Partner of biopharmaceutical research and industry

We empower scientists and engineers to simplify and accelerate progress in life science and bioprocessing, enabling the development of new and better therapies and more affordable medicine.
Pioneers for around 150 years

1870  At his precision machine workshop, 24-year-old Florenz Sartorius developed the short-beam analytical balance.

1927  A “joint venture” with Nobel Prize laureate Richard Zsigmondy expanded the Sartorius product portfolio by membrane filters.

Back then as today, our innovative product solutions are helping to accelerate research work, simplify manufacturing processes and improve quality of results.
Sartorius in brief

- **60+** Locations worldwide, headquartered in Göttingen, Germany
- **9,016** Employees
- **€ ~1.83bn** Sales revenue
- **27.1%** EBITDA margin¹
- **~€12.5bn** Sartorius AG market capitalization; included in MDAX and TecDax

<table>
<thead>
<tr>
<th>Region</th>
<th>Sales Revenue Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>~35%</td>
</tr>
<tr>
<td>EMEA</td>
<td>~40%</td>
</tr>
<tr>
<td>Asia</td>
<td>Pacific</td>
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As of December 31, 2019; ¹ Underlying EBITDA
Strong company values as the basis of all our activities

Sustainability
Growing profitably and acting responsibly towards all stakeholders

Openness
Driving change and progress internally and externally

Enjoyment
Working in an energetic and rewarding environment
Strategic focus on the biopharma market

Bioprocess Solutions Division

Molecule development

Cell line and process development

Upstream & downstream production

Quality control & testing

Lab Products & Services Division
Attractive market environment with strong growth opportunities

- Favorable demographics: ~9bn people by 2050; >2bn 60 yrs or older
- Rise of biosimilars: ~30% CAGR for biosimilar sales 2018–2022
- Strong R&D pipeline; advances in gene and cell therapy: >40% share of biologics in the pharma R&D pipeline

~8% CAGR for biopharma market 2018–2025
What are biopharmaceuticals?

<table>
<thead>
<tr>
<th>Active Agent</th>
<th>Manufacturing</th>
<th>Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical drugs</td>
<td>Biopharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Small molecules</td>
<td>Large molecules &gt; 20,000 atoms</td>
<td></td>
</tr>
<tr>
<td>Chemical synthesis</td>
<td>Cell culture processes with living cells</td>
<td></td>
</tr>
<tr>
<td>Mainly oral</td>
<td>Mainly intravenous</td>
<td></td>
</tr>
</tbody>
</table>

**Advantages**
- First-time or improved treatment of serious illnesses, such as cancer, multiple sclerosis, rheumatism
- Targets only diseased cells; fewer side effects
- New vaccines
Only one out of 10,000 new drug candidates reaches the market

Drug discovery
4 ½ years

Testing & improving
1 year
€110m

Clinical trials
5 ½ years
€640m

Drug approval
1 ½ years
€60m

>10 years
From drug discovery to approval

Schematic example of biologic drug discovery with data from the Association of the British Pharmaceutical Industry
The manufacture of biopharmaceuticals is complex
The consequence: Biotech medications are extremely expensive

**HUMIRA®**
Annual revenue of $18 billion; is used to treat rheumatism and other inflammatory autoimmune diseases, such as Crohn’s disease and psoriasis
Manufacturer: Abbvie

Cost per annual treatment
€21,300 in Germany

Source: Abbvie

**ZOLGENSMA®**
Currently the world’s most expensive medical drug; gene therapy used to treat spinal muscular atrophy
Manufacturer: Novartis

Cost per treatment
$2,100,000 in the USA

Source: Novartis

First biosimilars recently out on the market:
- Imraldi® from Biogen up to 40% less expensive
- Hyrimoz® from Sandoz around 21% less expensive
- Amgevita® from Amgen about 18% less expensive
Our ambition: Reduce costly trial & error in drug discovery

Our laboratory tools support researchers...

... in understanding diseases

... in conducting experiments and evaluating their data

... in identifying the right molecules and developing new medicine
Our solution: Tools and instruments to accelerate drug development

**Products**
Premium laboratory instruments, filtration & consumables and innovative bioanalytical systems

**Application areas**
- Life science research
- Quality control & testing
- Applied industries

![Live-cell analysis](image1)
![High-throughput screening](image2)
![Balances](image3)
![Pipettes](image4)

![Lab water systems](image5)
![Lab filtration](image6)
![Microbiological analysis](image7)
![Fluid management](image8)

This is Sartorius
Our goal: Simplify manufacturing of biopharmaceuticals

Our technologies empower engineers in the biopharma industry to...

... set up robust, flexible and safe processes for industrial production
... reduce set-up costs
... enhance the product yield
Our solution: Innovative technologies for all phases drug production

Products
Scalable single-use technologies for the production of biopharmaceuticals and digital tools for biopharma data analytics

Application areas
- Biopharmaceutical manufacturing
- Quality control and testing
The widest offering of solutions in the industry

**Upstream**
Production of the desired drug
- Culture media preparation
- Seed cultivation
- Scale-up
- Production

**Downstream**
Isolation & filling of the desired drug
- Final filling
- Cryo-preservation
- Sterile filtration
- Concentration
- Virus removal filtration
- Polishing
- Viral clearance
- Clarification and centrifugation
Single-use production systems are becoming increasingly prevalent

**Stainless Steel**
- High initial investment outlay
- High cleaning effort and expense
- Risk of contamination

**Single-Use**
- Faster setup and lower investment throughout the entire life cycle
- Lower consumption of water and energy
- Reduced risk of cross-contamination
Data analytics has huge potential for the biopharmaceutical industry

Sartorius supports its customers in the digitalization and automation of their processes with its leading software for analysis of bioprocess data.

✓ Enhanced process control and robustness
✓ Improved product quality
✓ Predictive process control

- Powerful solutions for modeling and optimizing development and manufacturing
- Helps provide insights derived from complex data sets
Leading market positions worldwide in both segments

- Fluid mgmt. #1
- Fermentation #1
- Filtration #3
- Lab balances #2
- Microb. analysis #2
- Lab filtration #3
- Pipettes #4
Acquisitions strengthen and differentiate the Sartorius portfolio
Sales revenue has more than doubled over the last 5 years

Sales CAGR: +13.8%
EBITDA-margin¹: +7.4pp

Sales growth and CAGR 2011-19 for continued operations, in constant currencies; ¹ Excluding extraordinary items
Sartorius 2025 targets and initiatives

Strategic initiatives

Regional
- Participate in strong Chinese market growth
- Continue to outperform the important U.S. market

Portfolio
- Add high-impact innovations, e.g. digital tools
- Enhance process development capabilities
- Expand into adjacent applications

Operations
- Accelerate workflows across the organization through digitalization
- Extend manufacturing base in Asia

2025 targets

~€4bn
Sales revenue

~2/3
Organic

~1/3
Acquisitions

~28%
EBITDA margin
Recent investments: Infrastructure prepared for further growth

Aubagne, France
Capacity extension for single-use bag production

Göttingen, Germany
Expansion of lab instrument manufacture and extension of capacities for filter production; new Application Center

Boston, USA
New bioanalytical and biosafety testing facility

Beijing & Shanghai, China
Production of aseptic bags and new center for validation services

Yauco, Puerto Rico
Capacities for bag and filter production doubled
Thank you.