

Bioscience – Delivering deeper, faster biological insights

2012 Life Science Information Day

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Merck KGaA
Darmstadt · Germany



Disclaimer

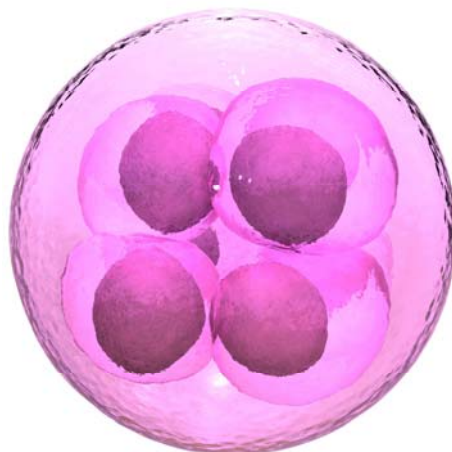
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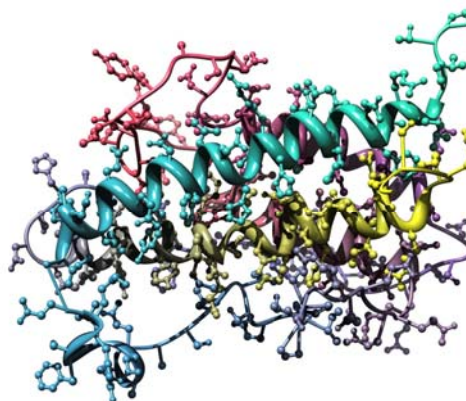
Our products are about helping scientists to better understand human biology and disease

Bioscience Mission Statement

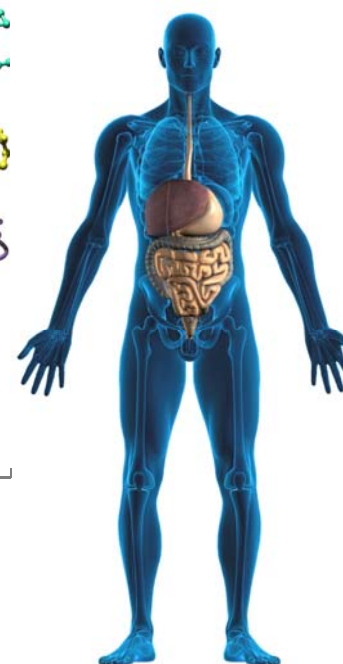
Deliver technologies and workflow solutions that help scientists better understand biological functions, identify potential drug targets and develop improved medicines



Cells are the basic
building blocks of life



Proteins are key enablers
of all biological functions



We are primarily focused on two primary markets

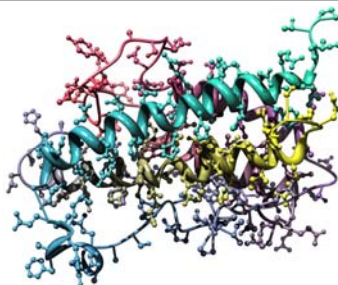
Key markets

Cell biology



- Studying cellular interactions is critical to understanding what happens in the body

Protein research



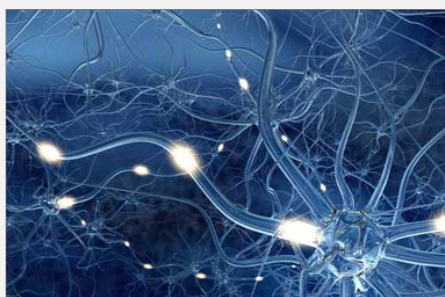
- Understanding how proteins play a role in disease is critical to finding new drugs



