



MERCK KGAA, DARMSTADT, GERMANY – BERENBERG EUROPEAN CONFERENCE

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London, December 4, 2017



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Agenda

- 01 Business overview**
- 02 Healthcare – Funding for success**
- 03 Life Science – Focusing on profitable growth**
- 04 Performance Materials – Maintaining leadership and innovation**
- 05 Executive summary and guidance**

Group

Portfolio of three high-tech businesses



Leading in specialty pharma markets

- Biologics and small-molecules
- Research focus: Oncology, Immunology & Immuno-Oncology
- Over-the-counter medicine



Leading life science company

- Tools and services for biotech research & production
- Tools and laboratory supply for the academic research and industrial testing

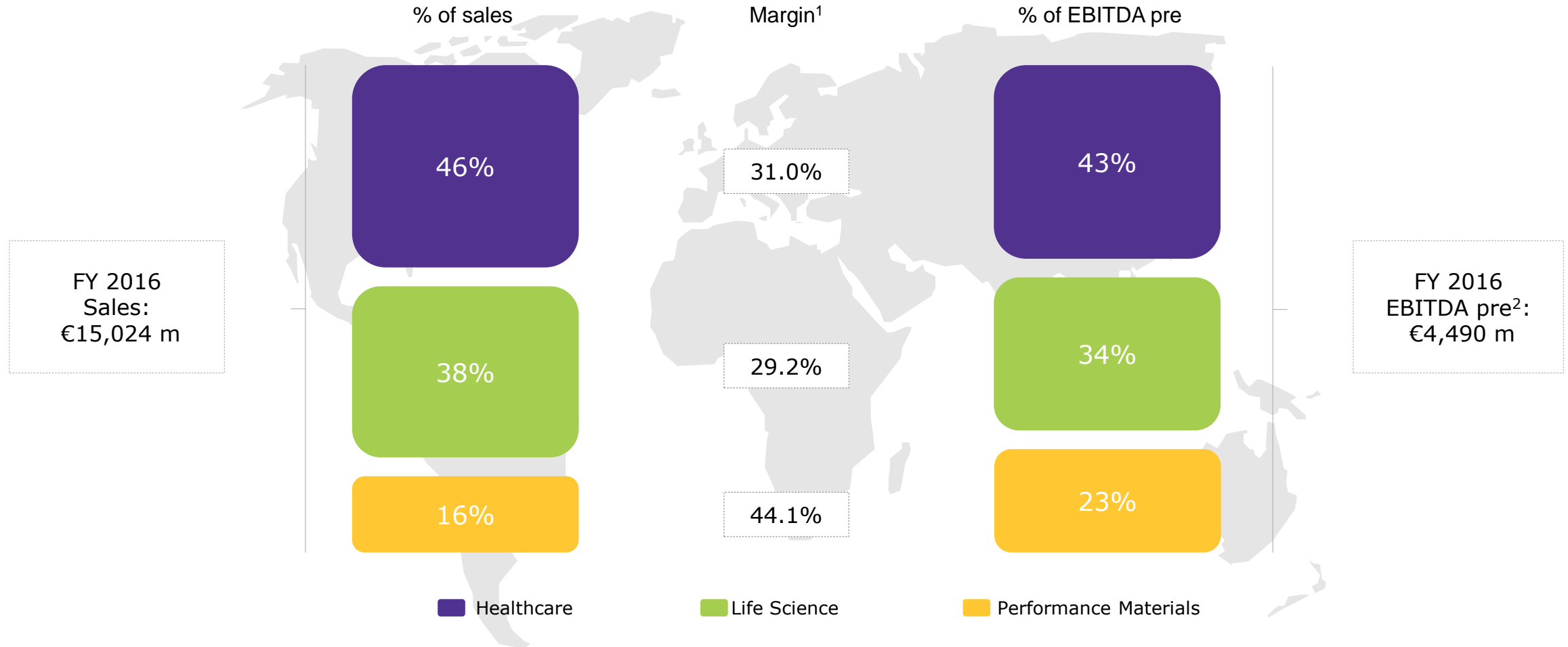


Market leader in specialty materials

- Innovative display materials
- Effect pigments and functional materials
- High-tech materials for electronics

