# SOUND FINANCIAL PERFORMANCE

**Merck Q3 2016 results**

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November 15, 2016

# Disclaimer

**Cautionary Note Regarding Forward-Looking Statements and financial indicators**
This communication may include "forward-looking statements." Statements that include words such as "anticipate," "expect," "should," "would," "intend," "plan," "project," "seek," "believe," "will," and other words of similar meaning in connection with future events or future operating or financial performance are often used to identify forward-looking statements. All statements in this communication, other than those relating to historical information or current conditions, are forward-looking statements. We intend these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements in the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to a number of risks and uncertainties, many of which are beyond control of Merck KGaA, Darmstadt, Germany, which could cause actual results to differ materially from such statements.

Risks and uncertainties include, but are not limited to: the risks of more restrictive regulatory requirements regarding drug pricing, reimbursement and approval; the risk of stricter regulations for the manufacture, testing and marketing of products; the risk of destabilization of political systems and the establishment of trade barriers; the risk of a changing marketing environment for multiple sclerosis products in the European Union; the risk of greater competitive pressure due to biosimilars; the risks of research and development; the risks of discontinuing development projects and regulatory approval of developed medicines; the risk of a temporary ban on products/production facilities or of non-registration of products due to non-compliance with quality standards; the risk of an import ban on products to the United States due to an FDA warning letter; the risks of dependency on suppliers; risks due to product-related crime and espionage; risks in relation to the use of financial instruments; liquidity risks; counterparty risks; market risks; risks of impairment on balance sheet items; risks from pension obligations; risks from product-related and patent law disputes; risks from antitrust law proceedings; risks from drug pricing by the divested Generics Group; risks in human resources; risks from e-crime and cyber attacks; risks due to failure of business-critical information technology applications or to failure of data center capacity; environmental and safety risks; unanticipated contract or regulatory issues; a potential downgrade in the rating of the indebtedness of Merck KGaA, Darmstadt, Germany; downward pressure on the common stock price of Merck KGaA, Darmstadt, Germany and its impact on goodwill impairment evaluations; the impact of future regulatory or legislative actions; and the risks and uncertainties detailed by Sigma-Aldrich Corporation ("Sigma-Aldrich") with respect to its business as described in its reports and documents filed with the U.S. Securities and Exchange Commission (the "SEC").

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# Agenda

# 01 EXECUTIVE SUMMARY

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# Highlights of Q3 2016

**Operations**

- Healthcare – positive organic growth, high profitability and pipeline on track
- Life Science – healthy growth dynamics and faster synergy realization
- Performance Materials – strong profitability despite display destocking

**Financials**

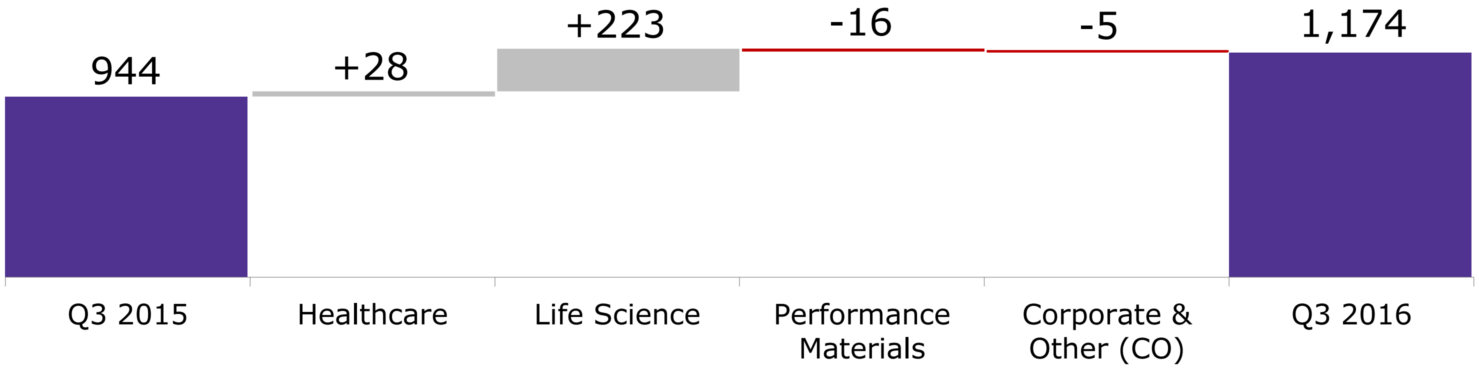
- Acquisition-driven sales growth of 19.3%; EBITDA pre up 24.3% to €1,174 m
- EBITDA pre margin increases to 31.5% driven by Life Science growth, Sigma synergies, release of R&D provisions and higher royalty income
- Guidance upgrade: EBITDA pre €4,450 – 4,600 m, EPS pre €6.15 – 6.40

# Swift Sigma integration and organic growth drive EBITDA pre

## Q3 2016 YoY net sales

| | Organic | Currency | Portfolio | Total |
|---|---|---|---|---|
| Healthcare | 1.3% | -1.4% | -1.0% | **-1.1%** |
| Life Science | 5.7% | -0.0% | 77.4% | **83.1%** |
| Performance Materials | -5.8% | 1.0% | 3.5% | **-1.3%** |
| Merck Group | 0.9% | -0.6% | 19.0% | **19.3%** |

## Q3 YoY EBITDA pre contributors [€ m]



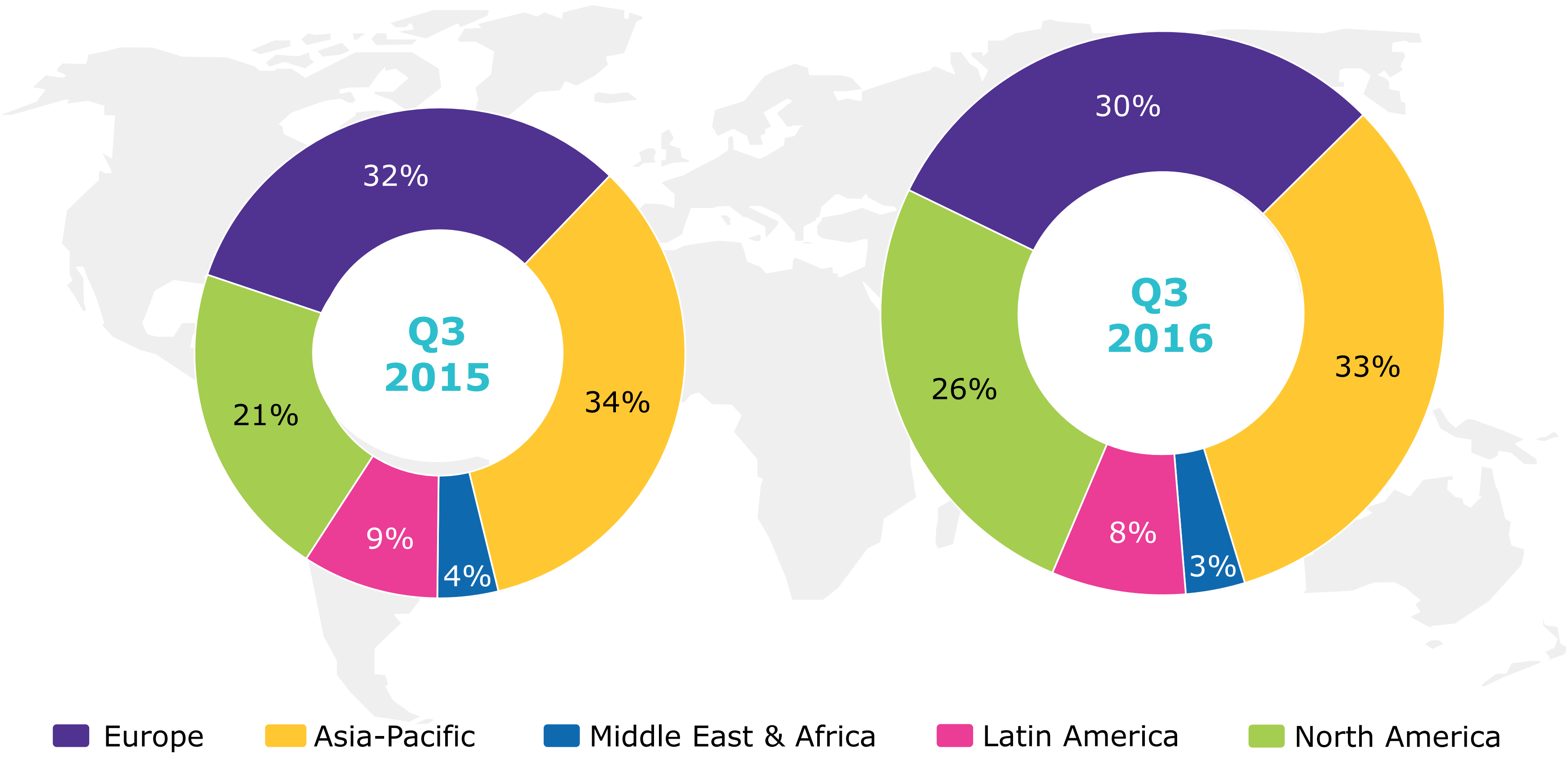

- Strong Fertility business and Xalkori commission income more than offset Rebif decline in Healthcare
- Life Science solid organic growth reflects strong Process Solutions
- Last significant effects of display industry destocking impacts Performance Materials
- Portfolio reflects Sigma and Kuvan

- Healthcare reflects Rebif decline more than offset by end of Rebif commission expenses, ~€40 m release of R&D provisions and higher royalty income
- LS driven by Sigma portfolio effect, solid organic growth and synergies
- Performance Materials lower against record prior year due to LC sales decline

