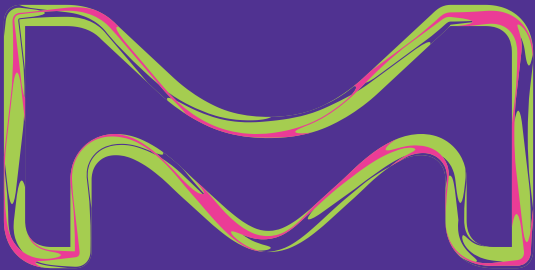




# **MERCK KGAA, DARMSTADT, GERMANY – Q4 2015 ROADSHOW**

Investor Relations

March 2016





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# Agenda

- 01 Business overview**
- 02 Transforming the company**
- 03 Healthcare – Funding for success**
- 04 Life Science – Focusing on profitable growth**
- 05 Performance Materials – Maintaining superior profitability**
- 06 Executive Summary and Guidance**



01

## **BUSINESS OVERVIEW**

## Group

# Portfolio of three high-tech businesses



**Leading in specialty  
pharma markets**

- Life cycle management
- Biologics
- Emerging markets
- Over-the-counter medicine



**Leading life science  
company**

- Consumables & equipment for biotech research & production
- Tools and laboratory supply for the life science industry



**Market leader in  
display materials**

- Customer intimacy
- Innovation power
- Cost and technology leadership



02

## TRANSFORMING THE COMPANY

Group

## Looking back: Our Ambition in 2007



**Transform a mid-sized conglomerate into a world class technology leader**



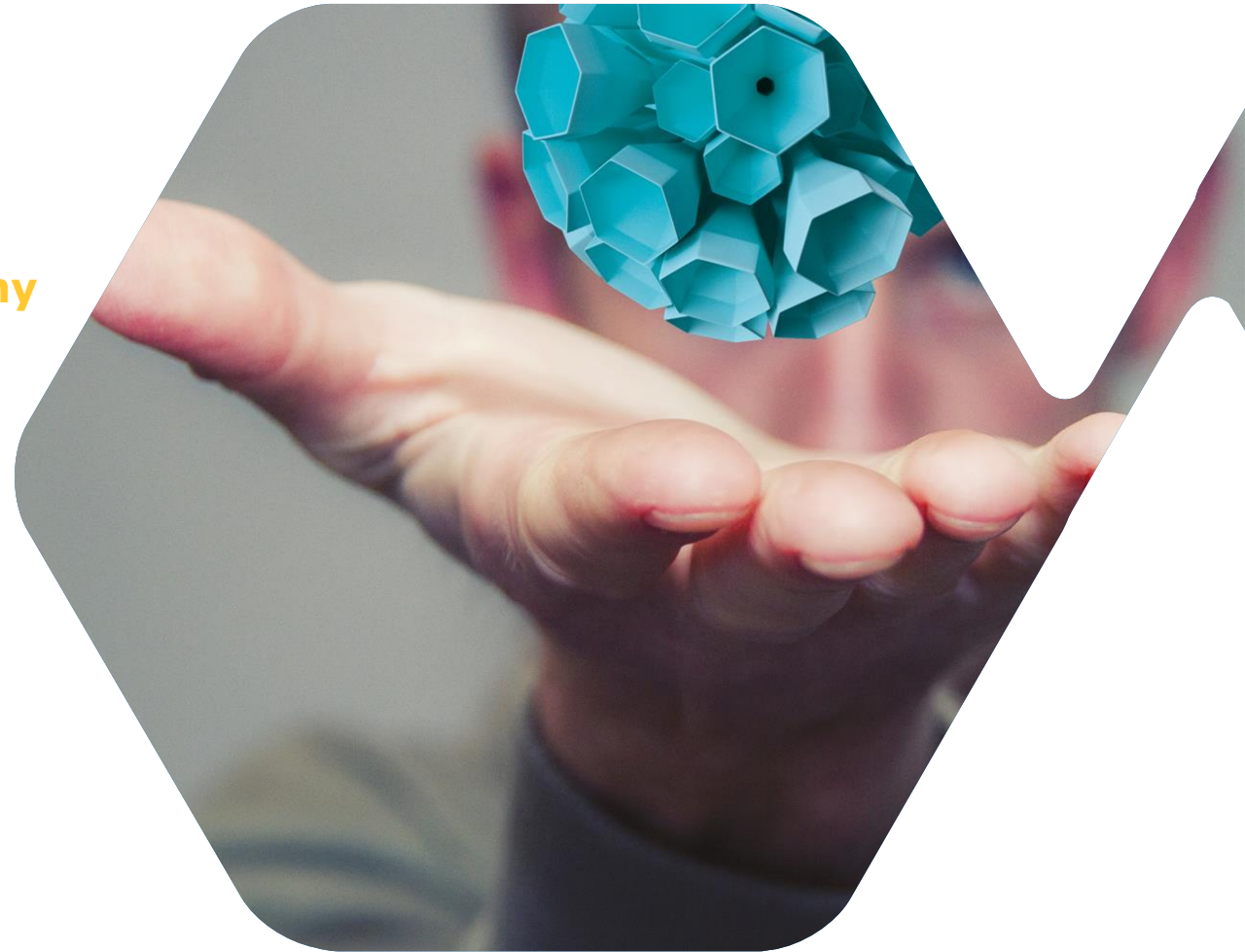
**Create a truly global and modern company**



**Secure sustainable profitable growth**



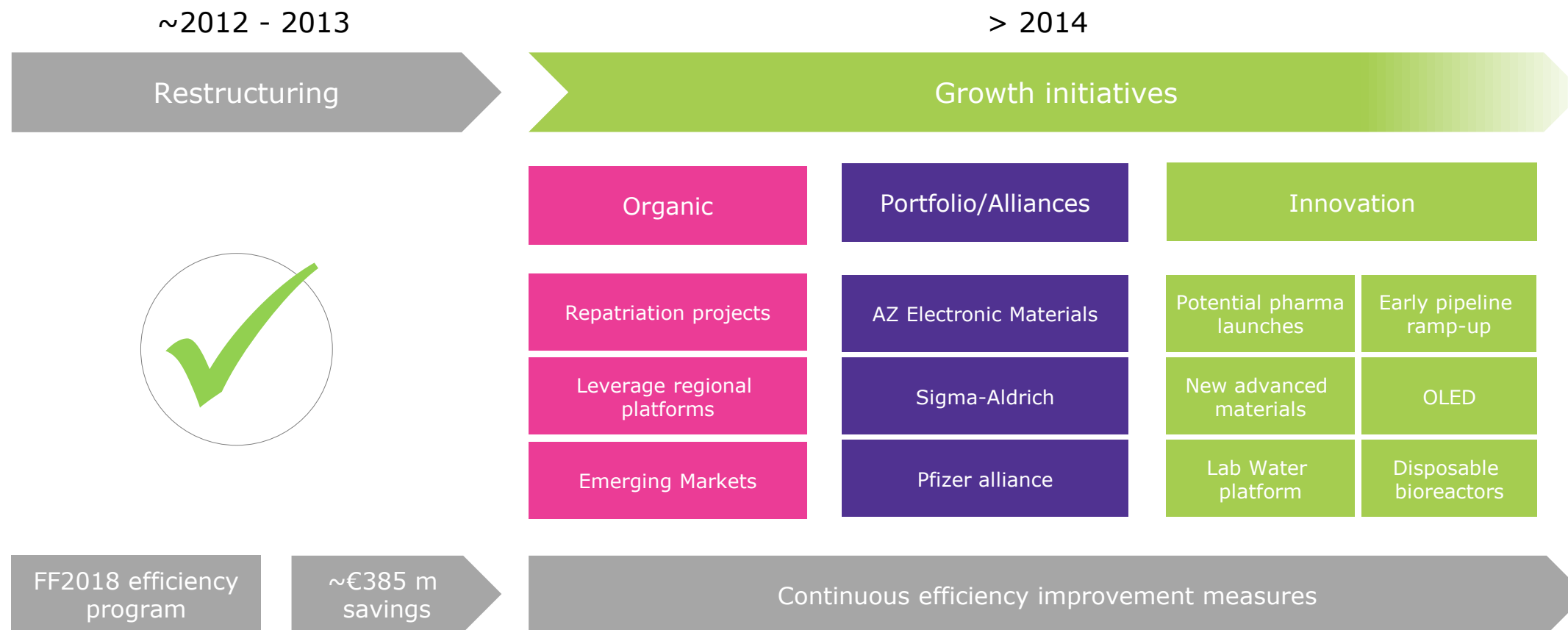
**Generate value for our owners**





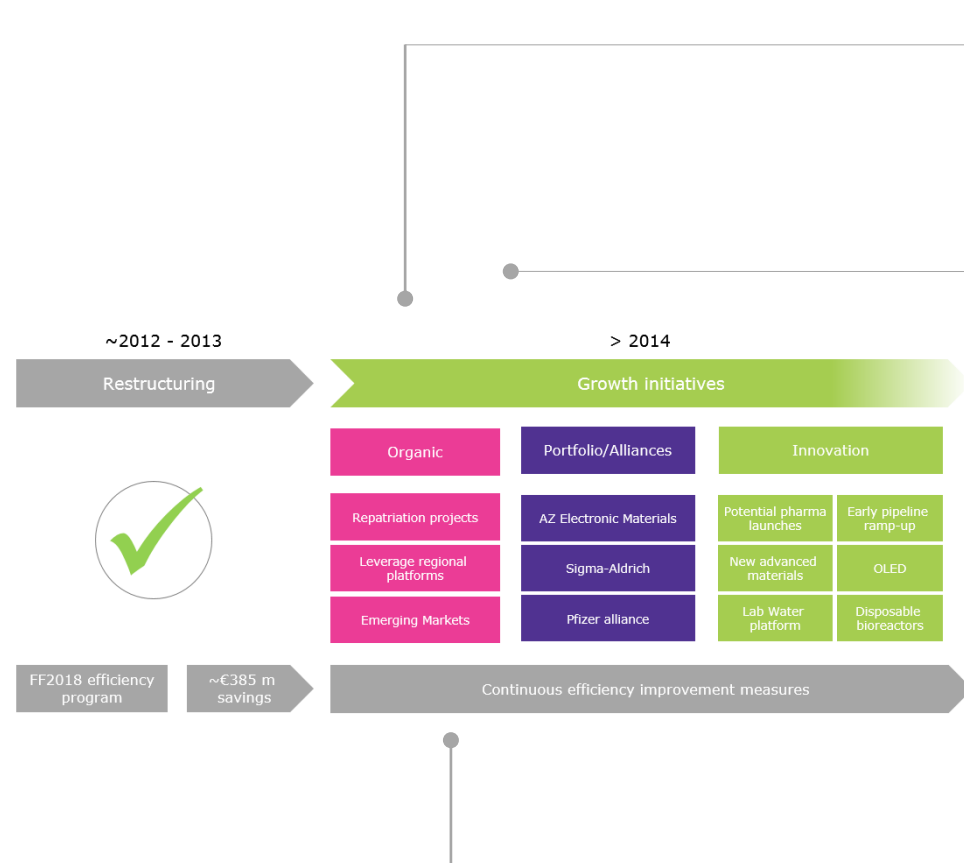
# Group

## Strategic agenda 2018 – milestones achieved



# Group

## Strategic agenda 2018 – milestones achieved



### Repatriation projects:

- Glucophage and Euthyrox from Takeda in Russia
- Co-promotion agreement with BMS<sup>1</sup> for Glucophage in China
- Transfer of full promotional responsibilities for Erbitux in Japan

### Leverage regional platforms:

- Transfer of Neurobion & Floratil to Consumer Health
- Strategic partnership with Lupin to broaden GM<sup>2</sup> portfolio

### Emerging Markets:

- Healthcare focus on strategic markets such as China & Brazil
- Investments in regional sites (Nantong – China)

### Portfolio and alliances:

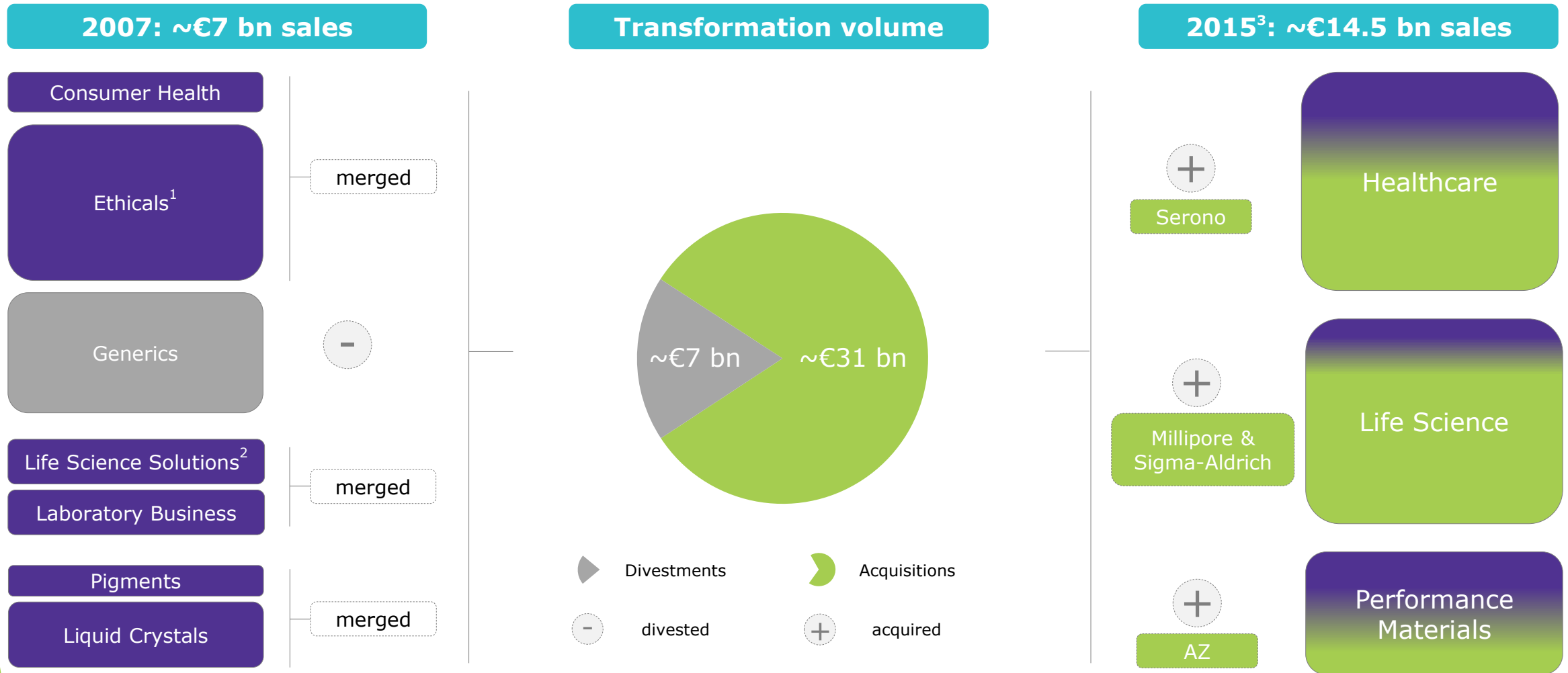
- AZ closed and integrated in 2014
- Sigma acquisition – closing on November 18, 2015
- Strategic alliance with Pfizer in immuno-oncology progressing

### Innovation:

- Launch of UB-FFS as well as progress in OLED
- New innovation center in corporate HQ

## Group

We have added scale and strengthened the attractiveness of its portfolio



## We have created three leading businesses

### Healthcare

+ Serono

- Leading biotech company
- Global footprint
- Strong presence in growth markets
- Solid underlying business
- Promising pipeline assets

### Life science

+ Millipore  
+ Sigma

- No. 2 in the world market
- Broad and global product portfolio
- Leading eCommerce platform
- Best-in-class supply chain management

### Performance Materials

+ AZ

- World market leader
- Technology and innovation leader

Science

Technology

Innovation

Specialties

Quality

Customer focus

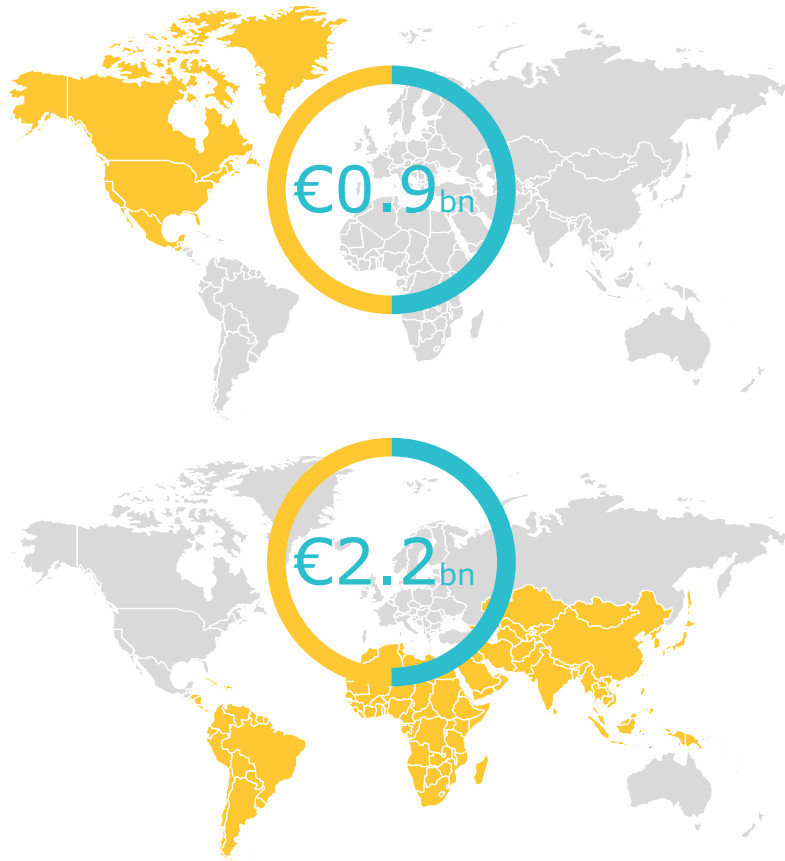
Group

## North America and Emerging Markets have driven growth

Sales 2007

Initiatives

Sales 2015\*



### North America:

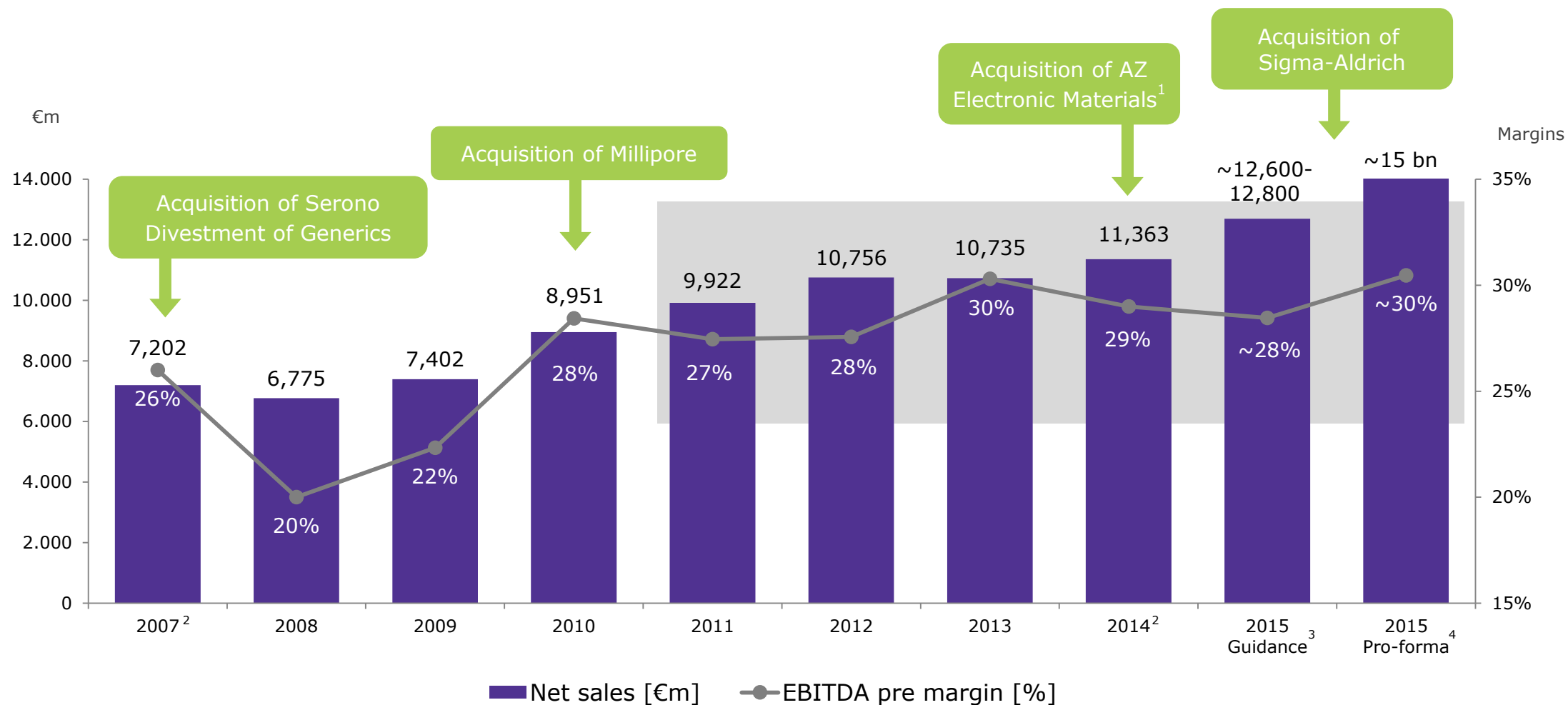
- Build presence through M&A
- Grow and defend Rebif
- Expand Fertility
- Grow Life Science

### Emerging Markets:

- Drive General Medicine and Consumer Health
- Leverage Life Science portfolio
- LC and OLED leadership



# Group Profitability improved fundamentally



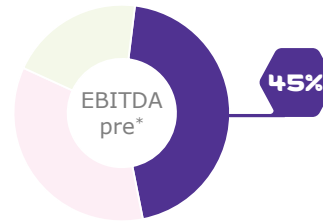
<sup>1</sup>Included since 2 May 2014; <sup>2</sup>2007 and 2014 EBITDA pre margin adjusted for comparability; <sup>3</sup>2015 guidance including Sigma-Aldrich since 18 November 2015;  
<sup>4</sup>Pro-forma calculation assumes 2015 full-year contribution from Sigma-Aldrich based on ThomsonReuters consensus as of November 11, 2015, and assumed 100% of realized synergies of €260m p.a.