Group

Strong businesses with attractive margins



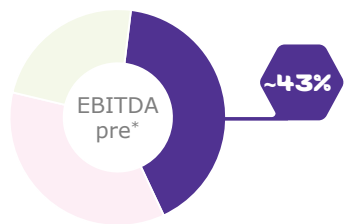
¹EBITDA pre margin in % of net sales; ²Including Corporate/Others (-€396 m)

Group

We keep focus on our major priorities and goals per 2018



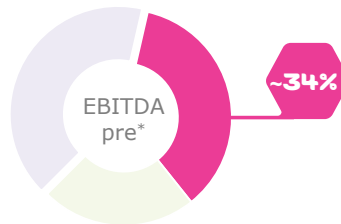
Healthcare



- Maximize growth of existing franchises
- Deliver pipeline: one product launch or indication p.a. from 2017



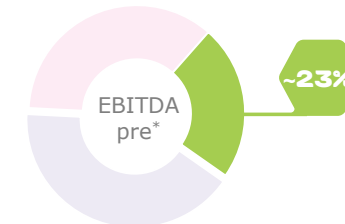
Life science



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



Performance Materials



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

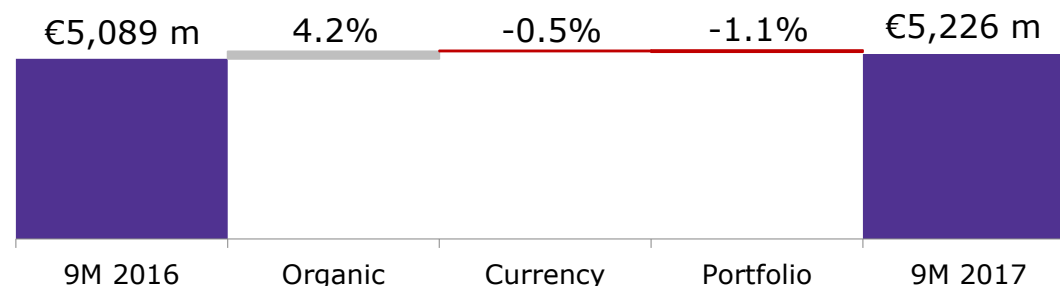
Healthcare

Financial performance: solid organic growth amid pipeline investments

Healthcare P&L

[€m]	9M 2016	9M 2017
Net sales	5,089	5,226
Marketing and selling	-1,878	-2,033
Administration	-202	-226
Research and development	-1,078	-1,188
EBIT	1,314	1,375
EBITDA	1,947	1,847
EBITDA pre	1,631	1,566
Margin (in % of net sales)	32.0%	30.0%

Net sales bridge



Comments

- Rebif declines due to competition in U.S. & EU
- Erbitux shows organic decline - volume increase in growth markets outweighed by competition and price reductions in Europe
- General Medicine portfolio posts double-digit organic growth driven by strong performance in growth markets and repatriation in China
- M&S reflects investments for launches & Glucophage repatriation China
- R&D costs increase due to pipeline development
- Profitability benefits from royalty swap, Bavencio milestones and organic performance, but more than offset by higher R&D and M&S costs

