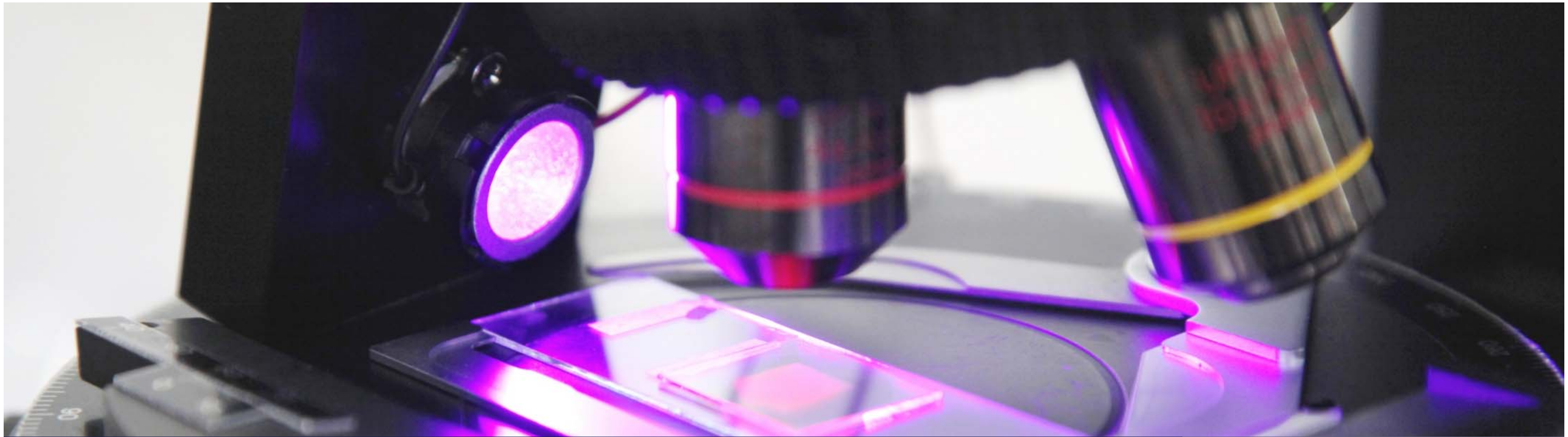

Biopharmaceuticals Investor & Analyst Day

Taking Biopharmaceuticals to the next level of value generation

Stefan Oschmann

CEO of Pharma

Merck KGaA
Darmstadt · Germany

Darmstadt, Germany – September 18, 2014

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Setting the scene for today’s Investor & Analyst Day

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“Fit for 2018” transformation and growth process 2012 – 2018

May 2012

Biopharmaceuticals starting point

“Who we were”

Steps taken until today

September 2014

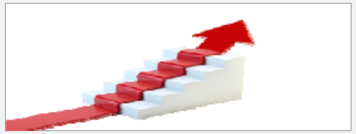
Biopharmaceuticals status quo

“Who we are now”

Steps to achieve our ambition

2018 and beyond

Biopharmaceuticals ambition



“Who we want to be”

