Partner of life science research and the biopharmaceutical industry

Our mission
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.

Our vision
We are a magnet and dynamic platform for pioneers and leading experts in our field. We bring creative minds together for a common goal: technological breakthroughs that lead to better health for more people.
Florenz Sartorius, a 24-year-old, continues to develop a weighing technology that reduces the time for balance beam stabilization, substantially accelerating lab experiments as a result.

A joint venture with Nobel Prize laureate Richard Zsigmondy expands the Sartorius product portfolio to include 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
- **~14,000** Employees¹
- **~€3.45bn** Sales revenue¹
- **34.1%** EBITDA margin¹²
- **~€37.4bn** Sartorius AG market capitalization³; listed on the DAX and TecDAX

<table>
<thead>
<tr>
<th>Region</th>
<th>Sales Revenue Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>~33%</td>
</tr>
<tr>
<td>EMEA</td>
<td>~41%</td>
</tr>
<tr>
<td>Asia</td>
<td>Pacific</td>
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</tbody>
</table>

¹ Preliminary figures as of December 31, 2021,  ² Underlying EBITDA ³ As of December 31, 2021
Strong company values are 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 | Testing | Validation

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

- **Favorable demographics**: ~9bn people by 2050; >2bn 60 years or older
- **Rise of biosimilars**: ~30% CAGR for biosimilar sales in 2020–2025
- **Strong R&D pipeline; advances in gene and cell therapy**: >40% share of biologics in the pharma R&D pipeline

~10% CAGR for biopharma market 2020–2025
### What are biopharmaceuticals?

<table>
<thead>
<tr>
<th>Biopharmaceuticals</th>
<th>Active agent</th>
<th>Manufacturing</th>
<th>Administration</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical drugs</td>
<td>Small molecules</td>
<td>Chemical synthesis</td>
<td>Mainly oral</td>
<td>- First-time or improved treatment of serious illnesses, such as cancer, multiple sclerosis, rheumatism</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>Large molecules &gt; 20,000 atoms</td>
<td>Cell culture processes with living cells</td>
<td>Mainly intravenous</td>
<td>- Targets only diseased cells; fewer side effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- New vaccines</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
Our products are widely used in the development and production of biologics against COVID-19

Pandemic crisis with significantly different effects

- High demand related to the development and production of vaccines and therapeutics against COVID-19; consequences from delays in other clinical trials not clear yet
- Impact by softer macroeconomic environment; positive effects on products that are used for testing

200+ companies developing coronavirus vaccines

The majority work with Sartorius products
The development and manufacture of biopharmaceuticals are complex
Only one out of 10,000 new drug candidates reaches the market.

- **Drug discovery**: 4-5 years
- **Preclinical testing and further development**: 1 year
- **Clinical trials**: 4-7 years
- **Drug approval**: 1-2 years

**Schematic example of biologic drug discovery with data from the Association of the British Pharmaceutical Industry**

- >€2bn: Average costs of developing a successful drug
- ~10%: Probability of clinical success (Phase I to approval)
- >10 years: From drug discovery to approval
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

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

First biosimilars 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

Cost per annual treatment
- **€21,300** in Germany

Cost per treatment
- **$2,100,000** in the U.S.
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 medicines
Our solution: Technologies to accelerate drug discovery and development

**Molecule development**
- Identification/validation
- Library screening
- Lead optimization
- Candidate characterization

**Cell line development**
- Gene cloning
- Cell line selection
- Cell line characterization
- Cell banking

**Key products**
- IncuCyte
- iQue
- Octet
- Sartoclear Dynamics
- MyCap

**Supporting products**
- Picus NxT
- Cubis
- Microsart
- Centrisart
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 setup costs

... enhance product yield
Our solution: Innovative technologies for all phases of 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

Filtration
Cell culture technology & media
Fluid management
Purification
The widest offering of solutions in the industry

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

**Downstream**
Isolation and filling of the desired drug
- Final filling
- Cryopreservation
- Sterile filtration
- Concentration
- Virus removal filtration
- Polishing
- Chromatography
- Viral clearance

This is Sartorius
Flexible production systems are becoming more and more prevalent

**Classic stainless steel plants**

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

**Flexible systems with sterile bags**

- 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 management: #1
- Fermentation: #1
- Filtration: #3
- Purification: #3
- Lab balances: #2
- Microbiological analysis: #2
- Lab filtration: #3
- Pipettes: #4
Acquisitions strengthen and differentiate the Sartorius portfolio

Acquired technologies include

- Automated multi-parallel microbioreactor
- Aseptic single-use sampling system
- Cell line and process development services
- Automated single-use centrifugation
- Bioprocessing software
- Cell culture media
- Chromatography and tangential flow filtration systems; microcarriers
- Multiple systems for cell and protein analysis
Sales revenue has more than doubled over the last five years

Ø Sales CAGR ~18%
EBITDA Margin¹ +14 Pp

~ € 3.45bn²

Sales growth and CAGR for continued operations, in constant currencies; ¹Excluding extraordinary items ²Preliminary figures as of December 31, 2021
Sartorius 2025 ambition 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

- ~€5bn Sales revenue
- ~34% EBITDA margin

2025 targets are based on 2017 currency exchange rates; non-organic sales growth is taken into account for companies acquired from 2018 onwards; EBITDA excluding extraordinary items;
Expansion of production capacities will be significantly accelerated and extended

**Guxhagen, Germany**
Capacity expansion for bioreactors and other equipment for the production of biopharmaceuticals; integration of a Customer Interaction Center

**Göttingen, Germany**
New facility for membrane production; 12,000 m² extension for existing R&D capacities

**Marlborough, MA, USA**
New Customer Interaction Center

**Beijing, China**
New cleanroom for bag production; more space for filter manufacture; new Customer Interaction Center

**Yauco, Puerto Rico**
Buildup of cell culture media production; expansion of membrane, filter and bag manufacture in Yauco

**Songdo, South Korea**
Construction of a new 25,000 m² site for cell culture media production, laboratories and application center
Thank you.