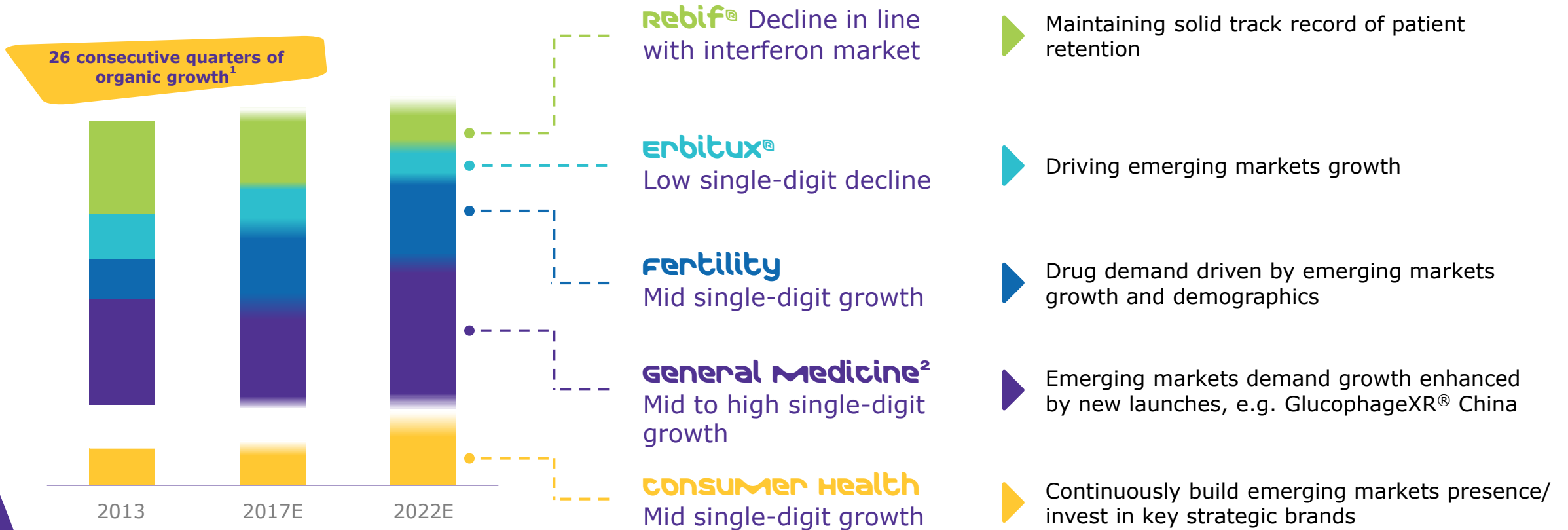
Key achievements 2017

- ✓ Mavenclad: approved in Europe (RMS)
- ✓ Bavencio: approved in two indications (MCC/UC)
- ✓ BTK inhibitor: comprehensive phase IIb program started
- ✓ Anti-PD-L1/TGF-β trap: broad phase Ib program started
- ✓ Early stage: innovative assets in-licensed

Healthcare

Base business: ambition to keep sales organically stable until 2022

Healthcare base business net sales until 2022

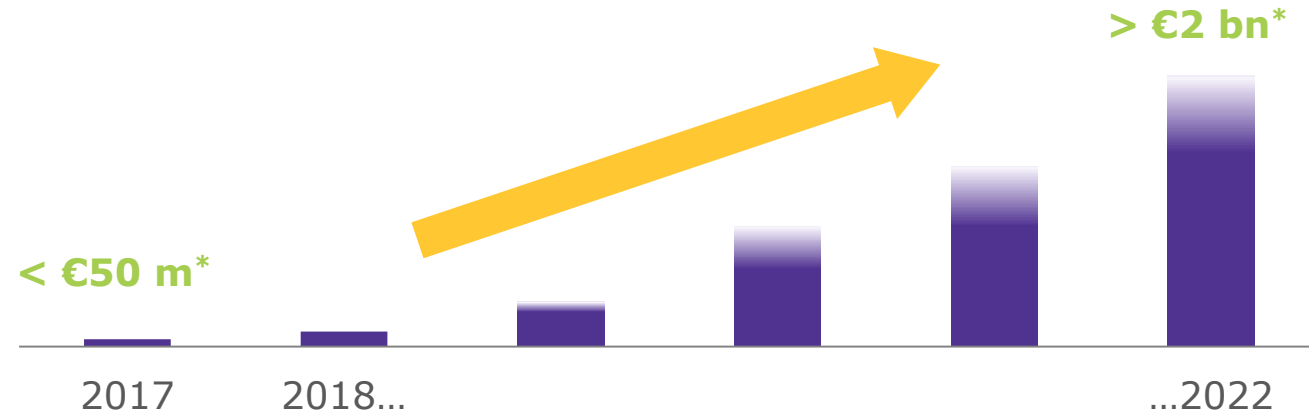


Healthcare

Development pipeline: on track to deliver the €2bn ambition by 2022

Potential pipeline sales

Key projects



Bavencio



- 30 clinical programs ongoing (>15 tumor types)
- Nine phase III trials/various phase I cohorts ongoing