2012 · 2014 · 2018

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Agenda

Steps taken since 2012

Pharma today

Ambition for 2018 and beyond

Key strategic priorities

Executive summary

A substantial number of “Fit for 2018” measures have already been implemented

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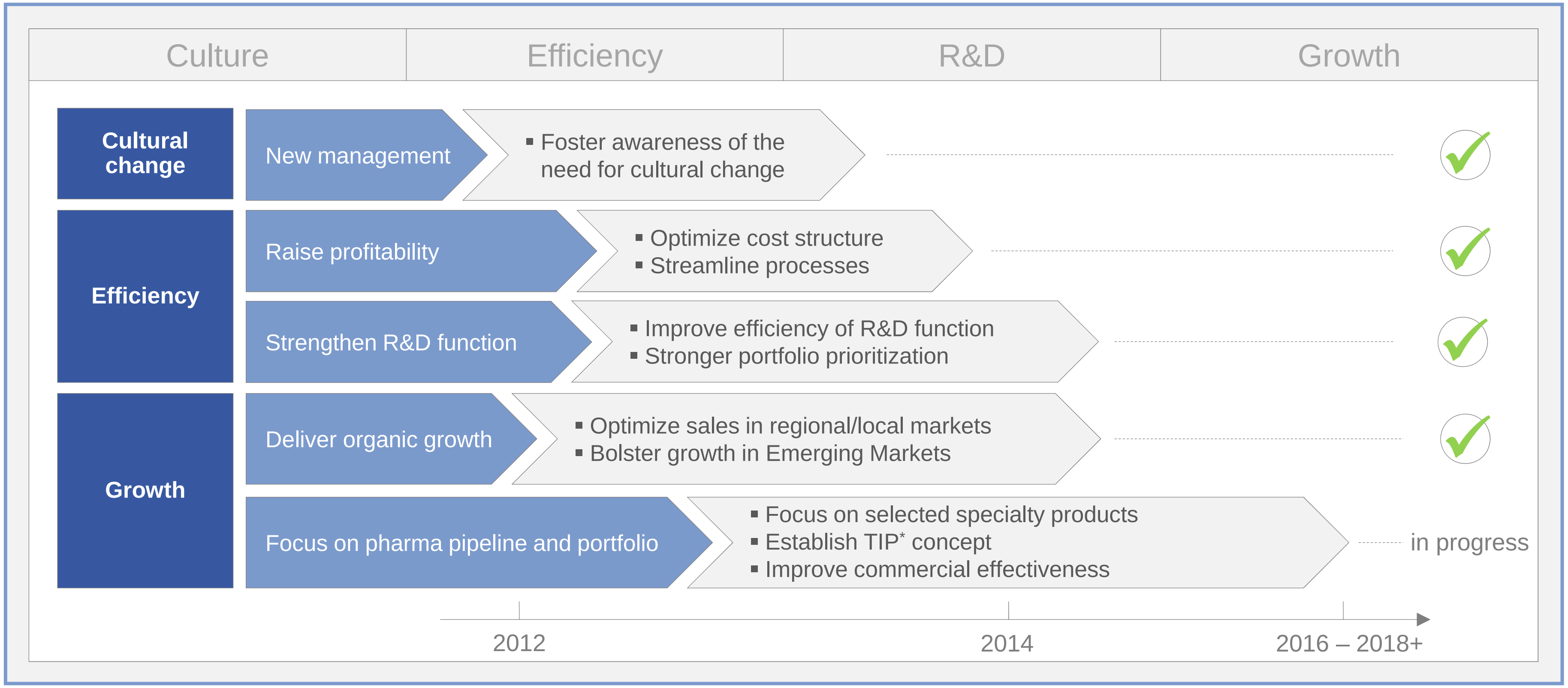

*TIP = Translational Innovation Platform

Vast management changes have established performance culture and amplified pharma expertise

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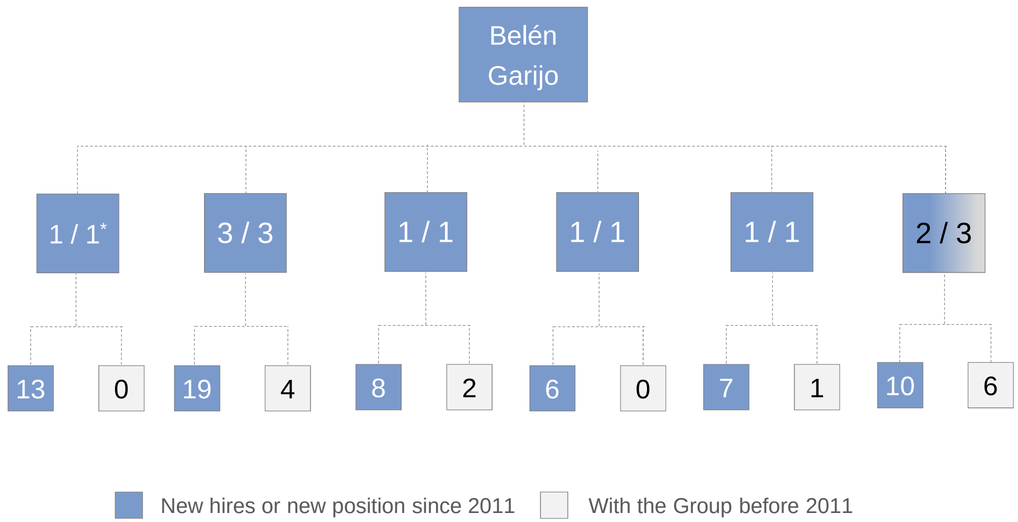
Culture	Efficiency	R&D	Growth