These markets can be further broken down into complex fields of research

Bioscience customers fields of study

Neuroscience



Infectious diseases



Oncology



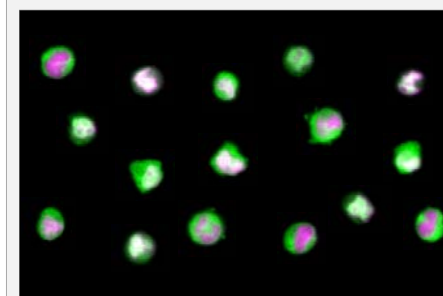
Metabolic disorders



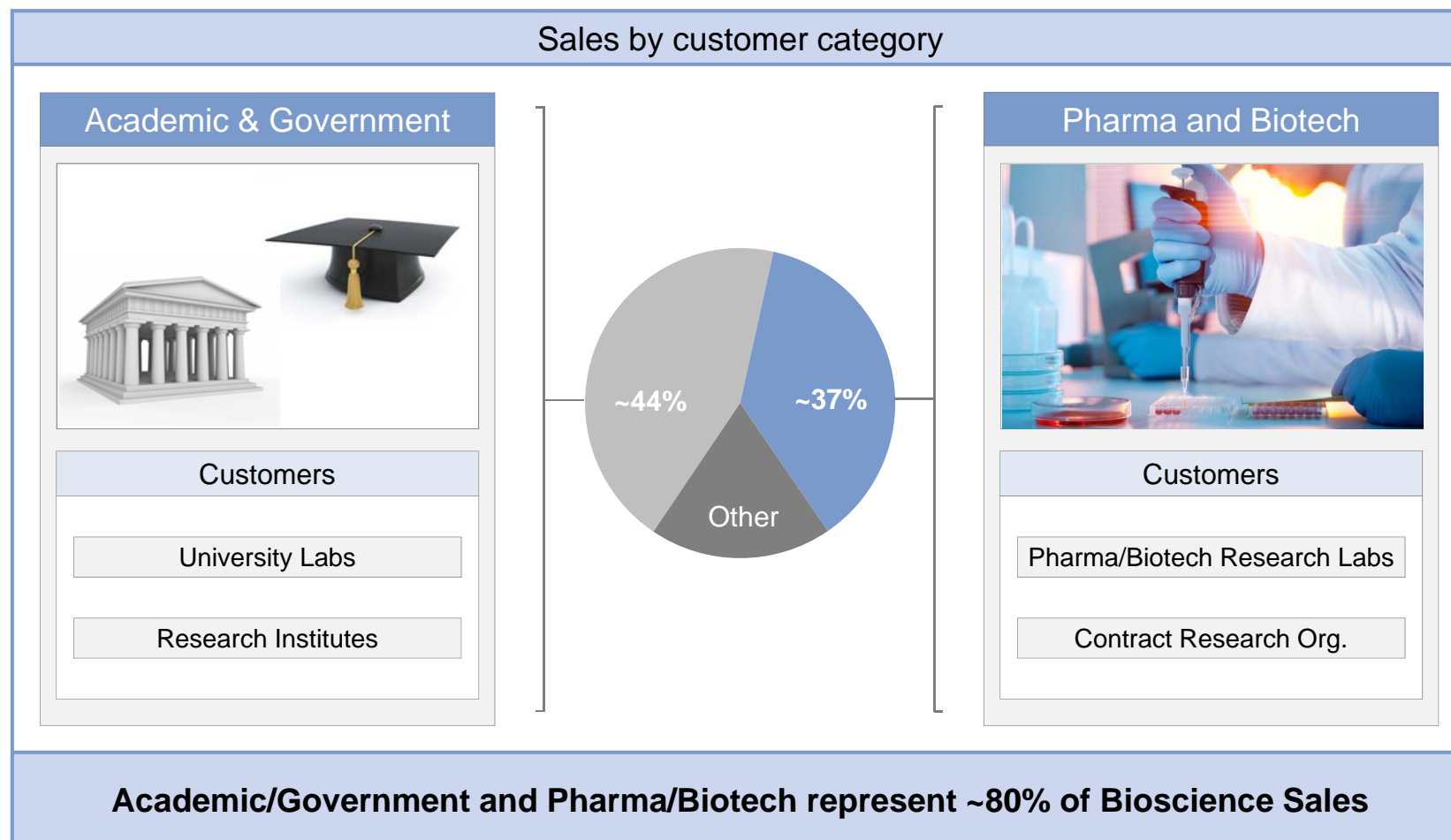
Stem cells



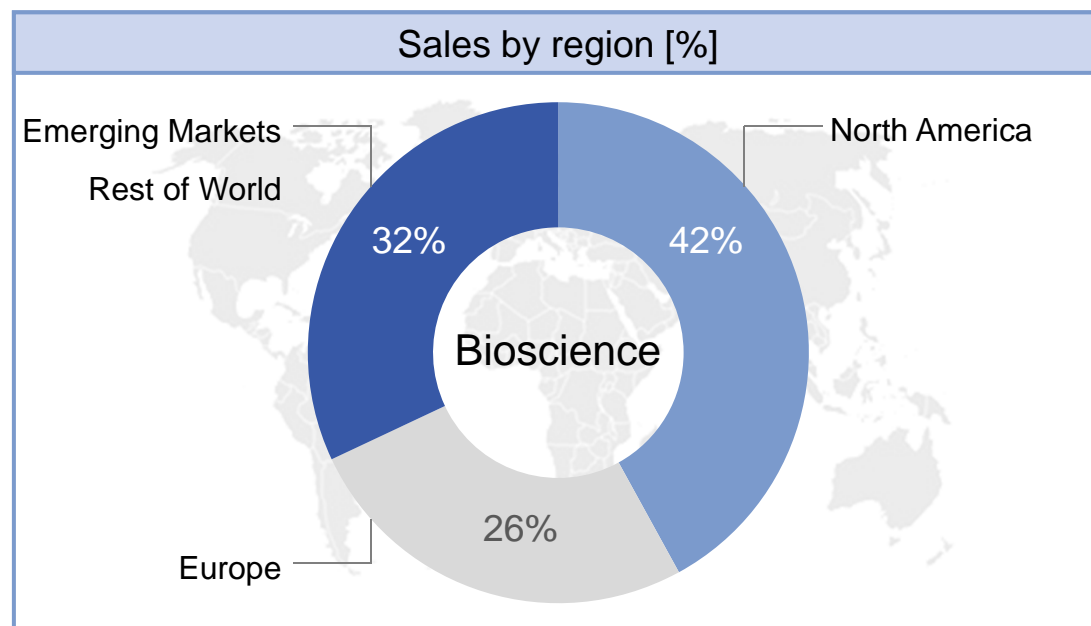
Cell signaling



Nearly all of our business is derived from two key industries







Our largest market is in the United States, but we have a global presence



Bioscience is more levered to markets outside of the United States than many of our peers