Mavenclad



- Approved in Europe (expected peak sales ~€500-700m)
- Submission in other jurisdictions planned

TGF-β trap



- Phase Ib cohorts ongoing (14 indications)
- Cohorts to read out continuously throughout 2018

Healthcare

Bavencio: targeted launches picking-up continuously

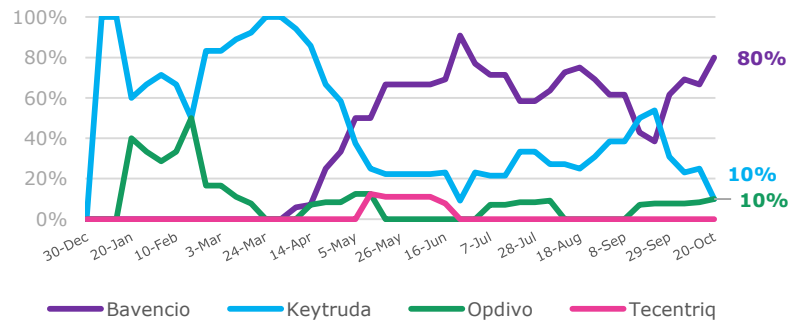
mMCC¹

Maximizing leadership

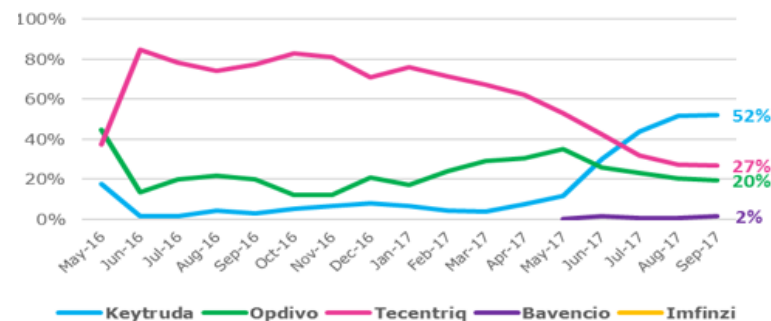
mUC²

Building foundation

MCC Naïve/1L Patient share of IO class



New Patients, 2L PDx share of IO class



Bavencio[®]
on track to reach ~€20 m sales in 2017

- Successful uptake since accelerated approval³

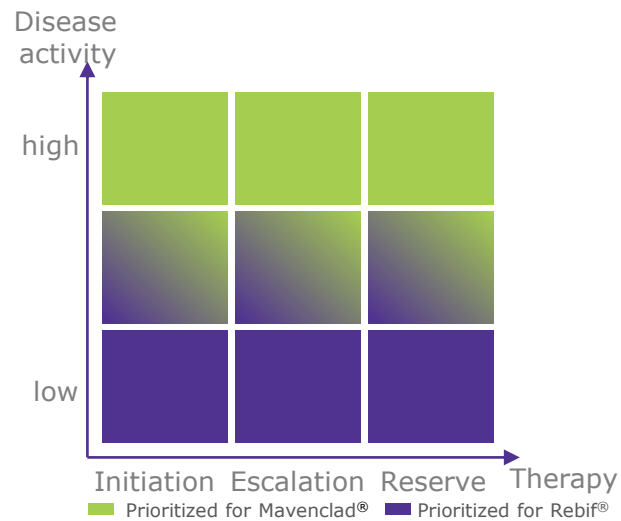
- Targeted go-to-market strategy (conditional approval)

¹mMCC = metastatic Merkel cell carcinoma; ²mUC = metastatic urothelial cancer; ³Accelerated FDA approval for mMCC on March 23, 2017, and for mUC on May 9, 2017; Continued approval for these indications in the U.S. is contingent upon verification and description of clinical benefit in confirmatory trials
Data sources: IMS claims data