## Group

### Each business sector has its specific priorities



#### Healthcare

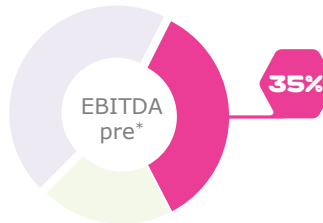


#### Funding for success

- Invest in pharma pipeline
- Prepare for launches
- Maintain cost discipline



#### Life Science

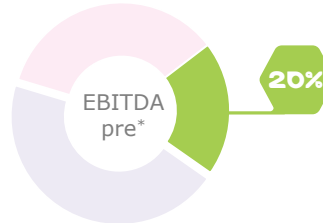


#### Focusing on profitable growth

- Sustain top-line momentum
- Drive underlying earnings
- Integrate Sigma and realize synergies



#### Performance Materials



#### Maintaining superior profitability

- Build on resilient four-pillar platform
- Continuously innovate
- Protect margins with high value-added products

**We are set for profitable and sustainable growth**

\*2014 reported EBITDA pre including Sigma-Aldrich 2014 results, 100% of expected synergies, excluding Corporate & Other



## 03 HEALTHCARE – FUNDING FOR SUCCESS



Healthcare

## Healthcare is set to deliver on promising pipeline candidates

**Deliver**  
on organic growth

**Focus**  
on pipeline



Stable existing business to fuel slight organic growth



Solid pipeline of oncology, immuno-oncology and immunology molecules



Transformation of R&D operating model ongoing



Competitive R&D funding in our focus areas



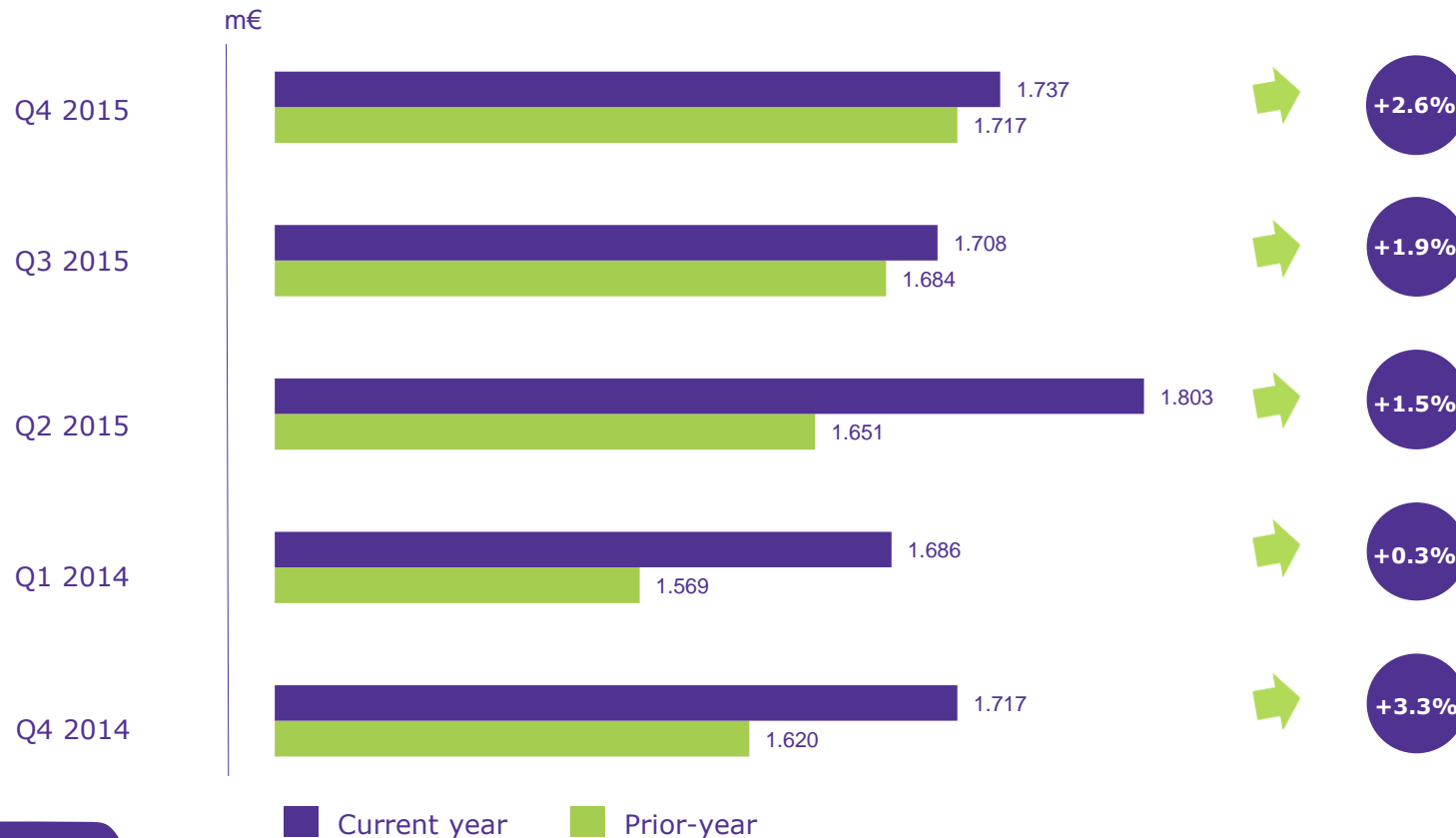
Cost discipline and efficient execution



# Healthcare

## Delivered organic sales growth, committed to future performance

Stable to slight organic growth



**ERBITUX®**  
CETUXIMAB

Consumer Health

**Rebif®**

**GONAL-f®** **Pergoveris®**  
(hCG and hCG for injection)



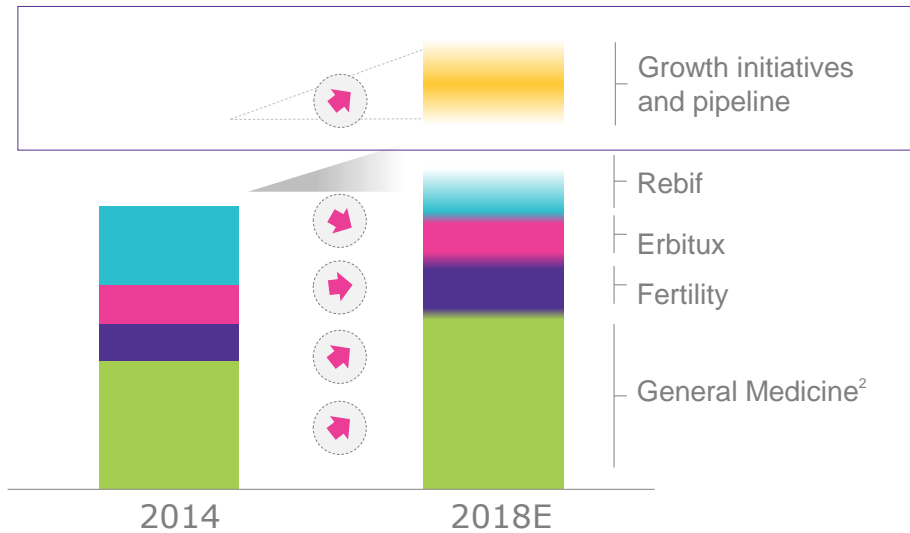
**Glucophage®** **Concor®** **Euthyrox®**

**Defending the existing product portfolio is a key strength of Healthcare**

# Healthcare

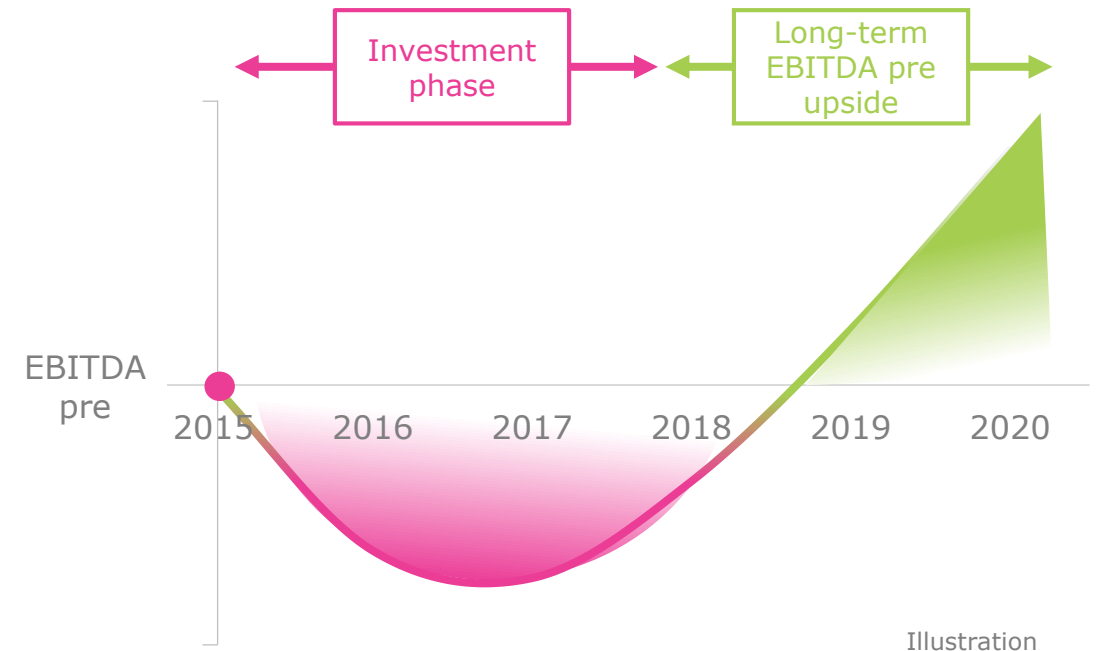
## Pipeline opportunities will lead to rising investments

Stable to slightly growing<sup>1</sup> sales until 2018 confirmed



<sup>1</sup>Organic; <sup>2</sup>including Consumer Health, Cardiometabolic Care, Endocrinology, General Medicine and Others

Should pipeline catalysts materialize, investments will lead to considerable payback as of 2018+



Illustration

**Rising investments until 2017 to accelerate sales and earnings growth as of 2018**

# Healthcare

## Investments in future growth

### R&D\*

- Immuno-Oncology: avelumab and ramp-up of earlier pipeline projects +€150-200m cost increase in 2016
- Oncology/Immunology, e.g. tepotinib, BTK inhibitor: mid to high double-digit €m cost increase in 2016

### Marketing & Selling\*

- Launch readiness to be ensured for avelumab and cladribine
- Costs for launch preparation in the mid to high double-digit €m range in 2016

- **Cost discipline remains high on the agenda**
- **Stringent pipeline assessments continue**
- **Investments based on sound business cases and robust clinical data**

**Long-term growth investments partly mitigated by strict cost management**

\*For scenario that pipeline catalysts materialize



04

**LIFE SCIENCE –  
FOCUSING ON  
PROFITABLE GROWTH**

# Life Science

## Combining forces for future growth



### Strategic rationale

- ▶ Broad and complementary product fit in attractive segments
- ▶ Expanding global reach and scale
- ▶ Leveraging operational excellence to deliver superior value to customers

### Integration

- ▶ New organizational structure designed (Applied, Research and Process Solutions)
- ▶ Top 2 management levels already appointed
- ▶ Focus on seamless integration for customers and the organization

### Financials

- ▶ Confirming synergies of €260 m p.a., realized by the third full year after closing
- ▶ Sigma acquisition closed on Nov 18<sup>th</sup> - consolidated for 43 days in 2015

## Life Science

### We create sustainable value that is based on strong strategic levers



#### Wide, innovative portfolio

- A combined portfolio of +300,000 products
- Integrated offerings along the life science value chain
- Complete workflow solutions



#### Balanced Geographic Footprint

- Increased presence in North America
- Accelerating growth momentum in Asia
- Expanded geographic reach in 60+ countries



#### Industry-leading Capabilities

- Outstanding supply chain management (Ability to deal with complexity)
- Simple e-commerce platform (customer interface with global coverage)
- Expertise to manage regulatory barriers

**Our capabilities are the foundation for future topline growth in Life Science**

## Execute on integration and leverage synergy potential

### Integration

- Significant restructuring and integration experience
- Deep knowledge and understanding of the life science industry
- L1-L3 already appointed

### Synergies

- Commitment to cost synergies of ~€260m confirmed
- Sources and timing of synergies clearly identified
- Delivery of synergies already starting in 2015

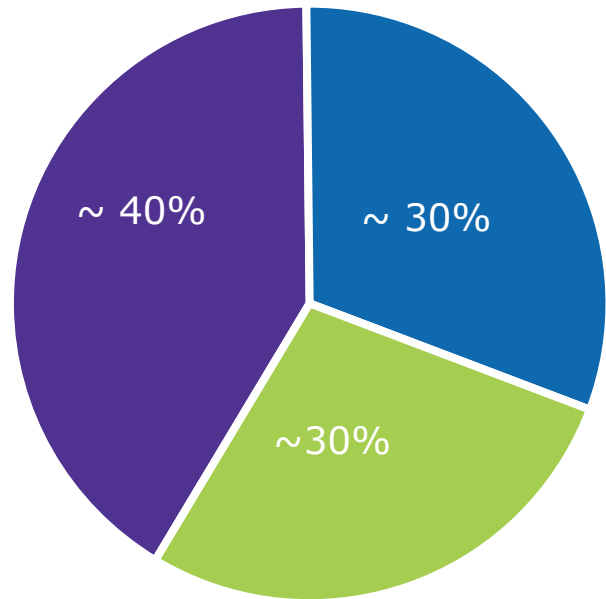


**Integration process well set to maximize the capabilities of both worlds**



## Expected synergies identified and fully confirmed

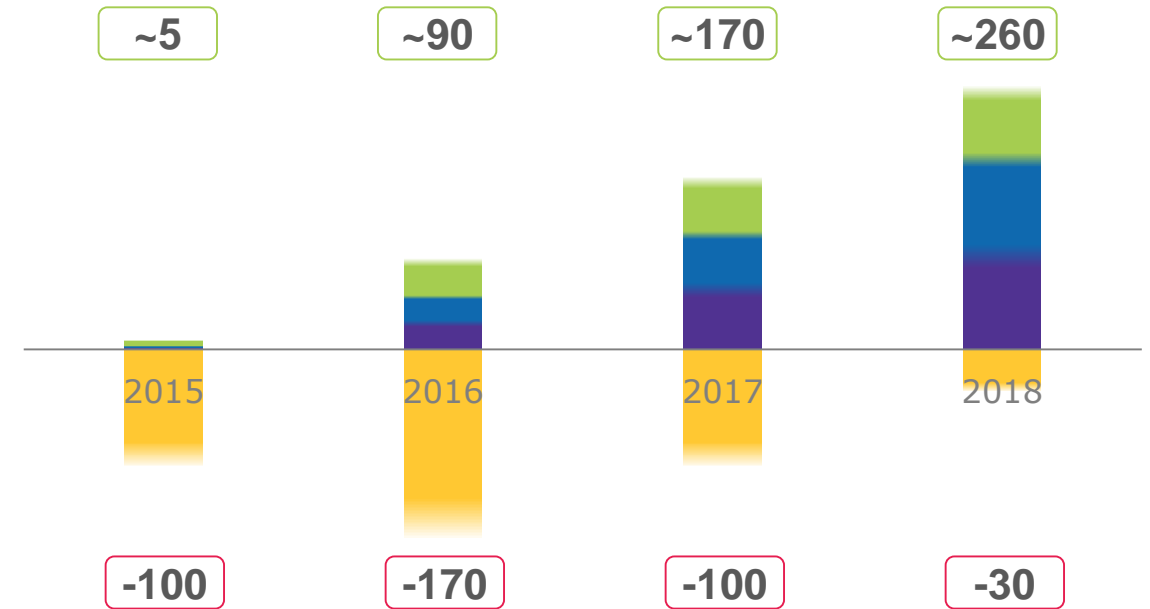
Sources of synergies (3<sup>rd</sup> full year 2018)



■ Production & Manufacturing ■ Marketing & Selling  
■ Administration, R&D

**Three major areas for delivering the synergies**

Timing of expected synergies and related costs [€m]



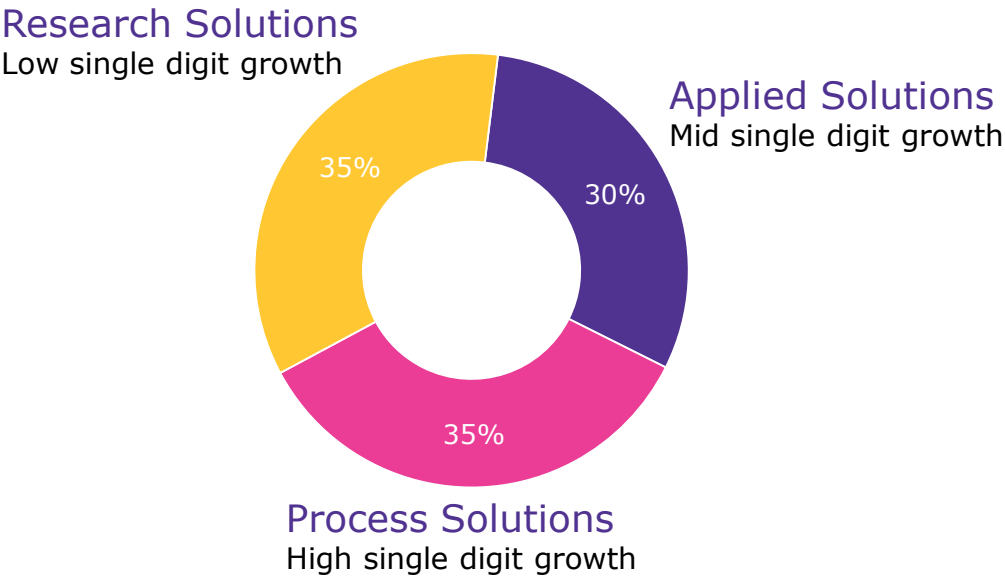
■ Production & Manufacturing ■ Marketing & Selling  
■ Administration, R&D ■ Integration costs

**Fast synergy ramp-up to reach two thirds of target in 2017**

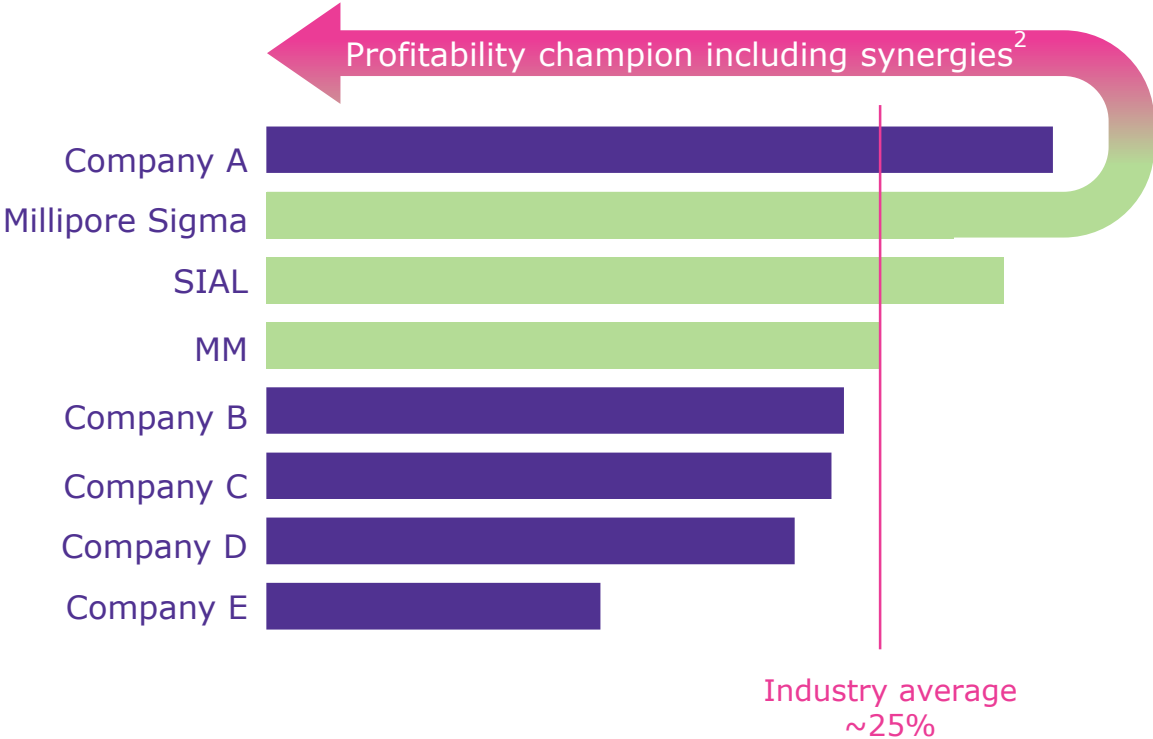
# Life Science

## We aim to be the profitability champion of the sector

New sales breakdown<sup>1</sup> and market growth



Above industry margin levels



Life Science is well set for sustainable growth and profitability

<sup>1</sup>Pro-forma calculation based on published sales for FY 2014 for Life Science and Sigma-Aldrich (FX conversion: EUR/USD 1.30);

<sup>2</sup>Pro-forma combination based on 2014 financials including 100% of targeted synergies

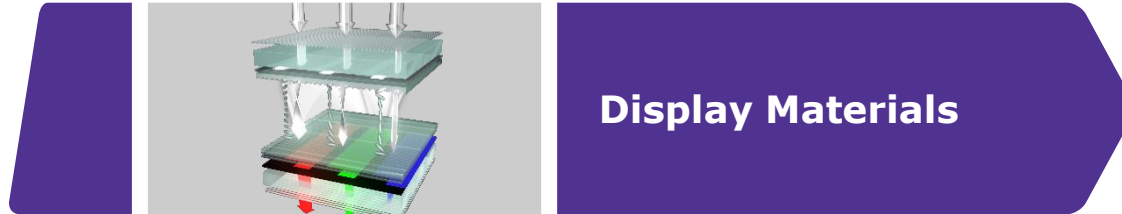


05

**PERFORMANCE  
MATERIALS –  
MAINTAINING SUPERIOR  
PROFITABILITY**

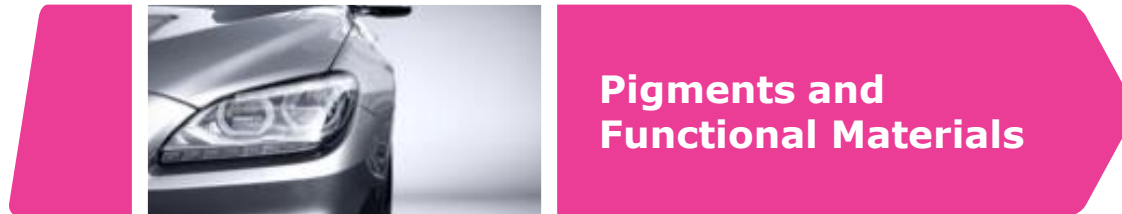
# Performance Materials

## The four pillars are set for future profitable growth



**~55-65% of total sales,**

- liquid crystals (LC) and photoresists for TVs, smartphones and tablet computers
- other display and non-display applications (e.g. LC Windows)



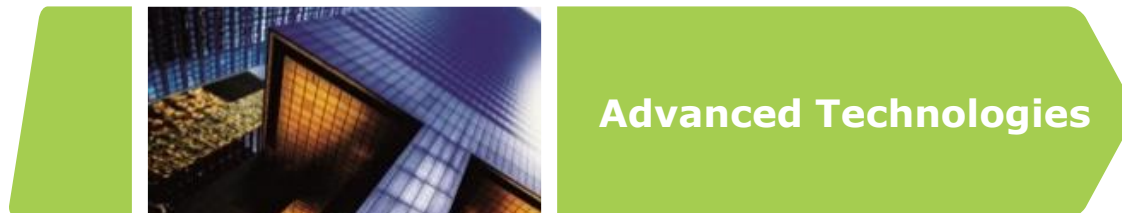
**~15-20% of total sales,**

- effect pigments and functional materials for coatings, plastics, printing and cosmetics
- functional materials for cosmetics and special applications



**~15-20% of total sales,**

- dielectrics, colloidal silica, lithography materials (photo resists), yield enhancers, edge-bead removers
- polyimide raw materials and printing materials



**~5-10% of total sales,**

- organic (OLED) and inorganic (LED) light emitting diodes and functional materials for electronics and energy solutions, especially OLED is providing first substantial sales

## Performance Materials

# Innovation leadership is the backbone of future profitability and growth

evolutionary



Incremental product adjustments - only minor investments

LC  
pigments  
ICM<sup>1</sup>  
advanced tech.

New singles for PSVA technology  
Meoxal luminous metal effect pigments  
low defect CMP<sup>2</sup> slurries  
Organic Photovoltaics

revolutionary



Fundamental research - more substantial investments needed

LC  
pigments  
ICM<sup>1</sup>  
advanced tech.

Smart windows, smart antennas, new modes  
Counterfeiting prevention applications  
Directed self-assembly (DSA) in lithography  
OLED printing technology

# Performance Materials

## Sound platform to deliver high earnings

### 1 Four-pillar platform diversifies earnings stream

- Liquid Crystals remain key earnings contributor
- AZ expertise being leveraged to develop innovative value-added solutions for customers
- OLED turns into visible growth driver
- Pigments continue to grow with high-end products

### 2 Continuous innovation as key profitability driver

- New products contribute high growth and profitability
- LC technology mode UB-FFS launched in 2014 is the most recent example

**Diversification of portfolio and ongoing innovation support profitability**

### Balanced sales and consistently high earnings



### We are the innovation leader



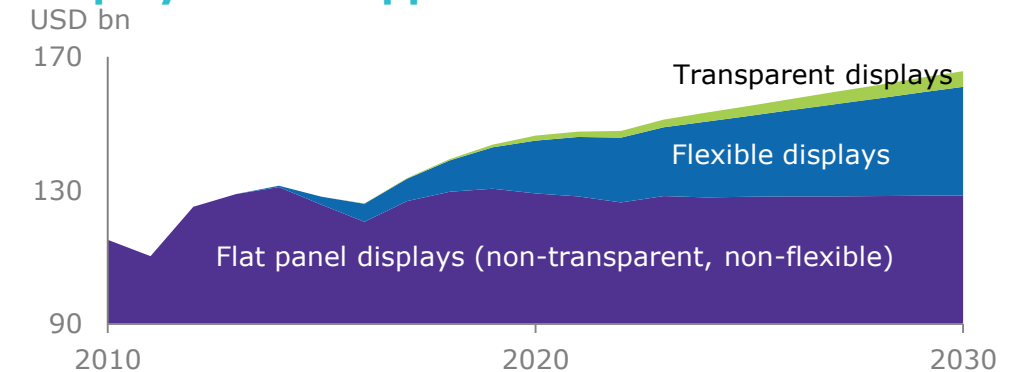
# Performance Materials

## Long-term growth and margin drivers are intact

### 3 Macroeconomics and electronics remain buoyant

- Global consumer electronics market expected to grow above GDP
- Mobile data, Internet of Things, Big Data being key growth drivers for LC and IC
- Display market continues to grow

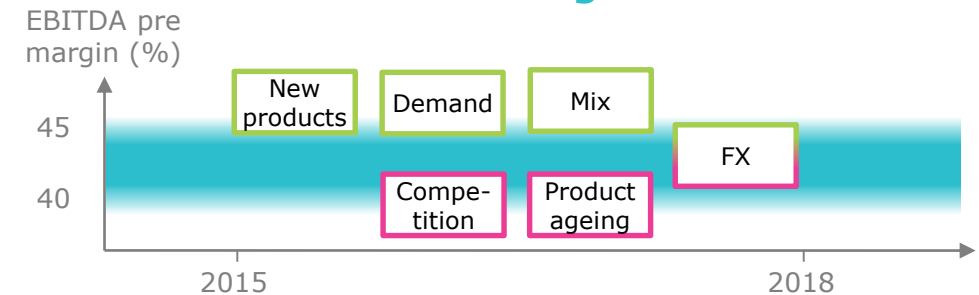
### Display market opportunities continue to evolve\*



### 4 Margins protected by high value-added products

- High market share in liquid crystals expected to prevail
- Margins are a key priority and will not be compromised

### Sustainable mid-term margins



**Confident to maintain low single-digit organic growth trajectory and attractive margin level**

\*Source: IHS, Merck KGaA Darmstadt Germany, VLSI



06

## **EXECUTIVE SUMMARY AND GUIDANCE**



# We are well set for profitable and sustainable growth



Maximize growth of existing franchises  
Deliver on pipeline



Focus on seamless integration and deliver cost synergies  
Leverage strategic capabilities for value creation



Drive innovation and technology leadership across all businesses  
Innovate in applications beyond displays

# We have clear financial priorities for the next two years



Focus on **cash flow**  
and **deleveraging**

- **Strong cash flow** will be used to drive down gearing to <2x net debt / EBITDA pre in 2018
- **Larger acquisitions (>€500m) ruled out** for the next two years
- **Dividend policy** reflects sustainable earnings trend



**Ongoing cost discipline**

- **Synergy generation** is utmost priority
- **Cost discipline** continues in all business sectors
- **Further efficiency gains** from ongoing improvement and harmonization of processes and systems



**Efficient capital  
allocation**

- **All our businesses** have growth potential
- **Decisions on growth investments** are based on sound business cases and robust clinical data