Building sustainable organizational excellence



Results

- Over 80% of Biopharmaceuticals senior management positions replaced since 2011
- Combined >200 years of external global pharma expertise were brought into Biopharmaceuticals
- Significantly enhanced talent pool
- New leadership team

*Number of total positions newly hired or promoted to new position

Realignment of commercial model and strategic capabilities are leveraging growth opportunities

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Culture | **Efficiency** | R&D | Growth

Franchises

Globalized commercial operating model
- Oncology
- Neurodegenerative Diseases
- Fertility, General Medicine/CMC/Endocrinology

- Optimized value of global brands and franchises
- Generated more comprehensive input for portfolio decisions

Regions

Reallocate resources to Emerging Markets
- Core regions: Europe, Latin America, Asia
- Focus: China, Brazil

- De-layered organization with local execution (de-matrixed)
- Established new management in key positions
- Implemented individual P&L accountability

Country organiza-tions

Streamline operations in Europe
- Closure of duplicate Geneva HQ and R&D center
- Cost-cutting with a focus on Europe

- Driven regional/local business performance and execution
- Integrated local plans into global plans and strategy

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Strengthening the R&D function improves governance and efficiency

Culture | Efficiency | **R&D** | Growth

Focus on core competencies

- 3 TIPs* introduced
- Strict project prioritization process implemented
- Independent Advisory Board
- Biomarker strategy for differentiation and early-stage compound selection

Improved project prioritization ✓

Optimize budget allocation and use

- Better output but fixed budget
- Shorter cycle times
- Compounds compete for internal resources

Budget allocation improved ✓

Reduce cost base

- Lower infrastructure costs
- Lower fixed costs
- Internal versus external costs
- Optimized R&D capacity

Cost allocation tackled ✓

Access external innovation and increase partnering

- 5 compounds since May 2011
- Focus on Oncology and Immunology
- Quintiles

In-licensing and risk-sharing in place ✓

*TIP = Translational Innovation Platform

Three distinct innovation platforms operate as agile biotech units to improve research outcomes

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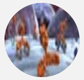
Culture | Efficiency | **R&D** | Growth

Translational Innovation Platforms

 Oncology

 Immuno-Oncology

 Immunology & Neurology

Scientific activities

Focus on validated targets/pathways	Early use of biomarkers and imaging for patient stratification	Early differentiation versus competitors	Integration of scientific networks to ensure competitiveness

Set-up

- Prior to 2012, market presence was the main driver of R&D direction and budget allocation
- Work of TIPs[1] starts with therapeutic concept discovery and teams are responsible up to end of Phase II
- TIP leaders empowered to manage portfolio within overall strategic framework
- Three-year business plan and budget put in place
- Projects regularly challenged by independent Advisory Board made up of external experts
- 8 phase transitions[2]

TIP process provides sufficient confidence to trigger a full investment decision

[1]TIP = Translational Innovation Platform; [2]Additional 5 projects under preparation to move to next phase

Improvements made over the last years are increasingly realigning the focus on growth

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Culture	Efficiency	R&D	Growth

Deliver short-term growth

Optimize sales in regional/local markets

- Lower regional complexity
- Globally coordinated product strategies

Execute growth strategy in emerging markets

- Focus R&D and manufacturing in China; close to customers
- Implement growth initiatives tailored to local needs
- Biosimilars, e.g. Brazil PDP[1]