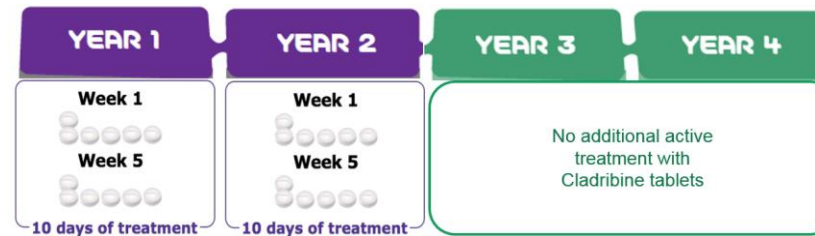
Healthcare

Mavenclad: launch ramping-up successfully

Position Complementary offering



Posology Unique value proposition



MAVENCLAD®
 on track to reach high single digit €m sales in 2017

- Mavenclad label: ~60-70% of RRMS
- Rebif & Mavenclad complementary at patient and physician level

- Selective immune reconstitution
- 2 years treatment for 4 years efficacy
- Positive NICE recommendation in UK

Healthcare

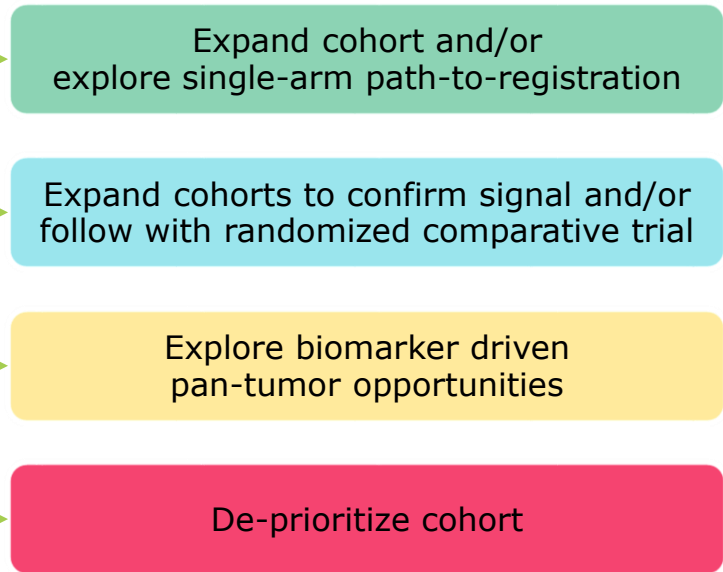
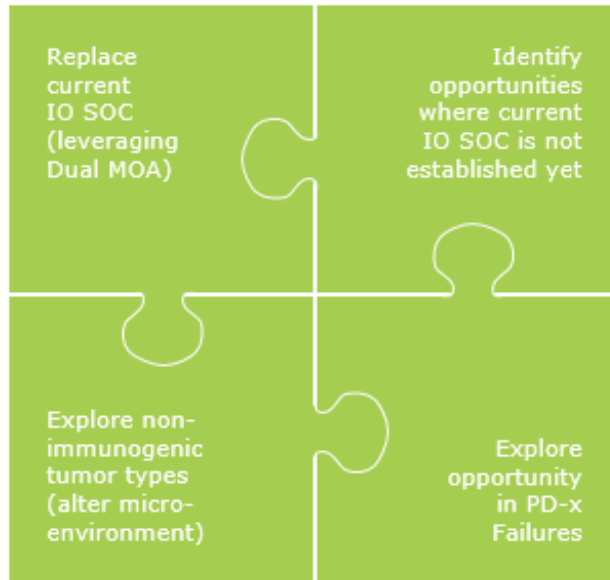
Anti-PD-L1/TGF- β trap: reading-out throughout 2018

Status

14 targeted cohorts tested

Next

Focused decisions



**anti-PD-L1/
TGF- β trap**
on track to
inform focused
development
program for 2018

- Preliminary evidence of anti-tumor activity in heavily pre-treated patients (PDX-resistant/refractory)

- Upcoming read-outs of cohorts (e.g. NSCLC) will guide focused late-stage development program