**Near-term financial priorities will secure our profitable growth path**

# Qualitative full-year 2016 guidance

**Net sales:** Growth in the low double-digits from Sigma & slight organic growth from existing business

**EBITDA pre:** Increase in the low double-digits

## Supporting factors

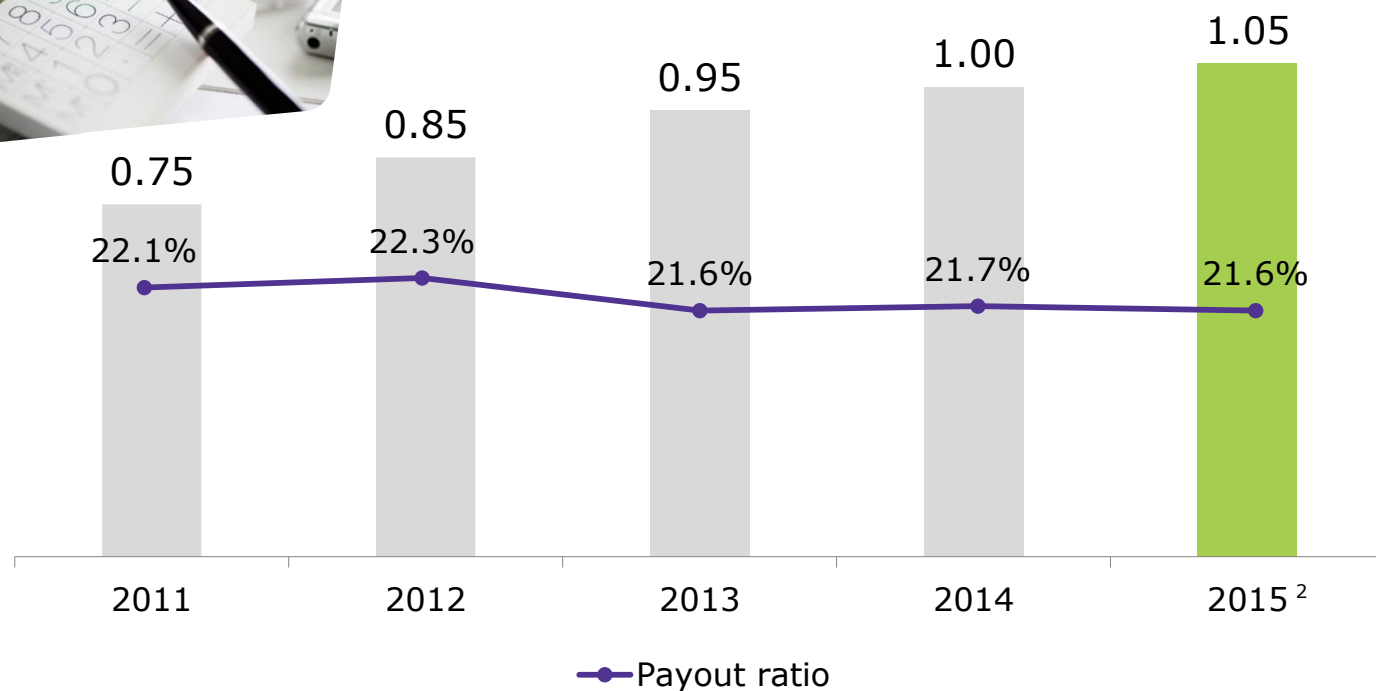
- + Sigma-Aldrich contribution will be sizeable including cost synergies of ~€90m in the first full year
- + Rebif/Pfizer end of co-promotion agreement in December 2015 (net effect ~+€250m)
- + Organic net sales growth of all three businesses

## Burdening factors

- R&D costs in Healthcare to increase in 2016:  
Immuno-Oncology: +€150-200m YoY;  
Onc/Immunology: mid to high double-digit €m
- Cost for launch preparation (Avelumab, Cladribine) in the mid to high double-digit €m range
- Healthcare margins impacted by product mix effects
- Kuvan divestment leads to lower recurring EBITDA pre (net effect mid-double digit €m YoY)

# Sustainable dividend development

## Dividend<sup>1</sup> development 2011-2015



## 2015 dividend and policy

- Dividend of €1.05 per share proposed<sup>2</sup> for 2015
- Last year's dividend constitutes the minimum level<sup>3</sup>
- Development of dividends in line with business performance and earnings progression
- Aiming for a corridor of 20%-25% of EPS pre

<sup>1</sup>Adjusted for share split, which has been effective since June 30, 2014; <sup>2</sup>Final decision subject to Annual General Meeting approval;

<sup>3</sup>Assuming a stable economic environment



# Appendix

- 01**    **Guidance Details**
- 02**    **Excursus: Integrated Circuit Materials**
- 03**    **Sigma acquisition**
- 04**    **Healthcare update**
- 05**    **Financial details**



01

## **GUIDANCE DETAILS**

## 2016 business sector guidance including Sigma-Aldrich



### Healthcare

#### Net sales

- Slight organic growth
- Continued organic Rebif decline
- Other franchises growing

#### EBITDA pre

- High single-digit to mid-teens decline due to R&D investments, negative product mix and Kuvan divestment



### Life Science

#### Net sales

- Moderate organic growth
- Main driver Process Solutions
- High-double digit contribution from Sigma

#### EBITDA pre

- High double-digit increase
- Contribution of Sigma and organic growth of legacy business



### Performance Materials

#### Net sales

- Slight organic growth
- Volume increases in all businesses

#### EBITDA pre

- Slight organic increase, at least at prior year level



# Additional financial guidance 2016

## Further financial details

Corporate & Other EBITDA pre	~ -€370 – -400 m
Interest result	~ -€270 – -300 m
Intangibles amortization from Sigma PPA	~ €250 – 300 m p.a.
Underlying tax rate	~23% to 25%
Capex on PPE	~€750 – 800 m
Hedging/USD assumption	<b>2016 &amp; 2017 hedge rate ~40-45% at EUR/USD ~1.10 to 1.15</b>
2016 Ø EUR/USD assumption	~1.07 – 1.12

# High cost base in strong currencies and hedging losses partially offset FX tailwinds



## Sales

- Global presence
- ~40% of sales in Europe

## Costs

- High Swiss franc cost base due to manufacturing sites
- R&D hub and notable sales force in U.S.

## FX Impact



## Sales

- Balanced regional sales split between EU, NA and RoW

## Costs

- Extensive manufacturing and research footprint in the U.S.
- Global customer proximity requires broad-based sales force

## FX Impact



## Sales

- ~80% of sales in Asia-Pacific
- Industry is USD-driven

## Costs

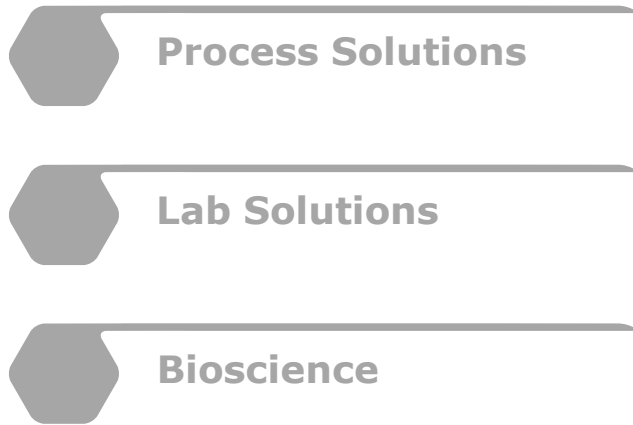
- Main production sites in Germany
- Several R&D and mixing facilities in Asia

## FX Impact



# Life Science: New reporting structure reflects customer-centric approach

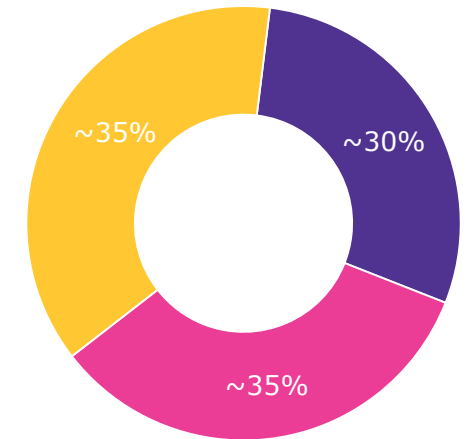
## 2015 product centric structure



## New 2016 customer centric structure



## New sales breakdown



### Customer-centric business approach:

- Enhanced emphasis on customers' unique needs
- Customized solutions for the specific needs of each segment from the start of product development to its completion

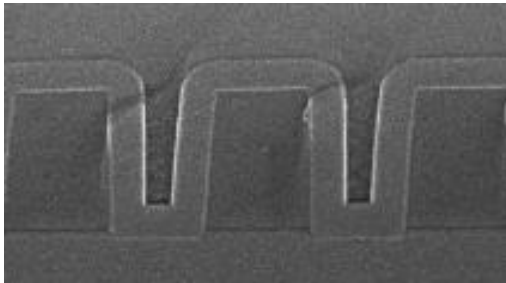


02

## **EXCURSUS: INTEGRATED CIRCUIT MATERIALS**

# Integrated Circuit Materials – enabling solutions for the semiconductor market and adjacent industries

## Dielectric Materials



- Spin-on silicon-based materials forming electrical insulation layers inside the microchips, displacing chemical vapor deposition (Spinfil®)

## Lithography Materials



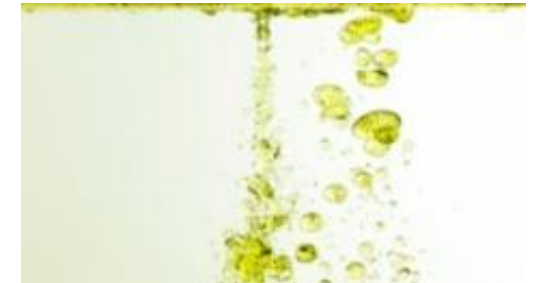
- Diverse portfolio of bespoke materials that improve resolution and performance and reduce costs in the IC lithography process

## Silica Materials



- Colloidal silica used in chemical mechanical planarization (CMP), substrate polishing and industrial applications (Klebosol®)

## IC Process Materials



- Removers, developers and other solvents as well as polyimide raw materials

# We have a strong position and will benefit further from complex technological advances and underlying market trends

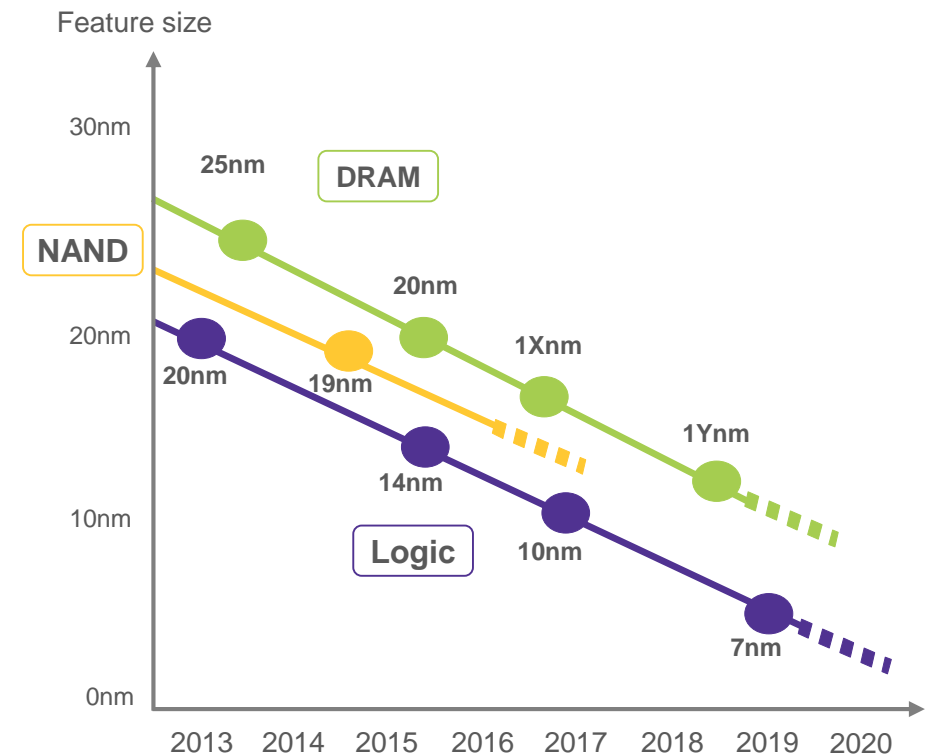
## Market drivers and technological trends

- **Miniaturization:** Devices are becoming smaller with better performance
  - Need for enabling materials to reduce size (Moore's law)
- **Mobility:** Everyone is continuously connected without direct power supply
  - More chips needed for local energy production
  - Energy storage → smaller batteries with higher density
- **Internet of Things:** Everything is continuously connected
  - More gadgets and devices that include chips
  - Increasing amount of communication and sensor chips
- **Big Data:** Increasing need for intelligent data storage
  - Switch from hard disk drives (HDD) to solid state drives (SSD)

## Selected competitors

- |                    |                            |
|--------------------|----------------------------|
| • Tokyo Ohka Kogyo | • Dow Electronic Materials |
| • Nissan Chemicals | • JSR                      |

## Feature sizes develop as predicted by Moore's law





03

## SIGMA ACQUISITION

# Sigma Aldrich acquisition – A compelling transaction rationale

## Strategic and operational fit

- Increasing scale – expanding position in attractive life science industry
- Enhancing value for our customers
  - Broadens product range and ease of doing business for Laboratories & Academia
  - Complements Process Solutions product offering
- Closing the gap in U.S. – adequate presence in all geographies
- Leveraging existing platforms for global innovation rollout

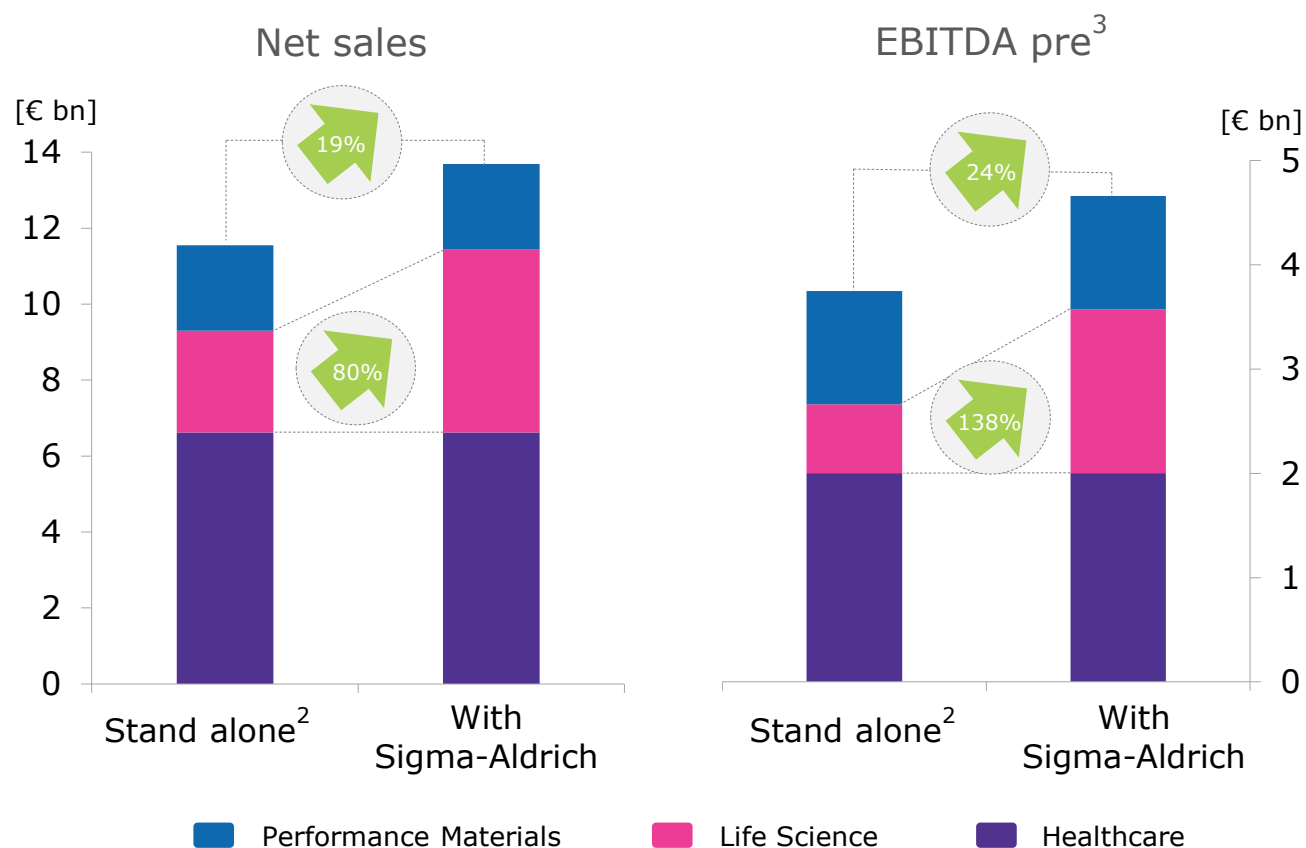
## Financial fit

- Further diversification of revenue stream
- Substantial synergy potential
- Immediately accretive to EPS pre\* and EBITDA margin
- Solid investment grade rating will be maintained



# Sigma-Aldrich acquisition enhances our financial profile

Group – pro-forma 2014<sup>1</sup>



## Pro-forma financial impacts

- Group sales<sup>1</sup> increase by ~19%
- Group EBITDA pre<sup>3</sup> rises by ~24% with margin<sup>4</sup> expansion from ~30% to ~33%
- Synergies: ~€260m p.a. fully implemented in 3<sup>rd</sup> full year after closing
- Expected PPA impact: Mid triple-digit €m p.a.
- Immediately EPS pre accretive

<sup>1</sup>Pro-forma calculation based on published sales for FY 2014 for Merck KGaA, Darmstadt, Germany (including pro-forma AZ Electronic Materials) and Sigma-Aldrich;

<sup>2</sup>Pro-forma calculation based on published sales for FY 2014 for Merck KGaA, Darmstadt, Germany (including pro-forma AZ Electronic Materials); <sup>3</sup>Pro-forma calculation based on 100% expected synergies; excluding Corporate & Other; <sup>4</sup>Including Corporate & Other

# Sigma-Aldrich – A leading life science consumables supplier

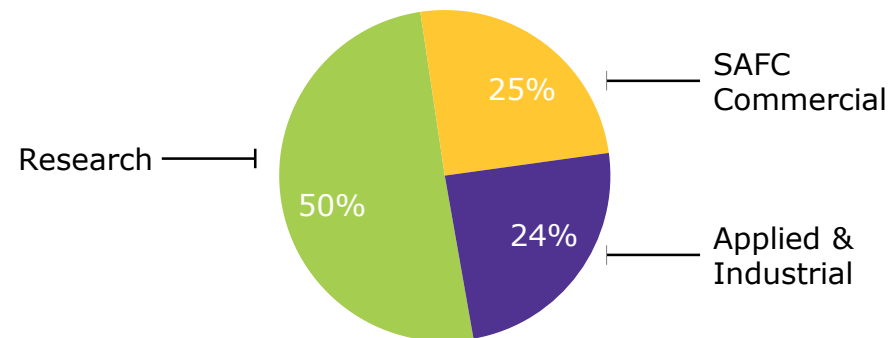
## Business

- Total revenues of \$2.8 billion in 2014
- ~9,000 employees including ~3,000 scientists and engineers
- Headquartered in St. Louis, MO
- Chemical and biochemical products, kits and services provider to laboratories and pharma production
- No. 1 eCommerce platform in the industry; ~1,600 sales people

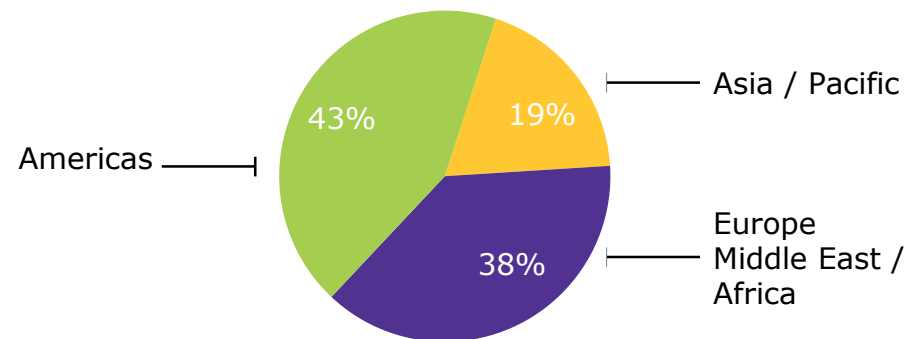
## Footprint

- Balanced regional exposure; strength in North America
- Operations in ~40 countries; products available in ~160 countries

Sales by division FY 2014\*



Sales by region FY 2014\*



# Together serving the attractive €100bn life science industry

~€100 bn life science industry

## Research Solutions

~€12 bn industry



Low single digit growth

## Process Solutions

~€44 bn industry



High single digit growth

## Applied Solutions

~€44 bn industry



Mid single digit growth

## Market trends

- Academic/government, pharma and contract research
- Rising volume of experiments
- Capped by slow funding growth

- Small molecule and biologics production
- High growth in biologics market
- Stable small molecule market

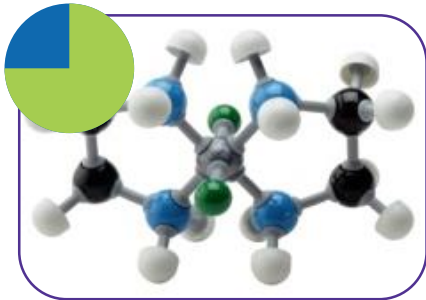
- Clinical testing, environmental, diagnostics, food and beverage
- Food safety, environmental testing requirements increasing
- Uptake of in-vitro diagnostics testing

**Attractive industry EBITDA margin of ~25%**

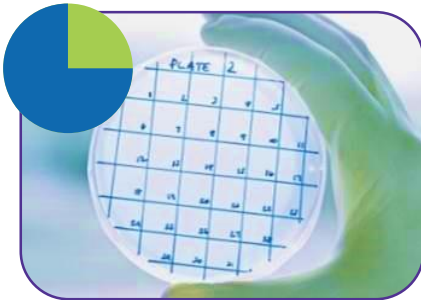
# Broad and complementary product fit in attractive segments

Laboratory & Academia\*

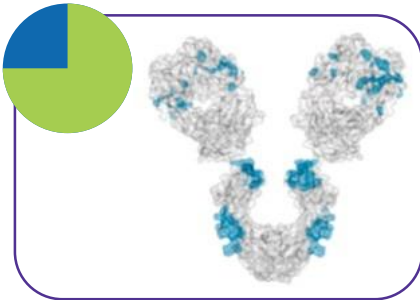
Analytical standards



Microbiology



Antibodies



Biochemicals



Life Science

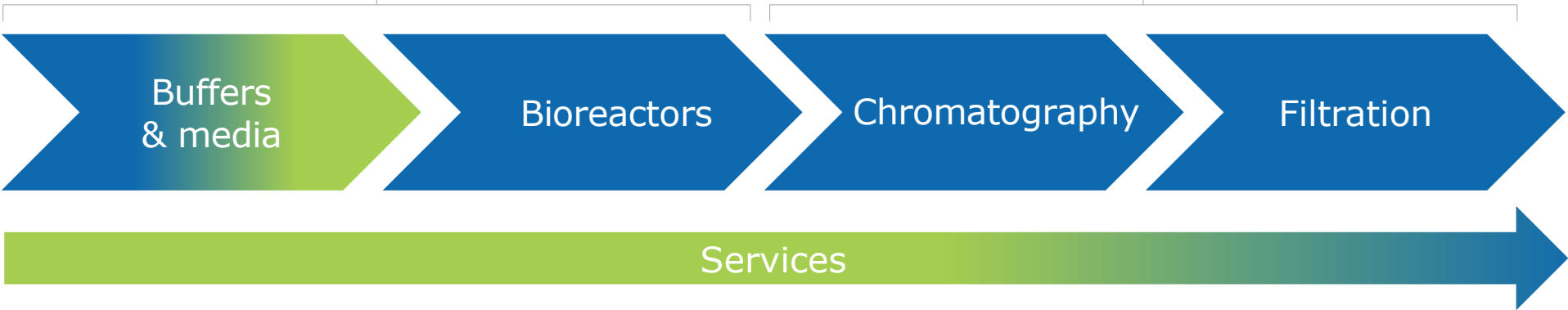


Sigma-Aldrich

BioPharma production

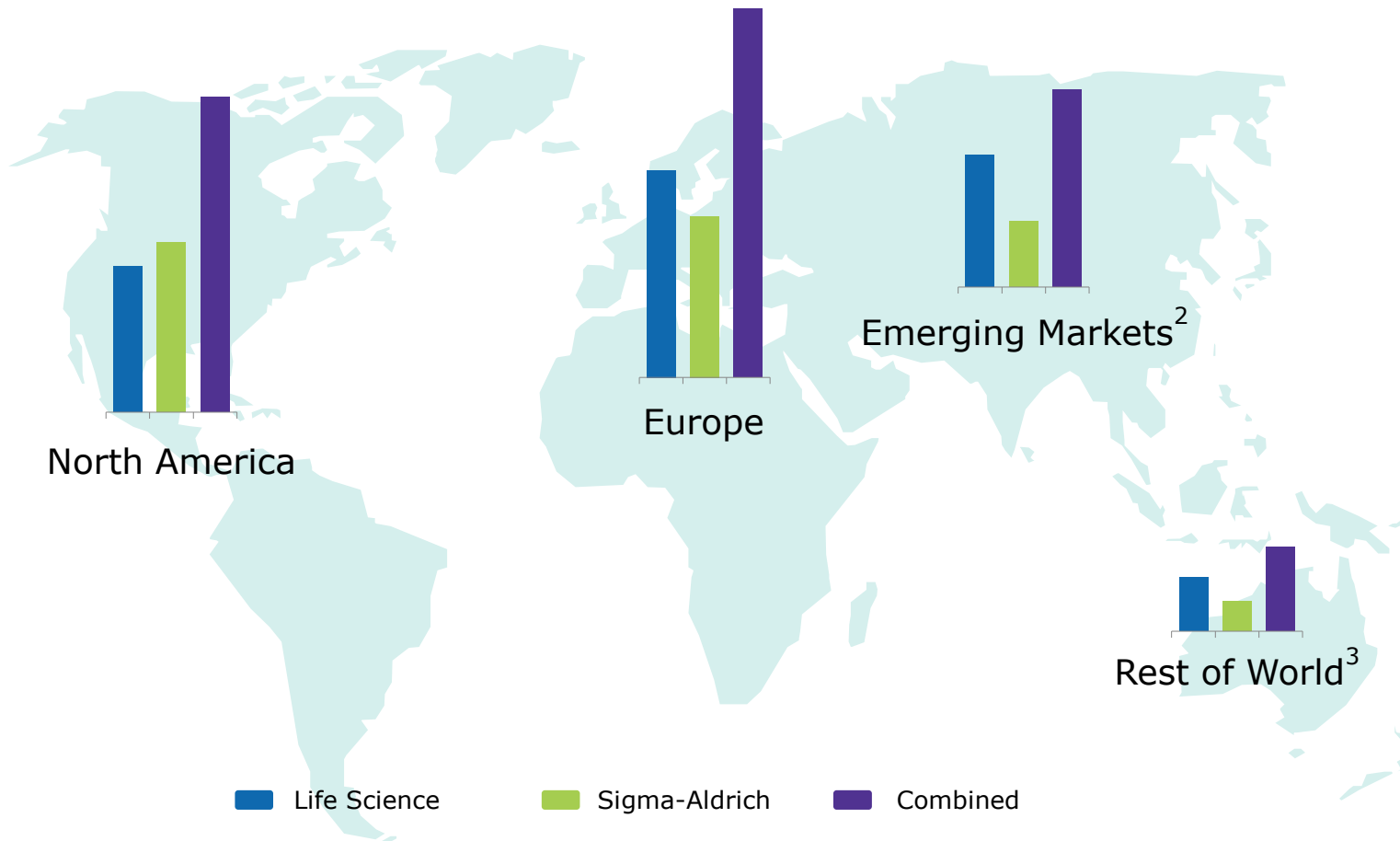
Upstream process

Downstream process



# Expanding global reach and scale

Global sales<sup>1</sup> footprint of both businesses



## Increased presence in North America

- Benefiting from a leading position in U.S. Laboratory sector
- Increased access to U.S. academia