Totals may not add up due to rounding

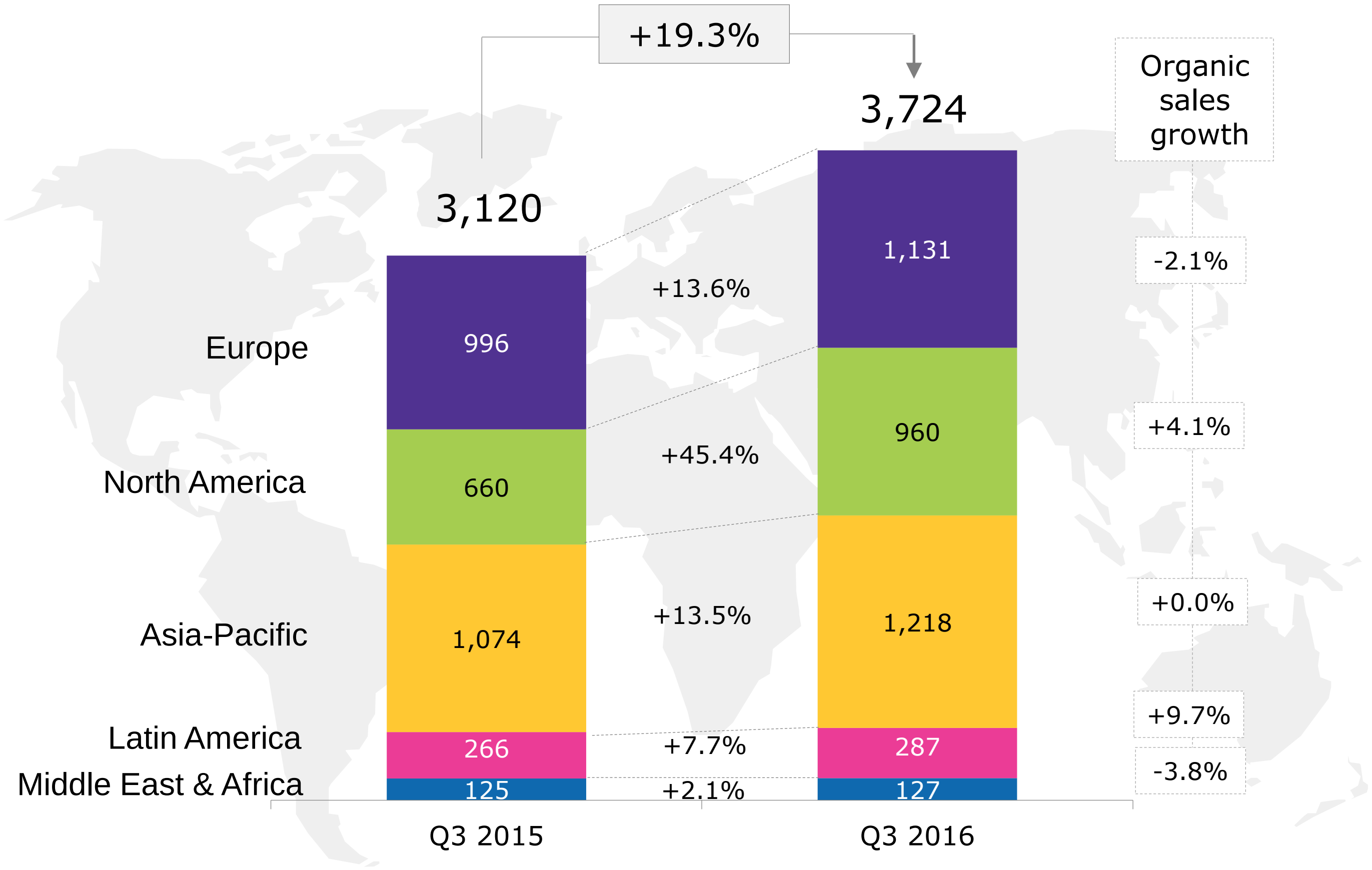
# Q3 2016 sales split reflects growth in North America and Sigma footprint

Merck Group Q3 2015 and Q3 2016 net sales by region [in %]



# North and Latin America drive Q3 organic growth

## Regional breakdown of net sales [€ m]




## Regional organic development

- Europe slightly lower as competitive pressure on Rebif outweighs strong demand for bioprocessing products
- North America continues to benefit from competitive situation for Fertility as well as Xalkori commission income
- Flat growth in Asia-Pacific reflects solid growth driven by Fertility, GM[1] and Life Science, offset by display destocking
- Very strong growth in LatAm driven by all businesses; significant contribution from PDP[2] in Brazil for Rebif

[1]General Medicine and CardioMetabolic Care; [2]Productive Development Partnership
Totals may not add up due to rounding

# 02 FINANCIAL OVERVIEW

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# Q3 2016: Overview

## Key figures

| [€m] | Q3 2015 | Q3 2016 | Δ |
|---|---|---|---|
| Net sales | 3,120 | **3,724** | 19.3% |
| EBITDA pre | 944 | **1,174** | 24.3% |
| *Margin (in % of net sales)* | *30.3%* | *31.5%* | |
| EPS pre | 1.32 | **1.70** | 28.8% |
| Operating cash flow | 872 | **1,067** | 22.4% |

| [€m] | Dec. 31, 2015 | Sep. 30, 2016 | Δ |
|---|---|---|---|
| Net financial debt | 12,654 | **11,649** | -7.9% |
| Working capital | 3,448 | **3,684** | 6.8% |
| Employees | 49,613 | **50,967** | 2.7% |

## Comments

- EBITDA pre increase driven by Sigma, end of Rebif commission expenses, R&D provision release and higher royalties
- EPS pre up due to EBITDA pre increase and improved financial result
- Strong operating cash flow from EBITDA pre progression and improved working capital in Q3
- Net financial debt reduction reflects strong focus on deleveraging
- Working capital increase in line with higher level of business activity



Totals may not add up due to rounding

# Reported figures reflect Sigma acquisition

## Reported results

| [€m] | Q3 2015 | Q3 2016 | Δ |
|---|---|---|---|
| EBIT | 564 | **676** | 19.9% |
| Financial result | -81 | **-67** | -18.0% |
| Profit before tax | 482 | **609** | 26.3% |
| Income tax | -117 | **-149** | 27.6% |
| *Effective tax rate (%)* | *24.2%* | ***24.4%*** | |
| Net income | 364 | **457** | 25.5% |
| EPS (€) | 0.84 | **1.05** | 25.0% |

## Comments

- EBIT reflects increased EBITDA pre amid integration costs and Sigma D&A
- Financial result contains Sigma interest expenses, improvements vs. last year from LTIP and FX
- Effective tax rate within guided range of ~23% to 25%



Totals may not add up due to rounding

# Healthcare: Higher profitability amid positive organic growth

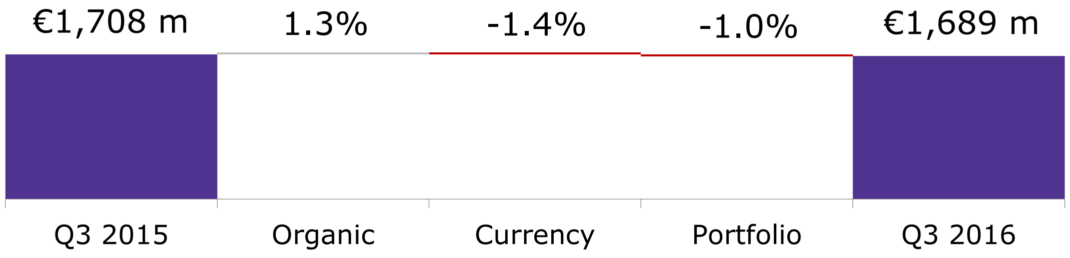
## Healthcare P&L

| [€m] | Q3 2015 | Q3 2016 |
|---|---|---|
| Net sales | 1,708 | **1,689** |
| Marketing and selling | -683 | **-623** |
| Administration | -60 | **-65** |
| Research and development | -322 | **-322** |
| EBIT | 349 | **375** |
| EBITDA | 538 | **560** |
| EBITDA pre | 537 | **565** |
| *Margin (in % of net sales)* | *31.5%* | ***33.5%*** |

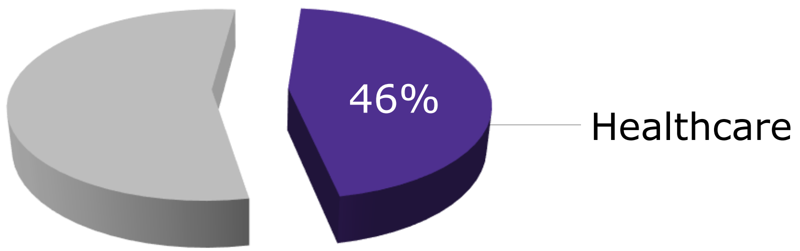
## Comments

- Organic decline of Rebif from volume erosion in Europe and U.S. outweighs U.S. pricing and sound development of PDP[1] in Brazil
- Erbitux organically flat as EU pricing and competition offsets volume growth in China, Middle East and Latin America
- Fertility portfolio remains strong, especially in U.S. and China
- Softer Glucophage impacted by phasing and macro trends in MEA[2]
- Marketing & selling reflects end of commission expenses for Rebif (U.S.) partially offset by reinvestments in salesforce & launch preparations
- R&D spend contains ~€ 40 m release of pipeline termination provisions
- Higher EBITDA pre due to end of Rebif commissions, R&D provision release & higher royalties

## Net sales bridge




## Q3 2016 share of group net sales




[1]Productive Development Partnership; [2]Middle East & Africa
Totals may not add up due to rounding

# Life Science: Solid organic growth built on strong base

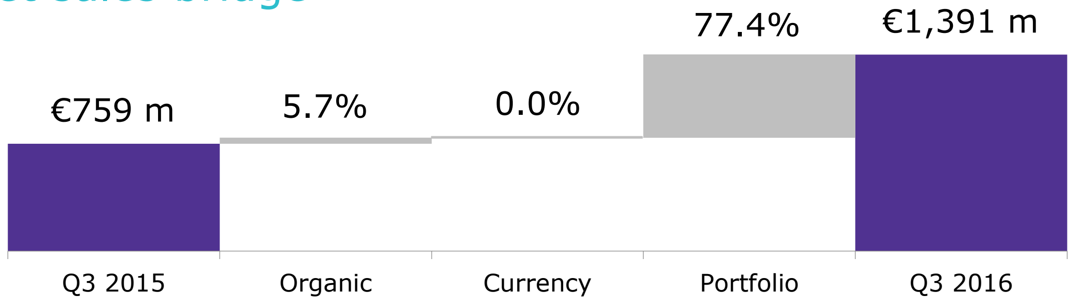
## Life Science P&L

| [€m] | Q3 2015 | Q3 2016 |
|---|---|---|
| Net sales | 759 | **1,391** |
| Marketing and selling | -238 | **-414** |
| Administration | -30 | **-56** |
| Research and development | -45 | **-63** |
| EBIT | 97 | **216** |
| EBITDA | 180 | **399** |
| EBITDA pre | 201 | **424** |
| *Margin (in % of net sales)* | *26.5%* | ***30.5%*** |

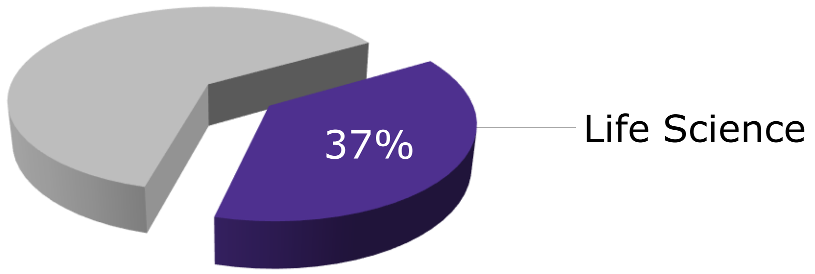
## Comments

- Process Solutions shows double-digit growth especially driven by strong demand for filtration & single-use products in all key markets
- Moderate organic growth of Applied Solutions, as demand for pharma biomonitoring & for analytical testing outweighs lower instrument sales
- Research Solutions organically flat, as growth in Emerging Markets is offset by slower demand in Europe and large one-time orders last year
- Absolute costs higher due to Sigma, but improve in relation to sales
- Strong profitability reflects Sigma, business mix and faster synergy ramp-up

## Net sales bridge




## Q3 2016 share of group net sales






Totals may not add up due to rounding

# Performance Materials

Market leadership and differentiation in four highly profitable businesses

## Display Materials

~50-60% of sales

## Integrated Circuit Materials

~15-20% of sales

## Pigments & Functional Materials

~15-20% of sales

## Advanced Technologies

~5-10% of sales



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# Performance Materials: Sound performance despite display destocking