Healthcare

Growth funded through active portfolio management

Kuvan divestment

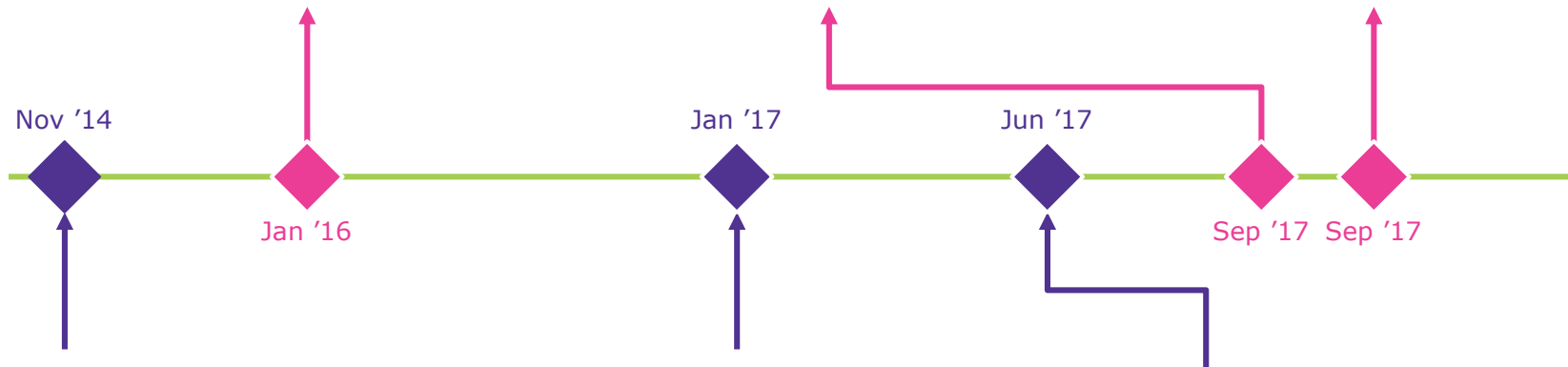
- Returning rights for Kuvan (rare disease) to BioMarin
- +324m€ divestment gain

Biosimilars divestment

- Selling Biosimilars activities
- +156m€ upfront, up to 500m€ milestone payments/royalties

Consumer Health

- Announced evaluation of strategic options for OTC business*
- Financials subject to deal model



Pfizer alliance

- Co-promotion agreement to jointly develop/commercialize avelumab (immuno-oncology)
- +850m\$ upfront plus regulatory/commercial milestone payments

Vertex in-licensing

- Access to two promising clinical programs targeting DNA damage and repair
- -230m\$ upfront plus royalties on future sales

F-star collaboration

- Develop and commercialize five bi-specific IO assets (incl. anti-LAG-3/PD-L1 asset)
- Up to -115m€ upfront, plus R&D funding/milestones