## Exposure to fast-growing Asia

- Accelerating growth momentum
- Opportunity to leverage eCommerce platform

# Leveraging operational excellence to deliver superior value to customers

## Product innovation

- Delivering innovative workflow solutions to increase customers' efficiency
- Broad technology and platforms
- Recurring winners of renowned innovation awards



Mobius FlexReady



Duolink



Amnis

## Process innovation

- Efficient supply chain for >300,000 products
- Best in class customer experience; e.g. 24 hour delivery in major markets
- Top-notch customer interface supported by eCommerce platform



eCommerce platform



Supply chain

Efficient work flow solutions and unique customer experience

# Sigma-Aldrich – Business and transaction financials

## Overview of financial data<sup>1</sup>

US\$ m	2012	2013	2014 <sup>4</sup>
Revenue	2,623	2,704	2,785
% YoY at constant FX	+3%	+3%	+4%
EBITDA (adjusted)	809	821	847
% of sales	31%	30%	30%
D&A	136	138	132
% of sales	5%	5%	5%
Net financial debt (period end)	-41	-357	-513
No. of shares (diluted, m)	122	121	120

## Proposed transaction details<sup>2</sup>

- Equity value ~US\$17 bn (€13.1 bn)
- Enterprise value (EV) ~€12.7 bn including net cash ~€360 m<sup>5</sup>
- Financing through cash and debt; no equity
- Assumed synergies: ~€260m
- In line with core acquisition criteria
  - Immediately accretive to EPS pre
  - Solid investment grade rating will be maintained

## Implied forward transaction multiples<sup>3</sup>

	2013	2014
EV/Sales	6.1x	5.9x
EV/EBITDA	20.1x	19.4x
EV/EBITDA pro-forma incl. synergies <sup>3</sup>	14.3x	13.9x

<sup>1</sup>Source: Company reports; <sup>2</sup>FX conversion: EUR/USD 1.30; <sup>3</sup>"Pro-forma" calculation based on 100% expected synergies; <sup>4</sup>FY 2014 results; <sup>5</sup>at time of announcement (Sept. 2014)

# Support from meaningful synergies

## Our experience



- Significant restructuring and integration experience
- Deep knowledge and understanding of the life science industry

## Source of synergies



- Consolidate manufacturing footprint
- Increase conversion to eCommerce channels
- Optimize sales & marketing
- Streamline admin functions and infrastructure
- Save U.S. public company costs
- Optimize R&D portfolio

## Planned delivery



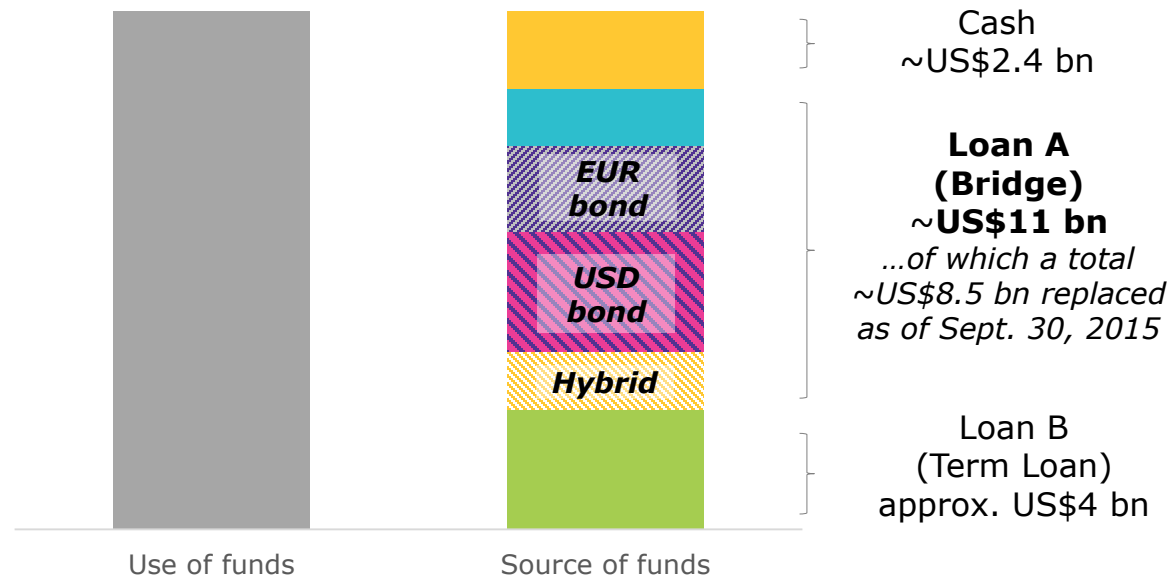
- Synergies: ~€260 m, i.e. ~12% of Sigma-Aldrich sales
- Fully implemented in third full year after closing
- Expected integration costs: ~€400 m; spread over 2015-2018



# Solid structure to finance Sigma-Aldrich transaction

Financing structure as of September 30, 2015

Total: US\$17.4 bn



Update on funding structure

- Acquisition 100% cash & debt financed
- The bridge has almost completely been replaced through various capital markets transactions
- Accomplished transactions:
  - Dec. 2014: ~US\$1.9 bn EUR-hybrid bond
  - March 2015: US\$4 bn USD bond
  - August 2015: ~US\$2.6 bn EUR bond
- Strong combined cash flows available for rapid deleveraging
- Strong investment grade rating maintained
- Expected financing costs well below 2%



04

## HEALTHCARE UPDATE

# Delivering on promises from Capital Markets Day in September 2014

Capital  
Markets Day  
2014

## Vision 2018

**1**  
**Enforce stability  
in existing  
businesses**

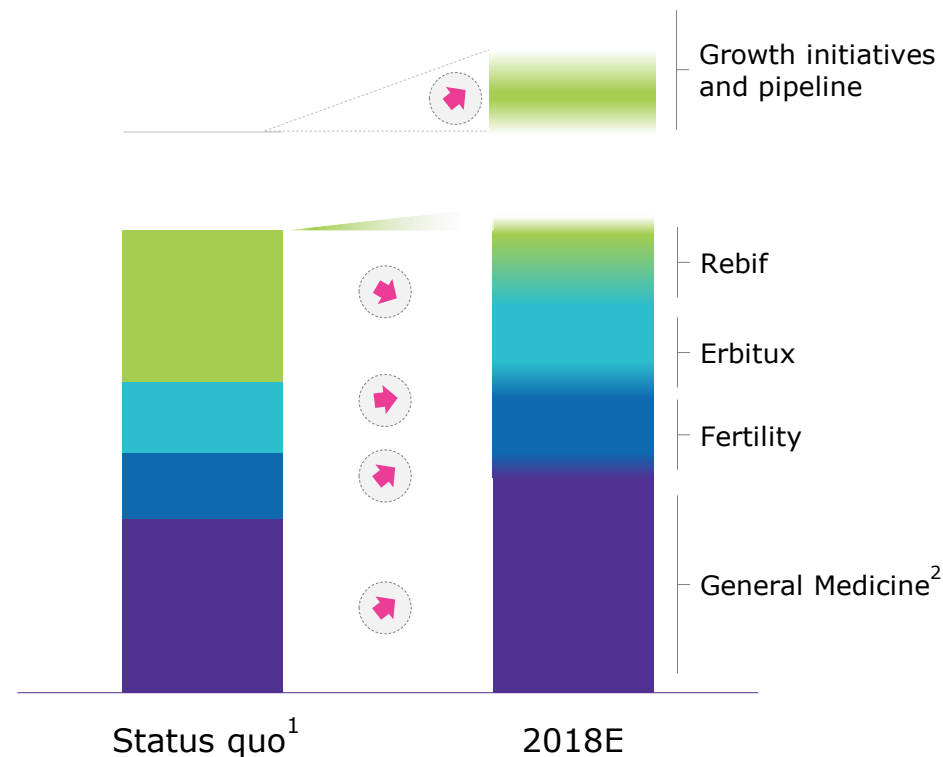
### Maximize existing franchises

- ▶ Market positioning
- ▶ Regions / emerging markets capabilities
- ▶ Life-cycle management including superior devices

**2**  
**Create  
sustained  
growth**

### Generate new revenue streams

- ▶ Deliver on R&D pipeline
- ▶ Payor-centric devices strategy
- ▶ Expand regional portfolio through in-licensing



## The road to maximizing our existing franchises is clear



Continue to drive front-line mCRC share by increasing patient testing and expanding head and neck coverage



Capitalize on strong efficacy and new smart devices to maximize differentiation and defend franchise



Build on No.1 position and ART<sup>1</sup> channel access with embryo diagnostics and other innovative technologies



Harness strengths of existing business and build a new focus area driven by innovative devices and services for patients



Build on existing track record in Emerging Markets, drive brand and life-cycle management and expand business including asset repatriation



# Portfolio management: Differentiating across diverse business models

## General Medicine portfolio



- Limited risk with high cash generation
- Sustainable steady growth fueled by Emerging Markets



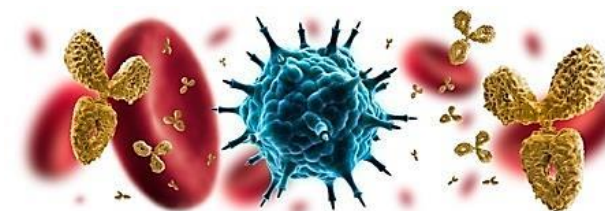
## Biologicals portfolio



- Moderate risk and reward profile
- Economies of scale due to state-of-the-art production capabilities
- Emerging Markets gain importance



## Oncology & Immunology innovation portfolio



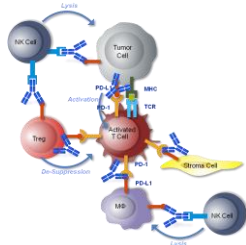
- High reward at high risk
- Innovation key success factor – high R&D spend
- Promising pipeline projects



Mid-term, all parts of the portfolio need to earn their cost of capital

# Merck KGaA, Darmstadt, Germany and Pfizer – three strategic drivers for our collaboration

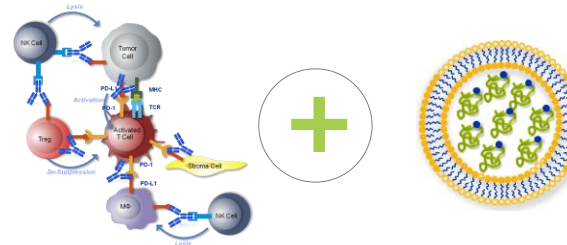
## Leverage Anti PD-L 1 asset



- Combine our R&D and Pfizer's commercialization capabilities
- Speed up overall development process through joint R&D efforts
- Combine financial resources of two global pharma players
- Share development risk



## Tackle combination therapies



- Enlarge pool of potential combinations through use of Pfizer's pipeline assets and existing products of Pfizer
- Leverage scientific expertise through joint research efforts
- Increase momentum to bring combinations to the market



## Build new commercialization strength

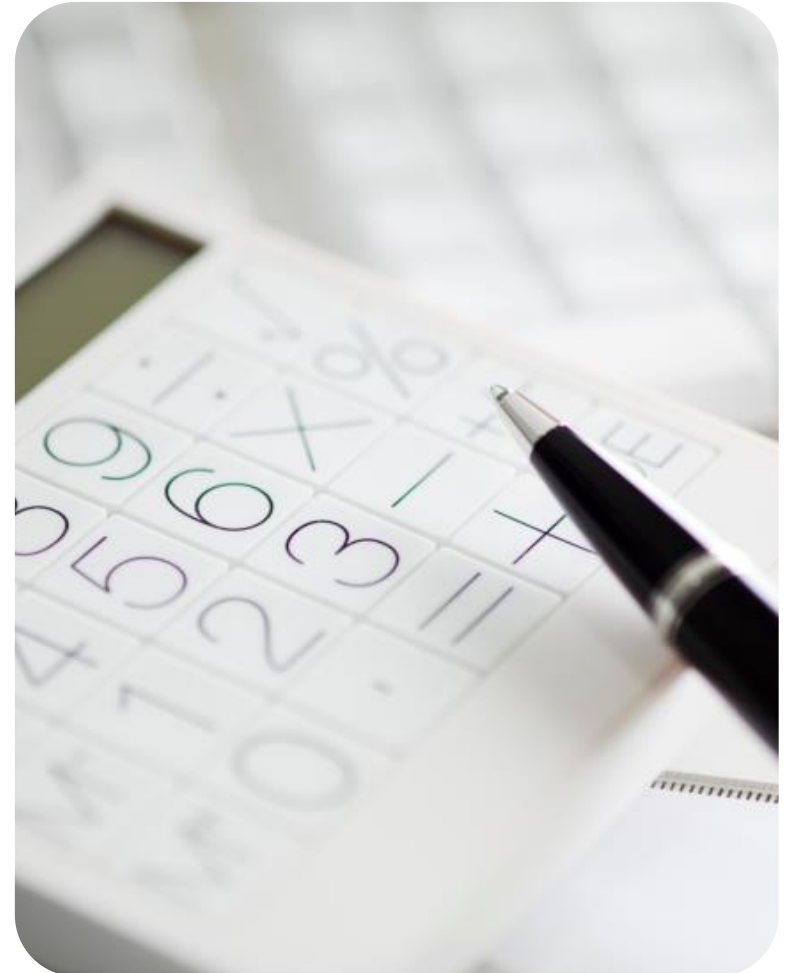


- Co-commercialization of Xalkori in major markets
- Build up Oncology infrastructure and capabilities, especially in North America
- Broaden experience and knowledge base in advance of potential Avelumab launch
- Additional income stream to drive R&D activities



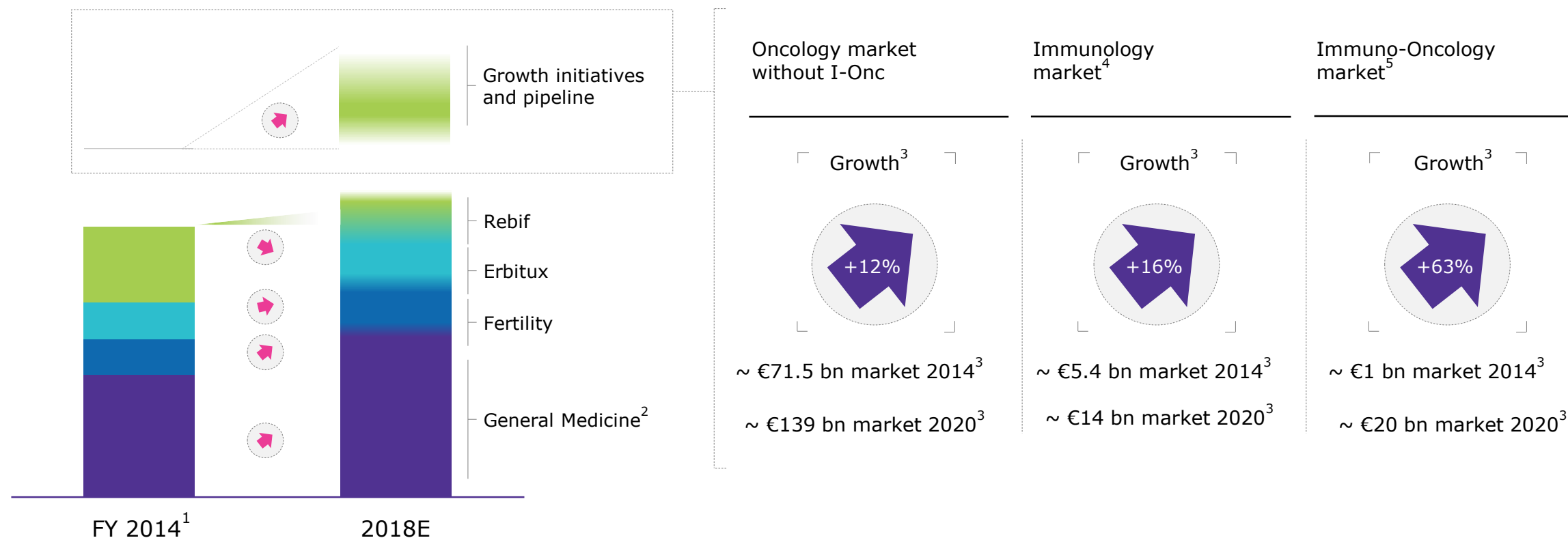
## Financial implications of the deal with Pfizer

- ▶ \$850 m upfront cash payment, accrual to be released over several years
- ▶ ~50:50 R&D Cost split for drug development
- ▶ Milestone payments of up to \$2.0 bn based on filing/approval and commercialization of the compound across various indications & markets
- ▶ Co-commercialization of Xalkori – 2015 reimbursement for ramping up infrastructure and capabilities; followed by profit sharing agreement
- ▶ Following regulatory approval, first potential sales of Anti PD-L1 compound



# We are pursuing attractive growth opportunities with our pipeline

Healthcare investments focused on three attractive market segments

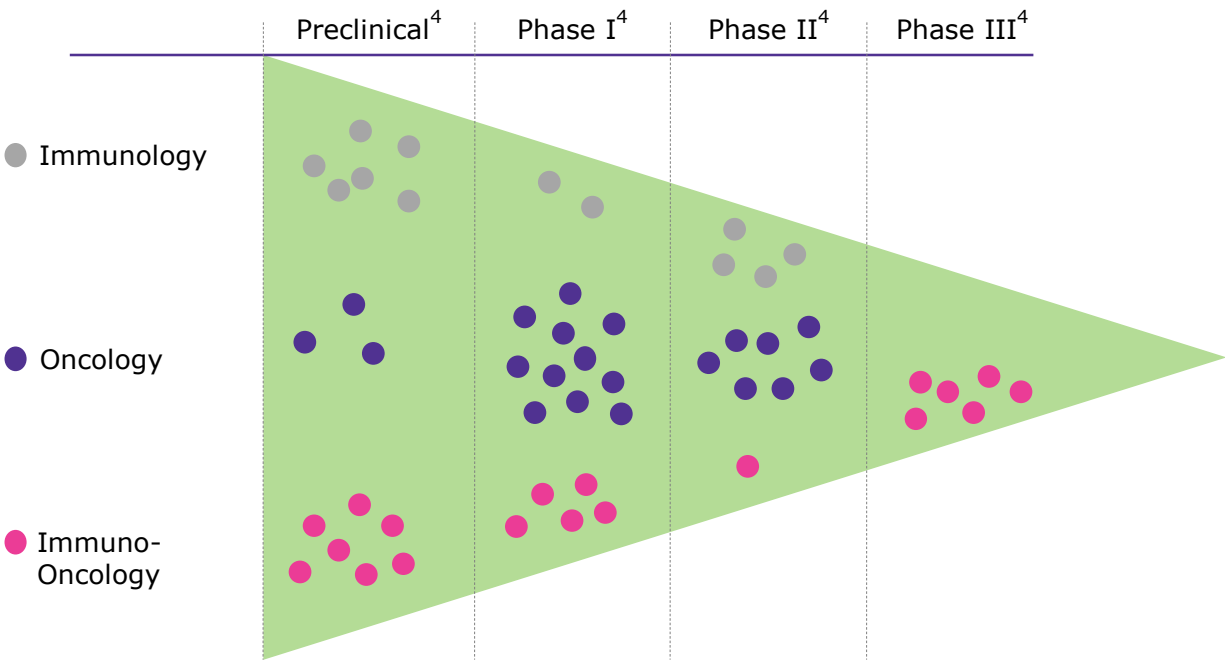
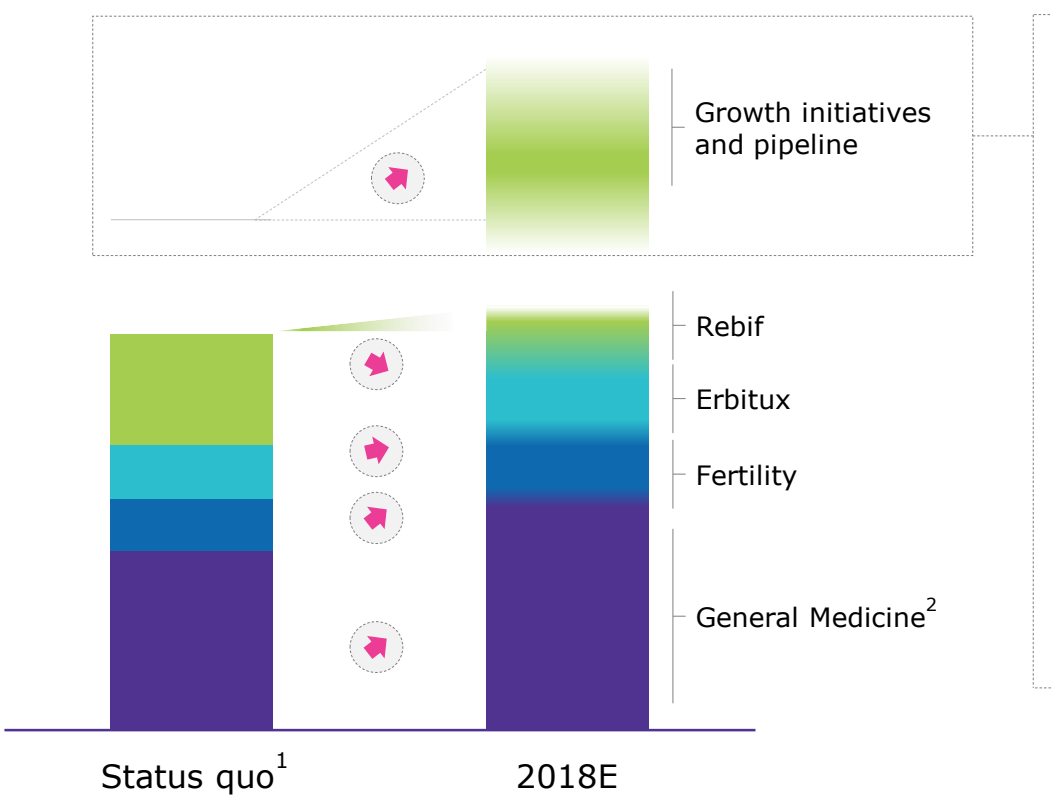


<sup>1</sup>adapted to new Healthcare business sector to include Consumer Health; <sup>2</sup>including Consumer Health, Cardiometabolic Care, Endocrinology, General Medicine and Others; <sup>3</sup>Data for global market 2014, CAGR for 2014-2020; Source: Sales data according to EvaluatePharma®, accessed August 2015; <sup>4</sup>Immunosuppressants Therapeutic Class as defined by EvaluatePharma, excluding ustekinumab; <sup>5</sup>Immuno-oncology (PD-L1, PD-1, CTLA-4, OX-40, IDO, CAR T cells)



# New revenue streams from pipeline projects and additional growth initiatives

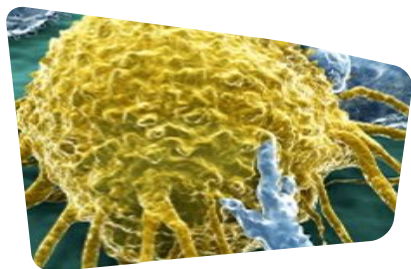
## Broad and well structured pipeline



<sup>1</sup>FY 2014; adapted to new Healthcare business sector to include Consumer Health; <sup>2</sup>including Consumer Health, Cardiometabolic Care, Endocrinology, General Medicine and Others; <sup>4</sup>Number of trials initiated/ongoing as of December 2015

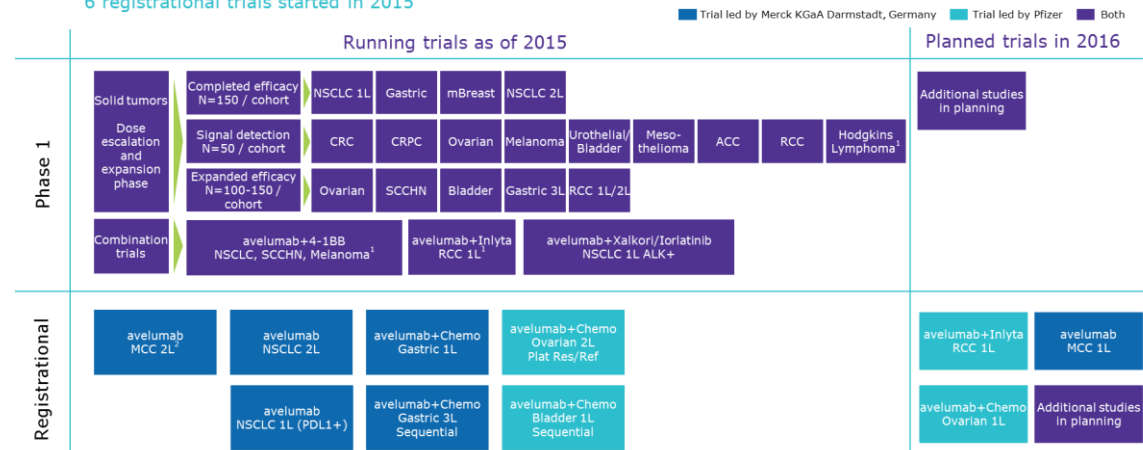
# New revenue streams from pipeline expected from 2017/2018 onwards

