

News Release

Your Contact

adrian.woitzik@emdgroup.com

Phone: +49 151 1454-7499

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Merck KGaA, Darmstadt, Germany and Intel Launch Academic Research Program in Europe for More Sustainable Semiconductor Manufacturing

- **Following the announcement of the multidisciplinary research program last year, the selection process for funded projects has been completed**
- **Six projects involving eleven scientific institutions from six European countries are supported by Merck KGaA, Darmstadt, Germany and Intel**
- **The focus is on the application of Artificial Intelligence for innovations aimed at making semiconductor processes more sustainable**

Darmstadt, Germany, November 7, 2024 – Merck KGaA, Darmstadt, Germany, a leading science and technology company, and Intel Corporation, one of the world's largest semiconductor designers and manufacturers, have begun the implementation of the new academic research program in Europe announced last year for more sustainable solutions in semiconductor manufacturing. In total, six projects involving eleven universities and institutes from six European countries are being conducted. The research program aims to facilitate breakthroughs in manufacturing processes and technologies in the semiconductor industry with the help of Artificial Intelligence (AI) and machine learning. The focus includes the discovery and development of new materials, more efficient processes, and the reduction of waste.



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"The semiconductor industry is in a state of dynamic development with enormous investments worldwide. Artificial Intelligence will be one of the major growth drivers for the industry in the coming years. Therefore, industry investments must also flow into sustainability to help reduce the ecological footprint and use resources more efficiently. This requires innovations and collaboration along the semiconductor value chain, as well as with science and policy-makers. We are very much looking forward to the multidisciplinary collaboration in this research program with all participants. Together, we aim to explore previously unknown paths and potentials from which the entire semiconductor industry can benefit," said Dr. Anja Jatsch, Head of Materials Innovation Pipeline Electronics at Merck KGaA, Darmstadt, Germany.

"Intel is committed to driving more sustainable computing for a more sustainable future. Collaboration among the entire value chain to develop new materials and more efficient processes are imperative to realizing this ambition and tackle key challenges in semiconductor manufacturing. This research program is an excellent example of how we can accelerate progress when we work together and collectively drive toward a net-zero future," said Sanjay Natarajan, SVP & GM, Components Research, Intel.

European Research Program with Eleven Institutions from Six Countries

In 2023, Merck KGaA, Darmstadt, Germany and Intel announced the [joint investment in the academic research program](#) for a period of three years. Consequently, both companies initiated a "Call for Proposals" for research groups in Europe. This submission and selection process has been successfully completed. Eleven selected scientific institutions from Germany, Greece, the Netherlands, Sweden, Switzerland and the United Kingdom have commenced their project work.¹ Both companies will work closely with the researchers and collaborate directly with all parties involved throughout the duration of the projects. One goal of the investment is to build upon the existing potentials of the European research landscape and to contribute to specifically promoting semiconductor research,

¹ Please refer to the appendix of this press release for a list of participating institutions and their corresponding projects.

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inspiring future talents for the industry, and further strengthening Europe's position in the global semiconductor industry.

Materials as the Key to More Sustainable Solutions in the Semiconductor Industry

The research program is part of Merck KGaA, Darmstadt, Germany's commitment to sustainability, within which the company pledges to human progress and collaboration along the value chain. In the Electronics business sector, materials play a pivotal role in enabling more sustainable innovations and technologies in chip manufacturing. Particularly cutting-edge semiconductors, which are needed among other things for Artificial Intelligence applications, rely on new solutions in their production since established processes are no longer applicable at certain atomic scales.

With its Materials Intelligence™ and as a key supplier of materials and components for chip manufacturing, the company works with partners like Intel to achieve even more together. The identification and introduction of new suitable materials and solutions into the semiconductor supply chain aim to link technological progress with a sustainable approach. Additionally, both companies are members of the "[Semiconductor Climate Consortium](#)", which was established in November 2022.

Ambitious Sustainability Goals on the Path to Climate Neutrality

Merck KGaA, Darmstadt, Germany has also set ambitious sustainability goals for the procedures and processes at its own sites. The company plans to be climate-neutral by the year 2040 and has committed to reducing its absolute direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions by 50% by 2030. Additionally, the company has pledged to reduce its indirect emissions along the entire value chain (Scope 3) by 52% per euro value added by 2030.² Merck KGaA, Darmstadt, Germany is also working towards meeting 80% of its worldwide purchased electricity needs with renewable energy by 2030. Projects for wind and solar energy in the [USA](#), [Europe](#), and China are expected to account for approximately 70%³ of the total

² The baseline year is 2020.

³ Estimate based on the data from 2022.

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company's purchased electricity from 2025 onwards. The company's progress is documented in the [sustainability report 2023](#).

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About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across life science, healthcare and electronics. Around 63,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From providing products and services that accelerate drug development and manufacturing as well as discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2023, Merck KGaA, Darmstadt, Germany, generated sales of € 21 billion in 65 countries.

The company holds the global rights to the name and trademark "Merck" internationally. The only exceptions are the United States and Canada, where the business sectors of Merck KGaA, Darmstadt, Germany, operate as MilliporeSigma in life science, EMD Serono in healthcare and EMD Electronics in electronics. Since its founding in 1668, scientific exploration and responsible entrepreneurship have been key to the company's technological and scientific advances. To this day, the founding family remains the majority owner of the publicly listed company.