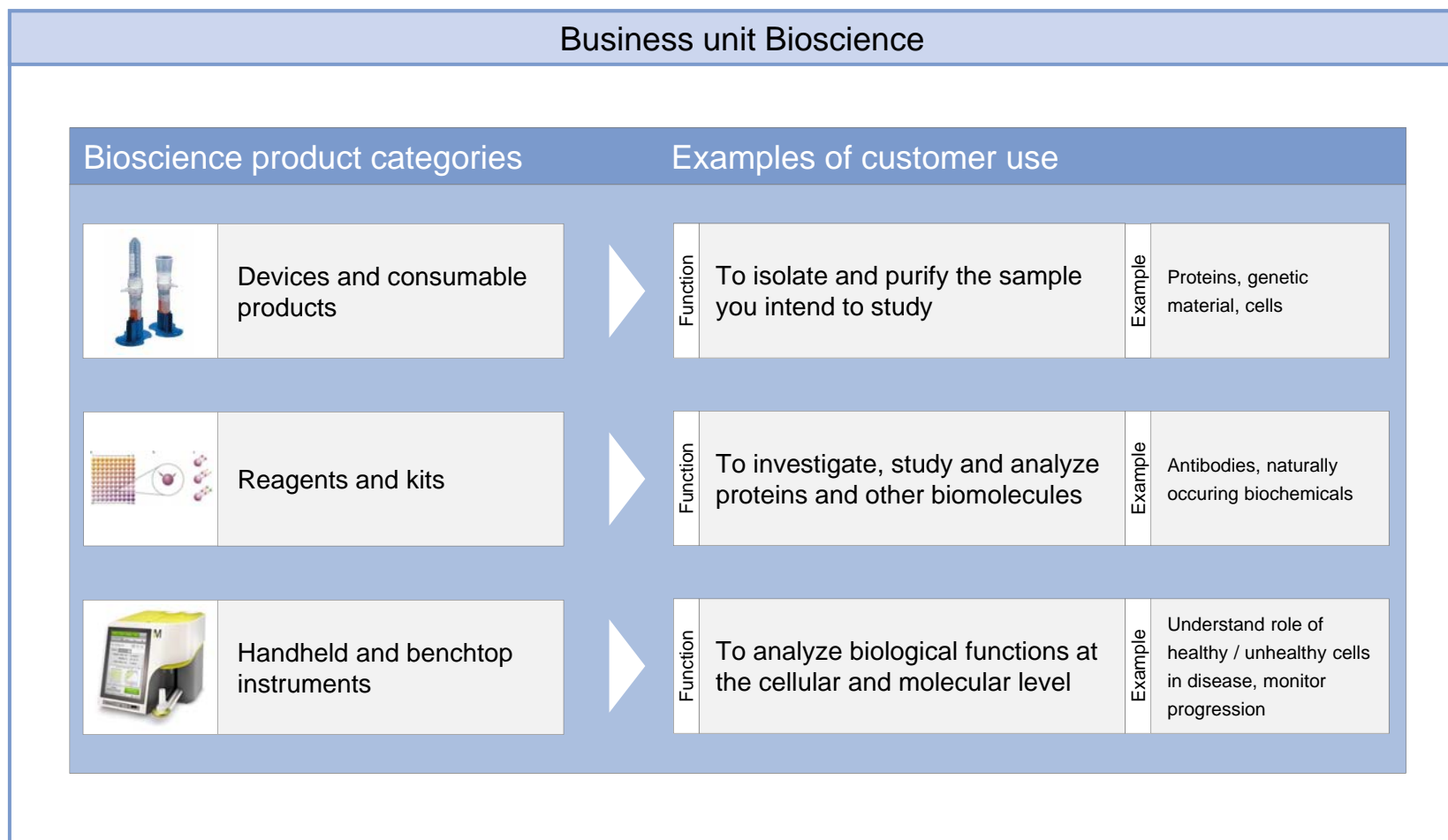


Despite complexity and diversity of our markets, customers have consistent needs

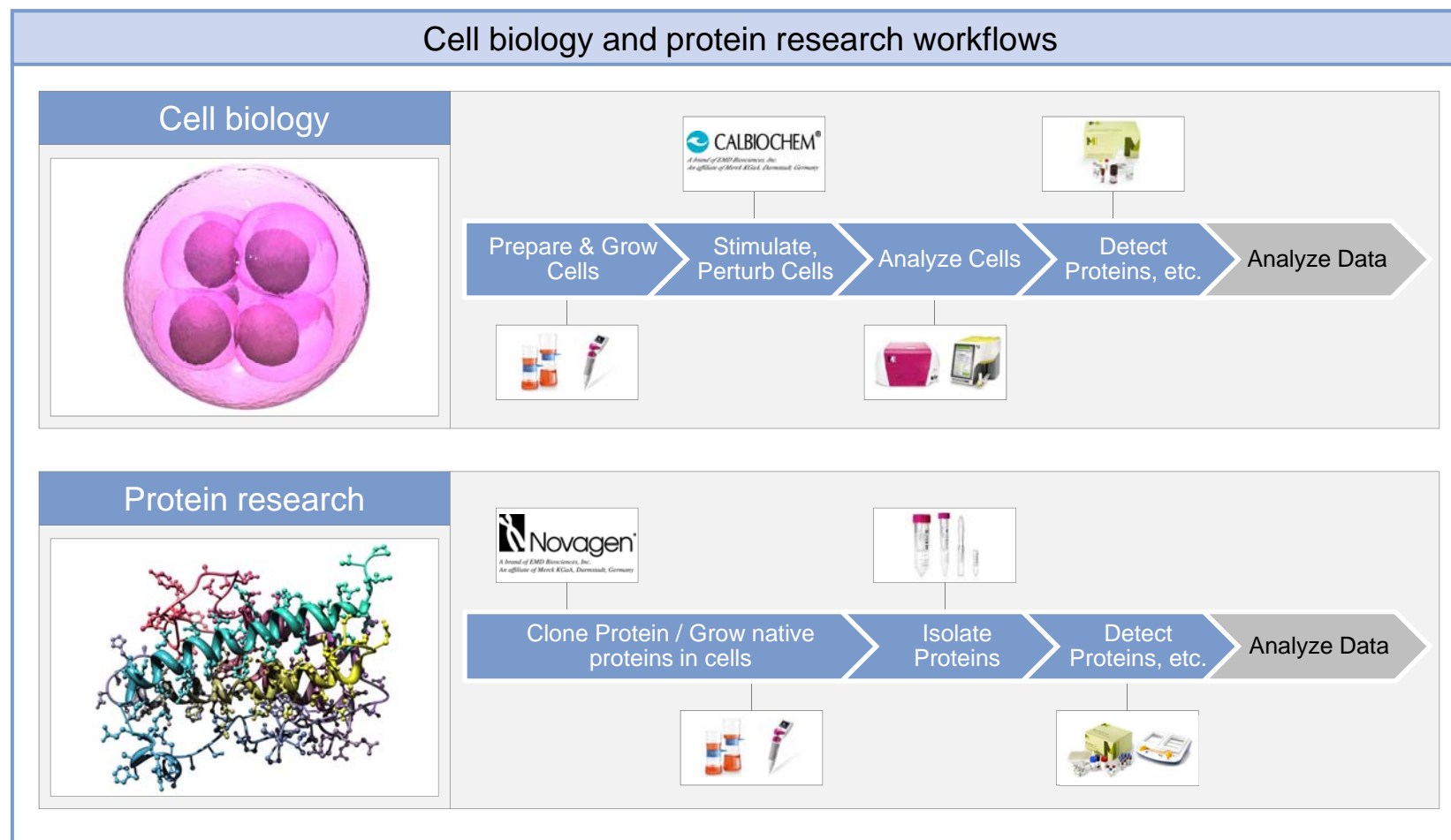
Customer needs		
	Increase the speed and efficiency of their research	Find drugs faster Publish research in journals faster
	Reliably generate consistent data	Easily reproduce scientific results
	Reduce workflow complexity	Validated processes and products rather than “home-brew” methods
	Develop meaningful analysis of vast amounts of data	Better understand “Systems Biology”



We group our more than 30,000 products into three main categories



Our product offering spans across our customers' entire scientific workflow



What role do we play in the Cell Biology Workflow?