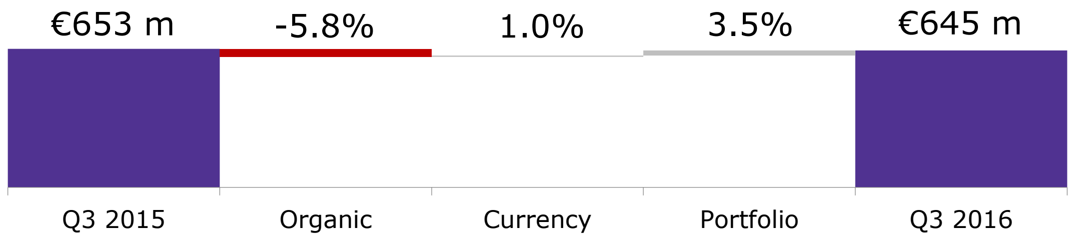
## Performance Materials P&L

| [€m] | Q3 2015 | Q3 2016 |
|---|---|---|
| Net sales | 653 | **645** |
| Marketing and selling | -54 | **-59** |
| Administration | -16 | **-14** |
| Research and development | -50 | **-55** |
| EBIT | 233 | **213** |
| EBITDA | 292 | **274** |
| EBITDA pre | 298 | **282** |
| *Margin (in % of net sales)* | *45.5%* | ***43.7%*** |

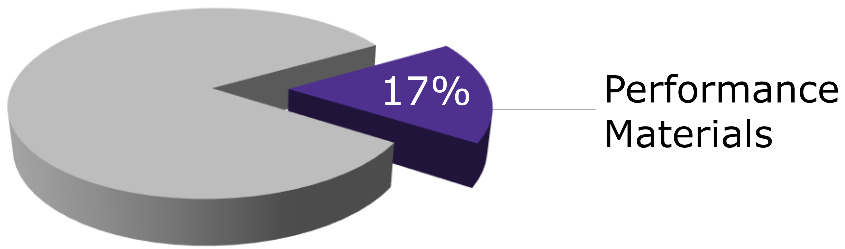
## Comments

- LC shows expected impact from display destocking and ongoing decline of mature technologies (TN-TFT)
- Industry supply chain inventories back to normal levels in Q4
- Strong growth of Integrated Circuit Materials in all major material classes driven by increasing chip complexity and wafer volumes
- Solid growth of Pigments & Functionals due to demand for automotive coating pigments and active cosmetic ingredients
- Resiliently strong profitability reflects leading market position in four high-margin businesses

## Net sales bridge




## Q3 2016 share of group net sales

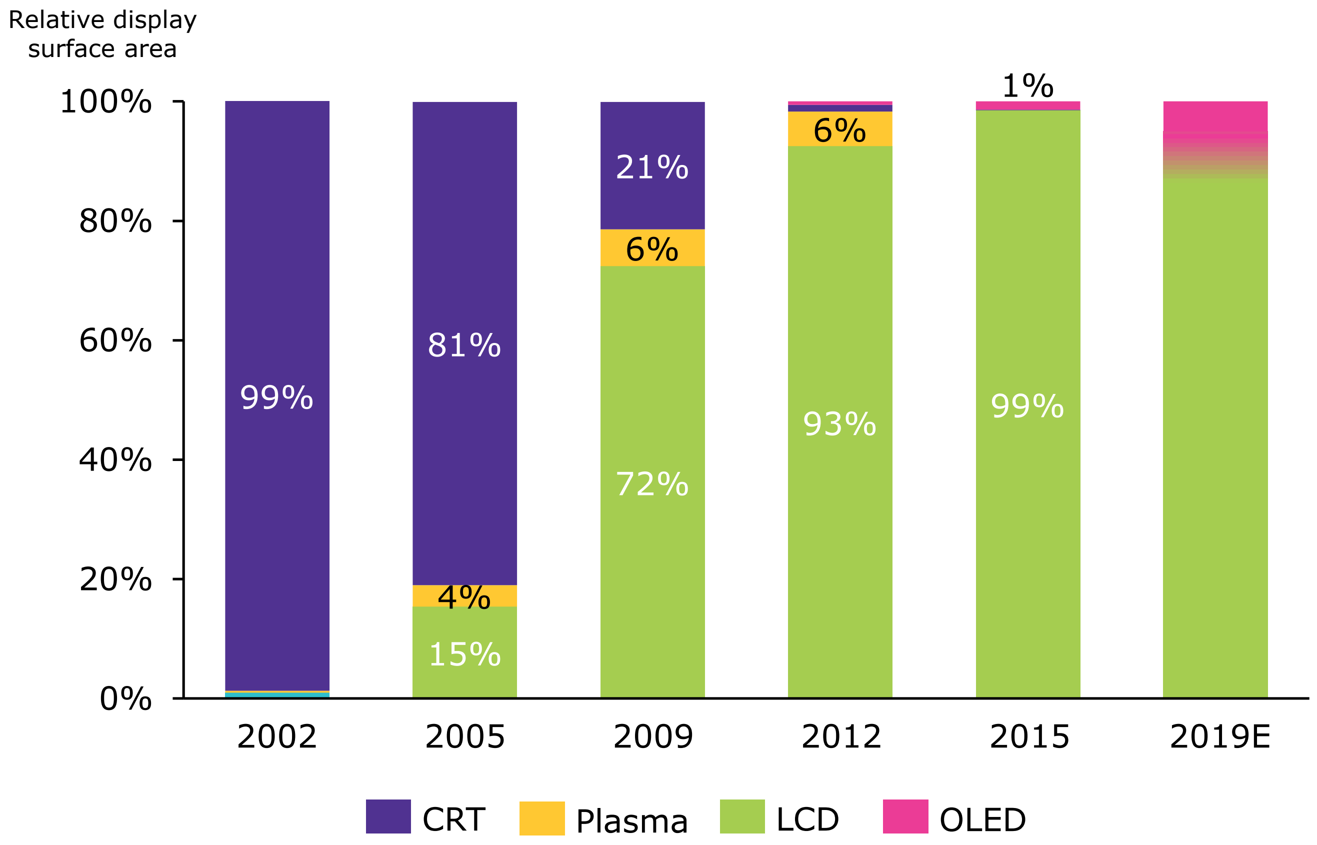





Totals may not add up due to rounding

# Liquid crystals are clearly the dominant display technology

## Market share by display technology




### Rationale for LCD leadership

**For consumers:**

- Price
- Thinner frames
- Higher resolution in all sizes
- Proven track record of extreme reliability

**For manufacturers:**

- Price and scalability
- Production costs and capacities

**LCD progress creates higher technological and commercial entry barriers**

**OLED share will increases in mobile applications**



Source: DisplaySearch/IHS, WWF & Long Term Demand Report

# Unique selling proposition of SA-VA for manufacturers and consumers

## 1 Process

- Elimination of LC alignment process
- Fewer sources of production errors
- Fully compatible with current PS-VA process

## Innovation 3

- Low-temperature production enables potential for future applications (Plastic, flexible, organic)
- Enables thin bezel TV production


## 2 Costs

- Lower material costs as alignment material not needed anymore
- Lower Capex requirements

## Green 4

- Less energy and waste
- Reduced need for solvents

**SA-VA has the potential to become a value driver for Merck**

SA-VA = Self Aligned Vertical Alignment

# Our leading OLED business is well set to exploit display market opportunities

## Market position

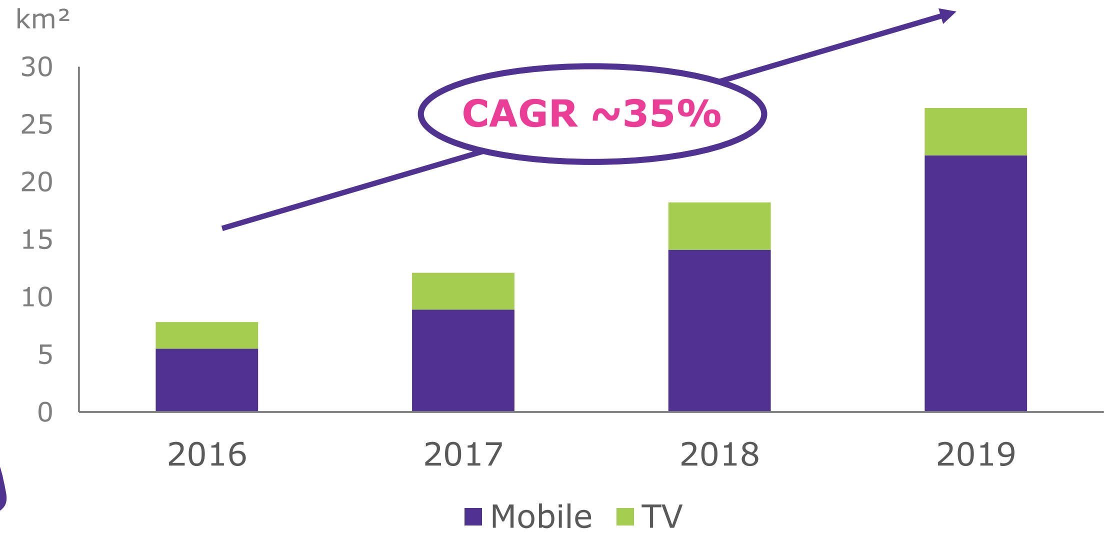
- Among top 3 OLED material provider
- Unrivaled experience and expertise in displays
- Long & intimate relationships with all display producers
- Recent capacity expansion to serve growing demand

Merck Ambition

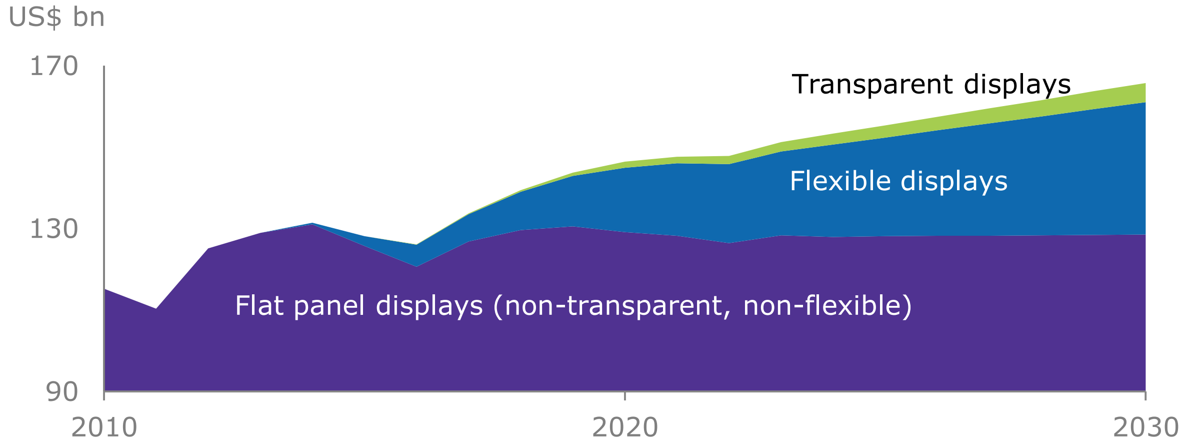
## Solution provider

- Supplier of all OLED stack layers
- Excellence in vapor & printable materials
- In-house testing of materials
- Tailor-made solutions for customers