Focus on pharma pipeline and portfolio

Focus on selected specialty products

- Oncology, Immunology with high unmet medical need
- Immuno-Oncology
- Re-prioritization of assets to leverage core capabilities

Improve commercial effectiveness and minimize pipeline setbacks

- 8 phase transitions[2] of compounds since May 2012
- These measures take time; potential first results expected 2016+

[1]PDP = Public Development Partnerships; [2]Clinical phase transitions, i.e. from Phase I onwards; and 5 under preparation

Stringent R&D prioritization of oncology-tilted pipeline to yield first potential results 2016+

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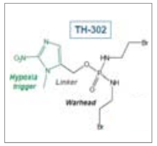
Culture	Efficiency	R&D	Growth

Focus on bolstering pharma R&D pipeline

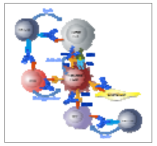
- More focused and better prioritized R&D pipeline to yield one compound and lifecycle management initiative every year
- Keep up stringent prioritization process for R&D projects
- Lower R&D pipeline risk via partnering, risk-sharing
- Continuously develop innovation flow with external know-how

Focus on optimal product development

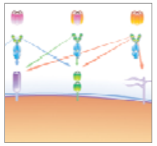
- Prepare launch readiness in mature markets
- Improved pipeline structure to yield first potential results from 2016+



TH-302
- Oncology
- Phase III



Anti-PD-L1
- Oncology
- Phase I



Atacicept
- Systemic lupus erythematosus
- Phase II

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Pharmaceuticals today – Fundamentally improved since May 2012

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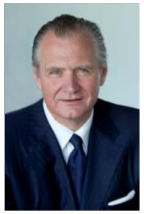

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Belén Garijo
President & CEO

Consumer Health

Uta Kemmerich-Keil
President & CEO

Biosimilars

Simon Sturge
Head of Biosimilars

Allergopharma

Marco Linari
CEO

Growth and transformation program "Fit for 2018" on track but more opportunities to be seized

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Achievements 2011 - 2013

- Implementation of efficiency program in 60+ countries
- Revamped R&D organization and streamlined processes
- Cancellation of risky projects and achievement of early success in business development
- Management layers streamlined and new set-up of processes
- Significantly enhanced talent pool for critical management positions

Today
Sept.18, 2014

Next steps 2014 – 2018+

- Drive strong leadership culture
- Continue to optimize resource allocation
- Balance organic and inorganic growth and explore new business opportunities
- Focus on key pipeline assets (TH-302, anti-PD-L1, Atacicept) and launch readiness
- Strengthen franchises through innovative devices and complementary technologies

