFC Hitech Limited	Gillingham	100.00	0.00	GBP	4.47	1.19	3.88	1.03
United Kingdom	Scancell Holdings Plc	Oxford	0.22	0.00	GBP	b)	b)	b)	b)
United Kingdom	Sigma Chemical Co. Ltd.	Gillingham	100.00	0.00	GBP	b)	b)	b)	b)
United Kingdom	Sigma-Aldrich Company Limited	Gillingham	100.00	0.00	GBP	835.93	32.03	725.67	27.73
United Kingdom	Storm Therapeutics Limited	Cambridge	14.79	0.00	GBP	b)	b)	b)	b)
United Kingdom	Theolytics Ltd.	Oxford	23.80	0.00	GBP	b)	b)	b)	b)
United Kingdom	Versum Materials UK Limited	Feltham	100.00	0.00	USD	198.27	112.62	219.41	121.02

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c) Operational site of Merck KGaA, Darmstadt, Germany.

						in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
North America									
Canada	EMD Crop BioScience Canada Inc.	Toronto	100.00	0.00	CAD	6.94	0.24	10.17	0.34
Canada	EMD Inc.	Mississauga	100.00	0.00	CAD	33.87	-2.61	49.61	-4.04
Canada	Future Fertility Inc.	Toronto	21.65	0.00	CAD	b)	b)	b)	b)
Canada	MilliporeSigma Canada Ltd.	Oakville	100.00	0.00	CAD	20.16	-12.80	29.53	-18.71
United States	ActiThera Inc.	Dover	50.00	0.00	USD	b)	b)	b)	b)
United States	Aldrich Chemical Co. LLC	Milwaukee	100.00	0.00	USD	302.56	47.48	334.81	49.49
United States	Aldrich Chemical Foreign Holding LLC	St. Louis	100.00	0.00	USD	0.00	0.00	0.00	0.00
United States	Aldrich-APL, LLC	Urbana	100.00	0.00	USD	18.08	2.44	20.01	2.63
United States	Allozyne, Inc.	Seattle	5.21	0.00	USD	b)	b)	b)	b)
United States	Altoida, Inc.	Suwanee	16.96	0.00	USD	b)	b)	b)	b)
United States	Archemix Corporation	Wilmington	10.00	0.00	USD	b)	b)	b)	b)
United States	Baird Venture Partners IV Limited Partnership	Wilmington	4.15	0.00	USD	b)	b)	b)	b)
United States	BioControl Systems, Inc.	Wilmington	100.00	0.00	USD	32.29	-0.71	35.73	-0.78
United States	Biolinq Inc.	San Diego	6.38	0.00	USD	b)	b)	b)	b)
United States	BioReliance Corporation	Rockville	100.00	0.00	USD	124.82	81.76	138.12	88.31
United States	BioVascular, Inc.	Wilmington	6.90	6.90	USD	b)	b)	b)	b)
United States	Bird Rock Bio, Inc.	La Jolla	0.71	0.00	USD	b)	b)	b)	b)
United States	Celestial AI Inc.	Wilmington	10.11	0.00	USD	b)	b)	b)	b)
United States	Cell Marque Corporation	Rocklin	100.00	0.00	USD	93.00	28.57	102.92	30.88
United States	CellFE, Inc.	Wilmington	9.96	0.00	USD	b)	b)	b)	b)
United States	Cerilliant Corporation	Round Rock	100.00	0.00	USD	113.05	30.42	125.10	32.91
United States	Concerto Biosciences, Inc.	Wilmington	6.43	0.00	USD	b)	b)	b)	b)
United States	Deltanoid Pharmaceuticals, Inc.	Madison	6.80	0.00	USD	b)	b)	b)	b)
United States	Dynamis Therapeutics, Inc.	Jenkintown	0.59	0.59	USD	b)	b)	b)	b)
United States	Electron Transfer Technologies, Inc.	West Trenton	100.00	0.00	USD	-0.14	-0.01	-0.15	-0.01
United States	ElectronInks Inc.	Wilmington	12.64	0.00	USD	b)	b)	b)	b)
United States	EMD Accounting Solutions & Services America, Inc.	Rockland	100.00	0.00	USD	-0.23	0.17	-0.26	0.19

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								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
United States	EMD Biotech LLC	Wilmington	100.00	0.00	USD	b)	b)	b)	b)
United States	EMD Digital Inc.	Burlington	100.00	0.00	USD	-49.37	-15.37	-54.64	-16.59
United States	EMD Finance LLC	Wilmington	100.00	0.00	USD	9.96	6.93	11.02	7.50
United States	EMD Group Holding, Inc.	Wilmington	100.00	0.00	USD	4,508.16	136.94	4,988.73	147.78
United States	EMD Holding Corp.	Rockland	100.00	0.00	USD	17,904.24	504.78	19,812.83	543.81
United States	EMD Invest LLC	Wilmington	100.00	0.00	USD	0.05	0.00	0.05	0.00
United States	EMD Millipore Corporation	Burlington	100.00	0.00	USD	3,454.35	639.07	3,822.58	693.13
United States	EMD Performance Materials Corp.	Wilmington	100.00	0.00	USD	295.11	-27.78	326.57	-30.01
United States	EMD Serono Holding, Inc.	Rockland	100.00	0.00	USD	2,351.33	277.23	2,601.98	299.27
United States	EMD Serono Research & Development Institute, Inc.	Billerica	100.00	0.00	USD	111.29	-0.97	123.15	-1.00
United States	EMD Serono, Inc.	Rockland	100.00	0.00	USD	106.94	93.89	118.34	100.97
United States	Exelead Inc.	Wilmington	100.00	0.00	USD	171.02	-85.51	189.25	-92.53
United States	FloDesign Sonics, Inc.	Wilmington	100.00	0.00	USD	2.27	-25.73	2.51	-27.72
United States	Galecto, Inc.	Wilmington	4.84	0.00	USD	b)	b)	b)	b)
United States	High Line Bio, Inc.	Wilmington	19.90	0.00	USD	b)	b)	b)	b)
United States	IDRX, Inc.	Wilmington	7.50	0.00	USD	b)	b)	b)	b)
United States	ImmuneBridge Inc.	Wilmington	25.43	0.00	USD	b)	b)	b)	b)
United States	Immunitas Therapeutics, Inc.	Wilmington	4.72	0.00	USD	b)	b)	b)	b)
United States	Indi Molecular, Inc.	Wilmington	32.16	0.00	USD	b)	b)	b)	b)
United States	Intermolecular, Inc.	Wilmington	100.00	0.00	USD	-23.62	-6.92	-26.14	-7.47
United States	J.C. Schumacher Company	Glendale	100.00	0.00	USD	0.00	0.00	0.00	0.00
United States	Kraig Biocraft Laboratories, Inc.	Ann Arbor	0.52	0.00	USD	b)	b)	b)	b)
United States	Lumiode, Inc.	New York	9.16	0.00	USD	b)	b)	b)	b)
United States	MemryX Inc.	Ann Arbor	20.67	0.00	USD	b)	b)	b)	b)
United States	Metalenz, Inc.	Boston	8.83	0.00	USD	b)	b)	b)	b)
United States	Millipore Asia Ltd.	Wilmington	100.00	0.00	USD	24.32	0.15	26.91	0.16
United States	MilliporeSigma Distribution LLC	Wilmington	100.00	0.00	USD	19.01	2.05	21.04	2.04
United States	Neurable Inc.	Boston	11.13	0.00	USD	b)	b)	b)	b)
United States	Ormet Circuits, Inc.	San Diego	100.00	0.00	USD	-13.07	-5.71	-14.47	-6.17