## avelumab



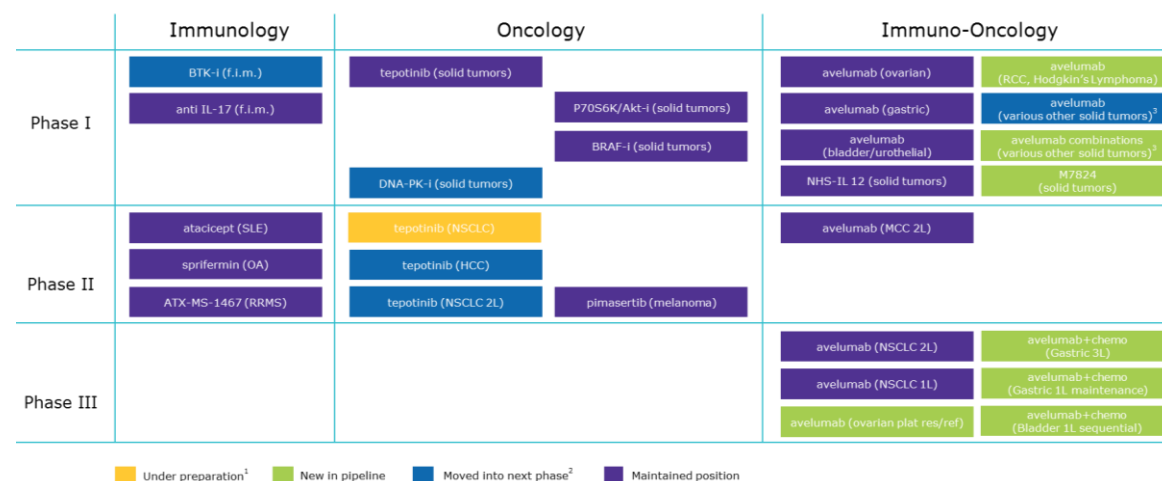
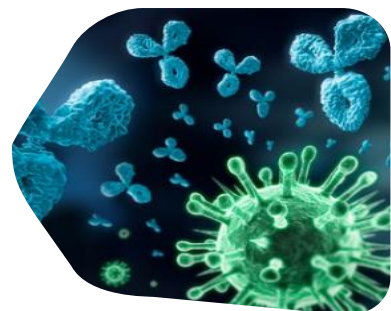
- 6 pivotal trials initiated in 2015 (NSCLC 1L/2L, ovarian platinum resistant/refractory, gastric 1L/3L, bladder 1L)
- Breakthrough therapy and Fast track designations (US) for mMCC received, Orphan Drug Designation (US and EU)
- Initiation of more than 20 clinical programs together with Pfizer across more than 15 tumor indications in 2015
- Collaboration with Syndax evaluating avelumab in combination with entinostat in ovarian cancer

6 registrational trials started in 2015



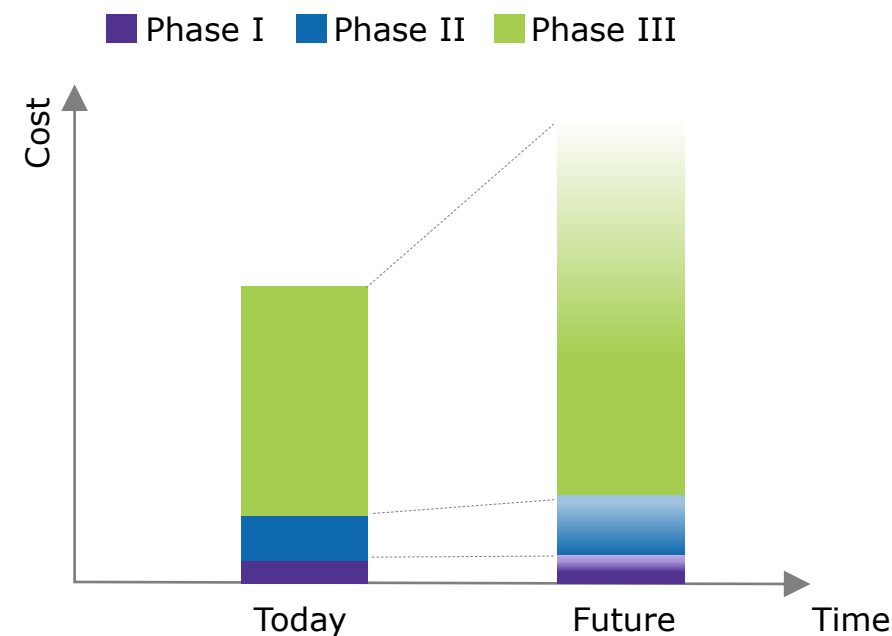
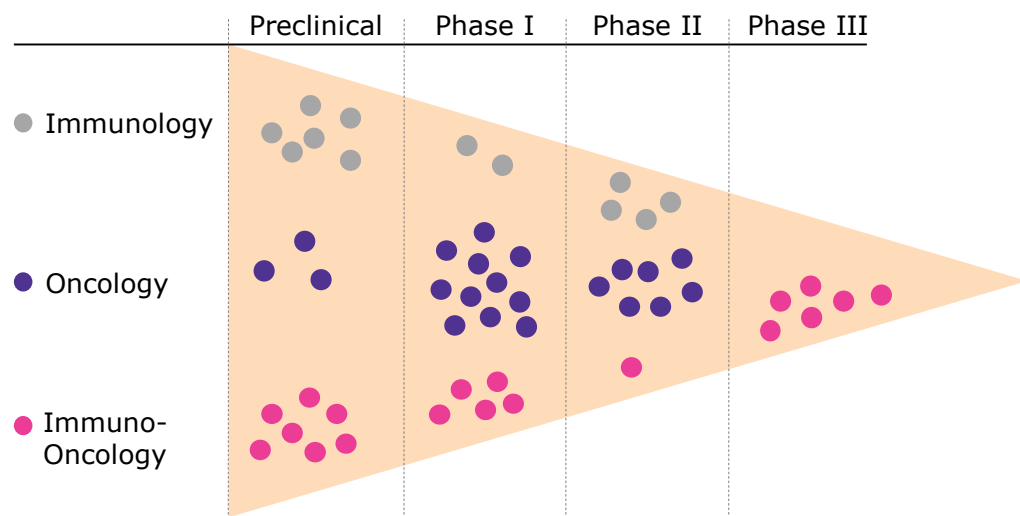
## selected R&D projects

- **Atacicept**: study enrolment completed ahead of schedule, data readout Phase II in H2 2016
- **BTK inhibitor**: explore options for partnering
- **M7824**: Phase I dose escalation for our first in class bi-functional fusion-protein targeting PD-L1 and TGF-β
- **Tepotinib**: Phase II data in hepatocellular carcinoma expected in H2 2016
- **Cladribine**: EU filing expected in H1 2016, other geographies under review



# The prioritization of our pipeline projects ensures efficient capital allocation

## clinical development strategy



- Stringent prioritization and evaluation of value proposition of pipeline assets
- Rich pool of early stage opportunities – clinical decision making based on low investments
- Lean to PoC (Proof of concept) approach

- Need for investment increases along with maturity of clinical programs
- Funding of pipeline assets clearly linked to clinical data
- Investments fueling future growth and profitability in Healthcare

# Several pipeline compounds have advanced and will add to long-term momentum

## Avelumab

- Thought to block interaction of PD-L1 with known ligand PD-1
- May enable the activation of T-cells and the adaptive immune system
- Under investigation in more than 15 tumor types

## Bi-functional immunotherapy – M7824

- Dual-acting fusion protein neutralizes two immuno-inhibitory pathways
- Expected to control tumor growth by restoring and enhancing innate and adaptive anti-tumor immune responses

## NHS-IL12 – M9241

- Investigational cancer immunotherapy designed to target the DNA fragments released from the dead and dying (necrotic) cells found in the context of many solid tumors.



## DNA-PK inhibitor - M3814

- Small molecule inhibitor of key enzyme in double strand break (DSB) repair pathway

## Tepotinib/ C-Met Inhibitor

- Investigational small molecule inhibitor of the c-Met receptor tyrosine kinase

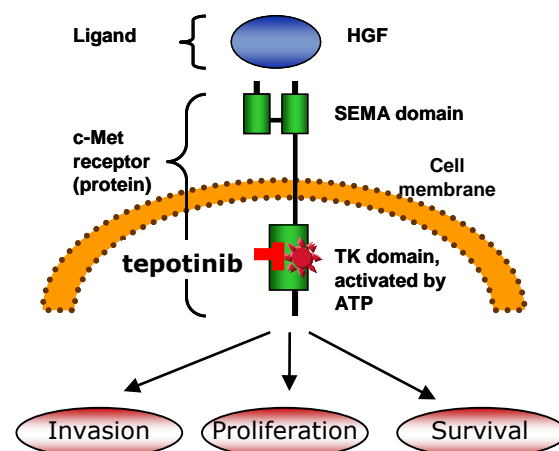
## BTK inhibitor – M2951

- Selective inhibitor of bruton tyrosine kinase (BTK); important in the development of immune cells

# Tepotinib – leveraging biomarker science to achieve growth inhibition and regression of tumors

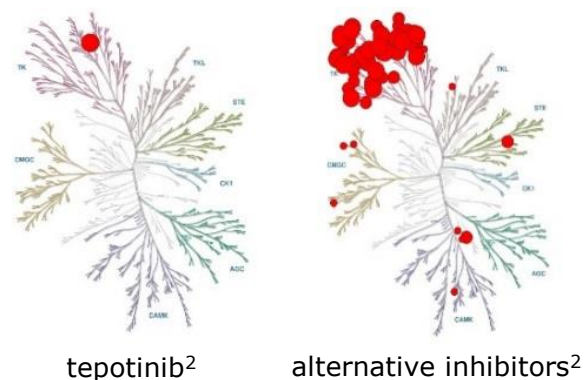
## Potential mechanism

- c-Met receptor tyrosine kinase is thought to control key signaling pathway in cancer cells
- Pathway frequently deregulated in human cancer at ligand (HGF) and receptor (c-Met) levels
- In pre-clinical models, tepotinib as small molecule kinase inhibitor of c-Met causes growth inhibition and regression of tumors



## Potential for differentiation

- Highly selective and potent kinase inhibitor – only c-Met is completely inhibited at clinically relevant doses
- Biomarker-driven approach for patient selection: only c-Met positive will be enrolled into tepotinib trials
- c-Met amplification and c-Met and HGF (hepatocyte growth factor) overexpression preclinically validated as predictive biomarker



## Highlights & milestones

- Initiated phase II enrollment in Asia for HCC and EGFR mutant NSCLC, and for HCC in Europe – H1 2015
- Preliminary data show encouraging signs of anti-tumor activity in c-Met positive patients in NSCLC and HCC<sup>3,4</sup>
- Phase I first-in-man trial: 76% of patients had no drug-related adverse events >Grade 1<sup>5</sup>

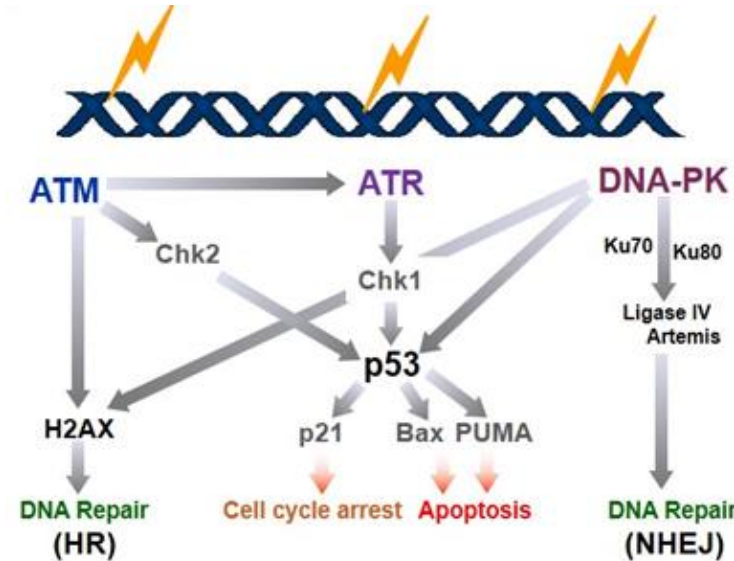
## Timelines<sup>1</sup>

- Phase II: NSCLC 2L: final analysis expected for end of 2017
- Phase II: HCC 1L, HCC 2L: interim analysis in H2 2016, and final analysis expected for H2 2017
- 2<sup>nd</sup> NSCLC trial under preparation for Phase II

# DNA-PK inhibitor – targeting DNA double strand break (DSB) repair for cancer therapy

## Potential mechanism

- DNA-PK is a relevant enzyme in an important DSB repair pathway
- DNA-PK inhibitor M3814 is thought to delay DNA repair of DSB and may potentiate the antitumor effect of radiotherapy
- M3814 may also have activity as single agent in cancers with dysfunctional DNA repair pathways



## Highlights & milestones

- 100% cure rate in a head & neck cancer model in combination with radiotherapy in a clinically relevant setting (5x2 Gy/week for 6 weeks)
- Combination with radiotherapy may open a broad range of applications
- First in man, Phase Ia monotherapy trial: 3<sup>rd</sup> dose level completed without DLTs, 4<sup>th</sup> dose level fully recruited
- Phase Ia dose escalation trial in combination with radiotherapy open for recruitment

## Potential for differentiation

- Potential for First-in-Class orally administered selective DNA-PK inhibitor
- Potentially enhances the efficacy of many commonly used DNA damaging agents, such as radiotherapy and chemotherapies
- Strong preclinical proof-of-concept showing complete responses and/or increased progression-free survival in combination with radiotherapy in several xenograft models (SCCHN, NSCLC, CRC, PaCa)

## Timelines\*

- First patient cohort in radiotherapy combination trial (Phase I) to be recruited within next 1-2 quarters
- Phase Ib expansion cohorts: Solid tumors, CLL: First patient in H2 2016; Key data / statistics expected for H2 2017

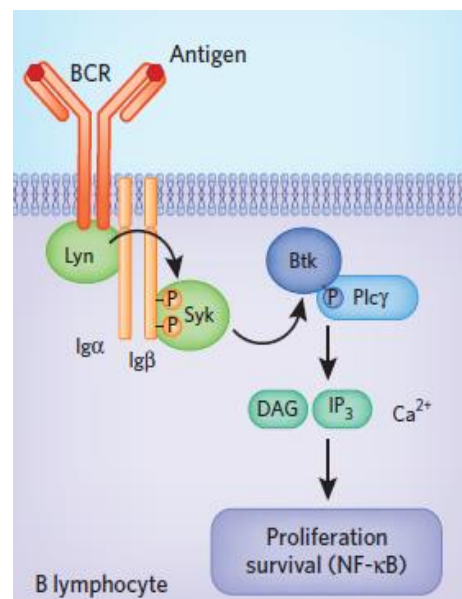
# BTK inhibitor – selective inhibitor

## Potential mechanism

- BTK is expressed by multiple cell types, including B lymphocytes and macrophages
- BTK may play an important role in B cell development, differentiation, activation, class-switching, proliferation, survival and cytokine release
- BTK-i is thought to suppress autoantibody-producing cells in RA and SLE; preclinical research suggests this may be therapeutically useful in certain autoimmune diseases

## Potential for differentiation

- Highly differentiated and selective inhibitor
- BTK inhibitor demonstrates promising kinase selectivity profile
- Good cellular assay target profile for B and T cell interactions
- Aim to achieve best in class through minimization of off-target effects



## Highlights & milestones

- BTK seems to prevent immune complex-mediated signalling and production of inflammatory cytokine in macrophages and glycoprotein VI signalling in platelets
- High and differentiated efficacy in preclinical models
- Second differentiated BTK molecule (M7583) moving into oncology clinical development in 2016

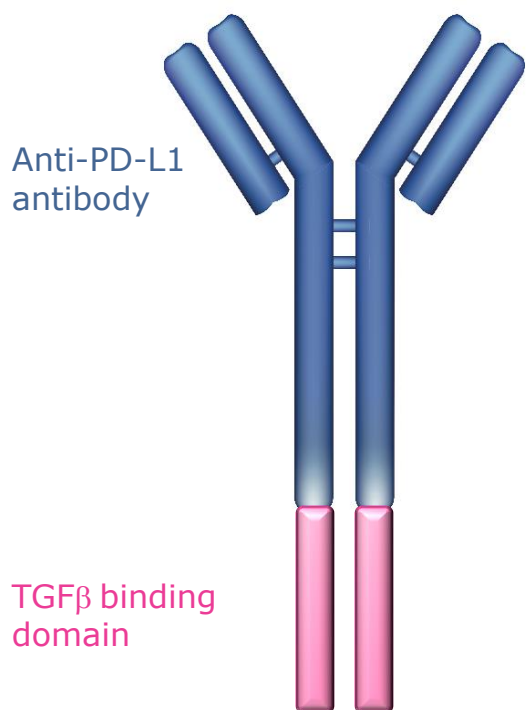
## Timelines<sup>1</sup>

- Phase I (M2951), SAD/MAD/Food effect studies completed
- Phase Ib SLE start Oct 2015
- Phase IIa RA<sup>2</sup> start H1 2016

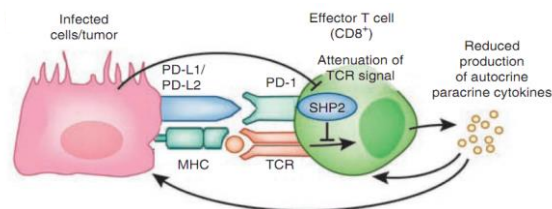


# M7824 – First-in-class bi-functional fusion protein targeting PD-L1 and TGFβ

## Mechanism of Action

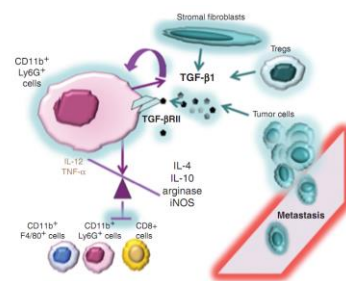


### PD-1/PD-L1 immune checkpoint<sup>1</sup>



- Is thought to bind to tumor expressed PD-L1 preventing its engagement to the immuno-inhibitory receptor PD-1 on activated T cells
- Has the potential to avert the shut down of T cell effector function

### TGFβ immunosuppressive cytokine<sup>2</sup>



- “Traps” TGFβ produced by tumor cells, stromal cells, myeloid-derived suppressor cells and Tregs
- Is thought to block suppression of innate and adaptive anti-tumor immunity through TGFβ removal

**M7824 addresses two immuno-inhibitory pathways and has the potential to control tumor growth by restoring and enhancing anti-tumor immune responses**



# Preclinical data show superior efficacy of M7824 over single agent PD-L1 or TGF $\beta$ blockade justifying rapid clinical development

## potential for differentiation

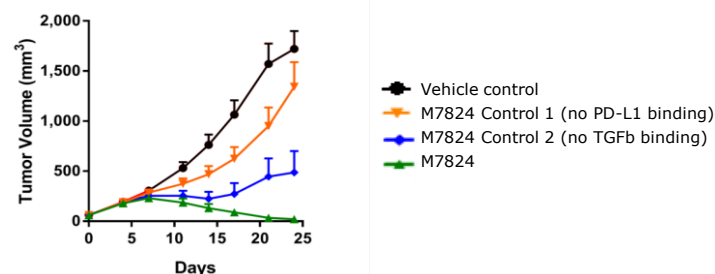
- Preclinical research indicates enhanced anti-tumor activity compared to PD-L1 or TGF $\beta$  inhibition alone with complete responses seen in some in vivo models
- M7824 can induce anti-tumor immunity as shown in a tumor re-challenge setting in these models

## highlights & milestones

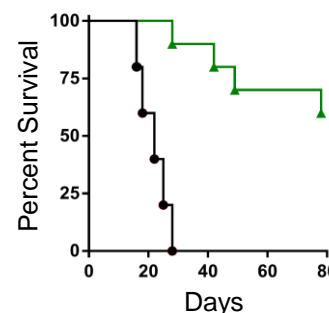
- Moved from preclinical to First-in-Human within 11 months
- Second dose level of Phase I completed by January 2016\*
- Expansion cohorts expected to start in H2 2016\*

## EXAMPLE: EMT-6 BREAST CANCER MODEL

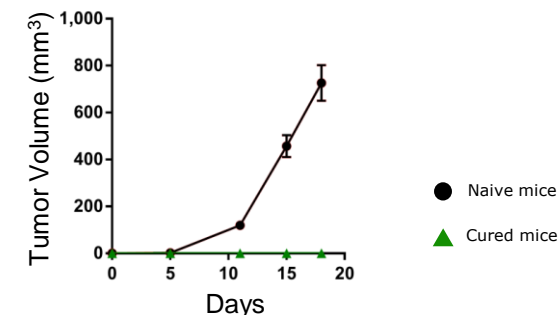
### Tumor growth inhibition



### Survival



### Tumor re-challenge



**Bifunctional mode of action of M7824 should result in broader application compared to respective monofunctional agents**

# CAR-T – T-Cell therapies could be the next cornerstone of cancer immunotherapy

## CAR-T – Intrexon



### Potential for differentiation

- Possibility to improve safety profile of CAR-Ts through switch that could activate/modulate T-cell expression (Intrexon's proprietary RheoSwitch platform)
- Opportunity to solid tumors
- Possible combination with avelumab or next-generation checkpoint inhibitors
- Current CAR-T treatments are unique to each patient; Intrexon therapy is engineered with potential to be infused back to universal, "off-the-shelf" treatment (i.e. allogeneic)

### Potential mechanism

- Chimeric Antigen Receptor T-cell (CAR-T) therapy harnesses a patient's own immune system to direct it specifically against tumor cells
- CAR-T cells are genetically engineered to recognize a specific antigen expressed on tumor cells and trigger immunological attack

### Highlights & milestones

- Considered as next cornerstone of cancer immunotherapy
- CAR-T cells have shown clinical response rate with up to 91% complete remission in certain hematological indications (ALL)
- Technology has potential to address limitations of 1<sup>st</sup>/2<sup>nd</sup> generation gene and cell-based therapy

### Timelines<sup>1</sup>

- 2016: Preclinical/clinical development to CAR-T cells safer based on existing design targeting hematological tumors
- 2017: Test next-gen CAR-T cells for efficacy in solid tumors

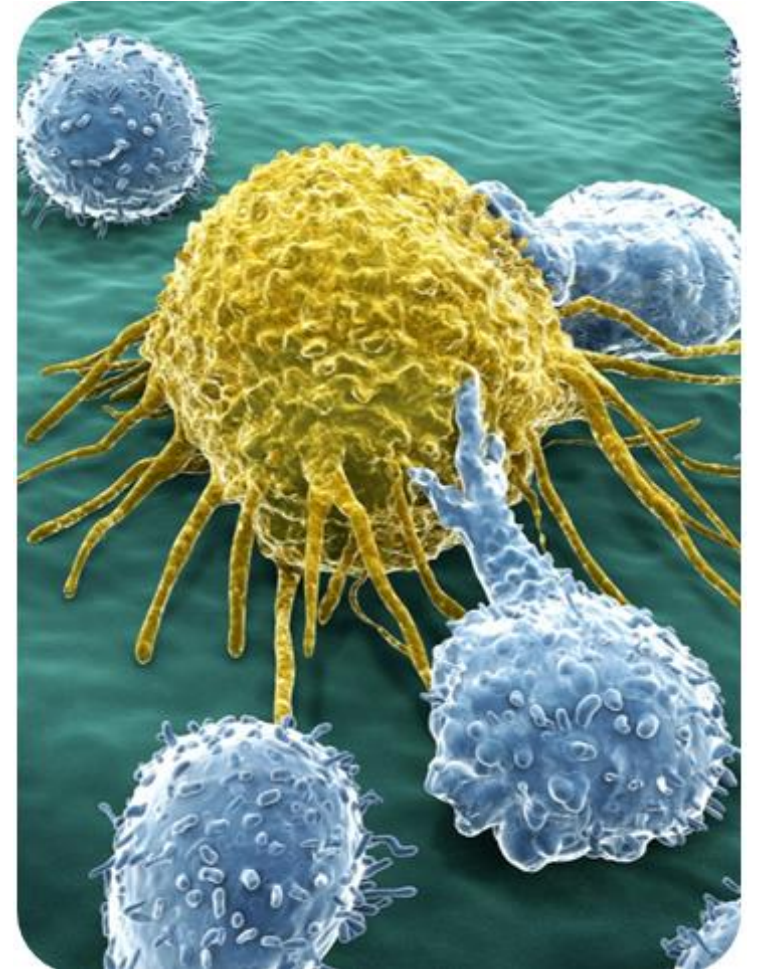
# Avelumab – milestones and next steps

## Key milestones so far

- 6 pivotal trials initiated in 2015 (NSCLC 1L/2L, ovarian platinum resistant/refractory, gastric 1L/3L, bladder 1L)
- Breakthrough therapy and Fast track designations (US) for mMCC received, Orphan Drug Designation (US and EU)
- Initiation of more than 20 clinical programs together with Pfizer across more than 15 tumor indications in 2015
- Collaboration with Syndax evaluating avelumab in combination with entinostat in ovarian cancer
- Promising clinical activity in several indications

## Next steps

- Additional Phase III and combination studies to start in 2016
- Enrolment of >3,000 patients by 2016
- First potential commercial launch of avelumab in 2017; working toward at least one additional potential launch per year through 2022



# Going forward, the differentiation strategy for the alliance is fueled by the potential for combination



2015

- Phase II 2L MCC BTD, ODD and FTD received
- Phase III 1L and 3L gastric cancer
- Phase III 1L and 2L NSCLC
- Phase I Hodgkins Lymphoma

## CHEMOTHERAPY

- Phase III 1L Bladder maintenance
- Phase III Ovarian Plat res/ref

## NOVEL/NOVEL

- Phase I avelumab combined with 4-1BB in NSCLC, SCCHN and Melanoma
- Phase I 1L NSCLC ALK/ROS+

2016

- Initiation of phase III 1L MCC
- Further studies under preparation

- Initiation of phase III 1L ovarian cancer
- Further phase III studies under preparation

- Start of Syndax collaboration for a phase Ib/II in ovarian cancer
- Further exploratory and pivotal trials under preparation