Today Biopharmaceuticals is on par with industry benchmarks

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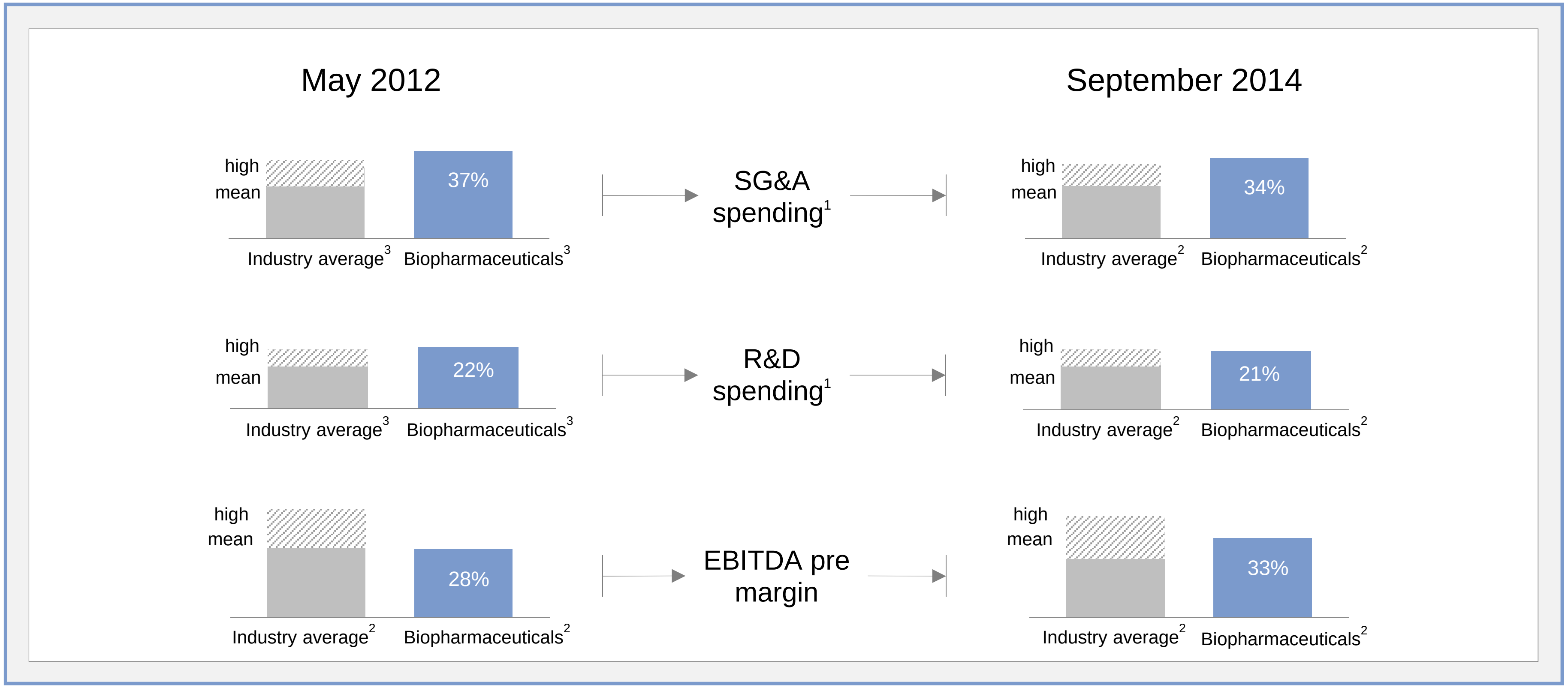

[1]As % of sales; [2]FY 2013; [3]Average 2009-2011

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Biopharmaceuticals will build on key strengths

Attractive therapeutic areas

- Pharma market growth ~6%[2]
- ~70% of sales[1] in specialty markets
- High unmet medical needs

Leading positions

- A leader in specific therapeutic areas with strong market positions
- Highly recognized brands

Emerging markets exposure

- ~30%[1] of sales from Emerging Markets
- Healthcare spending growth ~ 10% CAGR[4]

High exposure to biologics

- ~65-70% of sales[1] from biologics
- Strengths: R&D, production, commercial
- High barriers to entry; differentiation

Low risk from patent cliff

- ~50% of sales[1] from off-patent products
- Limited biosimilars competition expected for patented products

Strong LCM[3] & commercial focus

- Organic sales growth of 4-5% p.a. since 2011 despite no new product launches
- Off-patent products in General Medicine also growing organically

[1]Based on 2013 financial data; [2]Source: IMS Health projections for the years 2013-2018; [3]LCM = Life-cycle management; [4]Source: IMS Health projections for 2014-2018

We will differentiate our company from its peers

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Ingredients for success[1]		Biopharmaceuticals' ambition for 2014+
Adequate innovation resources[2]	→	Excellence in resource allocation and R&D
Highly focused on specialty indications	→	High degree of differentiation
Commercial strength	→	Leverage existing franchises to their full potential
Global as well as Emerging Markets presence	→	Access attractive markets and participate in above-average growth
Innovation and R&D output	→	First potential pipeline contributions from 2016+ onwards

[1]As measured by sales growth, product launches; [2]E.g. mid-sized R&D budget of € 1-1.5 bn