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								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
United States	Pacific Light & Hologram, Inc.	Wilmington	10.56	0.00	USD	b)	b)	b)	b)
United States	PDS Biotechnology Corporation	Wilmington	1.33	0.00	USD	b)	b)	b)	b)
United States	Pictor Labs, Inc.	Los Angeles	23.55	0.00	USD	b)	b)	b)	b)
United States	Plexium Inc.	Wilmington	6.93	0.00	USD	b)	b)	b)	b)
United States	Polaris Electro-Optics, Inc.	Wilmington	24.99	0.00	USD	b)	b)	b)	b)
United States	Precigen, Inc.	Germantown	9.99	0.00	USD	b)	b)	b)	b)
United States	Prolog Healthy Living Fund II, L.P.	St. Louis	44.50	0.00	USD	b)	b)	b)	b)
United States	Prolog Healthy Living Fund, L.P.	St. Louis	35.61	0.00	USD	b)	b)	b)	b)
United States	Quintessent Inc.	Dover	10.22	0.00	USD	b)	b)	b)	b)
United States	Raze Therapeutics, Inc.	Cambridge	12.34	0.00	USD	b)	b)	b)	b)
United States	Research Organics, LLC	Cleveland	100.00	0.00	USD	46.77	1.74	51.76	2.01
United States	Ribometrix Inc.	Durham	9.88	0.00	USD	b)	b)	b)	b)
United States	Riffyn, Inc.	Oakland	12.76	0.00	USD	b)	b)	b)	b)
United States	SAFC Biosciences, Inc.	Lenexa	100.00	0.00	USD	95.98	31.22	106.21	32.82
United States	SAFC Carlsbad, Inc.	Carlsbad	100.00	0.00	USD	-46.12	-44.54	-51.04	-48.17
United States	SAFC, Inc.	Madison	100.00	0.00	USD	-13.65	-44.39	-15.10	-48.03
United States	SeeQC, Inc.	Elmsford	6.18	0.00	USD	b)	b)	b)	b)
United States	Serono Laboratories, Inc.	Rockland	100.00	0.00	USD	0.17	0.02	0.19	0.02
United States	Sigma Chemical Foreign Holding LLC	St. Louis	100.00	0.00	USD	0.00	0.00	0.00	0.00
United States	Sigma Redevelopment Corporation	St. Louis	100.00	0.00	USD	47.13	-6.89	52.16	-7.45
United States	Sigma-Aldrich Co. LLC	St. Louis	100.00	0.00	USD	3,538.42	398.34	3,915.62	434.28
United States	Sigma-Aldrich Corporation	St. Louis	100.00	0.00	USD	2,752.35	1,010.41	3,045.76	1,087.68
United States	Sigma-Aldrich Manufacturing LLC	St. Louis	100.00	0.00	USD	340.20	64.54	376.46	67.85
United States	Sigma-Aldrich Missouri Insurance Company	St. Louis	100.00	0.00	USD	19.58	2.11	21.67	2.29
United States	Sigma-Aldrich Research Biochemicals, Inc.	Wilmington	100.00	0.00	USD	39.51	4.07	43.72	4.40
United States	Sigma-Aldrich RTC, Inc.	Laramie	100.00	0.00	USD	9.81	-1.62	10.86	-1.77
United States	Sigma-Aldrich, Inc.	Madison	100.00	0.00	USD	185.00	140.65	204.72	151.07
United States	Sigma-Genosys of Texas LLC	The Woodlands	100.00	0.00	USD	7.69	1.31	8.51	1.43
United States	Sonde Health, Inc.	Boston	17.91	0.00	USD	b)	b)	b)	b)

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
United States	Supelco, Inc.	Bellefonte	100.00	0.00	USD	-39.89	-15.02	-44.14	-16.22
United States	Surface Solutions, LLC	Wilmington	100.00	0.00	USD	b)	b)	b)	b)
United States	Syntropy Technologies LLC	Wilmington	50.00	0.00	USD	b)	b)	b)	b)
United States	Telios Pharma, Inc.	Wilmington	5.83	0.00	USD	b)	b)	b)	b)
United States	Tignis Inc.	Seattle	7.33	0.00	USD	b)	b)	b)	b)
United States	Tioga Pharmaceuticals, Inc.	San Diego	16.58	16.58	USD	b)	b)	b)	b)
United States	Vera Therapeutics, Inc.	Wilmington	8.99	0.00	USD	b)	b)	b)	b)
United States	Versum Materials Manufacturing Company, LLC	Wilmington	100.00	0.00	USD	557.88	111.16	617.35	120.00
United States	Versum Materials Technology LLC	Wilmington	100.00	0.00	USD	-19.87	0.14	-21.99	0.15
United States	Versum Materials US International, Inc.	Wilmington	100.00	0.00	USD	738.50	121.34	817.22	130.17
United States	Versum Materials US, LLC	Wilmington	100.00	0.00	USD	2,633.97	26.30	2,914.75	27.81
United States	Versum Materials, Inc.	Wilmington	100.00	0.00	USD	-65.80	63.81	-72.81	68.79
United States	ViuRx Pharmaceuticals, Inc.	Boston	8.03	0.00	USD	b)	b)	b)	b)
United States	Xilio Therapeutics, Inc.	Waltham	2.48	0.00	USD	b)	b)	b)	b)
Asia-Pacific (APAC)									
Australia	Merck Healthcare Pty. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Macquarie Park	100.00	0.00	AUD	35.04	5.22	56.74	8.31
Australia	Merck Pty. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Bayswater	100.00	0.00	AUD	11.74	2.38	19.01	3.93
Australia	Sigma-Aldrich Oceania Pty. Ltd.	Macquarie Park	100.00	0.00	AUD	68.35	0.74	110.67	1.21
Australia	Sigma-Aldrich Pty. Ltd.	Macquarie Park	100.00	0.00	AUD	19.04	1.11	30.83	1.78
China	IKAS Industry Co., Ltd.	Shenzhen	1.67	0.00	CNY	b)	b)	b)	b)
China	Merck Chemicals (Shanghai) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Shanghai	100.00	0.00	CNY	82.52	12.04	648.04	94.22
China	Merck Display Materials (Shanghai) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Shanghai	100.00	0.00	CNY	86.90	14.89	682.44	116.62
China	Merck Electronic Materials (Suzhou) Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Suzhou	100.00	0.00	CNY	56.76	18.48	445.80	141.33

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
China	Merck Electronics (Zhangjiagang) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Suzhou	100.00	0.00	CNY	30.63	-0.60	240.52	-4.77
China	Merck Holding (China) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Shanghai	100.00	0.00	CNY	211.97	-0.24	1,664.70	-0.37
China	Merck Innovation Hub (Guangdong) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Guangzhou	100.00	0.00	CNY	1.08	1.34	8.44	10.13
China	Merck Life Science Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Hong Kong	100.00	0.00	USD	33.16	32.22	36.69	34.78
China	Merck Life Science Technologies (Nantong) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Nantong	100.00	0.00	CNY	25.11	64.47	197.19	499.79
China	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Hong Kong	100.00	0.00	HKD	0.15	0.94	1.31	7.83
China	Merck Performance Materials Hong Kong Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Hong Kong	100.00	0.00	HKD	69.96	50.73	604.91	427.81
China	Merck Pharmaceutical (HK) Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Hong Kong	100.00	0.00	HKD	10.72	0.93	92.67	7.88
China	Merck Pharmaceutical Distribution (Jiangsu) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Nantong	100.00	0.00	CNY	29.09	4.08	228.47	30.84
China	Merck Pharmaceutical Manufacturing (Jiangsu) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Nantong	100.00	0.00	CNY	98.48	19.91	773.39	155.66
China	Merck Serono (Beijing) Pharmaceutical Distribution Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Beijing	100.00	0.00	CNY	84.60	7.03	664.39	55.84
China	Merck Serono (Beijing) Pharmaceutical R&D Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Beijing	100.00	0.00	CNY	8.78	1.16	68.92	8.91
China	Merck Serono Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Beijing	100.00	0.00	CNY	79.95	12.58	627.87	100.57
China	Merck Testing (Shanghai) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Shanghai	100.00	0.00	CNY	b)	b)	b)	b)
China	Merck Testing and Certification (Shanghai) Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Shanghai	100.00	0.00	CNY	42.21	-0.09	331.47	-0.68