Three basic steps of cell biology

Step I - Prepare



- Prepare a cell culture media to start the cell growth
- Separate and concentrate your sample

Step II – Grow and Assay



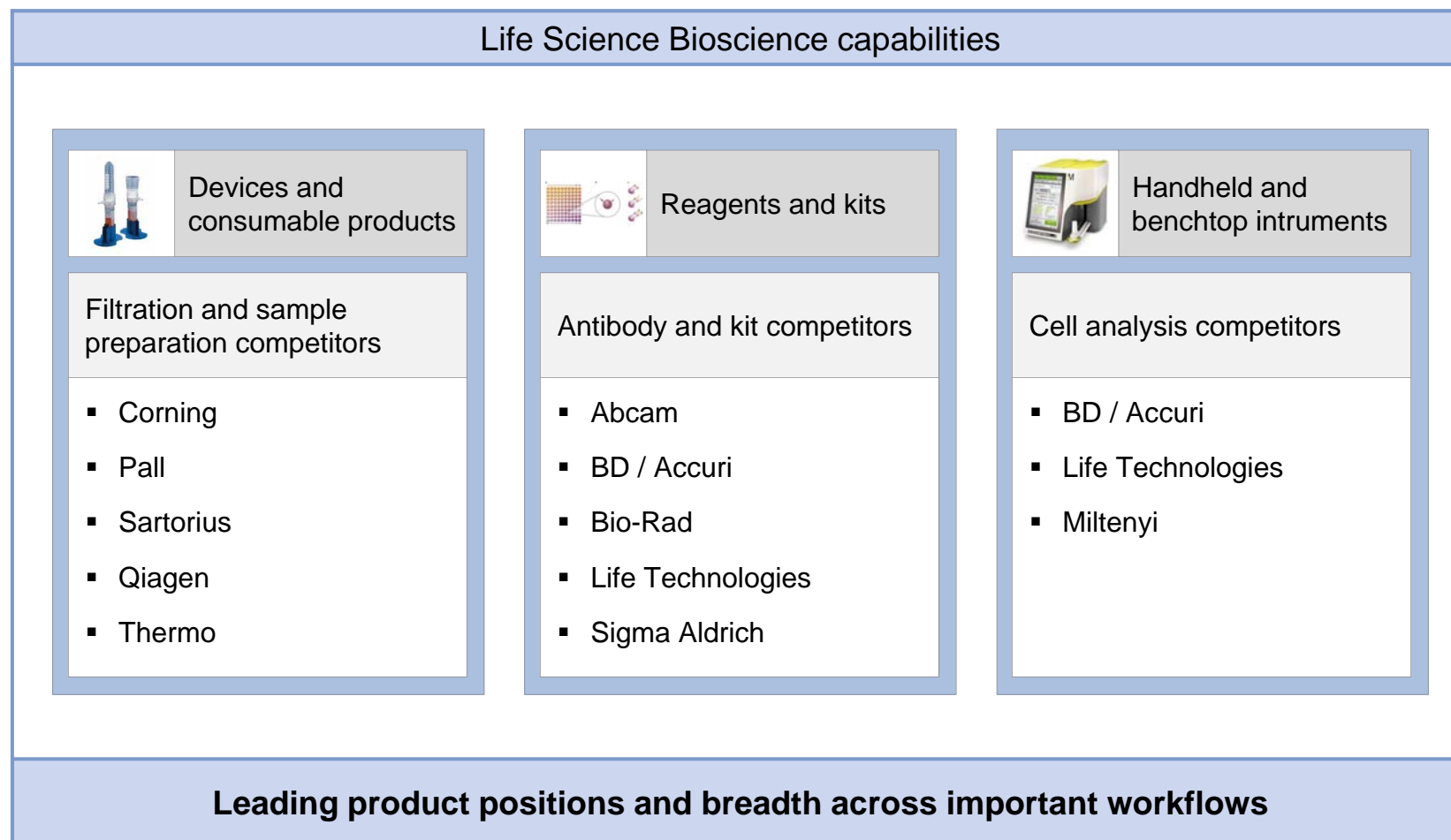
- Achieve optimal growth by adding the right nutrients
- Interrogate the sample to measure molecule of interest