### Announced OLED capacity expansion[1]




### Display market development[1]




[1]Source: IHS, Merck, VLSI



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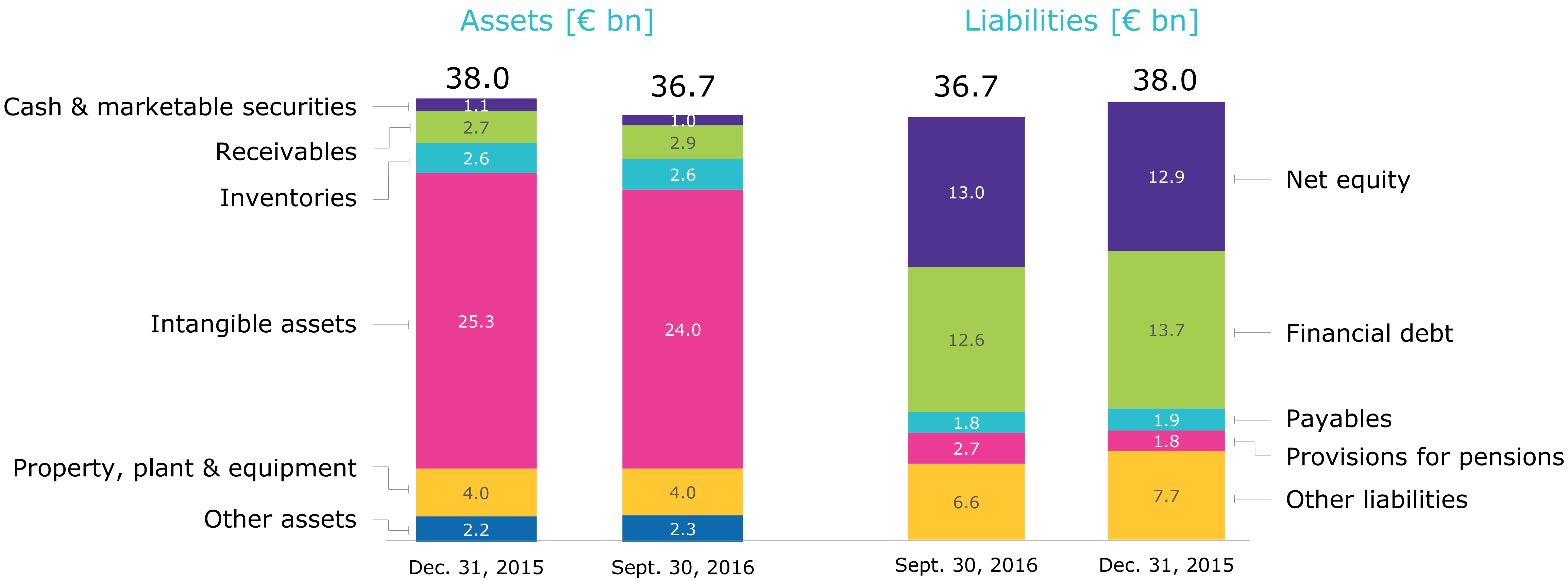
# Liquid crystals offer a variety of opportunities


1. Adaptive lighting for automotive
2. Adaptive lighting for architecture
3. Smart antenna
4. Liquid crystal windows for architecture
5. Holography
6. Free form LCD

# Balance sheet – strong Q3 cash flow accelerates deleveraging process




- Ongoing amortization of Sigma-related intangible assets
- Significant reduction of financial debt
- Decline in interest rates drives increase in pension provisions



Totals may not add up due to rounding

# High EBITDA pre drives strong operating cash flow

## Q3 2016 – cash flow statement

| [€m] | Q3 2015 | Q3 2016 | Δ |
|---|---|---|---|
| Profit after tax | 366 | **460** | 94 |
| D&A | 337 | **434** | 97 |
| Changes in provisions | 11 | **4** | -7 |
| Changes in other assets/liabilities | 153 | **36** | -117 |
| Other operating activities | 12 | **1** | -11 |
| Changes in working capital | -7 | **131** | 138 |
| Operating cash flow | 872 | **1,067** | 195 |
| Investing cash flow | 418 | **-223** | -641 |
| thereof Capex on PPE | -130 | **-171** | -41 |
| Financing cash flow | 2,217 | **-702** | -2,919 |

## Cash flow drivers

- D&A increases due to Sigma
- Other assets/liabilities include higher tax payments due to higher profits
- Changes in working capital driven by improved inventory and receivable management
- LY investing cash flow contained sale of financial assets for Sigma purchase
- Capex higher due to HQ & Sigma; FY guidance unchanged
- Financing cash flow reflects repayment of debt; LY included ~€2 bn eurobond issuance



Totals may not add up due to rounding

# 03 GUIDANCE

# Upgrade of full-year 2016 guidance

Merck guidance for 2016

**Net sales: ~ €14.9 – 15.1 bn**

**EBITDA pre: ~ €4,450 – 4,600 m**

**EPS pre: ~ €6.15 – 6.40**



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# 2016 business sector guidance


**Net sales**

- Solid organic growth
- Organic Rebif decline
- Strong growth in Fertility
- Other franchises growing

**EBITDA pre**

~ €2,100 – 2,200 m


**Net sales**

- Mid to high single-digit organic growth
- Main driver Process Solutions
- High double-digit contribution from Sigma

**EBITDA pre**

~ €1,640 – 1,670 m


**Net sales**

- Moderate organic decline
- Improving macro signs amid display industry destocking in LC
- Growing demand in all businesses

**EBITDA pre**

~ €1,100 – 1,150 m

# APPENDIX

# 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 | **2016 & 2017 hedge ratio ~40%-45% at EUR/USD ~ 1.11 to 1.16** |
| 2016 Ø EUR/USD assumption | **~ 1.09 – 1.12** |



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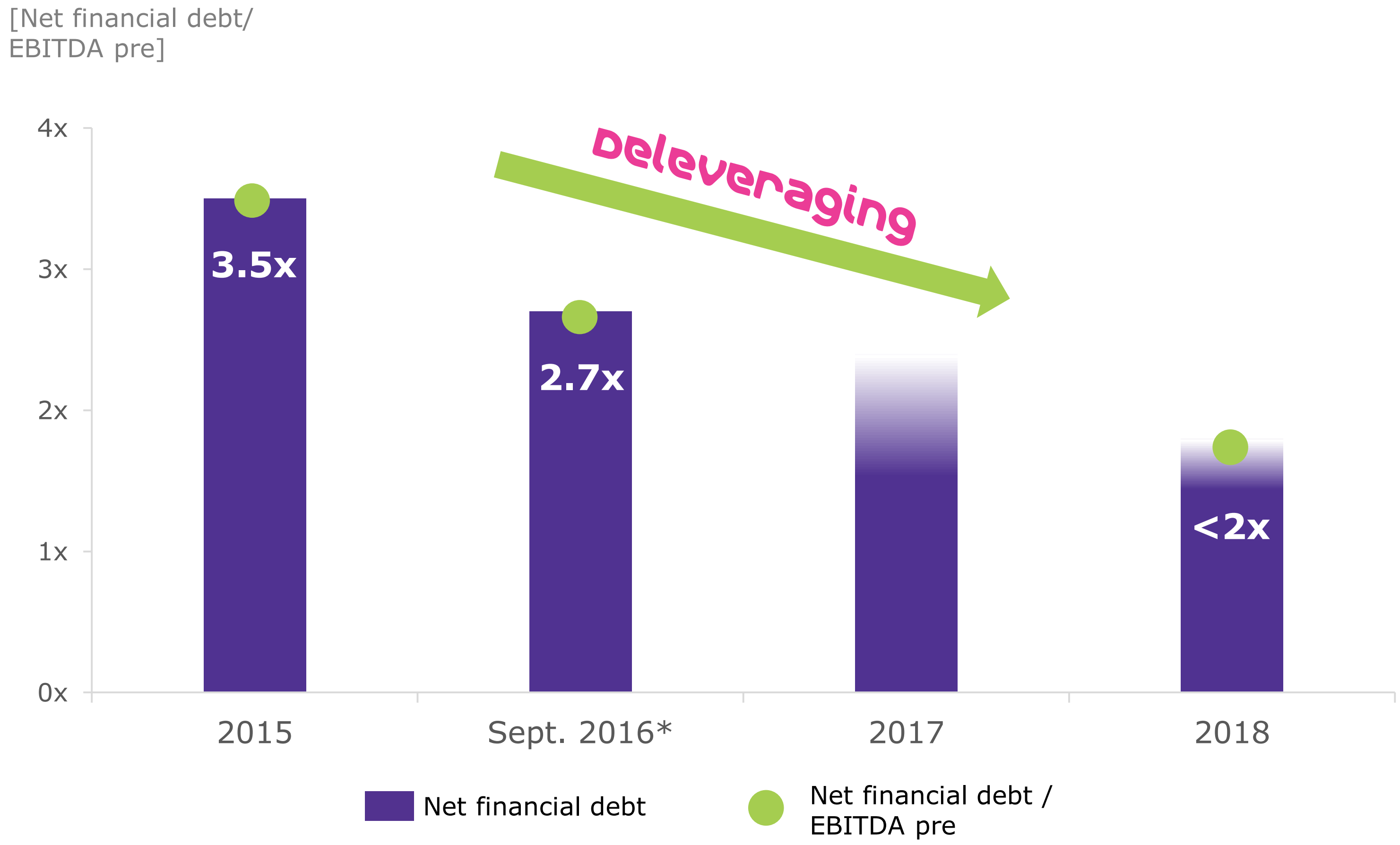
# Strong focus on cash generation to ensure swift deleveraging

## Net financial debt and leverage development



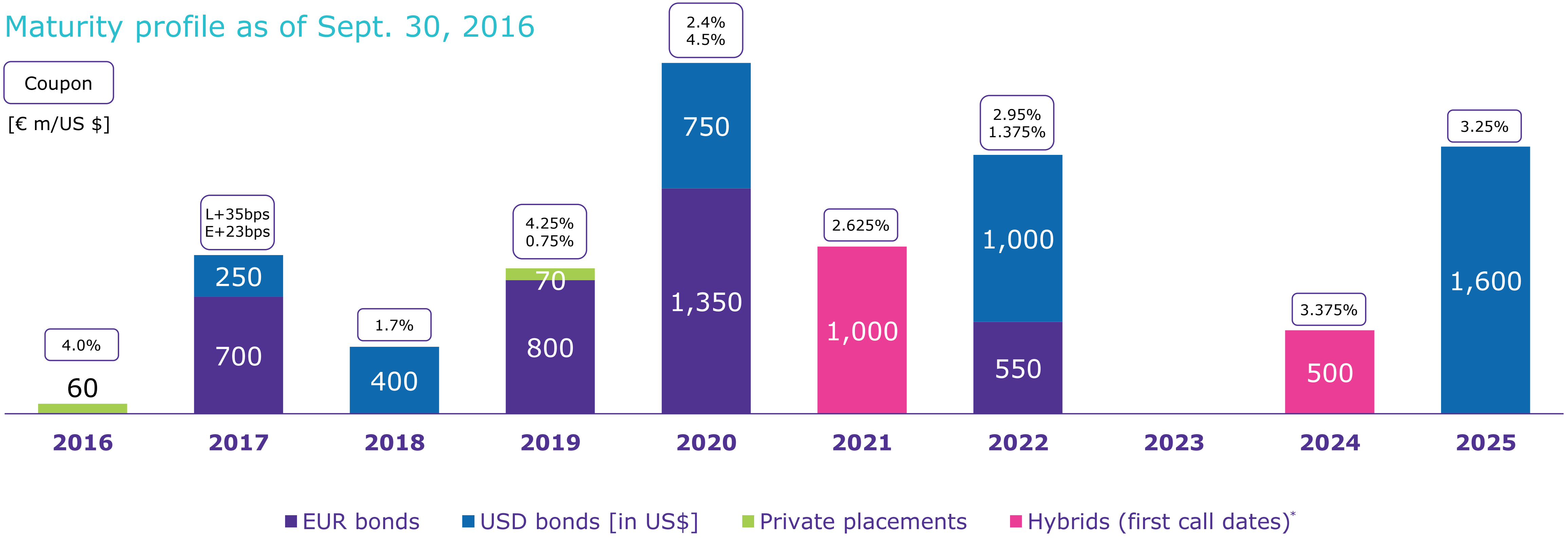

## Focus on deleveraging

- Commitment to swift deleveraging to ensure a strong investment grade credit rating and financial flexibility
- Strong cash flow will be used to drive down leverage to expected <2x net debt/EBITDA pre in 2018
- Larger acquisitions (>€500 m) ruled out for the next two years (or financed by divestments)