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
China	Multitude Therapeutics Inc.	Shanghai	3.20	0.00	CNY	b)	b)	b)	b)
China	Nanjing Xinchen Neuromorphic Technology Co., Ltd.	Nanjing	3.28	0.00	CNY	b)	b)	b)	b)
China	SAFC Hitech (Shanghai) Co., Ltd.	Shanghai	100.00	0.00	CNY	10.39	3.17	81.57	24.39
China	Sigma-Aldrich (Shanghai) Trading Co., Ltd.	Shanghai	100.00	0.00	CNY	79.93	2.71	627.72	19.19
China	Sigma-Aldrich (Wuxi) Life Science & Technology Co., Ltd.	Wuxi	100.00	0.00	CNY	130.92	26.18	1,028.21	198.93
China	Versum Materials (Dalian) Co., Ltd.	Dalian	100.00	0.00	CNY	1.01	-0.18	7.91	-1.54
China	Versum Materials (Shanghai) Co., Ltd.	Shanghai	100.00	0.00	CNY	89.07	28.71	699.50	220.62
India	Merck Life Science Pvt. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Mumbai	100.00	0.00	INR	103.99	17.73	9,568.22	1,583.12
India	Merck Performance Materials Pvt. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Mumbai	100.00	0.00	INR	15.36	0.58	1,413.18	50.12
India	Merck Specialities Pvt. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Mumbai	100.00	0.00	INR	88.75	20.88	8,165.57	1,862.27
India	Sigma-Aldrich Chemicals Private Limited	Bangalore	100.00	0.00	INR	81.90	8.49	7,535.10	757.80
Indonesia	P.T. Merck Chemicals and Life Sciences, a subsidiary of Merck KGaA, Darmstadt, Germany	Jakarta	100.00	0.00	IDR	17.92	2.14	305,623.55	35,155.36
Indonesia	P.T. Merck Tbk., a subsidiary of Merck KGaA, Darmstadt, Germany	Jakarta	86.65	0.00	IDR	48.59	10.06	828,829.20	165,866.74
Japan	Merck Biopharma Co., Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Tokyo	100.00	0.00	JPY	67.73	10.09	10,597.14	1,578.20
Japan	Merck Electronics Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Tokyo	100.00	0.00	JPY	282.79	65.90	44,246.64	10,031.95
Japan	Merck Holdings G.K., a subsidiary of Merck KGaA, Darmstadt, Germany	Tokyo	100.00	0.00	JPY	128.65	8.78	20,128.58	1,256.08
Japan	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Tokyo	100.00	0.00	JPY	91.09	15.99	14,252.68	2,404.79
Japan	Merck Performance Materials G.K., a subsidiary of Merck KGaA, Darmstadt, Germany	Tokyo	100.00	0.00	JPY	92.37	13.66	14,452.20	2,069.94
Japan	Resonac Versum Materials Co. LTD	Kawasaki	35.00	0.00	JPY	b)	b)	b)	b)
Japan	Sigma-Aldrich Japan G.K.	Tokyo	100.00	0.00	JPY	32.99	0.34	5,162.09	67.48
Japan	Versum Materials Japan Inc.	Tokyo	100.00	0.00	JPY	30.06	11.92	4,703.94	1,817.34

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b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Malaysia	Merck Sdn Bhd, a subsidiary of Merck KGaA, Darmstadt, Germany	Petaling Jaya	100.00	0.00	MYR	18.70	1.65	94.96	7.95
Malaysia	Sigma-Aldrich (M) Sdn Bhd	Petaling Jaya	100.00	0.00	MYR	2.47	0.25	12.54	1.32
Malaysia	Versum Materials Malaysia Sdn Bhd	Kuala Lumpur	100.00	0.00	MYR	6.09	1.10	30.93	5.45
New Zealand	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Auckland	100.00	0.00	NZD	2.72	0.59	4.75	1.00
New Zealand	Sigma-Aldrich New Zealand Co.	Auckland	100.00	0.00	NZD	1.58	0.45	2.75	0.78
Philippines	Merck Business Solutions Asia Inc., a subsidiary of Merck KGaA, Darmstadt, Germany	Taguig	99.99	0.00	PHP	8.84	-0.30	541.53	-21.12
Philippines	Merck Inc., a subsidiary of Merck KGaA, Darmstadt, Germany	Taguig	100.00	0.00	PHP	25.27	2.28	1,548.90	137.81
Republic of Korea	Construction Guarantee Cooperative	Seoul	0.01	0.00	KRW	b)	b)	b)	b)
Republic of Korea	M Chemicals Inc.	Eumseong	100.00	0.00	KRW	39.39	-5.44	56,281.12	-7,755.31
Republic of Korea	Merck Electronic Materials Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Seoul	100.00	0.00	KRW	94.21	9.43	134,605.98	13,383.38
Republic of Korea	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Seoul	99.99	0.00	KRW	114.11	12.59	163,033.74	17,765.66
Republic of Korea	Merck Performance Materials Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Pyeongtaek-shi	100.00	0.00	USD	135.80	32.08	150.28	35.09
Republic of Korea	Sigma-Aldrich Korea Ltd.	Seoul	100.00	0.00	KRW	72.42	5.31	103,467.14	7,498.18
Republic of Korea	Versum Materials ADM Korea Inc.	Ansan-si	100.00	0.00	USD	244.68	48.69	270.76	52.56
Republic of Korea	Versum Materials HYT Inc.	Ansan-si	100.00	0.00	KRW	175.82	25.35	251,216.21	35,749.01
Republic of Korea	Versum Materials Korea Inc.	Siheung-si	100.00	0.00	KRW	406.34	0.48	580,574.03	725.92
Republic of Korea	Versum Materials PM Korea Inc.	Siheung-Si	100.00	0.00	KRW	123.23	-5.25	176,073.08	-7,552.26
Republic of Korea	Versum Materials SPC Korea Ltd.	Pyeongtaek-shi	100.00	0.00	USD	26.43	-11.53	29.24	-12.52
Singapore	Merck Life Science Testing Services Pte. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Singapore	100.00	0.00	SGD	b)	b)	b)	b)
Singapore	Merck Performance Materials Pte. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Singapore	100.00	0.00	USD	43.53	-1.21	48.17	-1.32
Singapore	Merck Pte. Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Singapore	100.00	0.00	SGD	369.41	10.29	539.11	15.00

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c) Operational site of Merck KGaA, Darmstadt, Germany.

							in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Singapore	Sigma-Aldrich Pte. Ltd.	Singapore	100.00	0.00	SGD	287.99	17.02	420.29	24.63
Singapore	Versum Materials Singapore International Pte. Ltd.	Singapore	100.00	0.00	USD	13.96	42.36	15.45	45.74
Singapore	Versum Materials Singapore Pte. Ltd.	Singapore	100.00	0.00	USD	186.00	65.71	205.82	71.41
Taiwan	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Taipei	100.00	0.00	TWD	8.16	2.28	276.24	76.59
Taiwan	Merck Performance Materials Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Taipei	100.00	0.00	TWD	124.26	6.42	4,205.70	231.85
Taiwan	SAFC Hitech Taiwan Co., Ltd.	Kaohsiung	100.00	0.00	TWD	137.05	33.86	4,638.49	1,148.89
Taiwan	Versum Materials Taiwan Co., Ltd.	Taipei	74.00	0.00	TWD	181.97	23.45	6,158.99	789.01
Thailand	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Bangkok	45.11	0.00	THB	36.88	5.93	1,397.26	224.01
Vietnam	Merck Healthcare Vietnam Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Ho Chi Minh City	100.00	0.00	VND	27.26	7.90	731,430.07	203,554.34
Vietnam	Merck Vietnam Company Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Ho Chi Minh City	100.00	0.00	VND	5.79	0.80	155,448.40	20,598.69
Latin America									
Argentina	Merck S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Buenos Aires	100.00	0.00	ARS	40.40	-7.27	36,125.11	-6,503.46
Argentina	Sigma-Aldrich de Argentina S.R.L.	Buenos Aires	100.00	0.00	ARS	0.37	-0.68	326.64	-612.15
Brazil	Merck S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Rio de Janeiro	100.00	0.00	BRL	278.56	64.98	1,495.95	351.80
Brazil	Sigma-Aldrich Brasil Ltda.	Barueri	100.00	0.00	BRL	17.47	0.25	93.82	1.39
Cayman Islands	CLEARInk Displays, Ltd.	Grand Cayman	4.13	0.00	USD	b)	b)	b)	b)
Cayman Islands	MoonLake Immunotherapeutics Ltd.	Grand Cayman	5.29	0.00	USD	b)	b)	b)	b)
Chile	Merck S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Santiago de Chile	100.00	0.00	CLP	48.61	-1.43	47,620.35	-1,285.42
Chile	Sigma-Aldrich Quimica Ltda.	Santiago de Chile	100.00	0.00	CLP	0.73	-0.39	716.87	-268.46
Colombia	Merck S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Bogota	100.00	0.00	COP	42.84	4.34	182,996.62	19,756.96