Step III - Analyze

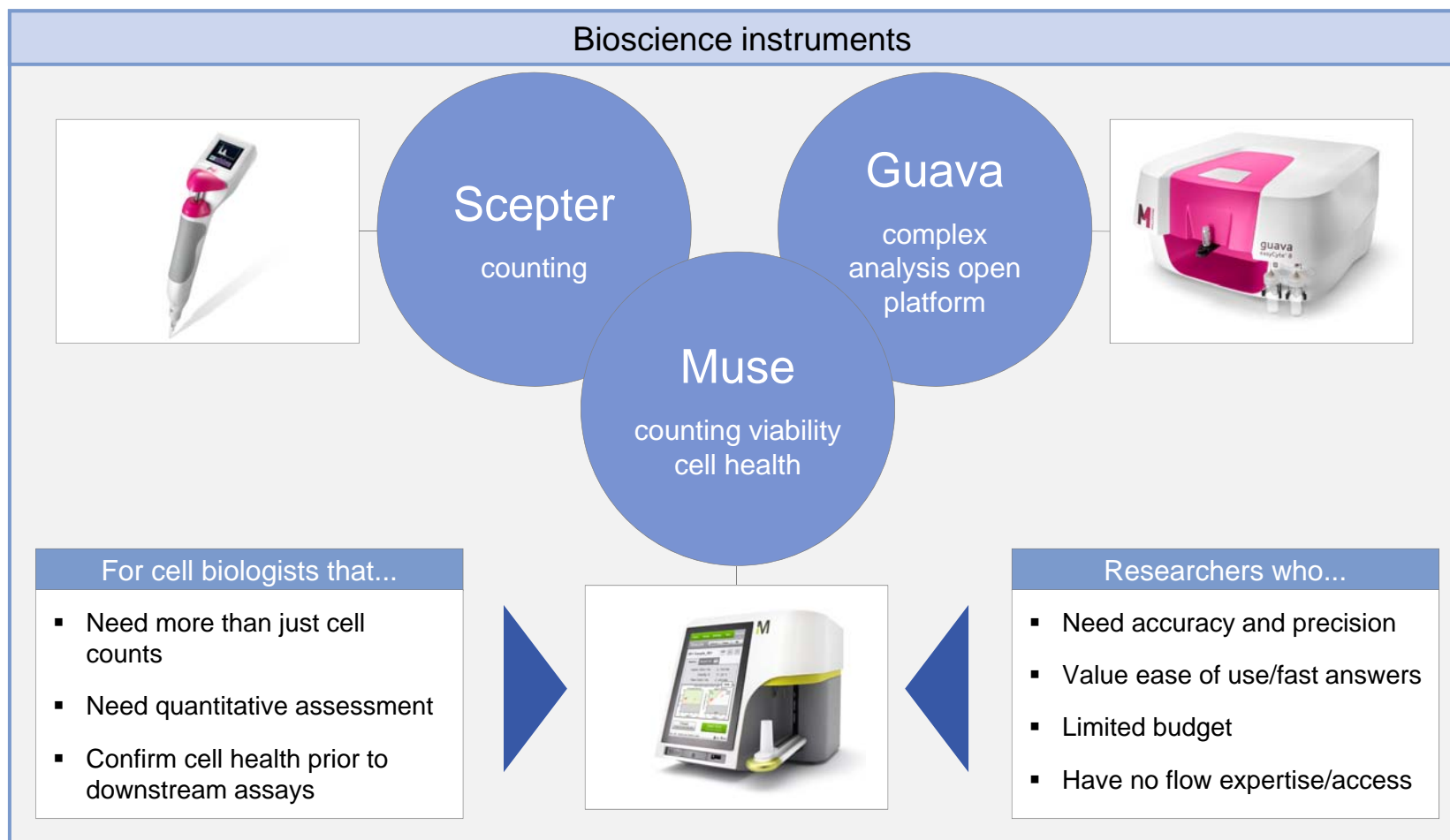


- Detect and measure
- Analyze data and draw conclusions from results

Across these key research workflows our portfolio and capabilities are unique



Handheld and benchtop instruments: we have a differentiated position in cell biology



Our recently launched Muse product provides robust analysis at an attractive price

Understand cell behavior

Customer challenge



Better understand cell health during experiments, such as induced cell death in cancer cells after exposure to drug compounds

Life Science solution



Replace multi-step Western Blotting Process with Muse, which provides quantitative information on cell health, cell death and cell cycle at the individual cell level

Value to customer



Information that typically took one day to generate is generated in minutes, simplified workflow and convenience for researcher



Our recently acquired CellASIC plates further strengthen our cell biology platform

Expanding Cell Biology offering

Customer
challenge



Conduct more predictive experiments by studying living cells in an “in-vivo” like environment rather than studying stationary or dead cells

Life Science
solution



CellASIC ONIX microfluidic plates and environmental controller platform

Value to
customer



More advanced, in-depth study of living cells that provide more precise and robust scientific insights



Our Multiplex Immunoassays are the fastest growing products in Bioscience portfolio

Robust protein analysis with multiplex immunoassays

Customer challenge



Ensure lot-to-lot consistency when analyzing multiple proteins in one experiment, such as the role of biomarkers in disease