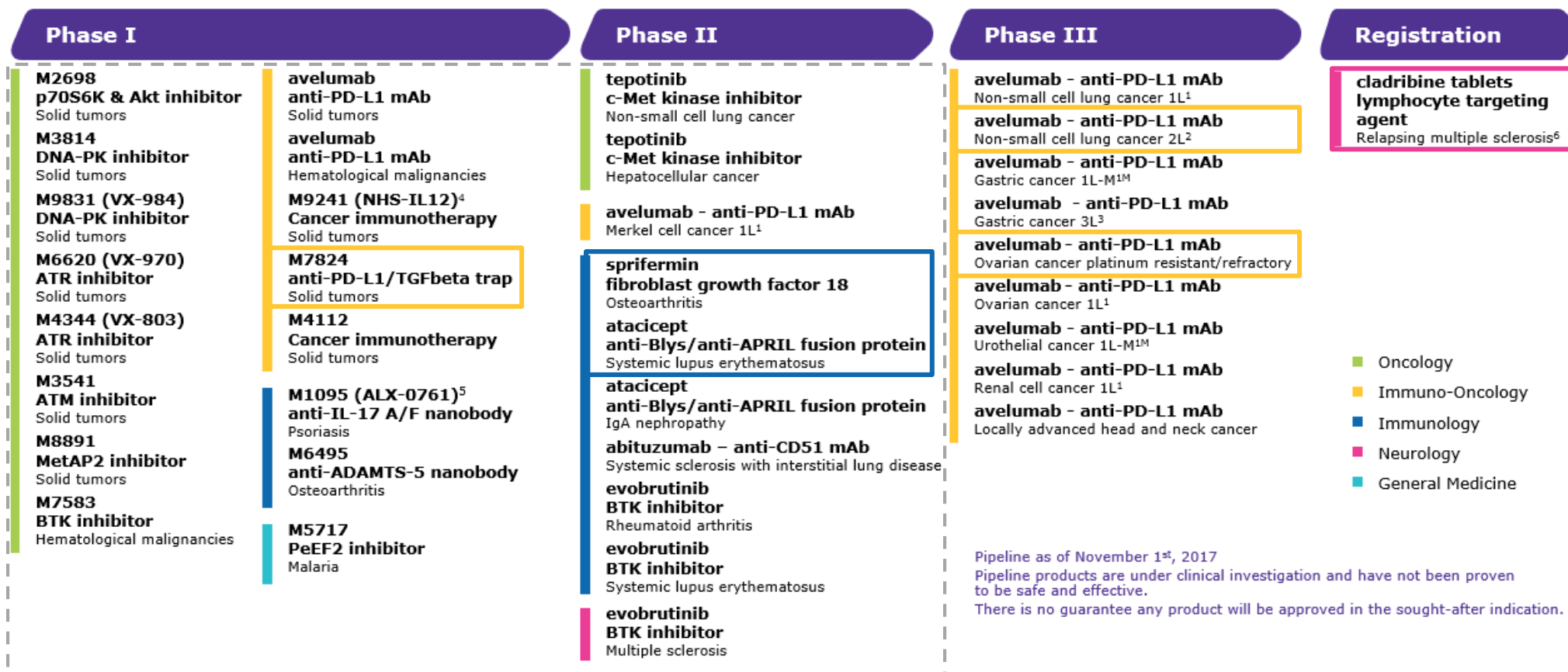
FOCUSED R&D ON
three specialty
therapeutic areas

disciplined
portfolio
prioritization

innovative deal
models to realize
full potential of
assets

Healthcare

Long-term: pipeline optionality / short-term: five priorities (H1 2018)



- Oncology
- Immuno-Oncology
- Immunology
- Neurology
- General Medicine

Pipeline as of November 1st, 2017
 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.

Prioritization/
Externalization

Read-out of
14 indications

Two phase III
decisions

Two phase III
read-outs

One potential
US submission

1

2

3

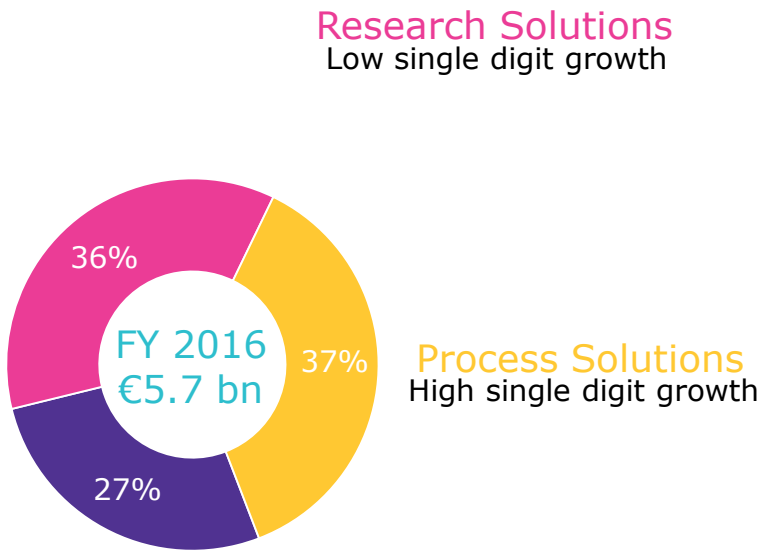
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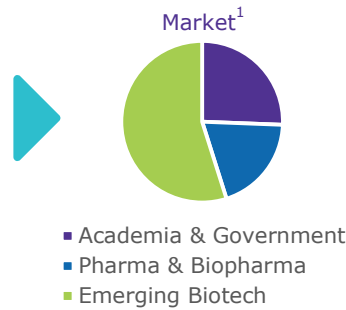
Life Science