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c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Dominican Republic	Merck Dominicana, S.R.L., a subsidiary of Merck KGaA, Darmstadt, Germany	Santo Domingo	100.00	0.00	DOP	b)	b)	b)	b)
Ecuador	Merck C.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Quito	100.00	0.00	USD	16.25	-0.08	17.98	-0.06
Guatemala	Merck, S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Guatemala City	100.00	0.00	GTQ	12.98	0.96	112.35	8.37
Mexico	Merck Biopharma Distribution S.A. de C.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Mexico City	100.00	0.00	MXN	95.41	-3.76	1,789.86	-75.78
Mexico	Merck, S.A. de C.V., a subsidiary of Merck KGaA, Darmstadt, Germany	Mexico City	100.00	0.00	MXN	211.98	15.55	3,976.80	302.44
Mexico	Sigma-Aldrich Quimica, S. de R.L. de C.V.	Toluca	100.00	0.00	MXN	22.78	1.09	427.35	17.80
Panama	Merck, S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Panama City	100.00	0.00	USD	0.23	0.06	0.26	0.07
Panama	Mesofarma Corporation	Panama City	100.00	0.00	USD	33.03	2.14	36.55	2.20
Peru	Merck Peruana S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Lima	100.00	0.00	PEN	23.51	2.91	96.18	11.57
Uruguay	Ares Trading Uruguay S.A.	Montevideo	100.00	0.00	USD	80.34	34.15	88.90	36.70
Venezuela	Merck S.A., a subsidiary of Merck KGaA, Darmstadt, Germany	Caracas	100.00	0.00	VES	b)	b)	b)	b)
Venezuela	Representaciones MEPRO S.A.	Caracas	100.00	0.00	VES	b)	b)	b)	b)
Middle East and Africa (MEA)									
Algeria	Novapharm Production SARL	Wilaya de Tipiza	20.00	0.00	DZD	b)	b)	b)	b)
Egypt	Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Cairo	100.00	0.00	EGP	1.24	0.13	42.37	3.14
Israel	AION Labs Innovation Lab Ltd.	Rehovot	19.23	0.00	ILS	b)	b)	b)	b)
Israel	DenovAI Biotech Ltd.	Rehovot	7.92	0.00	ILS	b)	b)	b)	b)
Israel	Genopore Ltd.	Ramat-Gan	13.47	0.00	ILS	b)	b)	b)	b)
Israel	Inter-Lab Ltd.	Yavne	100.00	0.00	USD	8.43	-2.64	9.32	-2.86
Israel	InterPharm Laboratories Ltd.	Yavne	100.00	0.00	USD	65.31	10.34	72.28	11.20
Israel	MediSafe Project Ltd.	Haifa	4.91	0.00	ILS	b)	b)	b)	b)
Israel	Merck Serono Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Herzliya Pituach	100.00	0.00	USD	20.53	0.85	22.71	0.89

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c) Operational site of Merck KGaA, Darmstadt, Germany.

								in million €		in million [reporting currency]	
Country	Company	Registered office	Equity interest (%)	thereof held directly by Merck KGaA, Darmstadt, Germany (%)	Reporting currency (ISO Code)	IFRS net equity	IFRS profit after tax	IFRS net equity	IFRS profit after tax
Israel	Metabomed Ltd.	Yavne	19.34	0.00	ILS	b)	b)	b)	b)
Israel	Neologic Ltd.	Tel Mond	11.10	0.00	ILS	b)	b)	b)	b)
Israel	Pantheon Biosciences Ltd.	Yavne	0.21	0.00	USD	b)	b)	b)	b)
Israel	Pilltracker 2015 Ltd.	Tel Aviv	16.59	0.00	ILS	b)	b)	b)	b)
Israel	PMatX Ltd.	Yavne	90.91	0.00	ILS	0.02	2.22	0.07	8.89
Israel	Purple Biotech Ltd.	Rehovot	3.79	0.00	ILS	b)	b)	b)	b)
Israel	PxE Computational Imaging Ltd.	Lachish Darom	26.92	0.00	ILS	b)	b)	b)	b)
Israel	QLight Nanotech Ltd.	Jerusalem	100.00	0.00	ILS	1.06	0.26	4.26	1.09
Israel	Sentaur Bio Ltd.	Yavne	98.37	0.00	USD	b)	b)	b)	b)
Israel	Sigma-Aldrich Israel Ltd.	Rehovot	100.00	0.00	ILS	82.45	4.83	330.36	18.26
Israel	TenAces Biosciences Ltd.	Rehovot	17.24	0.00	ILS	b)	b)	b)	b)
Israel	Versum Materials Israel Ltd.	Tel Aviv	100.00	0.00	USD	24.09	3.12	26.66	3.38
Israel	Wiliot Ltd.	Caesarea	3.64	0.00	USD	b)	b)	b)	b)
Kenya	Merck Healthcare and Life Science Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Nairobi	100.00	0.00	KES	0.62	0.01	107.52	18.99
Nigeria	Merck Pharmaceutical and Life Sciences Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Lagos	100.00	0.00	NGN	b)	b)	b)	b)
Saudi Arabia	Merck Limited, a subsidiary of Merck KGaA, Darmstadt, Germany	Riyadh	100.00	0.00	SAR	26.73	2.27	110.93	9.72
South Africa	Merck (Pty) Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Modderfontein	100.00	0.00	ZAR	23.04	0.20	471.90	4.25
South Africa	Merck Life Science (Pty) Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Modderfontein	100.00	0.00	ZAR	7.68	0.54	157.31	13.32
Tunisia	Merck Promotion SARL, a subsidiary of Merck KGaA, Darmstadt, Germany	Tunis	100.00	0.00	TND	0.14	0.00	0.48	0.00
Tunisia	Merck SARL, a subsidiary of Merck KGaA, Darmstadt, Germany	Tunis	100.00	0.00	TND	6.71	3.67	22.77	12.32
United Arab Emirates	Merck Serono Middle East FZ-Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany	Dubai	100.00	0.00	AED	163.27	2.85	663.58	12.66

a) Profit and loss transfer agreement.
b) Not disclosed owing to minor significance in accordance with section 286 (3) no. 1 HGB.
c) Operational site of Merck KGaA, Darmstadt, Germany.

Reproduction of the Independent Auditor's Report

Based on the results of our audit, we have issued the following unqualified auditor's report

Independent Auditor's Report

To MERCK Kommanditgesellschaft auf Aktien, Darmstadt, Germany

Report on the Audit of the Annual Financial Statements and of the Combined Management Report

Audit Opinions

We have audited the annual financial statements of Merck Kommanditgesellschaft auf Aktien, Darmstadt, Germany, which comprise the balance sheet as at December 31, 2023, and the income statement for the financial year from January 1 to December 31, 2023, and the notes to the financial statements, including the presentation of the recognition and measurement policies. In addition, we have audited the combined management report for the parent and the group of Merck Kommanditgesellschaft auf Aktien, Darmstadt, Germany, for the financial year from January 1 to December 31, 2023. In accordance with the German legal requirements, we have not audited the content of the combined non-financial statement pursuant to Sections 289b and 315b German Commercial Code (HGB) included in the section "Non-financial statement" of the combined management report, nor the corporate governance statement pursuant to Sections 289f and 315d HGB referred to in the combined management report. Moreover, we have not audited the content of the disclosures described as extraneous to the combined management report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying annual financial statements comply, in all material respects, with the requirements of German commercial law applicable to business corporations and give a true and fair view of the assets, liabilities and financial position of the Company as at December 31, 2023 and of its financial performance for the financial year from January 1 to December 31, 2023 in compliance with German Legally Required Accounting Principles, and

- the accompanying combined management report as a whole provides an appropriate view of the Company's position. In all material respects, this combined management report is consistent with the annual financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the combined management report does not cover the content of the above-mentioned statements and disclosures extraneous to the combined management report.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the annual financial statements and of the combined management report.