*Last twelve months EBITDA pre/net financial debt (without pensions) as of Sept. 30, 2016

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




## Financing structure enables flexible and swift deleveraging



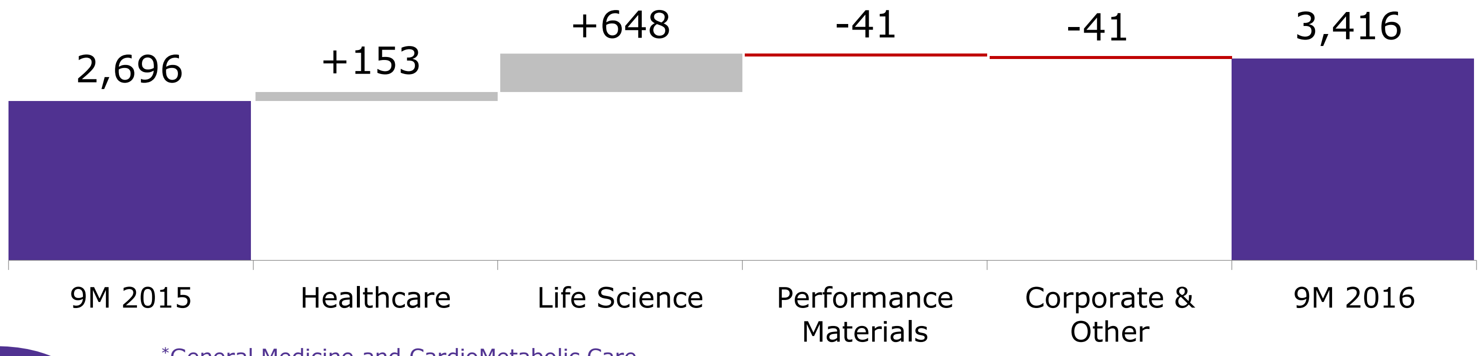
*No decision on call rights taken yet

# Life Science and Healthcare drive growth and profitability

## 9M 2016 YoY net sales

| | Organic | Currency | Portfolio | Total |
|---|---|---|---|---|
| Healthcare | 4.7% | -5.8% | -1.0% | **-2.1%** |
| Life Science | 7.6% | -1.4% | 79.5% | **85.8%** |
| Performance Materials | -4.3% | -0.2% | 3.1% | **-1.4%** |
| Merck Group | 3.6% | -3.6% | 19.3% | **19.3%** |

## 9M YoY EBITDA pre contributors [€ m]




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

- Growth in Healthcare driven by strong Fertility, GM* as well as Xalkori commissions
- Strong organic growth in Life Science driven by Process Solutions
- Organic decline in Performance Materials reflects destocking in display supply chain
- Portfolio reflects Sigma and Kuvan

- HC benefits from good organic growth, end of Rebif commission expenses and R&D termination provision release
- Life Science driven by Sigma, strong organic growth and positive business mix
- Performance Materials slightly lower due to Liquid Crystal sales decrease
- Corporate EBITDA pre contains hedging and investments in corporate initiatives

# 9M 2016: Overview

## Key figures

| [€m] | 9M 2015 | 9M 2016 | Δ |
|---|---|---|---|
| Net sales | 9,381 | **11,194** | 19.3% |
| EBITDA pre | 2,696 | **3,416** | 26.7% |
| *Margin (in % of net sales)* | *28.7%* | *30.5%* | |
| EPS pre | 3.74 | **4.79** | 28.1% |
| Operating cash flow | 1,477 | **1,731** | 17.2% |

| [€m] | Dec. 31, 2015 | Sep. 30, 2016 | Δ |
|---|---|---|---|
| Net financial debt | 12,654 | **11,649** | -7.9% |
| Working capital | 3,448 | **3,684** | 6.8% |
| Employees | 49,613 | **50,967** | 2.7% |

## Comments

- EBITDA pre & margin increase driven by Sigma, organic performance and end of Rebif commission expenses
- EPS pre grows in line with EBITDA pre
- Healthy operating cash flow driven by business performance and Sigma
- Net financial debt reflects cash-in for Kuvan & strong cash generation partially offset by dividend payments
- Working capital increase in line with higher business activity

Totals may not add up due to rounding

# Reported figures reflect solid business performance and Kuvan divestment

## Reported results

| [€m] | 9M 2015 | 9M 2016 | Δ |
|---|---|---|---|
| EBIT | 1,545 | **2,075** | 34.3% |
| Financial result | -223 | **-256** | 15.1% |
| Profit before tax | 1,322 | **1,819** | 37.5% |
| Income tax | -326 | **-451** | 38.5% |
| *Effective tax rate (%)* | *24.6%* | ***24.8%*** | |
| Net income | 989 | **1,360** | 37.5% |
| EPS (€) | 2.27 | **3.13** | 37.9% |

## Comments

- EBIT reflects increased EBITDA pre and Kuvan disposal gain amid integration costs and D&A from Sigma
- Financial result contains Sigma financing interest expenses
- Effective tax rate within guidance range of ~23% to 25%

# Healthcare: Good organic growth and product mix drive profitability

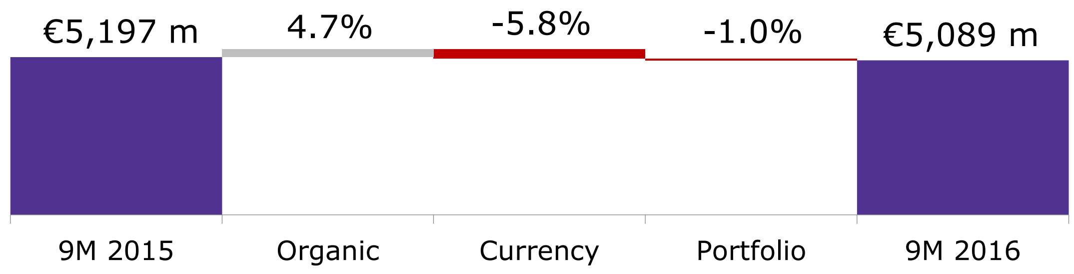
## Healthcare P&L

| [€m] | 9M 2015 | 9M 2016 |
|---|---|---|
| Net sales | 5,197 | **5,089** |
| Marketing and selling | -2,073 | **-1,878** |
| Administration | -195 | **-202** |
| Research and development | -1,027 | **-1,078** |
| EBIT | 884 | **1,314** |
| EBITDA | 1,448 | **1,947** |
| EBITDA pre | 1,478 | **1,631** |
| *Margin (in % of net sales)* | *28.4%* | ***32.0%*** |

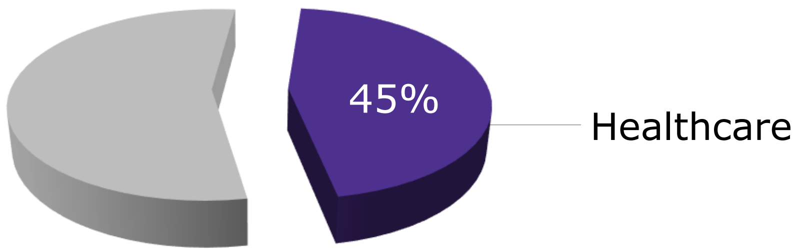
## Comments

- Rebif still impacted by ramp-up of competition in Europe, while U.S. pricing and PDP* in Brazil support performance
- Erbitux shows moderate organic growth against low base
- Strong Fertility driven by favorable competitive situation in U.S.
- Marketing & selling reflects end of commission expenses for Rebif (U.S.) partially offset by reinvestments in sales force & launch preparations
- R&D spend increases as pipeline development progresses
- EBIT reflects Kuvan disposal gain of €324 m in Q1 2016
- Profitability improves due to good organic growth, end of Rebif commissions, ~€30 m disposal gain and ~€40 m R&D provision releases

