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Sartorius launches rational-design CHO host cell line with up to three-fold increase in productivity

- New genetically engineered CHO host cell line strengthens manufacturing efficiency
- Delivers up to two-fold higher protein expression, three-fold increase in productivity
- Host provides robust, long-term genetic and phenotypic stability, supporting reliable performance and providing greater confidence through scale-up and regulatory milestones

Sartorius is addressing the increasing demand for faster and more efficient cell line development (CLD) by launching a new genetically engineered CHO host cell line that improves productivity and efficiency. The team leveraged proteomic profiling and targeted genome editing to generate the rational-design host cell line, which multiplies productivity by up to three-fold.

Sartorius tested the new CHO host cell line across multiple CLD campaigns from DNA to lead clone expressing a range of different therapeutic proteins. At five-liter bioreactor scale, the new host demonstrated up to a two-fold increase in expression titers, and up to a three-fold increase in productivity when directly compared against lead clones derived from the original wild-type CHO host in traditional fed-batch processes.

The cell line enabled this productivity increase while maintaining high product quality. This robust performance has shown to be consistent across IgG1, IgG4, Fc-fusion, and bispecifics, making it well-suited for a wide range of biotherapeutic modalities.

In intensified bioprocessing, the engineered host also supports higher titers and long culture duration in continuous perfusion. For a selected clone expressing a monoclonal antibody, Sartorius observed a two-fold increase in titer per day along with maintained high cell density and viability (more than 80 percent) for a culture duration of up to 28 days.

The data demonstrate that the host's productivity gains make it ideal for supporting next-generation cost-effective biomanufacturing processes, including the growing biosimilars market.

The cell line is designed for reliability, with more than 90 percent of evaluated clones demonstrating continuous protein expression and maintaining low gene copy number over more than 70 generations, ultimately supporting long-term manufacturing consistency along with regulatory confidence.

"To the best of our knowledge, this is the first engineered CHO host cell line to deliver performance at this exceptional level in the CLD market," said Oscar Reif, Head of Corporate Research and CTO at Sartorius.

Its development was made possible only through the combined strengths of our expertise in data science, gene editing, and bioprocessing, reinforcing our position as a leader in innovative CLD technologies. This

achievement only marks the beginning – our data scientists and cell engineers are already advancing the next generation of cell lines to push these innovations even further.”

Combining this new host with a true data-driven workflow strengthens the Sartorius cell line development platform and delivers higher productivity and greater stability in as little as nine weeks, helping developers reduce risk and improve overall manufacturing efficiency and cost per dose.

Sartorius has extensive experience in CLD. The company has completed more than 330 projects and has a strong regulatory track record, with more than 85 molecules in clinics with 10 achieving market approval.

More information about CHO Cell Line Development Services can be found on [our website](#).

A profile of Sartorius

Sartorius is a leading international partner to life sciences research and the biopharmaceutical industry. With innovative laboratory instruments and consumables, the Group's Lab Products & Services Division focuses on laboratories performing research and quality control at pharmaceutical and biopharmaceutical companies as well as academic research institutes. The Bioprocess Solutions Division, with its broad product portfolio focusing on single-use solutions, helps customers manufacture biotech medications, vaccines, and cell and gene therapies more safely, rapidly, and sustainably. Based in Göttingen, Germany, the company has a strong global reach with around 60 production and sales sites worldwide. Sartorius regularly expands its portfolio through the acquisition of complementary technologies. In 2025, the company generated sales revenue of around 3.4 billion euros. More than 14,000 employees work for customers around the globe.

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