Basis for the Audit Opinions

We conducted our audit of the annual financial statements and of the combined management report in accordance with Section 317 HGB and the EU Audit Regulation (No. 537/2014; referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the combined Management Report" section of our auditor's report. We are independent of the Company in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the annual financial statements and on the combined management report.

Key Audit Matters in the Audit of the Annual Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the annual financial statements for the financial year from January 1 to December 31, 2023. These matters were addressed in the context of our audit of the annual financial statements as a whole and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In the following we present the key audit matters we have determined in the course of our audit:

1. Accounting impact of the termination of the business leasing contract with Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany
2. Recoverability of shares in affiliated companies

Our presentation of these key audit matters has been structured as follows:

a) description (including reference to corresponding information in the annual financial statements)

b) auditor's response.

1. Accounting impact of the termination of the business leasing contract with Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany

a) The operating activities previously carried out within Merck Kommanditgesellschaft auf Aktien, Darmstadt, Germany (Merck KGaA, Darmstadt, Germany) as well as the related assets and liabilities of the Life Science and Electronics business sectors (formerly: Performance Materials) were hived down to separate legal entities (so-called "OpCos") in the financial year 2018. In doing so, the Life Science operating unit was hived down to the current Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and the Electronics operating unit was hived down to the current Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, each with registered office in Darmstadt, Germany. Since the technical system requirements for commencing the operating activities were not in place at the two OpCos at the time of the hive-down, Merck KGaA, Darmstadt, Germany, temporarily leased back all of the fixed assets based in the business leasing contracts concluded with the OpCos, repurchased the current assets and assumed the hived-down liabilities and provisions again. Hence, the operating business of the Life Science and Electronics business sectors has been carried out unchanged by Merck KGaA, Darmstadt, Germany, since then based on the business leasing contracts.

Following the creation of all conditions necessary for commencing the operating activities at the OpCos, Merck KGaA, Darmstadt, Germany, terminated the concluded business leasing contracts within the required period with effect as of January 1, 2023. At this date, the power of operational management for the Life Science and Electronics business sectors was transferred by Merck KGaA, Darmstadt, Germany, to the two OpCos to which aforesaid business sectors had already been hived down in 2018. As a result of the termination of the business leasing contracts, the leased objects allocated to the Life Science and Electronics business sectors, comprising fixed and current assets as well as liabilities and provisions, were retransferred to Merck Life Science KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, and Merck Electronics KGaA, Darmstadt, Germany, a subsidiary of Merck KGaA, Darmstadt, Germany, respectively, as at January 1, 2023 at their carrying amounts under German commercial law. At the same time, Merck KGaA, Darmstadt, Germany, recognized corresponding purchase price receivables against the two OpCos in the amount of the net balance of the carrying amounts of the assets and the liabilities retransferred to them.

Given the large number of individual items to be transferred as well as the high proportion of the manually performed tasks, the identification of the assets and liabilities to be transferred at the time of retransfer is subject to a greater inherent risk of error. Against this backdrop, this matter was of particular significance in our audit.

The disclosures of the executive directors on the termination of the business leasing contracts are included in the chapter "Effects of material company agreements on the net assets, financial position, and results of operations" in the section "Additional Information on Merck KGaA, Darmstadt, Germany, in Accordance with the German Commercial Code (HGB)" of the combined management report as well as in the chapter "General Disclosures" of the notes to the financial statements.

b) In a first step, by means of explanations by the respective departments as well as an evaluation of the underlying documentation, we gained an understanding of process employed by Merck KGaA, Darmstadt, Germany, for identifying assets and liabilities to be transferred based on their allocation to the Life Science and Electronics business sectors. In doing so, we evaluated the Company's approach for determining allocation rules and the related allocation of assets and liabilities to the business sectors as at January 1, 2023. Based on selected audit procedures such as a test of the design and implementation of the controls relevant to the audit, an analytical review of balance sheet accounts and sample-based tests of details at account level, we assessed whether there were indications that the assets or liabilities to be transferred to the OpCos were not appropriately identified. Besides, based on tests of details, we traced whether the assets and liabilities to be transferred to the companies in accordance with the provisions of the hive-down contract were disposed of in full and at the correct, amortized carrying amounts at the time of transfer, and whether Merck KGaA, Darmstadt, Germany, has recognized purchase price receivables against the two OpCos in the corresponding amount.

2. Recoverability of shares in affiliated companies

a) As of December 31, 2023, the Company reported shares in affiliated companies of mEUR 22,803.7 in total as part of financial assets. This amount represents approx. 88% of total assets and thus a significant share of the Company's assets. Shares in affiliated companies are recognized at acquisition cost or, if they are expected to be permanently impaired, at their lower fair value. The fair value is determined based on net-present value methods since market values for the individual shares in affiliated companies are usually not on hand. In doing so, the fair value is determined using the simplified discounted cash flow models which are based on the medium-term planning of the affiliated company prepared by the respective Chief Financial Officers and extrapolated on the basis of assumed long-term growth rates. Discounting is made by means of weighted costs of capital determined using a simplified method.

Assessing whether shares in affiliated companies are impaired depends considerably on estimates and judgments by the executive directors. Against this backdrop, this matter was of particular significance in our audit.

The executive directors' disclosures on the valuation of shares in affiliated companies are included in section 12 "Financial assets".

b) Among others, in our audit we obtained an understanding of the accounting-relevant controls included in the process and reproduced the methodological approach to performing the impairment tests. Where identified controls were relevant for our audit, we had their design and implementation tested. Where estimates were made by the executive directors, we assessed whether the methods applied, assumptions made and data used were acceptable. Regarding the projection of future cash flows, we firstly evaluated the planning reliability by reviewing the past adherence to planning, walked through the underlying planning process and conducted a critical assessment. In doing so, we simultaneously examined the Company's approach for determining the recoverability of shares in affiliated companies and, based on the evidence and information obtained during the course of our audit, assessed whether there were any indicators for required impairment that were not identified by the Company. In a second step, we evaluated the simplified discounted cash flow models used by the Company in order to determine the fair values and reconciled the assumptions concerning the respective discount rate with general, company-specific and industry-specific market expectations. For affiliated companies that were selected by us using a risk-based approach, we scrutinized the future revenue and earnings trend laid down in the medium-term planning prepared by the respective Chief Financial Officer as well as the underlying planning assumptions, whereby we used the current earnings situation as a starting point for our analysis. Furthermore, for selected affiliated companies, we convinced ourselves with regard to the Company's prior adherence to planning by comparing the budgets prepared in prior financial years with the actual results and by analyzing deviations, if any.

Other Information

The executive directors are responsible for the other information. The other information comprises

- the report of the supervisory board,
- the combined non-financial statement pursuant to Sections 289b and 315b HGB included in the section "Non-financial statement" of the combined management report,
- the corporate governance statement pursuant to Section 289f and 315d HGB referred to in the combined management report,
- the other contend of the combined management report described as extraneous to the combined management report,
- the executive directors' confirmation regarding the annual financial statements and the combined management report pursuant to Section 264 (2) sentence 3 and Section 289 (1) sentence 5 HGB, and
- all other parts of the annual report,
- but not the annual financial statements, not the audited content of the combined management report and not our auditor's report thereon.

The supervisory board is responsible for the report of the supervisory board. The executive directors and the supervisory board are responsible for the statement according to Section 161 AktG concerning the German Corporate Governance Code, which is part of the corporate governance statement. Otherwise the executive directors are responsible for the other information.

Our audit opinions on the annual financial statements and on the combined management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information identified above and, in doing so, to consider whether the other information

- is materially inconsistent with the annual financial statements, with the audited content of the combined management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the Executive Directors and the Supervisory Board for the Annual Financial Statements and the Combined Management Report

The executive directors are responsible for the preparation of the annual financial statements that comply, in all material respects, with the requirements of German commercial law applicable to business corporations, and that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles. In addition, the executive directors are responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the annual financial statements, the executive directors are responsible for assessing the Company's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, provided no actual or legal circumstances conflict therewith.