## Net sales bridge



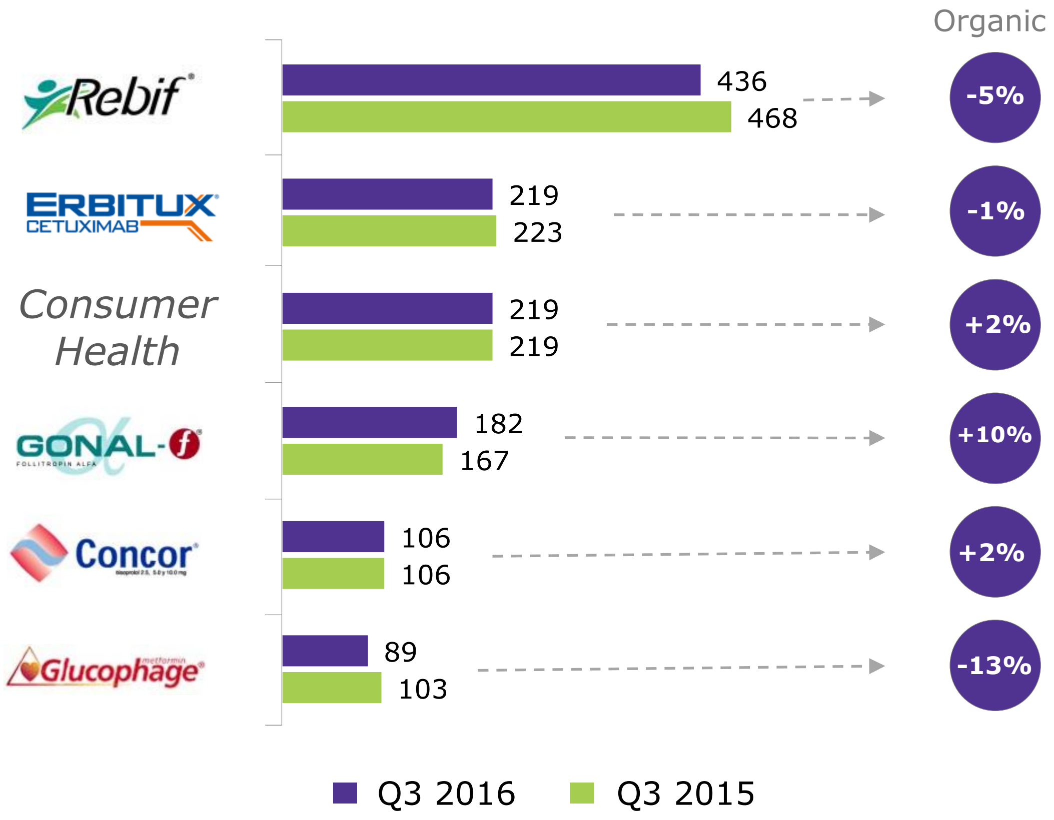

## 9M 2016 share of group net sales



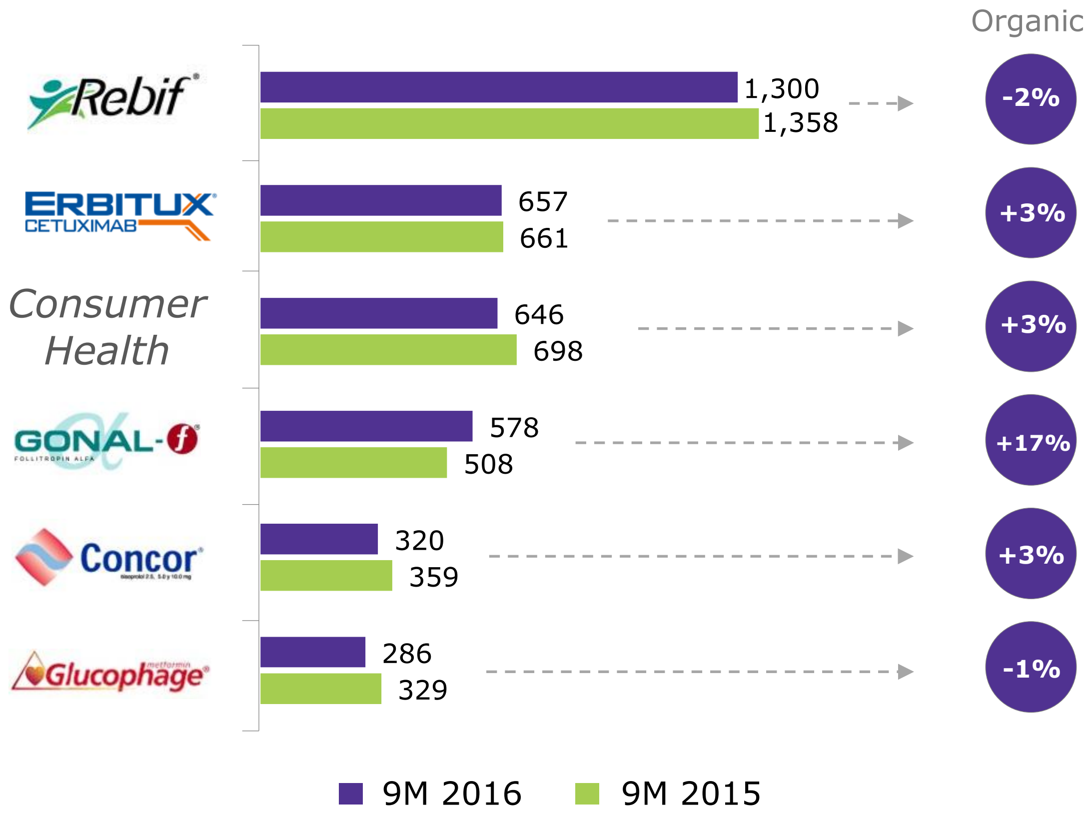

*Productive Development Partnership
Totals may not add up due to rounding

# Healthcare organic growth by franchise/product

## Q3 2016 organic sales growth [%] by key product [€ m]



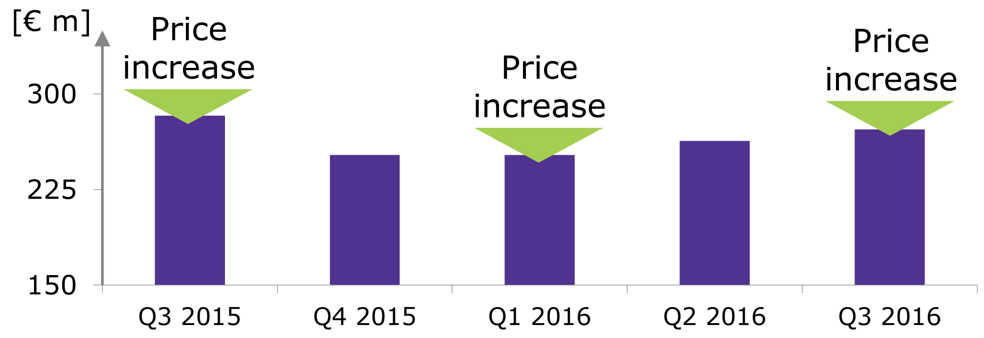

## 9M 2016 organic sales growth [%] by key product [€ m]



# Rebif: Relief in the U.S. – competitive ramp-up in Europe ongoing

## Rebif sales evolution

### North America



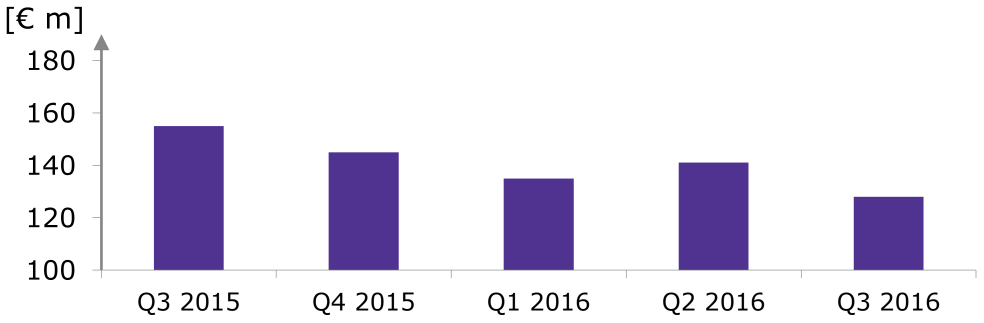


Q3 drivers

-4.0% org.

- Price
- Volume
- FX

### Europe





Q3 drivers

-17.4% org.

- Price
- Volume

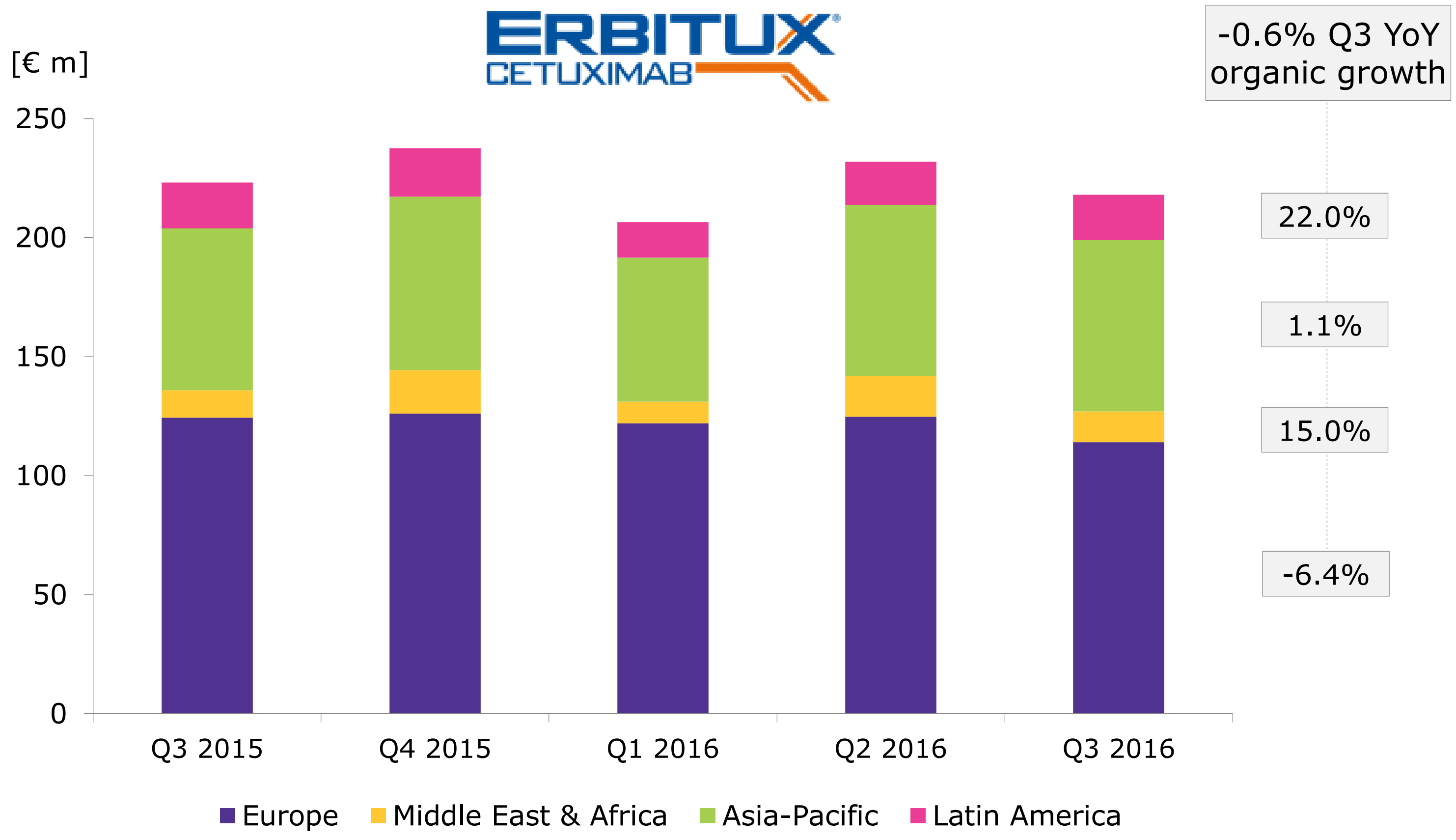
## Rebif performance

- Rebif sales of €436 m in Q3 2016 reflect organic decline of 5.5% amid negative FX effects mainly from LatAm
- Market share within interferons stable due to high retention rates and long-term safety track record
- U.S. pricing & market share stabilization partially offset decline of interferon class
- Ongoing volume decline in Europe due to phased market entry of orals; Q3 2015 contained tender in Russia
- LatAm shows very strong growth due to PDP* in Brazil

*Productive Development Partnership

# Erbitux: A challenging market environment

## Erbitux sales by region



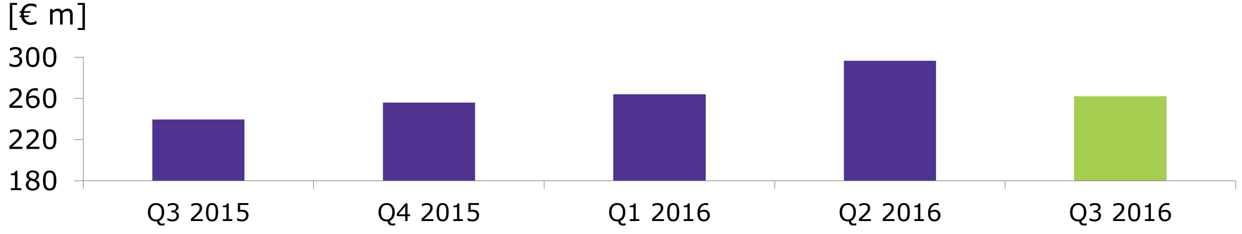

## Erbitux performance

- Sales decrease to €219 m as solid volume development in growth markets is more than offset by price cuts
- Europe organically lower in ongoing tough environment (price & competition)
- Asia-Pacific contains strong volume growth in China partially offset by softness in Japan
- Organic growth in LatAm and MEA reflects growing demand especially in Brazil