Future

**Fast to market with monotherapy**

**Expansion with combinations**  
**Next generation combinations**

# Avelumab shows promising clinical activity in five indications<sup>1</sup> supporting further clinical development

1  
NSCLC

- Treatment with avelumab led to early and durable responses (ORR 14%) as a 2<sup>nd</sup> line treatment
- Longer median PFS and OS were observed for PDL1+ patients
- Phase III head-to-head trial of avelumab vs docetaxel in patients with recurrent NSCLC is underway

2  
Ovarian

- Largest reported dataset<sup>2</sup> of patients with advanced ovarian cancer treated with anti-PD-(L)1
- Treatment with avelumab showed clinical activity (ORR 11%) in heavily pre-treated patients
- Phase III clinical development is planned

3  
Gastric

- Largest reported dataset<sup>2</sup> of patients with advanced gastric cancer treated with anti-PD-(L)1
- Treatment with avelumab as a 2<sup>nd</sup> line treatment showed clinical activity (ORR 15%)
- Disease stabilization was also observed in a SwM (switch-maintenance therapy) group

4  
Urothelial / Bladder

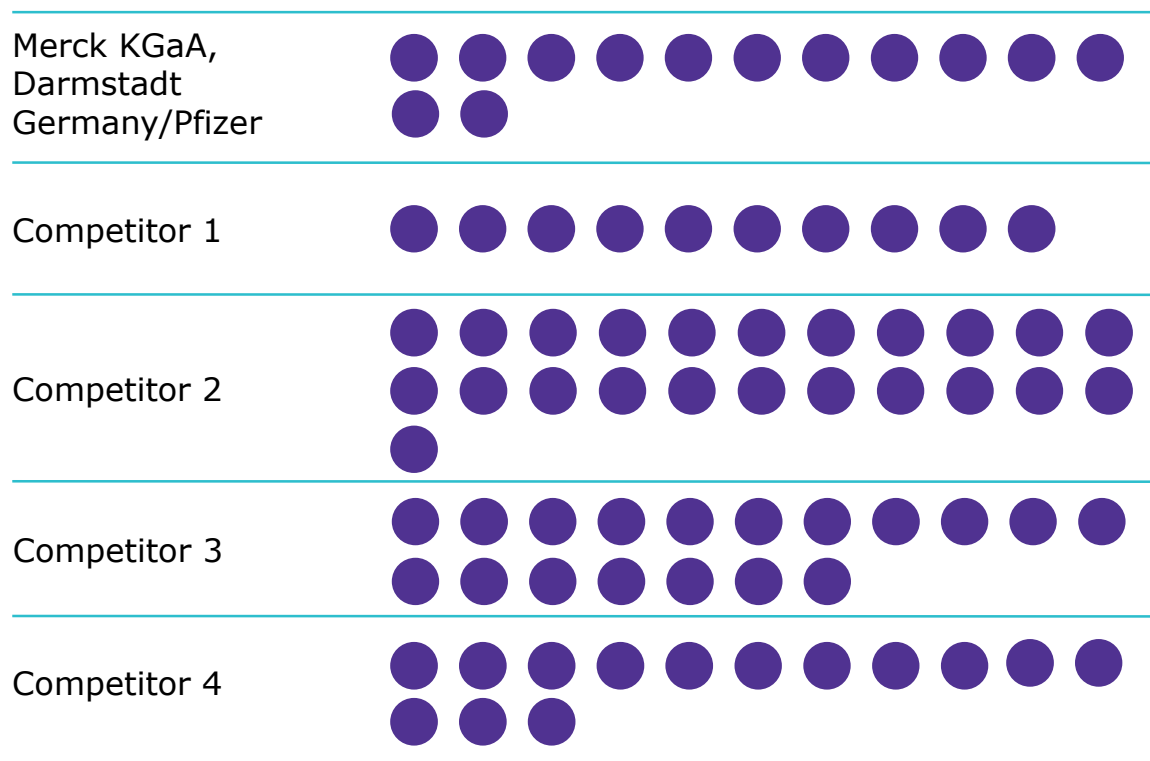
- Treatment with avelumab led to early and durable responses (ORR 19%)
- Biomarkers from tumor tissue and blood samples are under evaluation

5  
Mesothelioma

- Treatment with avelumab in heavily pre-treated patients with advanced unresectable tumors led to:
- Partial responses in 3 patients (15.0%); all ongoing at time of analysis
- Disease control rate for patients 60.0% (partial response and stable disease)

# Avelumab development program covers a broad range of tumor types

Total # of tumor types targeted with PDL1 compounds



- Avelumab is well represented and is currently investigated across more than 15 tumor types and lines of therapy
- It tackles a similar range as competitive products in the field of checkpoint inhibitors
- Significant progress made until 1 Oct. 2015 and expected to be made until the end of 2015 and into 2016:
  - Confident to start up to 6 registrational trials in 2015
  - Up to 25 trials until ASCO 2016 as single-agent and combination therapy



# Avelumab – Differentiation strategy varies according to chosen target indication and market

## Ambition: Smart leader

**1**  
**Unsaturated  
and / or niche  
indications**

- Indications (Merkel cell) or markets (Asia for gastric)
- Quick to market strategy, e.g. BTD for MCC in November 2015
- Small, but less crowded markets and sales potential with notable impact for us
- Strategic strength of Healthcare in niche markets

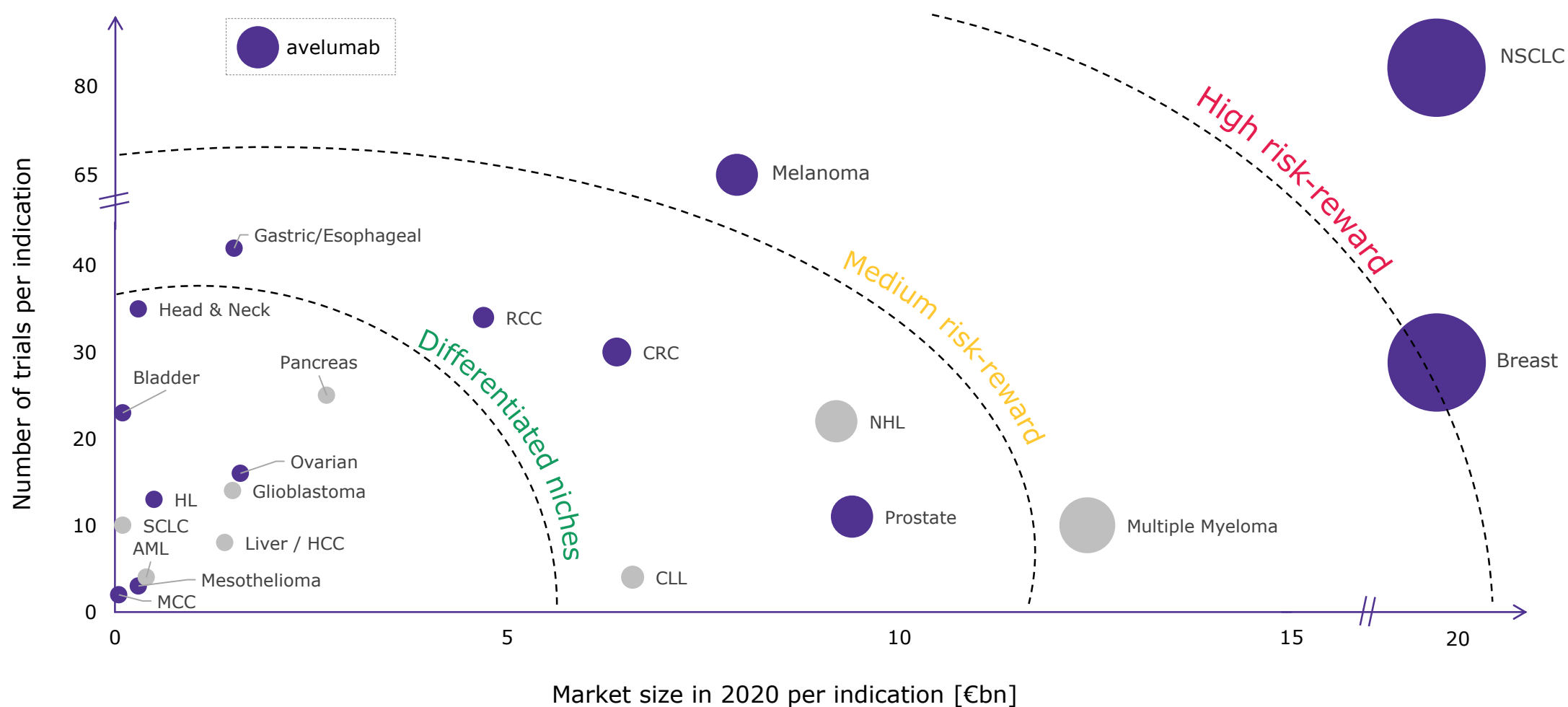
## Ambition: Smart follower

**2**  
**Saturated  
and / or major  
indications**

- Indications such as NSCLC or Bladder
- Learn from experience of incumbents/early movers
- Potential for combinations given breadth of combined development pipelines, e.g. lung
- Differentiate in trial design and explore application of further biomarkers



# Avelumab plays predominantly in attractive and differentiated niches



Sources: Trialtrave and Cortellis as of September 2015, Boston Consulting Group, Evaluate Pharma forecast 2020  
 Acronyms: SCLC = Small Cell Lung Cancer; HL = Hodgkins Lymphoma; NHL = Non Hodgkins Lymphoma; AML = Acute Myeloid Leukaemia



## The alliance met its ambitious goal in 2015: the initiation of 6 pivotal trials

AMBITION			
1 Ovarian Plat res/ref	<ul style="list-style-type: none"><li>Estimated patient enrolment: 550</li><li>Comparator: Pegylated liposomal doxorubicin</li><li>Estimated primary completion: H1 2018*</li></ul>	✓	Smart leader
2 Bladder 1L maint.	<ul style="list-style-type: none"><li>Estimated patient enrolment: 668</li><li>Comparator: Best supportive care</li><li>Estimated primary completion: H1 2019*</li></ul>	✓	Smart follower
3 Gastric 1L maint.	<ul style="list-style-type: none"><li>Estimated patient enrolment: 629</li><li>Comparator: Physician's choice of chemotherapy/BSC</li><li>Estimated primary completion: H2 2018*</li></ul>	✓	Smart leader
4 Gastric 3L	<ul style="list-style-type: none"><li>Estimated patient enrolment: 330</li><li>Comparator: Physician's choice of chemotherapy/BSC</li><li>Estimated primary completion: H1 2018*</li></ul>	✓	Smart leader
5 NSCLC 1L	<ul style="list-style-type: none"><li>Estimated patient enrolment: 420</li><li>Comparator: Physician's choice of platinum containing chemotherapy</li><li>Estimated primary completion: H1 2018*</li></ul>	✓	Smart follower
6 NSCLC 2L	<ul style="list-style-type: none"><li>Estimated patient enrolment: 650</li><li>Comparator: docetaxel/chemotherapy</li><li>Estimated primary completion: H2 2021*</li></ul>	✓	Smart follower

# Clinical pipeline

## Phase I

**Tepotinib**  
**c-Met kinase inhibitor**  
Solid tumors  
**M2698**  
**p70S6K & Akt inhibitor**  
Solid tumors  
**M3814**  
**DNA-PK inhibitor**  
Solid tumors  
**Beigene-283**  
**BRAF inhibitor**  
Solid tumors

**Avelumab<sup>1</sup>**  
**Anti-PD-L1 mAb**  
Solid tumors  
**M9241 (NHS-IL12)<sup>2</sup>**  
**Cancer immunotherapy**  
Solid tumors  
**M7824**  
**Bifunctional immunotherapy**  
Solid tumors

**M1095 (ALX-0761)**  
**Anti-IL-17 A/F nanobody**  
Psoriasis  
**M2951**  
**BTK inhibitor**  
Systemic lupus erythematosus

## Phase II

**M2736 (ATX-MS-1467)**  
**Immune tolerizing agent**  
Multiple sclerosis

**Tepotinib**  
**c-Met kinase inhibitor**  
Non-small cell lung cancer  
**Tepotinib**  
**c-Met kinase inhibitor**  
Hepatocellular cancer

**Avelumab<sup>1</sup>**  
**Anti-PD-L1 mAb**  
Merkel cell carcinoma

**Sprifermin**  
**Fibroblast growth factor 18**  
Osteoarthritis  
**Atacicept**  
**Anti-Blys/anti-APRIL fusion protein**  
Systemic lupus erythematosus

## Phase III

**Avelumab<sup>1</sup> – Anti-PD-L1 mAb**  
Non-small cell lung cancer 1L<sup>3</sup>  
**Avelumab<sup>1</sup> – Anti-PD-L1 mAb**  
Non-small cell lung cancer 2L<sup>4</sup>  
**Avelumab<sup>1</sup> – Anti-PD-L1 mAb**  
Gastric cancer 1L<sup>3</sup>  
**Avelumab<sup>1</sup> – Anti-PD-L1 mAb**  
Gastric cancer 3L<sup>5</sup>  
**Avelumab<sup>1</sup> – Anti-PD-L1 mAb**  
Bladder cancer 1L<sup>3</sup>  
**Avelumab<sup>1</sup> – Anti-PD-L1 mAb**  
Ovarian cancer platinum resistant/refractory

## Registration

**Cladribine Tablets<sup>6</sup> –**  
**Lymphocyte targeting agent**  
Relapsing-remitting multiple sclerosis

- Neurodegenerative Diseases
- Oncology
- Immunology
- Immuno-Oncology

Pipeline as of March 8<sup>th</sup>, 2016

Pipeline products are under clinical investigation and have not been proven to be safe and effective.  
There is no guarantee any product will be approved in the sought-after indication.

<sup>1</sup>Avelumab is the proposed International Non-proprietary Name (INN) for the anti-PD-L1 monoclonal antibody (previously known as MSB 0010718C);

<sup>2</sup>Sponsored by the National Cancer Institute (USA); <sup>3</sup>First Line treatment; <sup>4</sup>Second Line treatment; <sup>5</sup>Third Line treatment

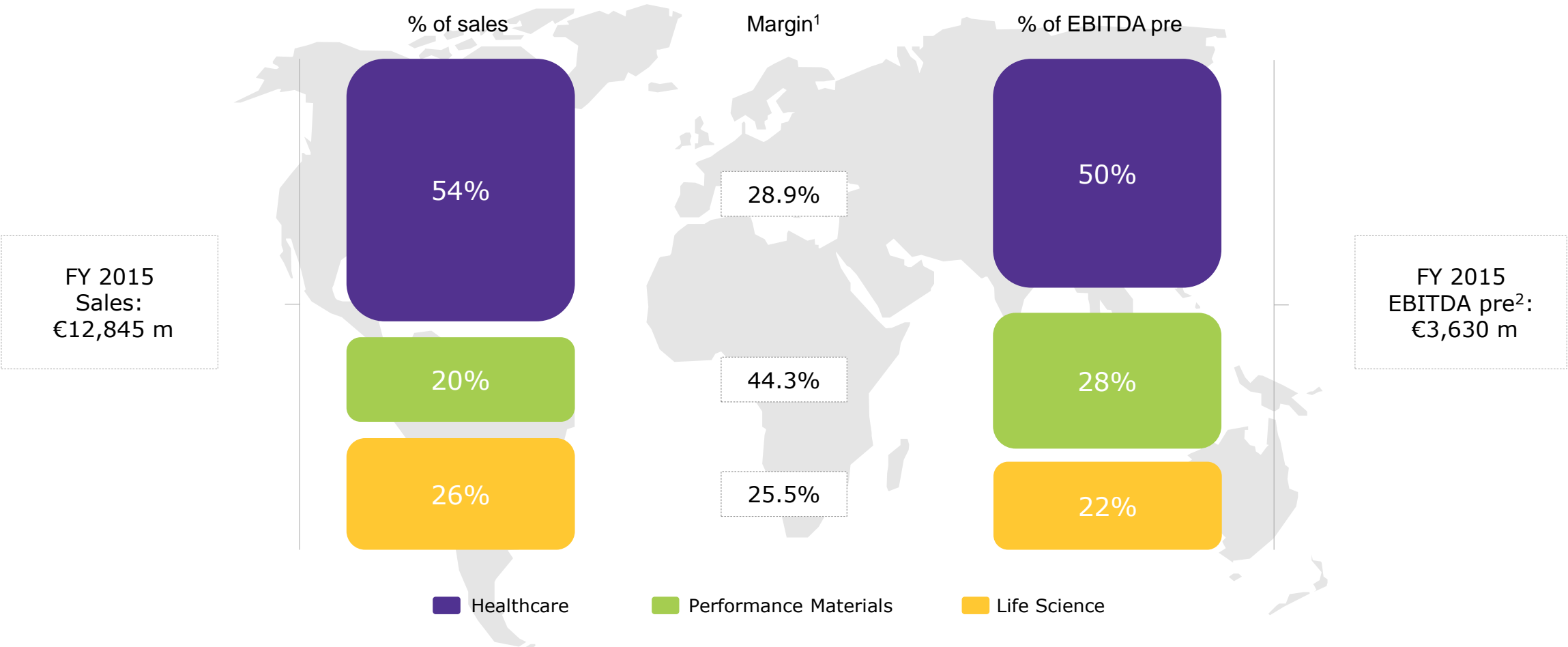
<sup>6</sup>As announced on September 11th, 2015 Merck KGaA Darmstadt, Germany is preparing a regulatory submission to the European Medicines Agency



05

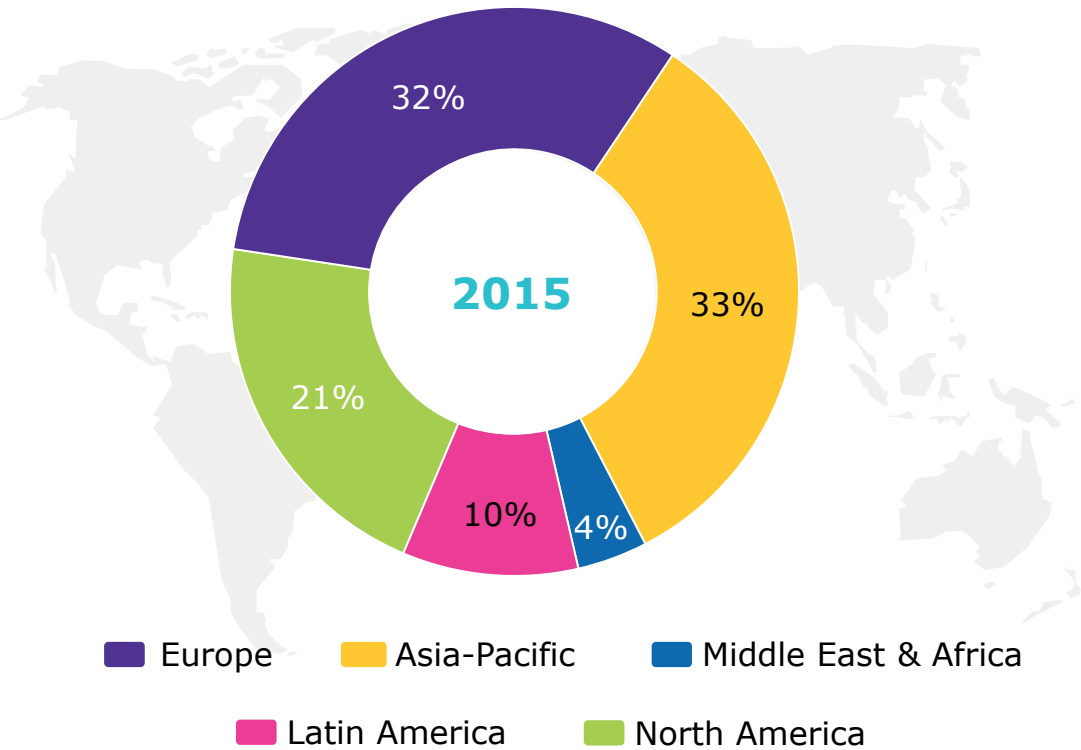
## FINANCIAL DETAILS

# Strong businesses with attractive margins

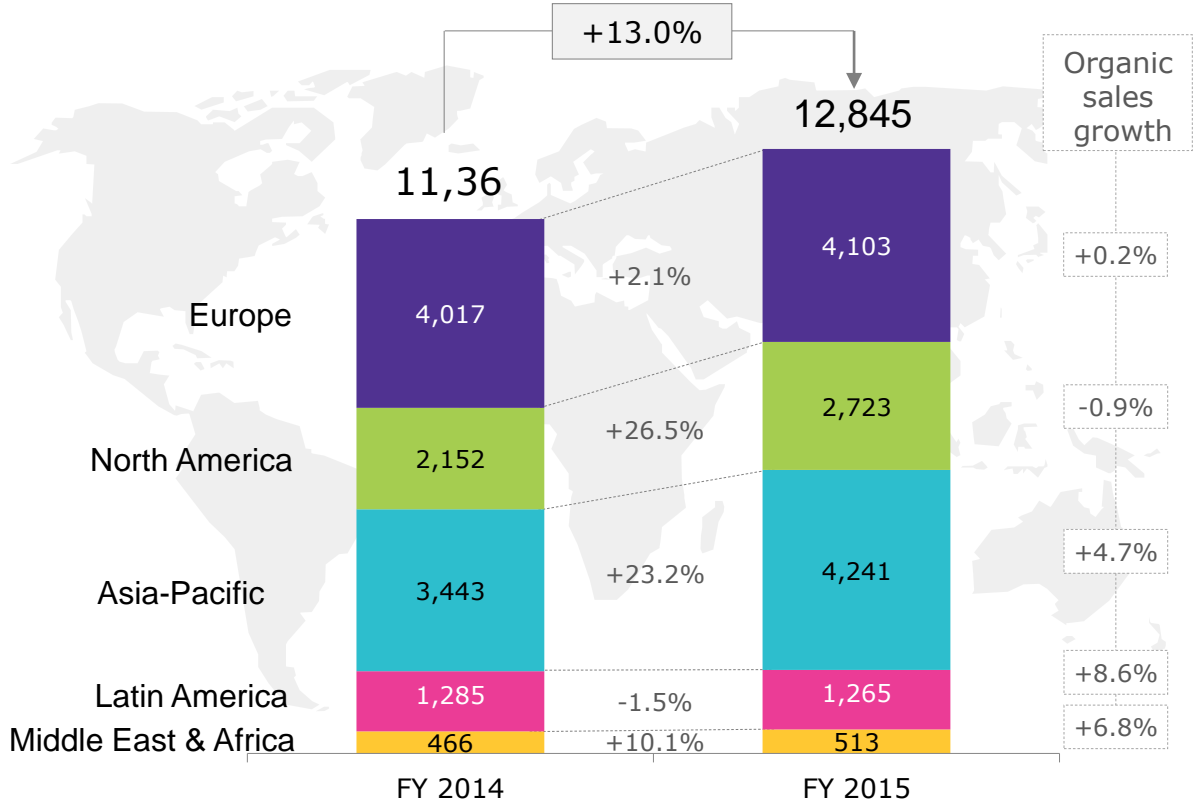


# APAC, LatAm and MEA drive organic sales growth

Group FY 2015 net sales by region



Regional development of FY 2015 net sales [€ m]



# Q4 2015 overview

## Key figures

[€m]	Q4 2014	Q4 2015	Δ
Net sales	2,999	<b>3,464</b>	15.5%
EBITDA pre	878	<b>933</b>	6.3%
Margin (in % of net sales)	29.3%	26.9%	
EPS pre	1.14	<b>1.13</b>	-0.9%
Operating cash flow	1,141	<b>718</b>	-37.1%

[€m]	Dec. 31, 2014	Dec. 31, 2015	Δ
Net debt	559	<b>12,654</b>	>100%
Working capital	2,356	<b>3,448</b>	46.4%
Employees	39,639	<b>49,613</b>	25.2%

## Comments

- EBITDA pre increase driven by good organic performance, Sigma and FX
- Margin reflects Healthcare investments and corporate initiatives
- EPS pre burdened by higher financial result
- Operating cash flow healthy, prior year contains Pfizer upfront payment
- Net financial debt reflects Sigma
- Working capital increase driven by first time consolidation of Sigma and FX
- ~9,000 employees from Sigma added

# Sales and EBITDA pre growth mainly driven by Life Science

## Q4 2015 YoY net sales

	Organic	Currency	Portfolio	Total
Healthcare	2.6%	-1.5%	0.0%	<b>1.2%</b>
Life Science	8.1%	6.0%	39.5%	<b>53.6%</b>
Performance Materials	-0.8%	10.4%	1.8%	<b>11.5%</b>
Group	3.3%	2.6%	9.7%	<b>15.5%</b>

## Q4 YoY EBITDA pre contributors [€ m]



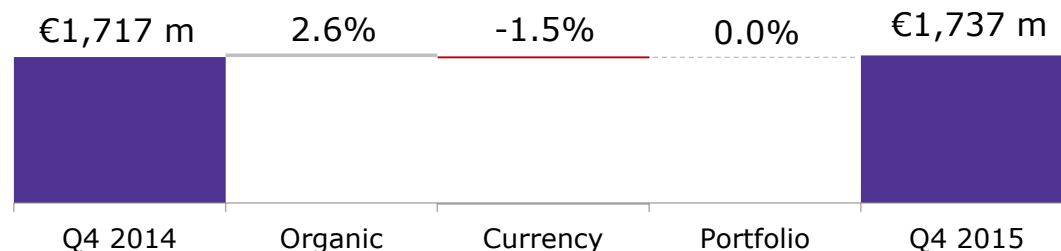
- Organic Growth in Fertility and General Medicine more than offset Rebif decline
- Life Science shows strong organic growth driven by all businesses and Sigma
- Performance Materials organically slightly lower; FX tailwinds and small Sigma effect
- Healthcare lower as higher commercial activities offset organic growth
- Life Science increase supported by strong organic performance and Sigma
- Performance Materials reflects FX benefits and ongoing cost discipline
- Hedging losses and corporate initiatives burden Corporate EBITDA pre

# Healthcare: Dynamic development of organic growth drivers

## Healthcare P&L

[€m]	Q4 2014	Q4 2015
Net sales	1,717	<b>1,737</b>
Marketing and selling	-657	<b>-728</b>
Administration	-63	<b>-64</b>
Research and development	-331	<b>-283</b>
EBIT	278	<b>213</b>
EBITDA	515	<b>522</b>
EBITDA pre	530	<b>524</b>
Margin (in % of net sales)	30.9%	<b>30.2%</b>