Furthermore, the executive directors are responsible for the preparation of the combined management report that as a whole provides an appropriate view of the Company's position and is, in all material respects, consistent with the annual financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a combined management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the combined management report.

The supervisory board is responsible for overseeing the Company's financial reporting process for the preparation of the annual financial statements and of the combined management report.

Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Combined Management Report

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the combined management report as a whole provides an appropriate view of the Company's position and, in all material respects, is consistent with the annual financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the annual financial statements and on the combined management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements and this combined management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also

- identify and assess the risks of material misstatement of the annual financial statements and of the combined management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting a material misstatement resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- obtain an understanding of internal control relevant to the audit of the annual financial statements and of arrangements and measures relevant to the audit of the combined management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems of the Company.
- evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the annual financial statements and in the combined management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to be able to continue as a going concern.
- evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements present the underlying transactions and events in a manner that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles.
- obtain sufficient appropriate audit evidence regarding the financial information of the Company or its business activities to express audit opinions on the annual financial statements and on the combined management report. We are responsible for the direction, supervision and performance of the audit. We remain solely responsible for our audit opinions.
- evaluate the consistency of the combined management report with the annual financial statements, its conformity with German law, and the view of the Company's position it provides.
- perform audit procedures on the prospective information presented by the executive directors in the combined management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the actions taken or safeguards applied to eliminate independence threats.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the annual financial statements for the current period and are therefore the key audit matters. We describe these matters in the auditor's report unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Report on the Audit of the Electronic Reproductions of the Annual Financial Statements and of the Combined Management Report Prepared for Publication Pursuant to Section 317 (3a) HGB

Audit Opinion

We have performed an audit in accordance with Section 317 (3a) HGB to obtain reasonable assurance whether the electronic reproductions of the annual financial statements and of the combined management report (hereinafter referred to as "ESEF documents") prepared for publication, contained in the file, which has the SHA-256 value: e9f266994c1a44a473d02342fa813f359262fed1275472679f2db20540552cc6, meet, in all material respects, the requirements for the electronic reporting format pursuant to Section 328 (1) HGB ("ESEF format"). In accordance with the German legal requirements, this audit only covers the conversion of the information contained in the annual financial statements and the combined management report into the ESEF format, and therefore covers neither the information contained in these electronic reproductions nor any other information contained in the file identified above.

In our opinion, the electronic reproductions of the annual financial statements and of the combined management report prepared for publication contained in the file identified above meet, in all material respects, the requirements for the electronic reporting format pursuant to Section 328 (1) HGB. Beyond this audit opinion and our audit opinions on the accompanying annual financial statements and on the accompanying combined management report for the financial year from January 1 to December 31, 2023 contained in the "Report on the Audit of the Annual Financial Statements and of the Combined Management Report" above, we do not express any assurance opinion on the information contained within these electronic reproductions or on any other information contained in the file identified above.

Basis for the Audit Opinion

We conducted our audit of the electronic reproductions of the annual financial statements and of the combined management report contained in the file identified above in accordance with Section 317 (3a) HGB and on the basis of the IDW Auditing Standard: Audit of the Electronic Reproductions of Financial Statements and Management Reports Prepared for Publication Purposes Pursuant to Section 317 (3a) HGB (IDW AuS 410 (06.2022)). Our responsibilities in this context are further described in the "Auditor's Responsibilities for the Audit of the ESEF Documents" section. Our audit firm has applied the requirements set forth in the IDW Quality Management Standards.

Responsibilities of the Executive Directors and the Supervisory Board for the ESEF Documents

The executive directors of the Company are responsible for the preparation of the ESEF documents based on the electronic files of the annual financial statements and of the combined management report according to Section 328 (1) sentence 4 no. 1 HGB.

In addition, the executive directors of the Company are responsible for such internal controls that they have considered necessary to enable the preparation of ESEF documents that are free from material intentional or unintentional non-compliance with the requirements for the electronic reporting format pursuant to Section 328 (1) HGB.

The supervisory board is responsible for overseeing the process for preparing the ESEF documents as part of the financial reporting process.

Auditor's Responsibilities for the Audit of the ESEF Documents

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material intentional or unintentional non-compliance with the requirements of Section 328 (1) HGB. We exercise professional judgment and maintain professional skepticism throughout the audit. We also

- identify and assess the risks of material intentional or unintentional non-compliance with the requirements of Section 328 (1) HGB, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinion.
- obtain an understanding of internal control relevant to the audit on the ESEF documents in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an assurance opinion on the effectiveness of these controls.
- evaluate the technical validity of the ESEF documents, i.e. whether the file containing the ESEF documents meets the requirements of the Delegated Regulation (EU) 2019/815, in the version in force at the balance sheet date, on the technical specification for this electronic file.
- evaluate whether the ESEF documents enable a XHTML reproduction with content equivalent to the audited annual financial statements and to the audited combined management report.

Further information pursuant to Article 10 of the EU Audit Regulation

We were elected as auditor by the general meeting on April 22, 2022. We were engaged by the supervisory board on April 28, 2023. We have been the auditor of Merck Kommanditgesellschaft auf Aktien, Darmstadt, Germany, since the financial year 2023.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

Other matter – Use of the Auditor's Report

Our auditor's report must always be read together with the audited annual financial statements and the audited combined management report as well as with the audited ESEF documents. The annual financial statements and the combined management report converted into the ESEF format – including the versions to be submitted for inclusion in the Company Register – are merely electronic reproductions of the audited annual financial statements and the audited combined management report and do not take their place. In particular, the ESEF report and our audit opinion contained therein are to be used solely together with the audited ESEF documents made available in electronic form.

German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Daniel Weise.

Frankfurt am Main/Germany, February 16, 2024

Deloitte GmbH
Wirtschaftsprüfungsgesellschaft

Signed:
Christoph Schenk
Wirtschaftsprüfer
(German Public Auditor)

Signed:
Daniel Weise
Wirtschaftsprüfer
(German Public Auditor)

responsibility statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, give a true and fair view of the assets, liabilities, financial position, and profit or loss of Merck KGaA, Darmstadt, Germany, and the Combined Management Report includes a fair view of the development and performance of the business and the position of the company, together with a description of the material opportunities and risks associated with the expected development of Merck KGaA, Darmstadt, Germany.

Darmstadt, February 14, 2024

Belén Garijo

Kai Beckmann

Peter Guenter

Matthias Heinzel

Helene von Roeder

Report of the Supervisory Board

The Supervisory Board again properly executed its duties in 2023 in accordance with the law as well as the company's Articles of Association and rules of procedure. In particular, the Supervisory Board monitored the work of the Executive Board diligently and regularly.

Cooperation with the Executive Board

The cooperation with the Executive Board was characterized by an intensive dialog on the basis of mutual trust. During fiscal 2023, the Executive Board provided the Supervisory Board with regular written and verbal reports on the business development of Merck KGaA, Darmstadt, Germany, and the Group. In particular, the Supervisory Board was informed about the market and sales situation of the company in the context of macroeconomic developments, and the financial position of the company and its subsidiaries, along with their earnings development and corporate planning. Within the scope of quarterly reporting, the sales and operating results were presented for the Group as a whole and broken down by business sector. In addition to the Supervisory Board meetings, the Chair of the Supervisory Board also maintained, and continues to maintain, a regular exchange of information with the Chair of the Executive Board.

Key topics of the Supervisory Board meetings

A total of five Supervisory Board meetings were held in fiscal 2023. All of the meetings were held in person. At four of these five meetings, the Supervisory Board intensely discussed the reports of the Executive Board, as well as company developments and strategic issues together with the Executive Board. The Chair of the Audit Committee or, in the case of the meetings in May and July 2023, the Vice Chair reported comprehensively on the previous meetings of the Audit Committee at these meetings of the Supervisory Board.