Business on track to deliver above market organic growth (~4%)

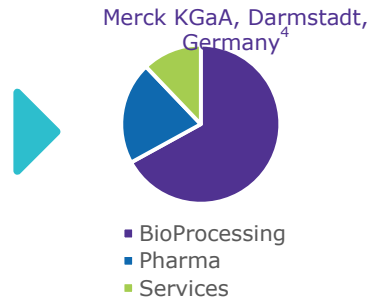
Life Science



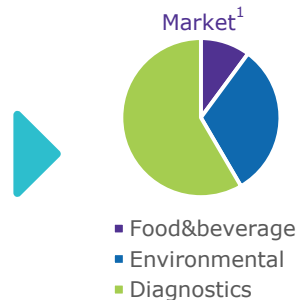
Research Solutions
Low single digit growth



Process Solutions
High single digit growth



Applied Solutions
Mid single digit growth







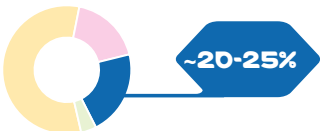







Long-term growth drivers

- **Research activity:** >3,000 projects in research pipelines², rising number of experiments and newly emerging therapies/technologies backs healthy growth in biotech and CROs³
 - **Public and private funding:** availability, access and predictability drive demand from academia and emerging biotech customers
 - **Regulation:** rising requirements foster long-term customer partnerships
-
- **Biologics:** mAbs production⁵ growing by ~12% p.a. for 2016-2021 driven by new molecules and biosimilars
 - **Diversification:** contribution by top 10 molecules will decline to ~30% until 2021 from 80% today⁶
 - **Noval modalities:** innovation in complex-to-deliver therapies, e.g. gene and cell therapy, will drive demand for single-use, end-to-end and new technology solutions
-
- **Regulation:** testing volumes overall are rising globally rise in quality standards and increased demand for testing across customer segments
 - **Population and economic growth:** demand for access to more sophisticated products and services rises, e.g. in emerging markets
 - **Speed:** need for fast testing results raises requirements for Applied customers, esp. in clinical testing and food & beverage testing

¹Source: Merck KGaA, Darmstadt, Germany Factbook; ²Source: PhRMA; ³CRO = commercial research organisation; ⁴Indicative only; ⁵mAbs = monoclonal antibodies; ⁶Source: EvaluatePharma April 2017

Performance Materials

The four pillars are set for future profitable growth

Business unit	% sales	Products	Mid-term growth trend
 Display Materials		<ul style="list-style-type: none"> Liquid crystals (LC) and photoresists for TVs, smartphones and tablet computers Other display and non-display applications (e.g. LC Windows) 	
 Integrated Circuit Materials		<ul style="list-style-type: none"> Dielectrics, colloidal silica, lithography materials, yield enhancers, edge-bead removers Polyimide raw materials and printing materials 	
 Pigments and Functional Materials		<ul style="list-style-type: none"> Effect pigments and functional materials for coatings, plastics, printing and cosmetics Functional materials for cosmetics & special applications 	
 Advanced Technologies		<ul style="list-style-type: none"> Organic and inorganic light emitting diodes Functional materials for electronics and energy solutions 	

Well-founded medium-term low single-digit growth profile

Group

We are well on track to deliver on our promises



Group

Net debt reduced by >€2 bn¹
Strict financial discipline supports rating



Healthcare

Base business growing
Launches and pipeline delivery materializing



Life Science

Sigma-Aldrich synergies raised and well on track
Organic growth above market



Performance Materials

Market challenges well managed
New technologies in test phase

**Important
Milestones
reached
to deliver
on our
promises**

**CMD²
DECEMBER
2015**

**Q3 2017
RESULTS**

2018

Group Full-year 2017 guidance

▶ Net sales: ~ €15.3 – 15.7 bn ◀

▶ EBITDA pre: ~ €4,400 – 4,600 m ◀

▶ EPS pre: ~ €6.15 – 6.50 ◀