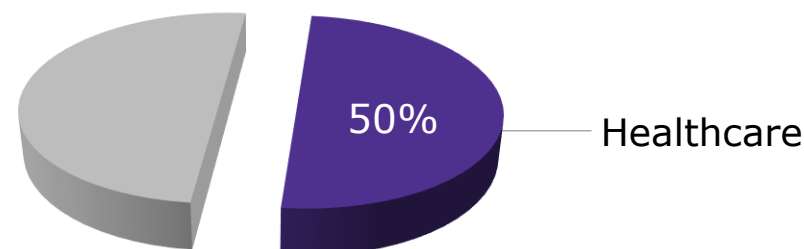
## Net sales bridge



## Comments

- GM, Fertility and Consumer Health continue to drive organic growth
- Rebif shows continuous volume decline in Europe, while U.S. price increases mitigate erosion in North America
- Erbitux stronger due to Q4 pickup in tender business as well as good demand in APAC countries, EU remains competitive
- Marketing & selling reflects repatriations in Russia, Japan and China as well as ramp-up of oncology sales force, Xalkori amortization and FX
- R&D spend impacted by phasing of avelumab trials and shift of Biosimilar Phase III trials to 2016

## Q4 2015 share of group net sales



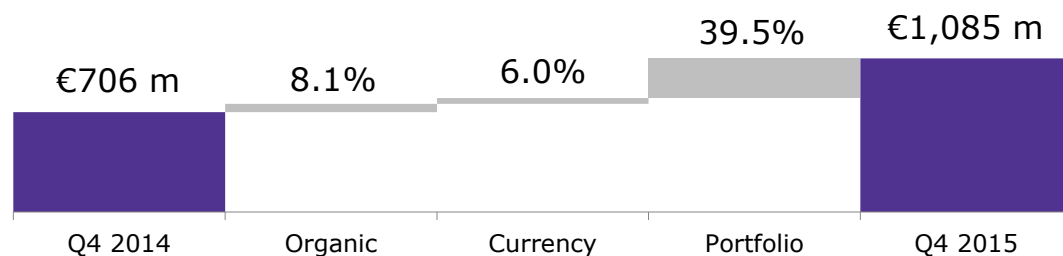


# Life Science: Strong year-end performance thanks to growth in all businesses

## Life Science P&L

[€m]	Q4 2014	Q4 2015
Net sales	706	<b>1,085</b>
Marketing and selling	-235	<b>-324</b>
Administration	-30	<b>-63</b>
Research and development	-43	<b>-59</b>
EBIT	55	<b>34</b>
EBITDA	135	<b>161</b>
EBITDA pre	163	<b>271</b>
Margin (in % of net sales)	23.0%	<b>25.0%</b>

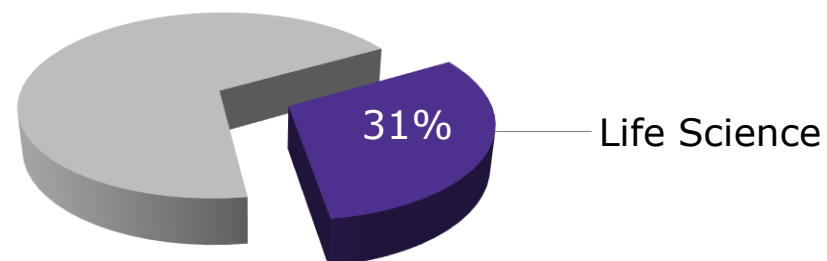
## Net sales bridge



## Comments

- Process Solutions posts double-digit organic growth across all businesses, main contributors are single-use & virus filtration
- Moderate organic growth in Lab Solutions led by U.S. Pharma demand for biomonitoring and lab water consumables
- Bioscience sees organic growth due to sound demand for cell analysis and protein detection systems, partially offset by research content
- Lower EBIT contains integration costs & one-time effects from consolidation of Sigma
- EBITDA pre reflects first Sigma contribution, favorable product mix and pricing but also higher admin

## Q4 2015 share of group net sales

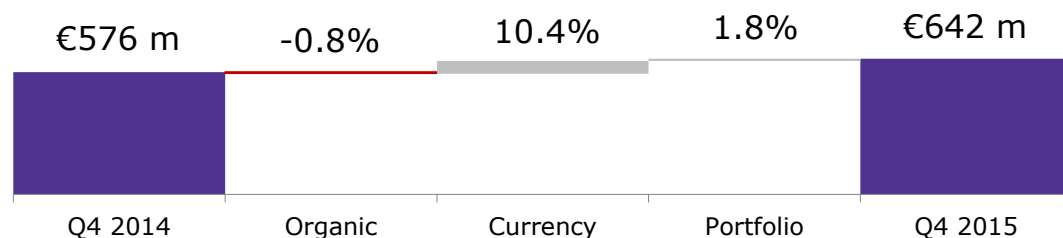


# Performance Materials: Solid performance amid challenging market conditions

## Performance Materials P&L

[€m]	Q4 2014	Q4 2015
Net sales	576	<b>642</b>
Marketing and selling	-49	<b>-54</b>
Administration	-15	<b>-15</b>
Research and development	-48	<b>-52</b>
EBIT	170	<b>193</b>
EBITDA	229	<b>257</b>
EBITDA pre	239	<b>263</b>
Margin (in % of net sales)	41.6%	<b>40.9%</b>

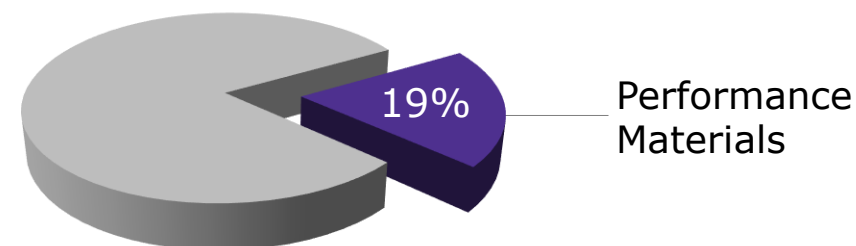
## Net sales bridge



## Comments

- Strong increase in sales reflects FX and Sigma's High-Tech business
- LC<sup>1</sup> with slight organic decline vs. high base, as TN-TFT & typical price declines outweigh volume gains in flagship technologies
- Display industry supply chain inventories remain at high level
- Strong growth in OLED materials driven by ramp-up of market demand
- Pigments and Integrated Circuit Materials growing
- Healthy profitability; further ramp-up of OLED and increase in legal provisions and receivable allowances weigh on Q4 margin

## Q4 2015 share of group net sales



# FY 2015: Overview

## Key figures

[€m]	FY 2014	FY 2015	Δ
Net sales	11,363	<b>12,845</b>	13.0%
EBITDA pre	3,388	<b>3,630</b>	7.1%
Margin (in % of net sales)	29.8%	28.3%	
EPS pre	4.60	<b>4.87</b>	5.9%
Operating cash flow	2,705	<b>2,195</b>	-18.9%

[€m]	Dec. 31, 2014	Dec. 31, 2015	Δ
Net financial debt	559	<b>12,654</b>	>100%
Working capital	2,356	<b>3,448</b>	46.4%
Employees	39,639	<b>49,613</b>	25.2%

## Comments

- EBITDA pre increases, while margin softens due to royalty loss, Rebif decline and higher corporate costs
- EPS pre carries higher interest expenses from Sigma financing
- Operating cash flow burdened by higher tax and interest payments; 2014 included Pfizer upfront payment
- Net financial debt reflects Sigma
- Working capital increase driven by first time consolidation of Sigma and FX
- ~9,000 employees from Sigma added

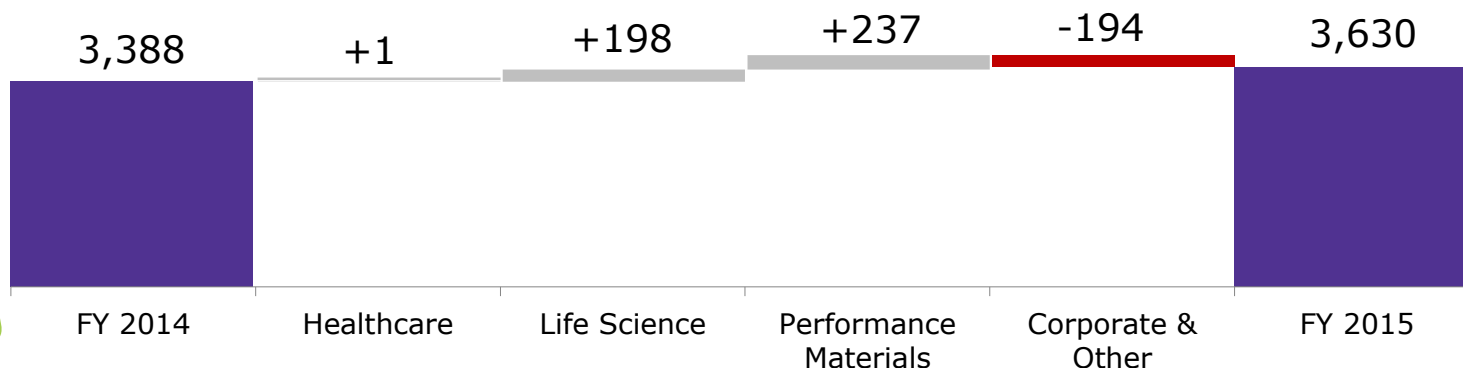
# Organic growth and FX tailwinds at all businesses

## FY 2015 YoY net sales

	Organic	Currency	Portfolio	Total
Healthcare	1.6%	3.1%	0.0%	<b>4.7%</b>
Life Science	6.5%	8.4%	10.2%	<b>25.1%</b>
Performance Materials	0.6%	13.1%	10.4%	<b>24.1%</b>
Group	2.6%	6.2%	4.3%	<b>13.0%</b>

- Organic growth in Healthcare as GM\* & Fertility more than offset Rebif decline
- Life Science shows organic growth from all businesses, Process Solutions main contributor
- Performance Materials driven by AZ and volume growth

## FY YoY EBITDA pre contributors [€ m]



- Organic growth of Healthcare compensates for royalty income loss & Rebif decline
- Life Science driven by solid organic growth, positive product mix and Sigma
- Performance Materials contains FX benefits, AZ and positive product mix
- Corporate EBITDA pre reflects hedging losses & investments in corporate initiatives

\*General Medicine and CardioMetabolic Care  
Totals may not add up due to rounding

## Q4 2015 – reported figures reflect Sigma acquisition

### Reported results

[€m]	Q4 2014	Q4 2015	Δ
EBIT	424	<b>298</b>	-29.7%
Financial result	-63	<b>-134</b>	112.9%
Profit before tax	361	<b>164</b>	-54.5%
Income tax	-79	<b>-42</b>	-46.3%
Tax rate [in %]	21.9%	<b>25.9%</b>	
Net income	280	<b>126</b>	-55.1%
EPS [€]	0.64	<b>0.29</b>	-54.7%

### Comments

- Strong EBIT decrease reflects higher D&A & exceptionals related to Sigma
- Financial result includes interest expenses from Sigma financing and early Sigma bond repayment
- Tax rate last year lower due to higher share of profit in low-tax jurisdictions

## FY 2015 – solid reported figures

### Reported results

[€m]	FY 2014	FY 2015	Δ
EBIT	1,762	<b>1,843</b>	4.6%
Financial result	-205	<b>-357</b>	74.0%
Profit before tax	1,557	<b>1,487</b>	-4.5%
Income tax	-392	<b>-368</b>	-6.2%
<i>Tax rate (%)</i>	25.2%	<b>24.8%</b>	
Net income	1,157	<b>1,115</b>	-3.7%
EPS (€)	2.66	<b>2.56</b>	-3.8%

### Comments

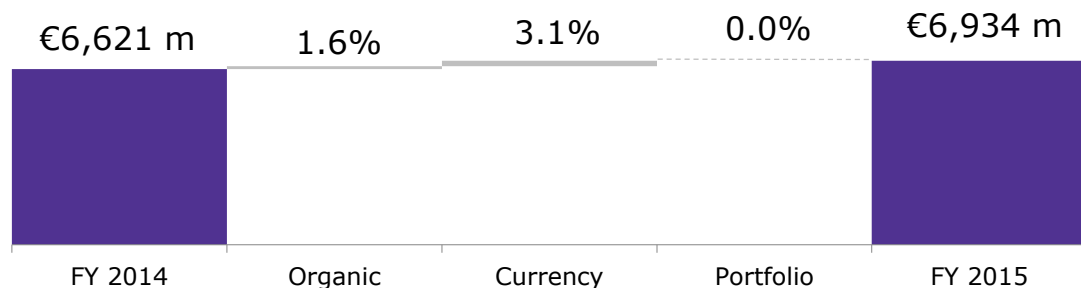
- EBIT reflects increased EBITDA pre amid higher exceptionals & D&A from acquisitions
- Financial result impacted by higher interest expenses for Sigma financing (-€154 m; hybrid, USD & EUR bonds)
- Tax rate within guidance range of 23-25%

# Healthcare: Stability in base business and investments in future growth

## FY 2015 YoY net sales

[€m]	FY 2014	FY 2015
Net sales	6,621	<b>6,934</b>
Marketing and selling	-2,551	<b>-2,801</b>
Administration	-247	<b>-259</b>
Research and development	-1,366	<b>-1,310</b>
EBIT	1,106	<b>1,097</b>
EBITDA	1,946	<b>1,970</b>
EBITDA pre	2,000	<b>2,002</b>
Margin (in % of net sales)	30.2%	<b>28.9%</b>

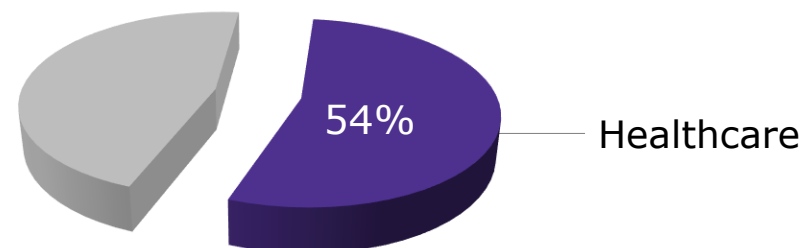
## Net sales bridge



## Comments

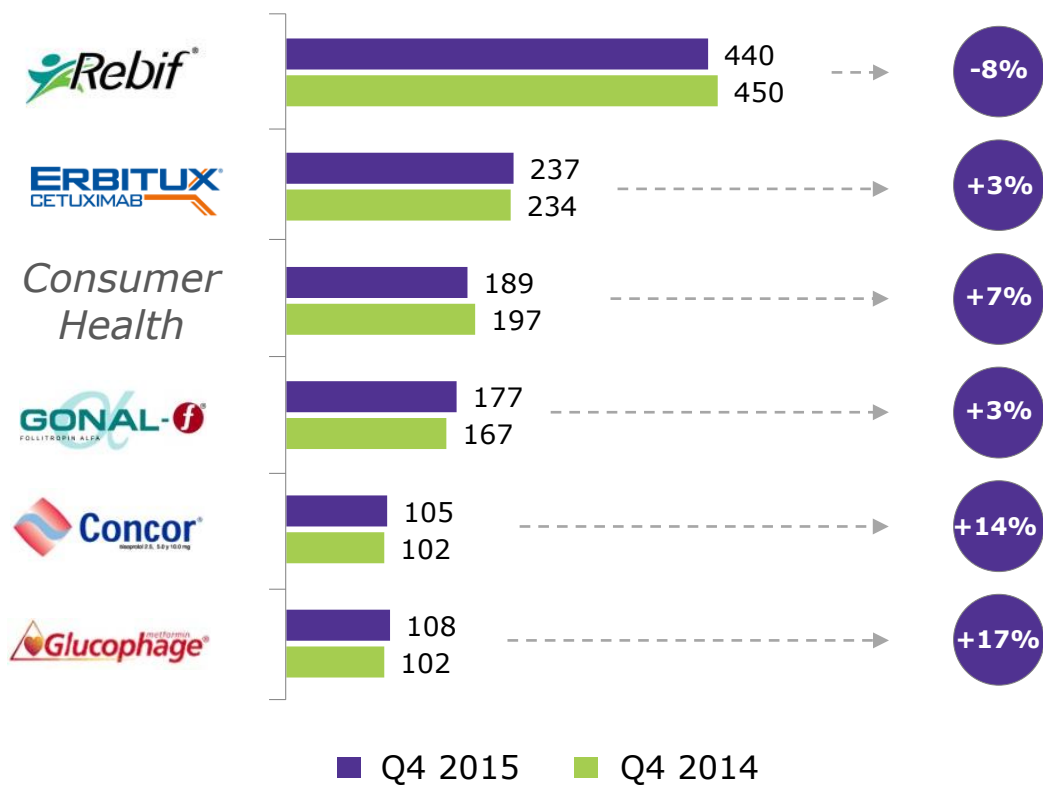
- Rebif decline due to competition partially mitigated by U.S. pricing
- Erbitux stable, as mandatory price cuts and competition in Europe offset volume increases in China and other growth markets
- General Medicine, Consumer Health and Fertility remain key growth drivers especially in Asia-Pacific and Latin America
- Higher M&S spend reflects investments in growth markets and FX
- R&D costs relate to shifted start of Phase III trials and provision release, last year impacted by terminations
- Lower profitability reflects solid top-line development amid investments and unfavorable product mix

## FY 2015 share of group net sales

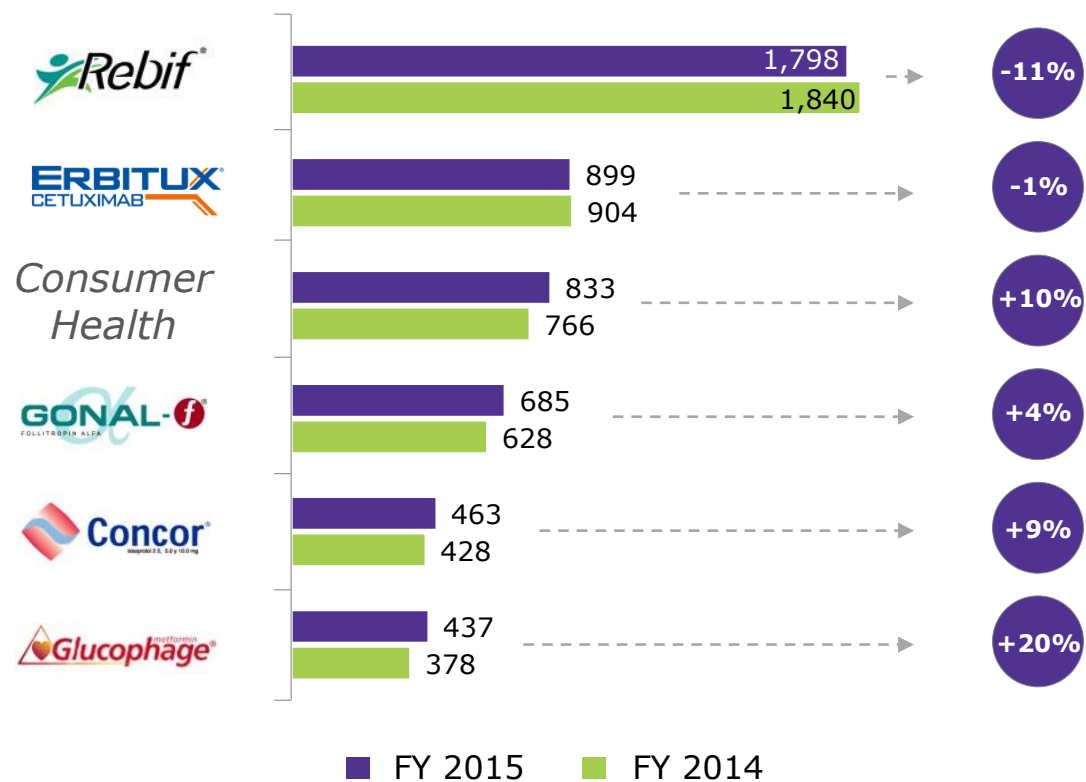


# Healthcare organic growth by franchise/product

Q4 2015 organic sales growth [%]  
by key products [€ m]



FY 2015 organic sales growth [%]  
by key products [€ m]

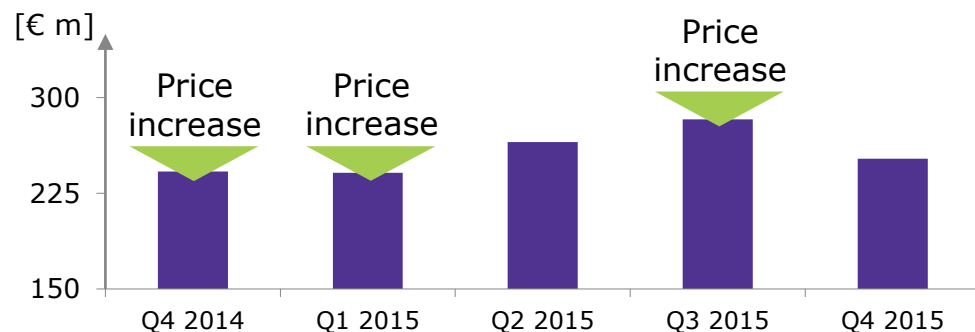




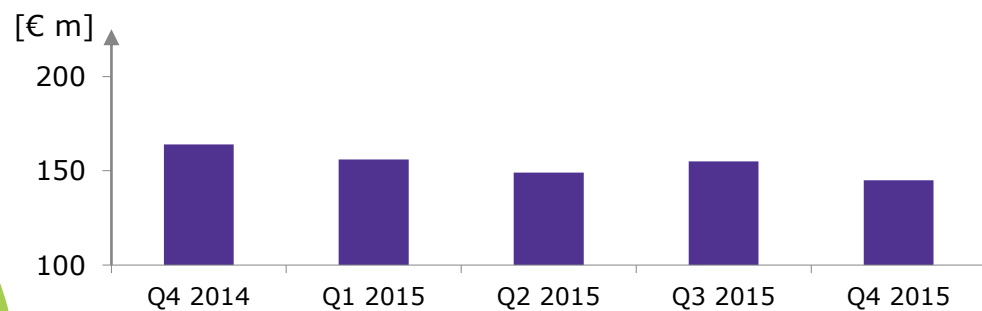
# Rebif: Defending the franchise – competitive pressure in the U.S. and Europe

## Rebif sales evolution

### North America



### Europe



## Rebif performance

### Q4 drivers

-8.6% org.

- Price
- Volume
- FX

- Rebif sales of €440m in Q4 2015 slightly lower despite FX tailwinds
- Organic decline of -7.9% due to lower volumes mitigated by U.S. pricing
- U.S. and European volume decline mainly due to competition from orals
- U.S. price increase in September supports performance

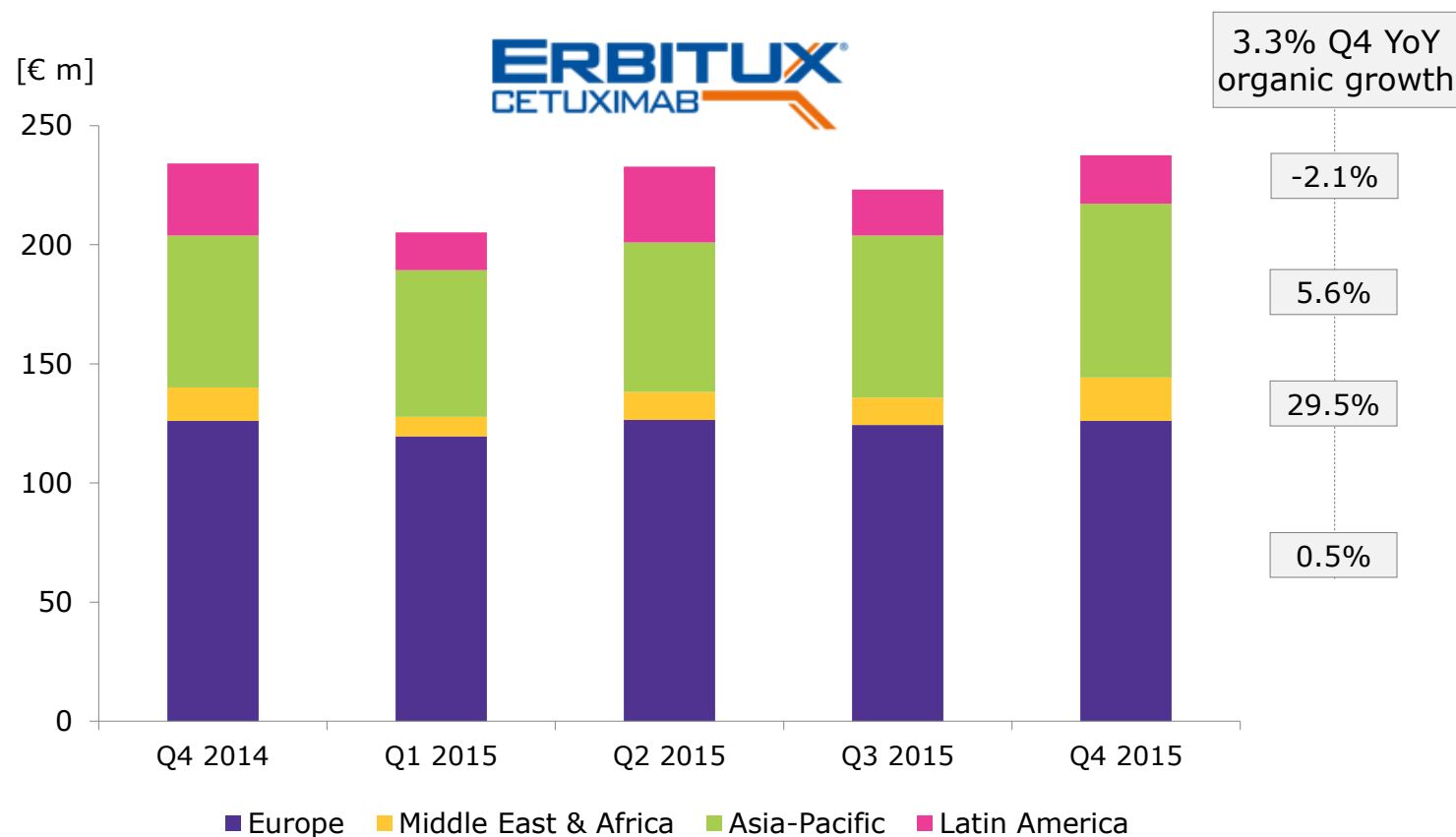
### Q4 drivers

-11.2% org.