At the meeting in February 2023, the Supervisory Board intensively addressed the Annual Financial Statements and Consolidated Financial Statements for 2022, the Combined Management Report, the reports of the auditor (KPMG AG Wirtschaftsprüfungsgesellschaft, Berlin, "KPMG"), including the audit report on the non-financial declaration for fiscal 2022, and the proposal for the appropriation of net retained profit. The auditor (KPMG) explained the audit reports including the focus areas of the audit. The Executive Board and the Head of Group Accounting reported on the financial statements. Furthermore, the Supervisory Board resolved on the report and the objectives of the Supervisory Board with respect to its composition and the profile of skills and expertise including the qualification matrix, the Declaration of Conformity with the German Corporate Governance Code, and the Statement on Corporate Governance. The Supervisory Board also adopted the proposals to be made to the Annual General Meeting (including the creation of new Contingent Capital II) and approved the plan to hold the Annual General Meeting in virtual form. The Executive Board reported on business performance in 2022 and presented the plans for fiscal 2023, which was likely to be challenging in light of geopolitical tensions in particular.

The Supervisory Board met in April 2023 to resolve on the amendment to the rules of procedure of the Audit Committee and the election of Daniel Thelen as the Vice Chair of the Audit Committee. The meeting was held after Helene von Roeder stepped down as a member of the Supervisory Board and the Audit Committee effective April 17, 2023. The Chair of the Supervisory Board informed the Supervisory Board members about this development at the meeting. As part of the amendment to the rules of procedure of the Audit Committee, the Supervisory Board transferred the responsibility for resolving on sustainability topics of relevance to the company to the Audit Committee.

The meeting in May 2023 focused on the report of the Executive Board on business performance in the first quarter and the forecast for fiscal 2023. The Executive Board discussed developments in the first quarter of 2023 and provided an outlook concerning expected business performance in 2023 as a whole. The Supervisory Board extensively discussed the contributions of the individual business sectors to the company's financial performance. The report of the Research and Development Committee of the Board of Partners of E. Merck KG, Darmstadt, Germany, for Life Science and Electronics was an additional focus of the meeting. Finally, the Supervisory Board addressed our global strategy.

At the meeting in July 2023, the Executive Board reported on the comparatively good business performance in the second quarter of 2023 in spite of the challenging environment. The non-financial statement, which forms part of the Combined Management Report, was a further topic of discussion. The Supervisory Board resolved to commission the auditor (Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich) to conduct a limited assurance review of the non-financial declaration for fiscal 2023. In addition, the auditor (Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich) was commissioned to conduct the formal and material audit of the compensation report for fiscal 2023. Another topic addressed by the meeting was the amendment to the Articles of Association of Merck KGaA, Darmstadt, Germany, following the departure of Marcus Kuhnert and the appointment of Helene von Roeder to the Executive Board. All of the training undertaken by the Supervisory Board was on the subject of sustainability.

At the Supervisory Board meeting in November 2023, the Executive Board provided an overview of business performance in the third quarter of 2023 in an extremely challenging business environment. The background to this business performance was then discussed in detail by the Supervisory Board. Other topics discussed included the report by the Research and Development Committee for Healthcare and transactions of Merck KGaA, Darmstadt, Germany, with related parties within the meaning of section 111a et seq. of the German Stock Corporation Act (AktG). There were no transactions requiring the approval of the Supervisory Board in accordance with section 111b (1) AktG. This was followed by an overview and an intensive discussion of the Group and business sector strategies, also in the context of external developments. The Chair of the Executive Board also reported on the Global Leadership Summit (GLS), at which Group managers discussed the geopolitical environment and its impact on the Group as well as the priorities of the Group.

In parts of its meetings, the Supervisory Board regularly meets without the members of the Executive Board being present. Additionally, the employee representatives gather for a preparatory meeting ahead of each Supervisory Board meeting. The employee representatives also gather immediately after each Supervisory Board meeting to discuss the topics addressed at the meeting. Among other things, this includes a discussion of topics which should be placed on the agenda for the next Supervisory Board meeting.

Annual Financial Statements and Consolidated Financial Statements

The Annual Financial Statements of Merck KGaA, Darmstadt, Germany, the Consolidated Financial Statements of the Group, and the Combined Management Report for Merck KGaA, Darmstadt, Germany, and the Group, including the accounts, were audited by Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich.

The auditors issued an unqualified audit opinion on the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, in accordance with German Auditing Standards.

For the Consolidated Financial Statements prepared in accordance with International Financial Reporting Standards and for the Combined Management Report, the auditors issued the unqualified auditor's report that is reproduced in the Annual Report of the Group.

In addition, the auditor audited the calculation of the participation of Merck KGaA, Darmstadt, Germany, in the profit of E. Merck KG, Darmstadt, Germany, in accordance with Article 27 (2) of the Articles of Association, as well as the combined non-financial declaration. The Annual Financial Statements of Merck KGaA, Darmstadt, Germany, the Consolidated Financial Statements of the Group, and the Combined Management Report for Merck KGaA, Darmstadt, Germany, and the Group, including the non-financial declaration and the proposal of

the Executive Board for the appropriation of net retained profit, were submitted firstly to the Audit Committee and then to the Supervisory Board together with the auditor's reports.

The Audit Committee assessed the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, the proposal for the appropriation of net retained profit, and the auditor's report. It also examined the Consolidated Financial Statements of the Group as well as the Combined Management Report for Merck KGaA, Darmstadt, Germany, and the Group, including the non-financial declaration, and took note of the auditor's reports of Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich. In particular, it focused on the key audit matters of particular importance in the audit opinion, the resulting risks for the financial statements, the approach adopted during the audit as described, and the conclusions drawn by the auditor. On completion of its assessment, the Audit Committee raised no objections and thus recommended that the Supervisory Board approve the Annual Financial Statements for Merck KGaA, Darmstadt, Germany, the Consolidated Financial Statements of the Group, the Combined Management Report of Merck KGaA, Darmstadt, Germany, and the Group prepared by the Executive Board, and the report presented by the auditor in accordance with Article 27 (2) of the Articles of Association.

At its meeting in February 2024 to approve the financial statements, the Supervisory Board also assessed the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, the proposal for the appropriation of net retained profit, the auditor's report presented in accordance with Article 27 (2) of the Articles of Association, the Consolidated Financial Statements of the Group, and the Combined Management Report of Merck KGaA, Darmstadt, Germany, and the Group in accordance with Article 14 (2) of the Articles of Association, and took note of the auditor's reports of Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich. The discussion of the relevant agenda item at this meeting was also attended by the auditors who sign the audit opinion on the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, and the Consolidated Financial Statements of the Group. This was also the case for the meeting of the Audit Committee. Based on the recommendation of the Audit Committee and its own review, the Supervisory Board approved the Annual Financial Statements for Merck KGaA, Darmstadt, Germany, the Consolidated Financial Statements of the Group, the Combined Management Report of Merck KGaA, Darmstadt, Germany, and the Group prepared by the Executive Board, and the report presented by the auditor in accordance with Article 27 (2) of the Articles of Association. The Supervisory Board gave its consent to the proposal of the Executive Board for the appropriation of net retained profit after conducting its own review.

Corporate governance and Declaration of Conformity

Corporate governance is a high-priority topic for the Supervisory Board. In its own estimation, the Supervisory Board has an adequate number of independent members. There were no conflicts of interest as defined by the German Corporate Governance Code involving Supervisory Board members during the year under review. Dialog with the stakeholder groups set out in the German Corporate Governance Code is an important aspect of opinion-forming within the company. Among other things, this takes the form of surveys in connection with the materiality analysis as well as direct discussions. For example, we take the related investor suggestions extremely seriously. In fiscal 2023, the Chair of the Supervisory Board held discussions with investors on Supervisory Board-specific topics, including investor meetings with Allianz Global Investors GmbH and DWS Investment GmbH. In particular, the topics discussed included the qualification matrix and the independence of the Supervisory Board with a view to the Supervisory Board election in 2024 as well as the remuneration of the Supervisory Board. Mr. Büchele stated that the qualification matrix plays a significant role in the selection of candidates and that a particular focus has been placed on sustainability and digitalization. Independence, internationality and diversity are other important factors. Mr. Büchele also stated that the company is planning to reduce the term of office of the Supervisory Board members. Mr. Büchele reported that consideration was being given to possibly adjusting Supervisory Board compensation to reflect the development of the market in recent years in order to remain competitive with regard to attracting the best candidates. Ahead of the Supervisory Board election in 2024, the Supervisory Board also actively engaged in dialog with the biggest investors in order to determine their expectations and opinions. Among others, initial meetings with Blackrock, Amundi and Union Invest already took place in December 2023.