Life Science solution



Milliplex^{MAP} Multiplex immunoassays used with Luminex^{MAP} instrumentation

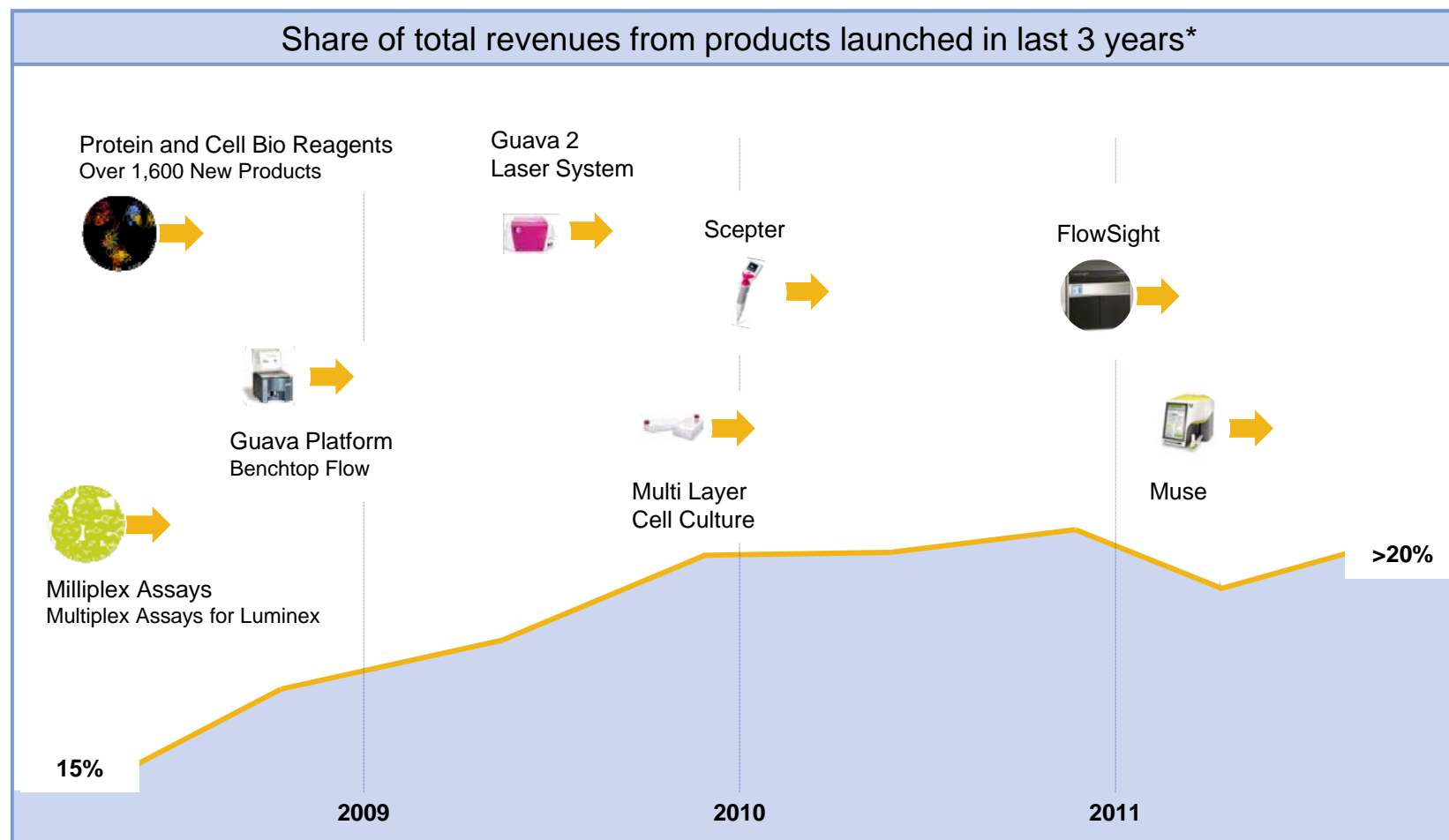
Value to customer



Fast, accurate and reproducible results of multiple analytes in one assay for more meaningful system level data