Biopharmaceuticals' goal: Success as a mid-sized specialty biopharma player

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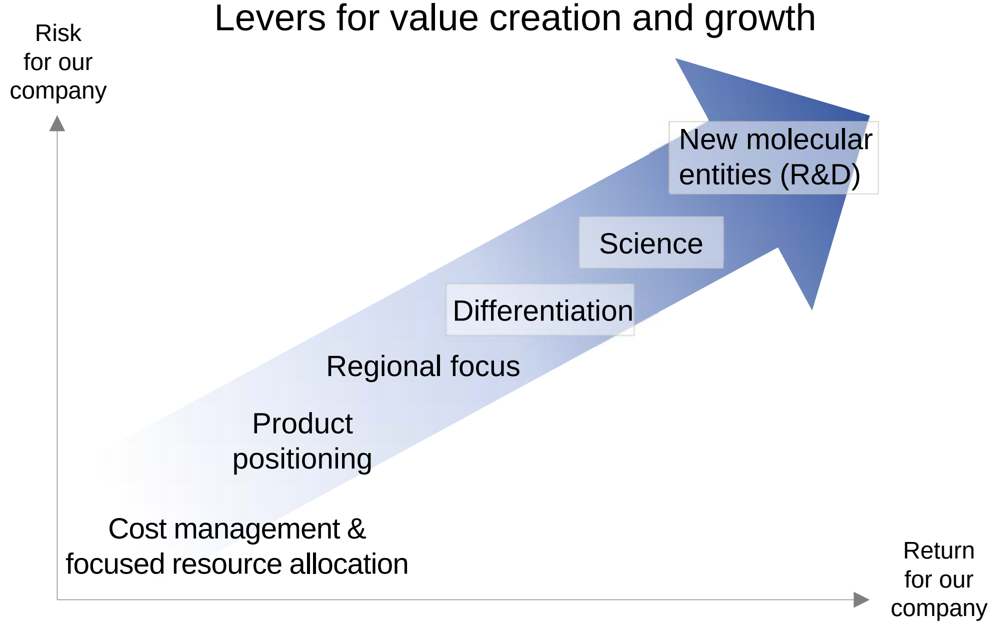
Levers for value creation and growth



Perspective

- Several levers to develop Biopharmaceuticals' ambition
- Optimized operations: moderate risk-reward profile from excellence in cost, product and regional positioning
- High risk-reward profile from science-driven levers including devices

Ambition: one compound or lifecycle management project a year

Illustration

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Biopharmaceuticals' perspective to achieve its vision

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Optimize Biopharmaceuticals' business model

Growth

- Enhance product positioning
- Expand regional exposure in Emerging Markets and innovation-driven markets
- Drive LCM
- Expand into adjacent activities, e.g. medical devices, biosimilars
- Repatriation of activities
- Biomarker for differentiation
- Deliver from rejuvenated and prioritized R&D pipeline

Earnings

- Remain cost-conscious
- Prioritize R&D projects and budget allocation
- Optimize overall resource allocation

Ambition: Innovative and mid-sized specialty biopharma player

Biopharmaceuticals has three different business models with specific strengths and requirements

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1. Raise focus, scale and flexibility
2. Improve customer proximity
3. Develop into attractive growth platforms
4. Tailor innovation models to specific needs

Biologicals

- Rebif
- Fertility
- Endocrinology
- Biosimilars[2]
- Allergopharma

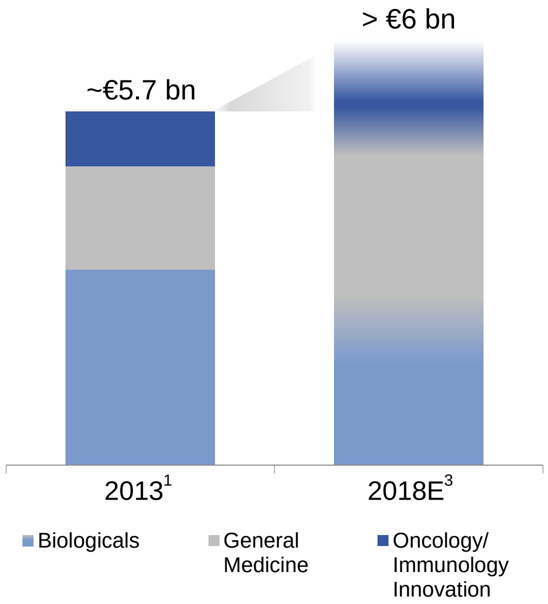
General Medicine

- GM/CMC
- Thyroids

Oncology/Immunology Innovation

- Erbitux
- Other Oncology

Biopharmaceuticals proforma sales[1]