- Price
- Volume

# Erbitux: A challenging market environment

## Erbitux sales by region



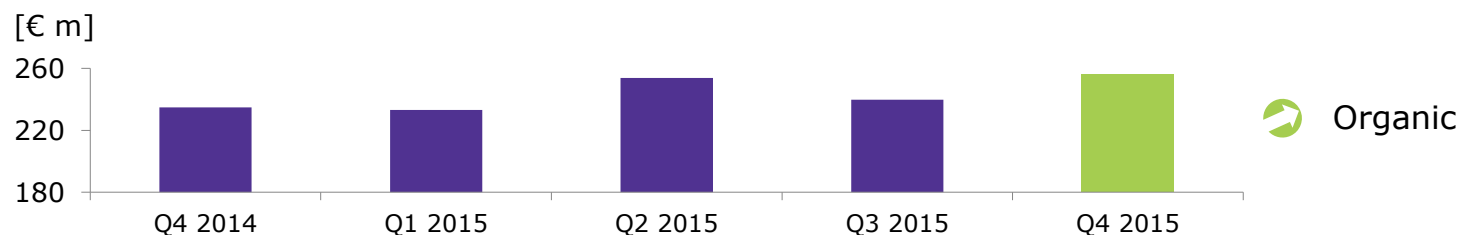
## Erbitux performance

- Sales increase to €237m due to solid volume development
- Europe impacted by mandatory price cuts & increasing competition offset by uptake in Russia
- Latin America burdened by decline in private sector sales in Brazil
- APAC benefits from price adjustments and healthy market trends in China

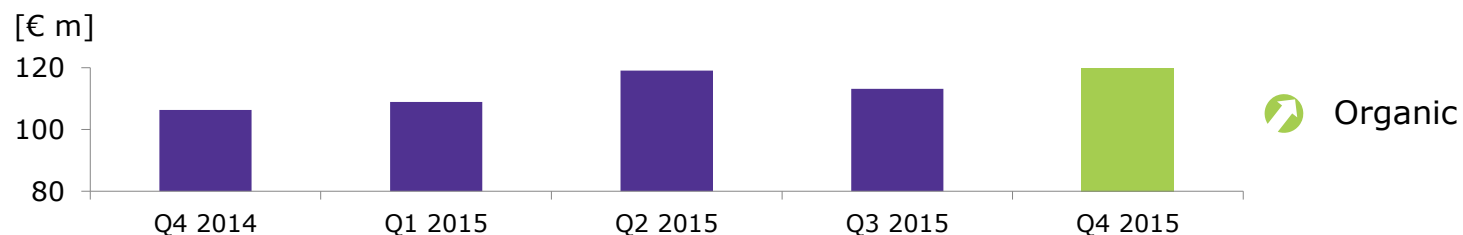
# Strong growth in Fertility, General Medicine and Endocrinology

## Sales evolution

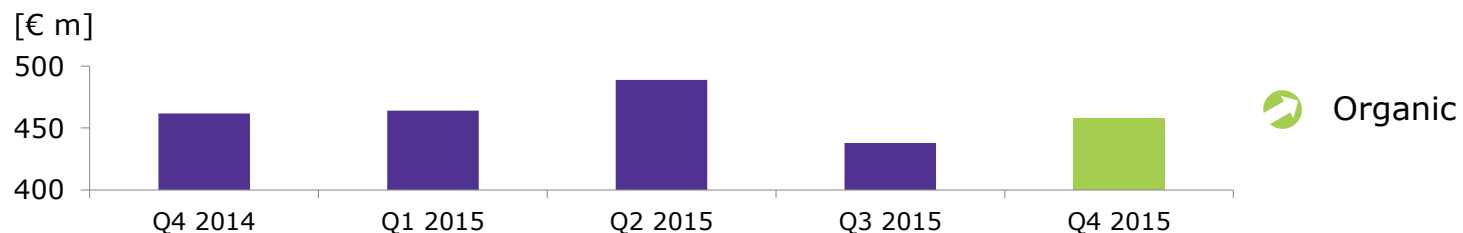
### Fertility



### Endocrinology



### General Medicine\*



## Q4 drivers

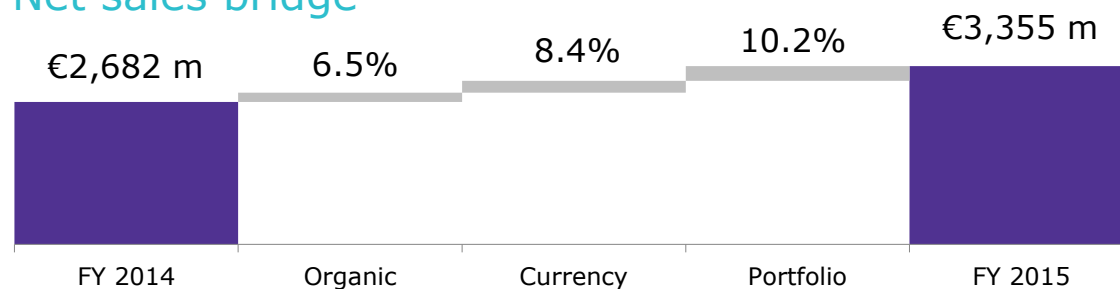
- Organic growth of Fertility driven by all major regions, especially China
- Endocrinology with strong growth of Serostim in U.S. and Saizen with patient gains in Europe
- General Medicine sales burdened by FX, organic performance healthy across all major regions and products
- Thyroid products post sound volumes in Europe driven by market share gains in Russia
- Strong organic growth of Glucophage benefits from Russia repatriation and uptake in MEA; supply issues LY

# Life Science: Strong and profitable growth driven by Process Solutions

## FY 2015 YoY net sales

	FY 2014	FY 2015
Net sales	2,682	<b>3,355</b>
Marketing and selling	-860	<b>-1,038</b>
Administration	-110	<b>-151</b>
Research and development	-163	<b>-197</b>
EBIT	289	<b>301</b>
EBITDA	599	<b>674</b>
EBITDA pre	659	<b>856</b>
Margin (in % of net sales)	24.6%	<b>25.5%</b>

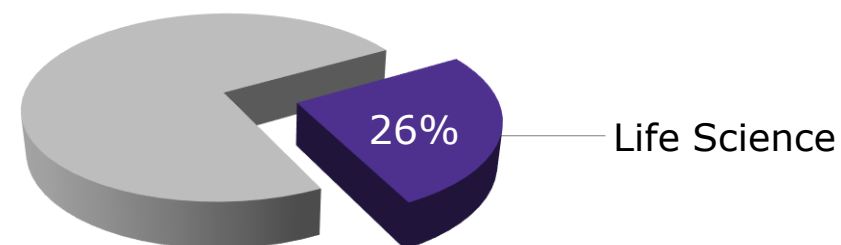
## Net sales bridge



## Comments

- Process Solutions strong organic growth mainly due to strong demand from biopharma production in Europe and U.S.
- Demand for lab water consumables and biomonitoring drive moderate organic growth in Lab Solutions
- Bioscience slightly positive as good development of protein detection systems offsets softness for reagents and antibodies
- Ongoing investments in R&D – several product launches in 2015
- EBITDA pre benefits from price and volume growth across all businesses and first Sigma contribution

## FY 2015 share of group net sales

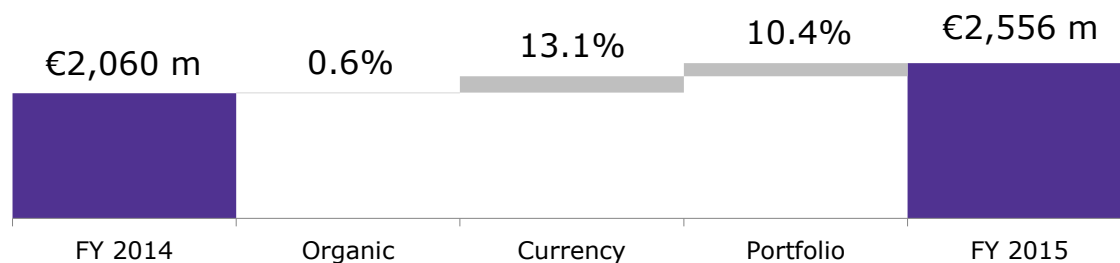


# Performance Materials: Healthy trends & strong FX tailwinds drive growth

## FY 2015 YoY net sales

	FY 2014	FY 2015
Net sales	2060	<b>2,556</b>
Marketing and selling	-179	<b>-208</b>
Administration	-56	<b>-63</b>
Research and development	-171	<b>-197</b>
EBIT	611	<b>878</b>
EBITDA	804	<b>1,120</b>
EBITDA pre	895	<b>1,132</b>
Margin (in % of net sales)	43.4%	<b>44.3%</b>

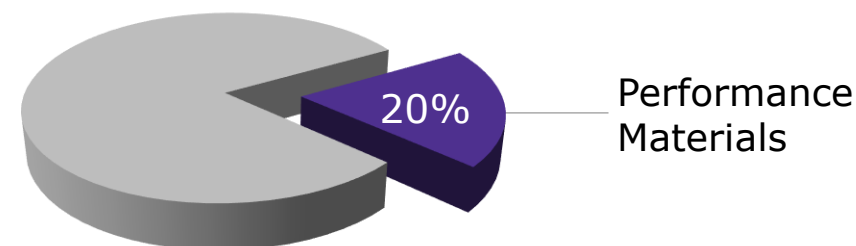
## Net sales bridge



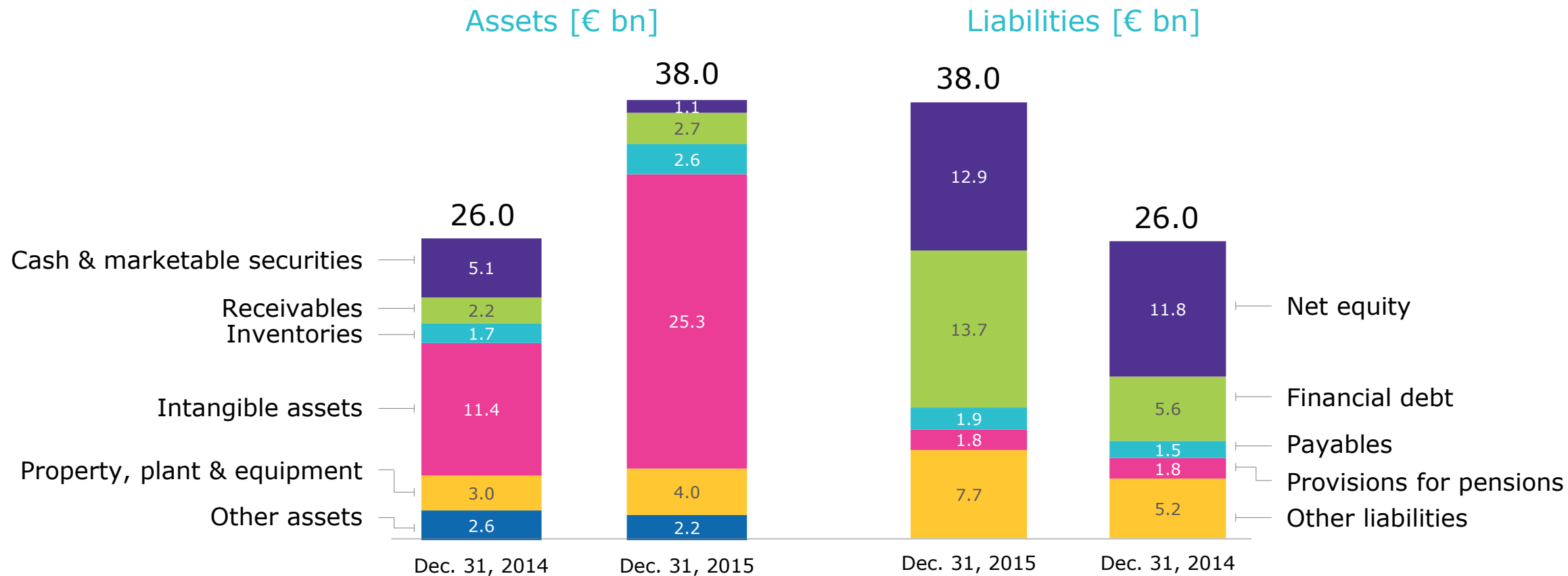
## Comments

- Strong sales mainly reflect portfolio effect and FX tailwinds
- Liquid crystals volume trend remains largest contributor to growth
- Innovative UB-FFS mode main driver in LC; ongoing demand for high-end TVs benefits flagship technologies (PS-VA & IPS)
- Pigments show slight organic growth as focus on attractive growth markets outweighs volume decline in less profitable areas
- OLED & Integrated Circuit Materials support organic performance with sound volume development
- Increase in EBITDA pre driven by FX, AZ and positive product mix

## FY 2015 share of group net sales



# Balance sheet reflects Sigma acquisition

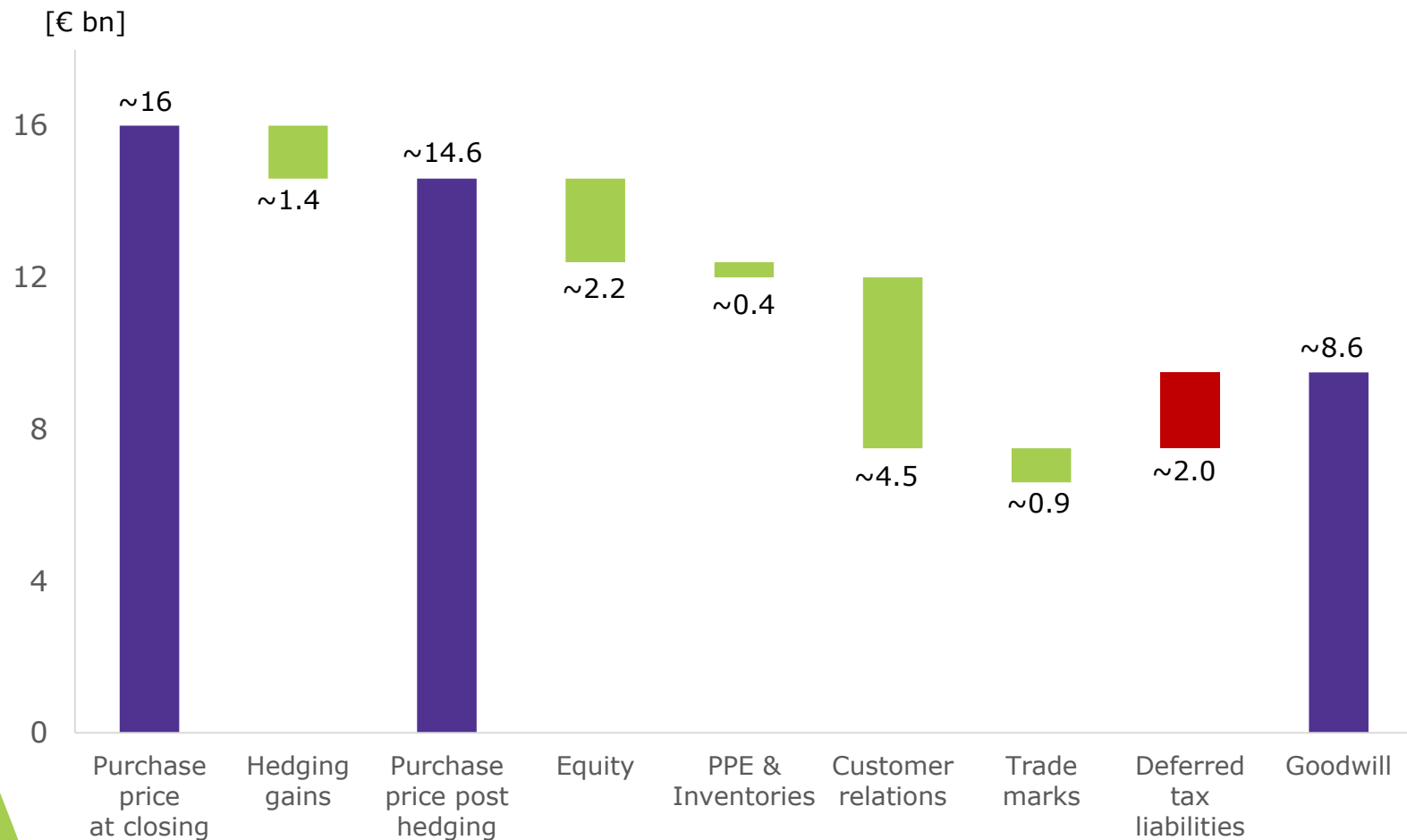


- First time consolidation of Sigma impacts balance sheet
- Intangible assets contain\* €8.6 bn goodwill, €4.7 bn customer relationships and €1 bn trademarks

- FX development accounts for ~€1 bn total equity increase
- Financial debt increase reflects bond and loans for Sigma financing

\*as added per November 18, 2015  
Totals may not add up due to rounding

# Hedging optimized Sigma balance sheet effects



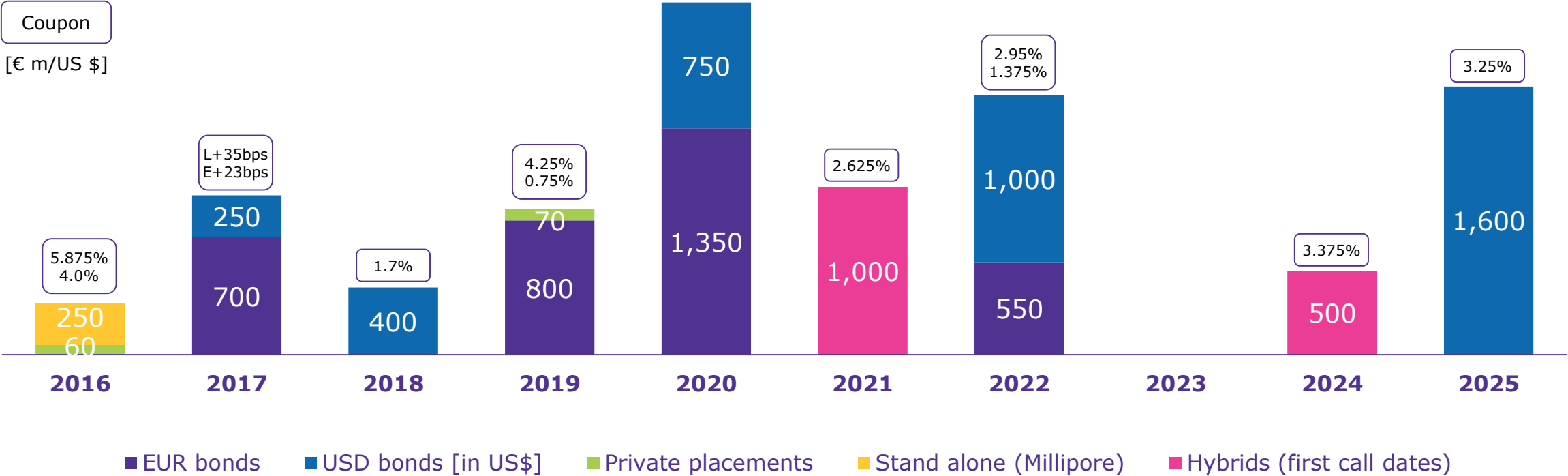
## Purchase price breakdown

- Purchase price fully hedged against EUR/USD movements
- Sizable cash position indicates Sigma's cash generative business and reflects delayed closing
- Intangibles amortization from Sigma PPA\*: ~€250 – 300 m p.a.

Figures as of November 18, 2015  
\*Purchase price allocation

# Well-balanced maturity profile reflects Sigma-Aldrich related capital markets transactions

Maturity profile as of Dec. 31, 2015



Financing structure enables flexible and swift deleveraging



# Strong operating cash flow; Pfizer upfront payment last year

## Q4 2015 – cash flow statement

[€m]	Q4 2014	Q4 2015	Δ
Profit after tax	282	<b>127</b>	-155
D&A	380	<b>505</b>	125
Changes in provisions	-342	<b>183</b>	525
Changes in other assets/liabilities	600	<b>-288</b>	-888
Other operating activities	17	<b>-5</b>	-22
Changes in working capital	203	<b>196</b>	-7
Operating cash flow	1,141	<b>718</b>	-423
Investing cash flow	-1,144	<b>-14,606</b>	-13,462
thereof Capex*	-211	<b>-217</b>	-6
Financing cash flow	1,519	<b>2,833</b>	1,314

## Cash flow drivers

- D&A increase due to impairment of Evofosfamide and Sigma
- Changes in provisions reflect Evo-fosfamide & higher pension provisions; release of litigation provision in 2014
- Changes in other assets/liabilities in 2014 include Pfizer upfront payment
- Investing cash flow contains purchase price for Sigma
- Financing cash flow impacted by Sigma financing and repayment of eurobond; LY reflects part of purchase of AZ

# Healthy operating cash flow amid Sigma financing impacts

## FY 2015 – cash flow statement

[€m]	FY 2014	FY 2015	Δ
Profit after tax	1,165	<b>1,124</b>	-41
D&A	1,361	<b>1,511</b>	150
Changes in provisions	-342	<b>215</b>	557
Changes in other assets/liabilities	533	<b>-636</b>	-1,169
Other operating activities	9	<b>-10</b>	-19
Changes in working capital	-21	<b>-8</b>	13
Operating cash flow	2,705	<b>2,195</b>	-510
Investing cash flow	-1,641	<b>-11,936</b>	-10,295
thereof Capex on PPE	-481	<b>-514</b>	-33
Financing cash flow	761	<b>7,164</b>	6,403

## Cash flow drivers

- D&A increase due to AZ and Sigma
- Changes in provisions reflect last year's release due to litigation settlement
- Higher tax and interest payments drive changes in other assets/liabilities; 2014 contains Pfizer upfront payment
- Investing cash flow mainly reflects AZ (2014) and Sigma (2015)
- Financing cash flow impacted by Sigma financing and repayments of bonds; LY reflects part of AZ purchase price

# Exceptionals in Q4 2015

## Exceptionals in EBIT

[€m]	Q4 2014		Q4 2015	
	Exceptionals	thereof D&A	Exceptionals	thereof D&A
Healthcare	16	1	90	89
Life Science	28	0	111	1
Performance Materials	10	0	6	0
Corporate & Other	23	1	13	0
Total	76	2	220	89

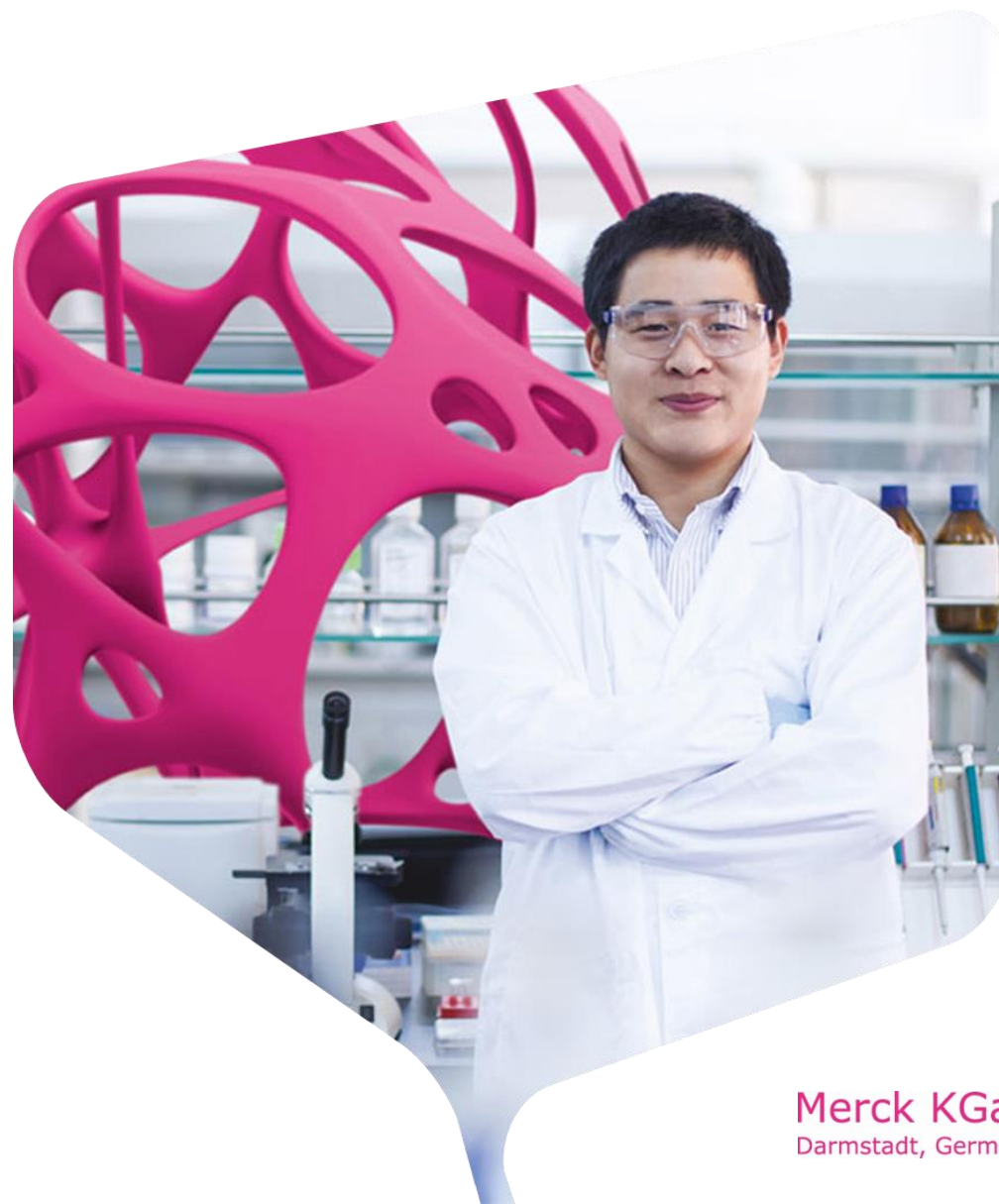
# Exceptionals in FY 2015

## Exceptionals in EBIT

[€m]	FY 2014		FY 2015	
	Exceptionals	thereof D&A	Exceptionals	thereof D&A
Healthcare	59	5	122	90
Life Science	60	0	182	1
Performance Materials	91	0	12	0
Corporate & Other	65	5	51	1
Total	275	10	367	92

## Financial calendar

Date	Event
April 29, 2016	Annual General Meeting
May 19, 2016	Q1 2016 Earnings release
August 4, 2016	Q2 2016 Earnings release
November 15, 2016	Q3 2016 Earnings release



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