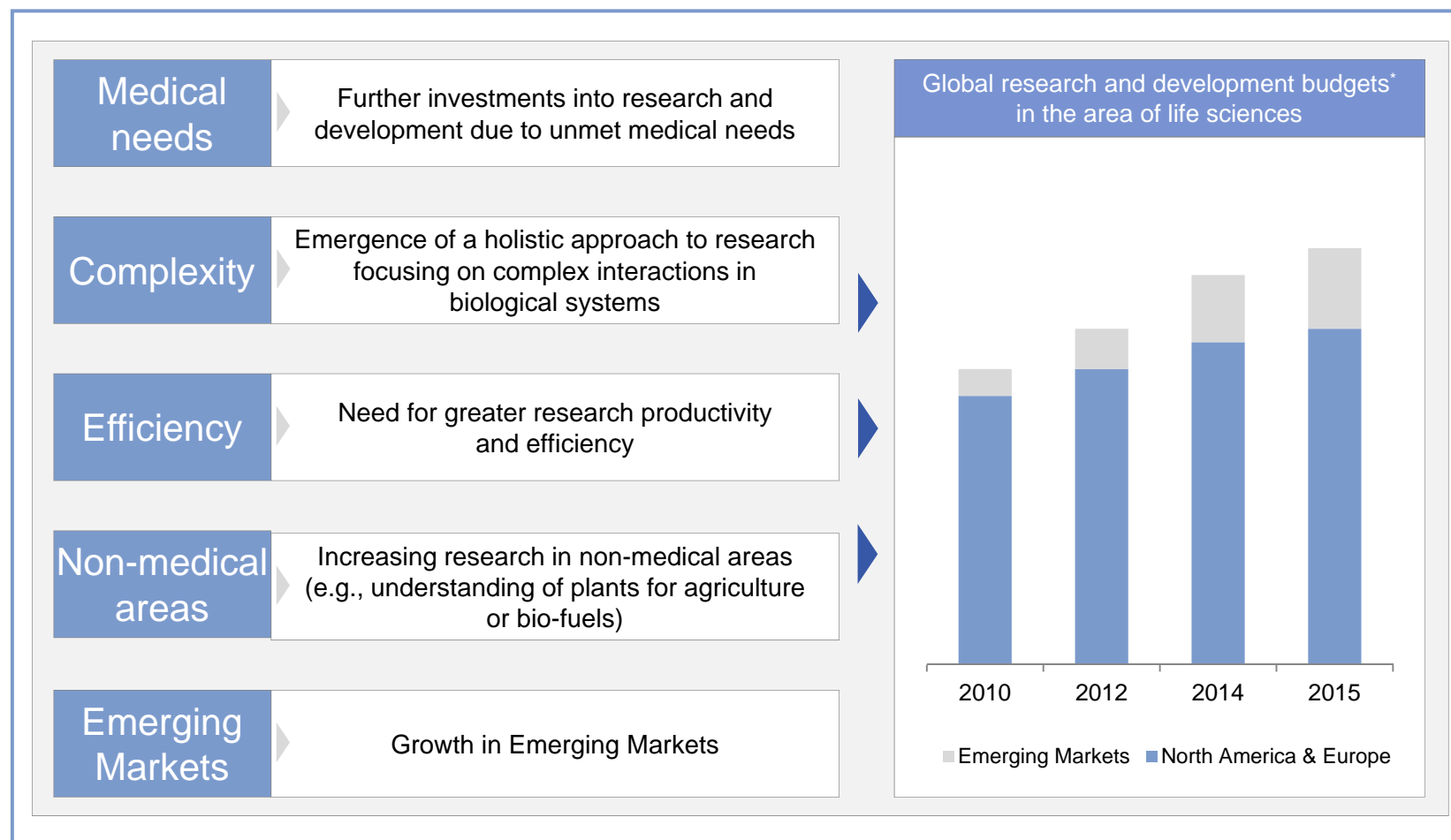


We have a strong track record of innovation



*rolling 12 months

Global demand for innovative Bioscience products will continue growth generation

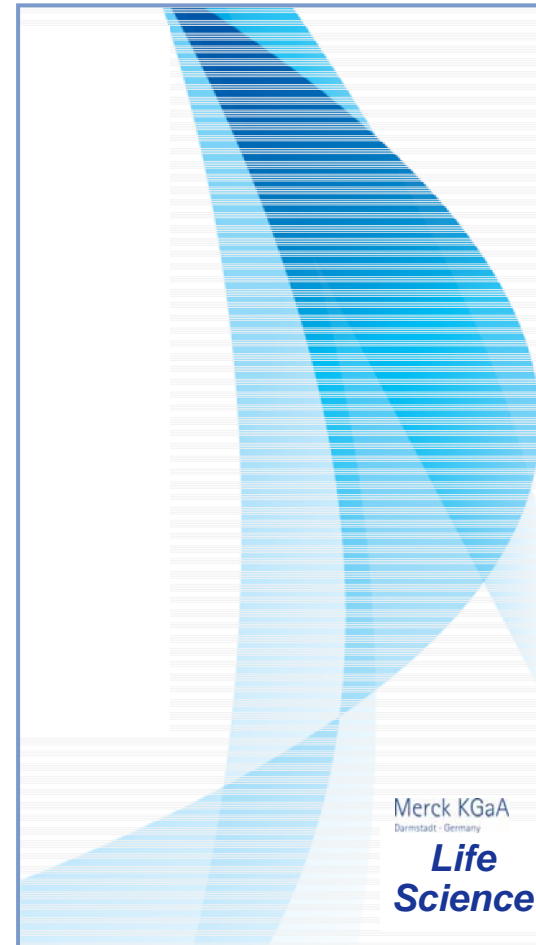


*Merck KGaA, Darmstadt, Germany estimates

Bioscience – a solid growth platform

FYI: Logo ausgetauscht

Innovative, high-margin products	We have consistently delivered innovative, high-margin products that meet customer needs
Healthy market dynamics	Growing complexity of science is making customers more reliant on providers like Life Science
Attractive opportunities	Market fragmentation and need for improved productivity create strong long-term trend for Bioscience



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