# Solid organic growth in Fertility, General Medicine and Endocrinology

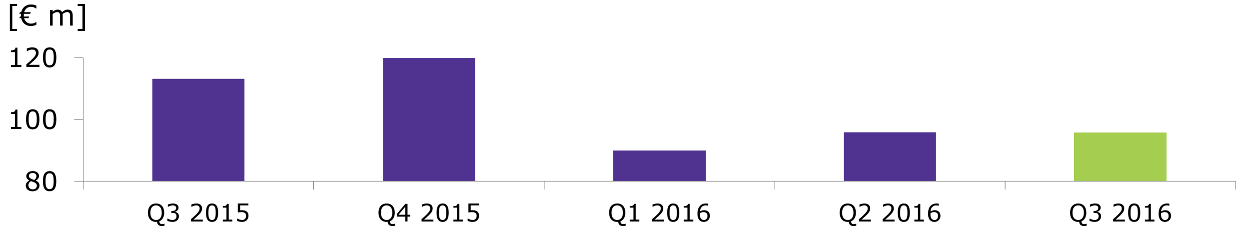
## Sales evolution

### Fertility



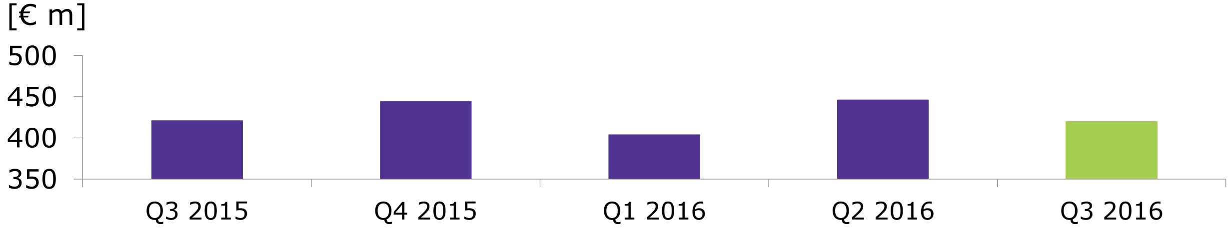

Organic
10.4% org.

### Endocrinology




Organic
1.7% org.

### General Medicine*




Organic
0.8% org.

## Q3 drivers

- Fertility shows strong growth across all products, especially in China
- Gonal-f still benefiting from competitive situation in the U.S. outweighing slight uptake of biosimilars in Europe
- Sales drop in Endocrinology reflects Kuvan divestment; remaining portfolio growing organically
- General Medicine sales burdened by FX headwinds from LatAM and China, underlying trends remain intact
- Euthyrox posts good growth in Europe and across APAC and LatAm
- Glucophage decline linked to phasing & difficult macroeconomic environment in parts of MEA

*includes "CardioMetabolic Care & General Medicine and Others

# Merck 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

**M7583 - BTK inhibitor**
Hematological malignancies

**Avelumab – Anti-PD-L1 mAb**
Solid tumors

**Avelumab – Anti-PD-L1 mAb**
Hematological malignancies

**M9241 (NHS-IL12)[1]**
**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

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

**Tepotinib**
**c-Met kinase inhibitor**
Hepatocellular cancer

**Sprifermin**
**Fibroblast growth factor 18**
Osteoarthritis

**Atacicept**
**Anti-Blys/anti-APRIL fusion protein**
Systemic lupus erythematosus

**M2951**
**BTK inhibitor**
Rheumatoid arthritis

## Phase III

**Avelumab – Anti-PD-L1 mAb**
Non-small cell lung cancer 1L[2]

**Avelumab – Anti-PD-L1 mAb**
Non-small cell lung cancer 2L[3]

**Avelumab – Anti-PD-L1 mAb**
Gastric cancer 1L[2]

**Avelumab – Anti-PD-L1 mAb**
Gastric cancer 3L[4]

**Avelumab – Anti-PD-L1 mAb**
Bladder cancer 1L[2]

**Avelumab – Anti-PD-L1 mAb**
Ovarian cancer platinum resistant/refractory

**Avelumab – Anti-PD-L1 mAb**
Ovarian cancer 1L[2]

**Avelumab - Anti-PD-L1 mAb**
Renal cell cancer 1L[2]

**MSB11022**
**Proposed biosimilar of Adalimumab**
Chronic plaque psoriasis

## Registration

**Cladribine Tablets – Lymphocyte targeting agent**
Relapsing-remitting multiple sclerosis

**Avelumab[5] – Anti-PD-L1 mAb**
Merkel cell carcinoma

- Neurodegenerative Diseases
- Oncology
- Immunology
- Immuno-Oncology
- Biosimilars

Pipeline as of November 7th, 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.

[1] Sponsored by the National Cancer Institute (USA); [2] 1st line treatment; [3] 2nd line treatment; [4] 3rd line treatment;
[5] European Medicines Agency accepted Merck's Marketing Authorization Application in October 2016

# Life Science: Strong top-line growth and fast synergy realization

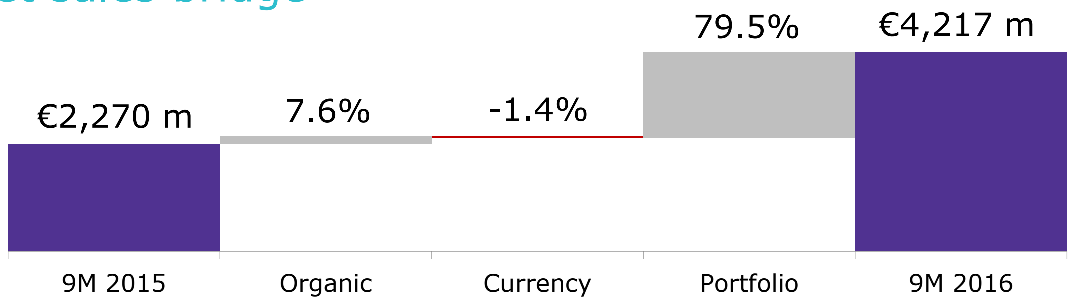
## Life Science P&L

| [€m] | 9M 2015 | 9M 2016 |
|---|---|---|
| Net sales | 2,270 | **4,217** |
| Marketing and selling | -715 | **-1,248** |
| Administration | -88 | **-176** |
| Research and development | -139 | **-190** |
| EBIT | 266 | **486** |
| EBITDA | 514 | **1,026** |
| EBITDA pre | 585 | **1,233** |
| *Margin (in % of net sales)* | *25.8%* | ***29.2%*** |

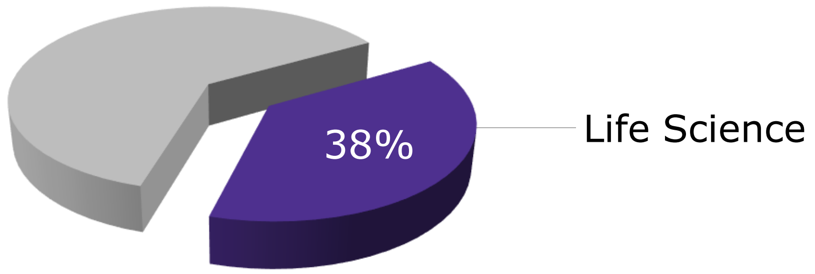
## Comments

- Double-digit growth of Process Solutions driven by increasing production of large molecules across global and regional accounts
- Applied Solutions shows moderate organic growth, driven by bio-monitoring products for pharma & demand for analytical testing
- Research Solutions benefits from increased research on biologics as well as solid demand for analytical chemicals
- Cost base contains Sigma, but improves in relation to sales
- Profitability reflects Sigma, business mix and synergies

## Net sales bridge




## 9M 2016 share of group net sales






Totals may not add up due to rounding

# Performance Materials: Healthy profitability amid display supply chain destocking

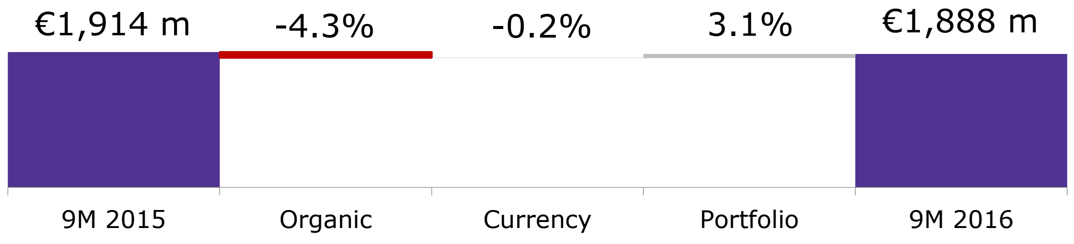
## Performance Materials P&L

| [€m] | 9M 2015 | 9M 2016 |
|---|---|---|
| Net sales | 1,914 | **1,888** |
| Marketing and selling | -154 | **-175** |
| Administration | -48 | **-45** |
| Research and development | -145 | **-157** |
| EBIT | 685 | **613** |
| EBITDA | 864 | **808** |
| EBITDA pre | 870 | **829** |
| *Margin (in % of net sales)* | *45.4%* | ***43.9%*** |

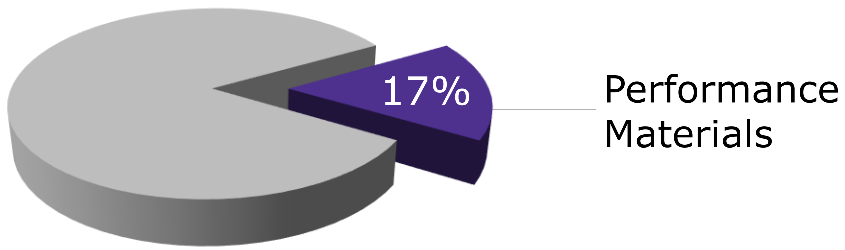
## Comments

- LC impacted by volume declines of mature TN-TFT and inventory correction in supply chain, while premium technologies see high demand
- OLED continues to grow on industry capacity expansion & investments
- Integrated Circuit Materials (ICM) shows good growth in all major product categories driven by increasing complexity of chips
- Pigments & Functionals post solid growth esp. due to cosmetic API*
- Marketing & selling reflects contribution from Sigma's SAFC Hitech
- Healthy profitability due to leading market position with highly differentiated products, despite destocking in display supply chain