The Supervisory Board has an onboarding process aimed at enabling the quick and efficient induction of new members. Most recently, Barbara Lambert received corresponding training upon joining the Supervisory Board.

After discussing corporate governance issues in detail, the Executive Board and the Supervisory Board adopted the updated Declaration of Conformity in accordance with section 161 AktG and issued it jointly in February 2024. The statement is permanently available on the website of Merck KGaA, Darmstadt, Germany (**https://www.emdgroup.com/en/investors/corporate-governance/reports.html**). More information about corporate governance at Merck KGaA, Darmstadt, Germany, including the compensation of the Executive Board and Supervisory Board, can be found in the Statement on Corporate Governance.

Committees

The Supervisory Board of Merck KGaA, Darmstadt, Germany, had a Nomination Committee and an Audit Committee in fiscal year 2023.

Audit Committee

The Audit Committee meets four times a year. Further meetings are convened as and when necessary. The Audit Committee is generally responsible for accounting and auditing matters. This includes sustainability reporting and auditing the sustainability reports. In particular, its responsibilities include auditing the Annual Financial Statements, the Consolidated Financial Statements, and the respective reports of the auditor, as well as the half-year financial report and the quarterly statements. The Audit Committee discusses the assessment of audit risk, the audit strategy and audit planning, and the results of the audit with the auditor. The Chair of the Audit Committee regularly discusses the progress of the audit with the auditor and reports back to the committee. The other responsibilities of the Audit Committee include assessing the performance of the auditor, and especially the performance of the auditor in charge of the engagement. The Audit Committee is also tasked with sustainability. This topic was assigned to it at the Supervisory Board meeting in April 2023.

The Audit Committee prepares the negotiations and resolutions of the Supervisory Board on the approval of the Annual Financial Statements and Consolidated Financial Statements and the proposal to the Annual General Meeting on the election of the auditor. The adoption of the Annual Financial Statements is not the responsibility of the Audit Committee or the Supervisory Board but of the Annual General Meeting. The Audit Committee also ascertains the independence of the auditor, assigns the audit mandate to the auditor, and determines the focus areas of the audit and the fee agreement. Furthermore, the Audit Committee monitors the accounting process, the effectiveness of the internal control system, the risk management system and the internal auditing system, and compliance. The Chair of the Audit Committee and the auditor also engage in a regular dialog outside of the meetings of the Audit Committee.

At the meeting in February 2023, which was held in person, the Chief Financial Officer and the Head of Group Accounting reported on the 2022 Consolidated Financial Statements and the Annual Financial Statements of Merck KGaA, Darmstadt, Germany, which were then discussed in detail by the Audit Committee. This included a discussion of the sustainability topics contained in the non-financial statement. The auditor (KPMG) also reported on the audit of the financial statements and discussed the focus areas of the audit. The declaration of auditor independence was acknowledged and evaluated. The meeting also reviewed and resolved on the proposal on the appropriation of net retained profit to be submitted to the Supervisory Board, including the dividend payment by Merck KGaA, Darmstadt, Germany, for fiscal 2022. Furthermore, the Audit Committee acknowledged and discussed the written risk report. In addition, the Audit Committee proposed that the Supervisory Board resolve the creation of a new authorization to issue convertible bonds and/or bonds with warrants, accompanied by the simultaneous creation of new Contingent Capital II. The Head of Group Internal Auditing then presented the report from Group Internal Auditing for 2022. The compliance and data protection report was also presented and discussed. The details of the non-audit services approved in fiscal 2022 were also discussed.

The report on the net assets, financial position, and results of operations of the Group for the first quarter of 2023 was presented to the meeting in May 2023, which was held in person. The Audit Committee then discussed the report in detail. The Audit Committee also discussed the start date of the audit period with the auditors (Deloitte). The auditors shared their initial impressions following the handover of the audit engagement and provided an overview of the planning for the audit review of the half-year financial report.

The meeting of the Audit Committee in July 2023, which was also held in person, began with a detailed discussion of the report on the net assets, financial position, and results from operations of the Group for the second quarter of 2023. The auditors (Deloitte) shared their initial impressions following the handover of the audit engagement and presented the results of the audit review of the half-year financial report. The auditors also presented an overview of the process planning for the audit of the Annual Financial Statements and the planned focal points. Next, the Audit Committee resolved on the list of the individual audit and non-audit related services. A further focal point was the report on the key developments regarding the accounting-related internal control system (ICS), which the Audit Committee discussed in detail. This was followed by the risk management status report for the first half of 2023.

At the meeting in November 2023, which was held in person, the Chief Financial Officer presented the initial observations and findings of the financial reporting health check. In particular, this included a discussion of the internal control system and the IT systems used to support financial reporting. The Chief Financial Officer and the Head of Group Accounting then reported on the net assets, financial position, and results of operations of the Group in the third quarter of 2023. It was noted that the income statement was showing lower net sales than in the same quarter of the previous year due to the sustained difficult environment. The Audit Committee discussed the report on the third quarter in detail. It then reviewed the contractual terms for the annual audit of the financial statements and evaluated the audit of the financial statements and non-audit services following an extensive presentation by the Head of Group Accounting. Finally, the planned scope of the audit of the financial statements on the basis of the statutory provisions and the provisions of the European Securities and Markets Authority (ESMA) and the defined schedule were discussed with Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Munich. The reports on Group Internal Auditing and compliance and data protection were then presented.

Nomination Committee

The Nomination Committee met twice in fiscal 2023.

At the meeting in July 2023, which was held as a video conference, the members of the Nomination Committee met with the aim of recommending a suitable replacement for Helene von Roeder to the Supervisory Board. Following a brief discussion regarding potential candidates, Barbara Lambert was proposed to the Supervisory Board of Merck KGaA, Darmstadt, Germany, as a suitable candidate for its proposal for election by court appointment.

The meeting in October 2023, which was held as a video conference, heard a report on the search for candidates for the Supervisory Board to be proposed for election at the 2024 Annual General Meeting. In particular, a well-known headhunting firm was commissioned in order to ensure that the criteria of the candidate profiles were satisfied to the greatest possible extent. Potential candidates were selected on the basis of several selection interviews and discussed at the meeting. The Nomination Committee then resolved to propose the candidates it deemed most suitable to the Supervisory Board of Merck KGaA, Darmstadt, Germany, for election at the 2024 Annual General Meeting.

Personnel matters and training

The Supervisory Board attended all of the meetings in full. Helene von Roeder attended the meeting in February prior to stepping down from the Supervisory Board, while Barbara Lambert attended the meeting in November following her appointment to the Supervisory Board. The members of the Audit Committee attended all meetings of the Audit Committee. Helene von Roeder attended the meeting in February, while her successor Barbara Lambert attended the meeting in November. The members of the Nomination Committee attended all meetings of the Nomination Committee.

For the purposes of targeted further training, the Supervisory Board is offered an information event with internal and external speakers at least once a year. In fiscal 2023, a training event on sustainability for all Supervisory Board members was held on May 10, 2023. The event, which featured high-profile internal and external speakers, encompassed the topics of “Sustainability in the Corporate Environment” as well as the legal dimensions of aspects and developments in the area of sustainability and ESG that are relevant to the Supervisory Board (e.g. climate-related litigation, greenwashing, due diligence obligations in supply chains, and sustainability reporting in accordance with the CSRD). The company generally covers the cost of training measures for the Supervisory Board.

New members of the Supervisory Board – including Barbara Lambert in 2023 – also undergo an onboarding process prepared by employees of the Legal department in accordance with the onboarding plan.

Darmstadt, February 2024

The Supervisory Board of Merck KGaA, Darmstadt, Germany

Wolfgang Büchele
Chair

financial calendar

March
7
2024
Annual Press Conference

April
26
2024
Annual General Meeting

May
15
2024
Quarterly Statement Q1

August
1
2024
Half-yearly
Financial Report

November
14
2024
Quarterly Statement Q3

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