[1]Source: Proforma re-calculation based on 2013 data for Biopharmaceuticals; excluding Consumer Health; [2]Gradual sales ramp-up expected from 2017 onwards
[3]Excluding contributions from R&D pipeline

The roadmap to achieving Biopharmaceuticals' strategic vision is clearly defined

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Biopharmaceuticals in 2018

1. INNOVATIVE

2. VALUE-GENERATING

3. SPECIALTY BIOPHARMA PLAYER

A lower-risk and enhanced R&D pipeline

- Improved quality and priority of R&D pipeline
- Higher R&D output
- Optimized preparation for expected launches

Optimized business model

- Better resource allocation and strategic focus
- Strengthened commercial effectiveness
- Higher efficiency

Positioned for long-term trends

- Enhanced Emerging Markets position
- Attractive therapeutic areas

Agenda

Biopharmaceuticals is well on track to becoming a successful mid-sized biopharma player

“Fit for 2018” growth and transformation program has put Biopharmaceuticals on a solid footing

Stability of existing business is well-founded

Biopharmaceuticals has a solid basis for long-term growth and value creation

Biopharmaceuticals is on track to become a successful mid-sized biopharma player

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Back-up information

Biologicals – Leveraging biologics expertise

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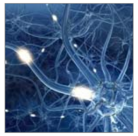
Biologicals portfolio	General Medicine portfolio	Oncology & Immunology Innovation portfolio

Opportunities

- Emerging Markets turn into major growth driver
- Business patterns in existing biologics businesses are comparable to biosimilars
- Target group of patients and physicians is highly specialized with similar challenges and needs
- Sufficient in-house production capacity
- Increasing role for devices and innovative services

Challenges

- Developed markets are a prime but maturing source of revenue
- Business is subject to changes in the competitive landscape (esp. Rebif/oral therapies, Gonal-f/biosimilars)
- Optimal LCM and commercialization are important
- Under-utilized biologics production capacity



Manage and stabilize (Rebif)

Integrate biosimilars business and develop comprehensive biologicals franchise

Combine treatment solutions including medical devices strategy into integrated value offering

General Medicine – Drive customer proximity

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Biologicals portfolio	**General Medicine portfolio**	Oncology & Immunology Innovation portfolio

Opportunities

- Track record and sustainability of product business models are well proven
- Emerging Markets demand is the main driver; solid growth outlook supported by long-term trends
- Strong branding and reputation are highly important
- Broader and more coordinated product offering to enhance customer proximity

Challenges

- Scope for innovation and differentiation is limited
- Mainly small molecule products with low barriers to entry
- LCM and local innovation projects to be enhanced
- Some activities lack critical mass

Develop into near-market, locally-driven franchise of branded specialties with enforced LCM activities

Build and leverage presence in Emerging Markets

Ensure optimal market access; repatriate if possible and attractive

Oncology & Immunology Innovation – De-risking and prioritizing Biopharmaceuticals’ oncology-tilted R&D

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Biologicals portfolio	General Medicine portfolio	Oncology & Immunology Innovation portfolio

Opportunities

- Higher visibility and transparency of R&D
- Resource allocation can be optimized
- Focus on scientific leadership via dedicated partnerships and internal primary research
- New structure could facilitate creation of a platform for co-development and co-marketing of the oncology pipeline

Challenges

- Optimal development of promising pipeline assets requires realistic approach, including openness to partnering
- Presence in innovation-driven US pharma market to be enhanced
- Restructuring and enhancing capabilities in Biopharmaceuticals R&D is ongoing

Prepare launch readiness in mature markets

Keep up stringent prioritization process for R&D projects and lower pipeline risk via partnering, risk-sharing

Improved pipeline structure to contribute first potential results from 2016+

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