## Net sales bridge



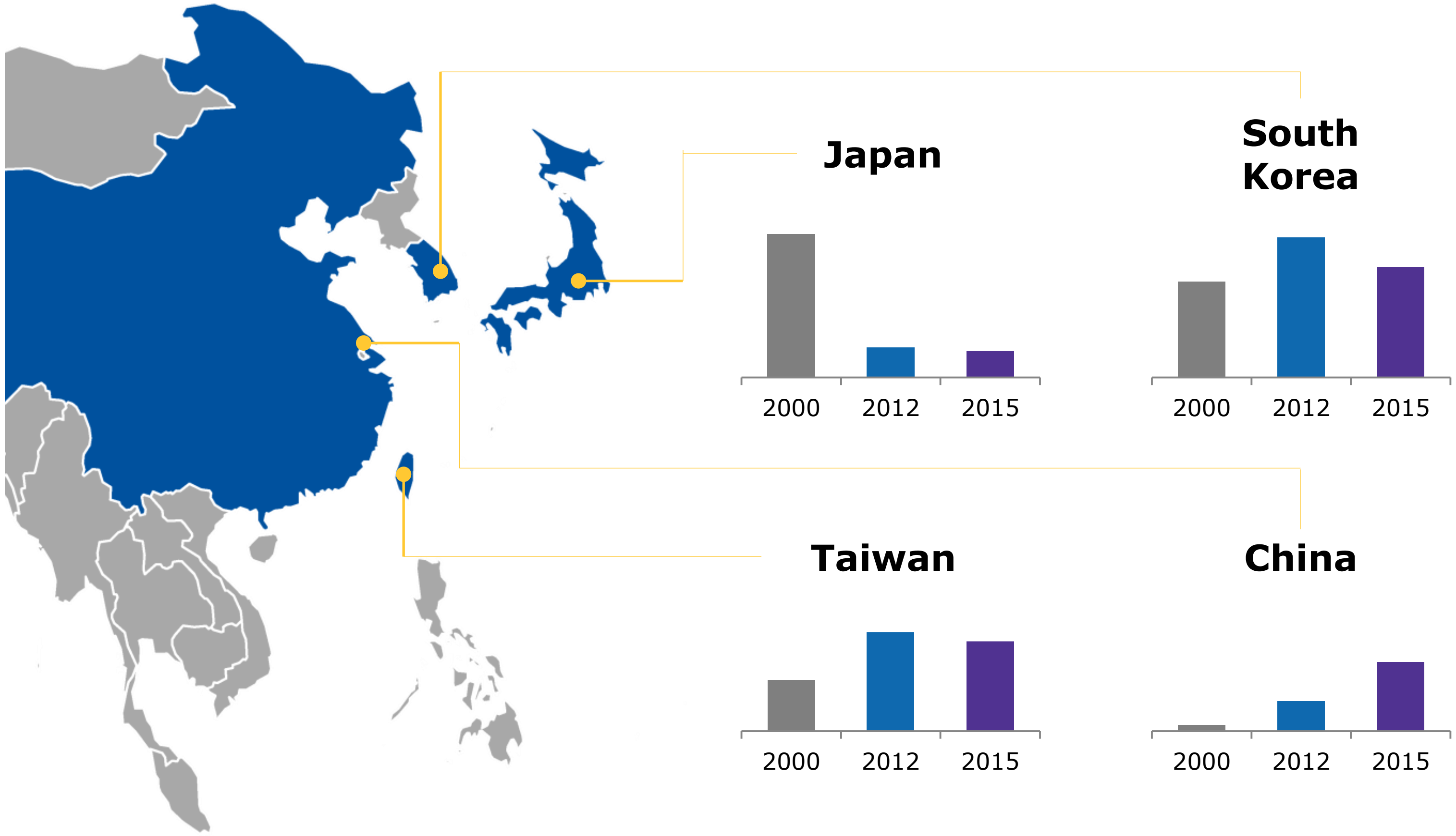

## 9M 2016 share of group net sales




*Active pharmaceutical ingredient
Totals may not add up due to rounding

# Merck customers, panel and set makers alike, are based in Asia

## Share of global production capacities* of customers by region




### Main customers

| | |
|---|---|
| Innolux<br>AU Optronics | INNOLUX DISPLAY CORP.<br>AUO AU Optronics |
| Samsung Display<br>LG Display | SAMSUNG DISPLAY<br>LG Display |
| BOE<br>CSOT | 京东方 BOE<br>华星光电 CSOT |
| Sharp<br>SDP** | SHARP |

* Source : IHS data Q2 2016
** Sakai Display Products

# TV size increase leads to overproportionate demand increase for liquid crystals

## Increasing area requires more LC material


40″ diameter

+

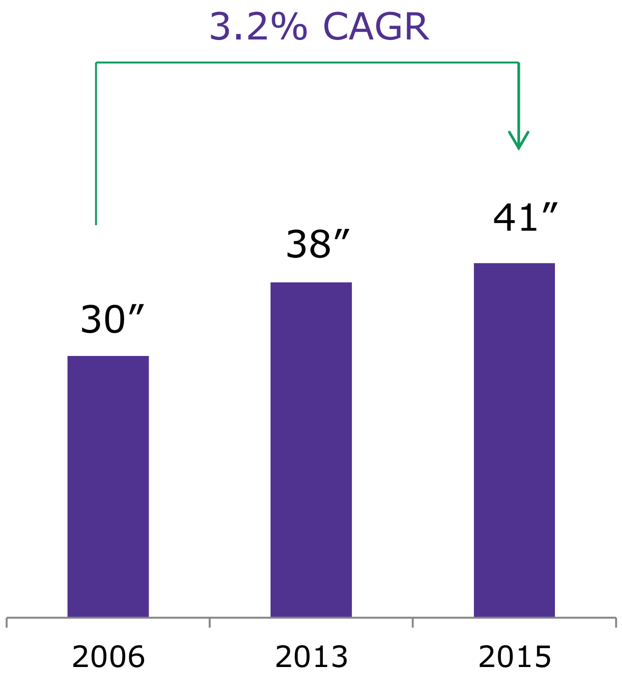
≈1 inch

=

4-5% more liquid crystals

**Trend toward bigger TV sizes drives liquid crystal demand**

**Average TV size in inch**



# Healthy operating cash flow reflects strong business performance

## 9M 2016 – cash flow statement

| [€m] | 9M 2015 | 9M 2016 | Δ |
|---|---|---|---|
| Profit after tax | 997 | **1,368** | 371 |
| D&A | 1,006 | **1,386** | 380 |
| Changes in provisions | 32 | **-42** | -74 |
| Changes in other assets/liabilities | -348 | **-396** | -48 |
| Other operating activities | -6 | **-421** | -415 |
| Changes in working capital | -204 | **-165** | 39 |
| Operating cash flow | 1,477 | **1,731** | 254 |
| Investing cash flow | 2,670 | **-53** | -2,723 |
| thereof Capex on PPE | -297 | **-456** | -159 |
| Financing cash flow | 4,331 | **-1,631** | -5,962 |

## Cash flow drivers

- Profit after tax includes gain from Kuvan divestment, which is neutralized in other operating activities
- D&A increases mainly due to Sigma
- Changes in working capital reflect improved inventory and receivables management
- Investing cash flow contains increased Capex & Kuvan; LY with sale of financial assets & Sigma hedging cash-in
- Financing cash flow reflects first repayments of Sigma-related debt; LY contains € and US$ bond issuances



Totals may not add up due to rounding

# Exceptionals in Q3 2016

## Exceptionals in EBIT

| [€m] | Q3 2015 | | Q3 2016 | |
|---|---|---|---|---|
| | Exceptionals | thereof D&A | Exceptionals | thereof D&A |
| Healthcare | -1 | 0 | 5 | 0 |
| Life Science | 21 | 0 | 25 | 0 |
| Performance Materials | 5 | 0 | 8 | 0 |
| Corporate & Other | 18 | 0 | 25 | 0 |
| Total | 44 | 0 | 63 | 0 |



Totals may not add up due to rounding

# Exceptionals in 9M 2016

## Exceptionals in EBIT

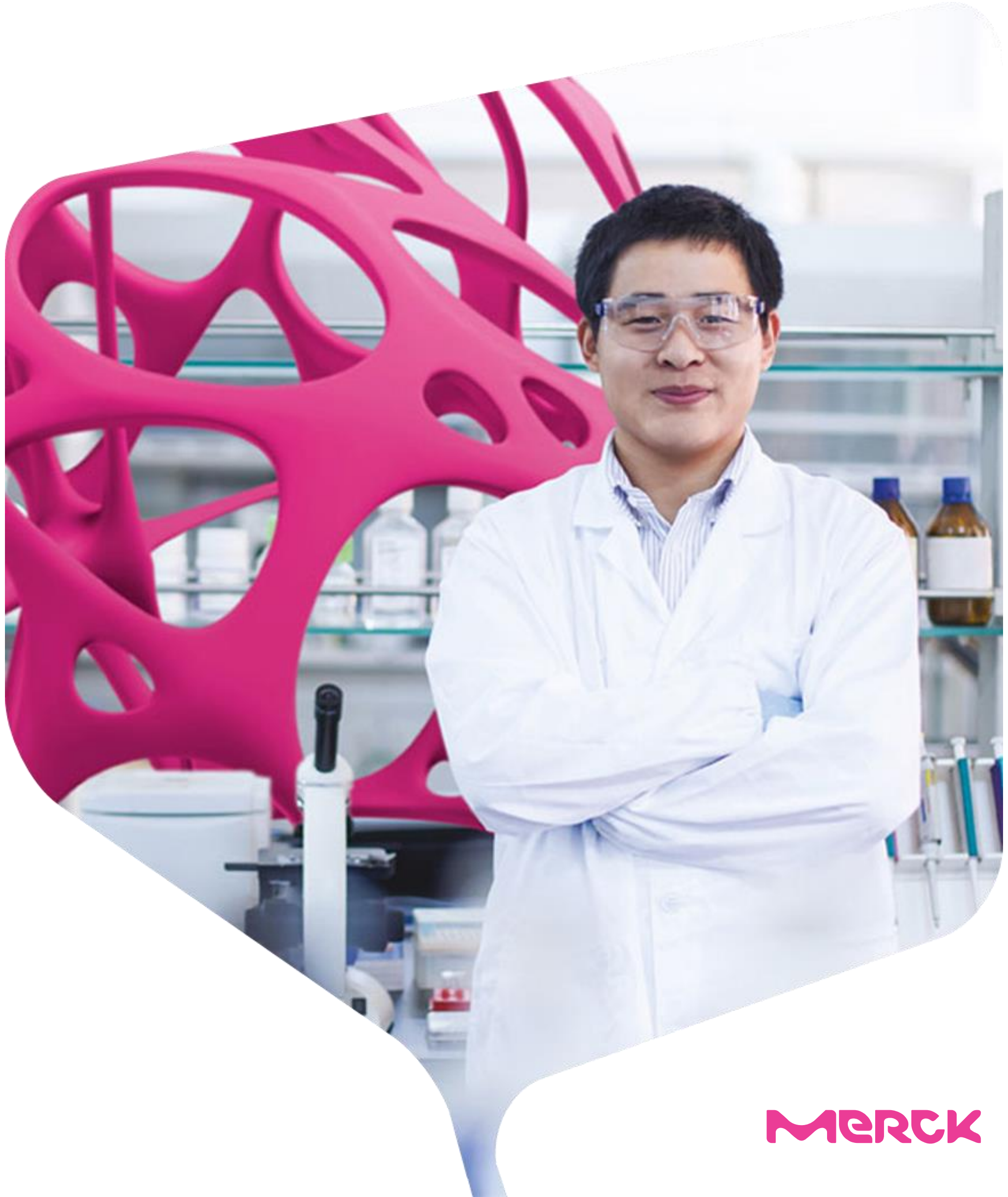
| [€m] | 9M 2015 | | 9M 2016 | |
|---|---|---|---|---|
| | Exceptionals | thereof D&A | Exceptionals | thereof D&A |
| Healthcare | 32 | 2 | -245 | 71 |
| Life Science | 71 | 0 | 207 | 0 |
| Performance Materials | 6 | 0 | 21 | 0 |
| Corporate & Other | 39 | 0 | 42 | 0 |
| Total | 148 | 2 | 25 | 71 |



Totals may not add up due to rounding

# Financial calendar

| Date | Event |
|---|---|
| March 9, 2017 | Q4 2016 Earnings release |
| April 28, 2017 | Annual General Meeting |
| May 18, 2017 | Q1 2017 Earnings release |
| August 3, 2017 | Q2 2017 Earnings release |
| November 9, 2017 | Q3 2017 Earnings release |



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