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THE DRUG INDUSTRY'S VOICE FOR MANUFACTURING EXCELLENCE

Winning technologies for a
bright pharma future



2022
**PHARMA
INNOVATION
AWARDS**



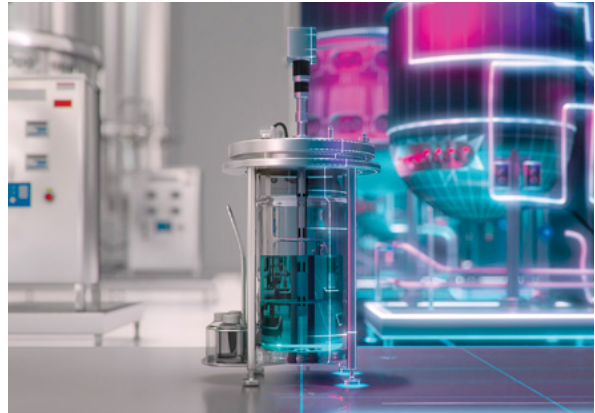
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Our first winner leverages artificial intelligence and mechanistic knowledge to enable cell culture performance prediction. **Yokogawa Insilico Biotechnology** released its **Insilico Digital Twin Factory**, which can help drugmakers increase productivity and bring down manufacturing costs and time to market by potentially replacing up to 50% of the experiments needed during the process development, characterization and scale-up of biopharmaceuticals.

The digital twins use an advanced hybrid blueprint formed from a mechanistic model of the unique characteristics of an intracellular metabolic network and a data-driven model to allow for the constant prediction

of elements such as the soft sensing of substance components that cannot be measured directly, or the early detection of process abnormalities. Last year,



YOKOGAWA INSILICO BIOTECHNOLOGY
Insilico Digital Twin Factory

YOKOGAWA

Yokogawa Insilico Biotechnology

Company

Yokogawa Insilico
Biotechnology

Product

Insilico Digital Twin Factory

Description

Software solutions for predictive biomanufacturing using digital twins

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Application

Insilico Digital Twin Factory of cell culture processes leads to superior productivity, product quality and process robustness. Groundbreaking predictive power is achieved by exploiting process data using artificial intelligence and biochemical networks. As a result, Insilico's unique approach substantially reduces experimental effort, costs of goods and time to market.

Key features

- Composer — Optimizes media composition for processes
- Feeder — Optimizes the feeding strategy for processes
- Scaler — Predicts behavior during upscaling/downscaling

Editor's notes

"The Digital Twin Factory effectively leverages artificial intelligence and mechanistic knowledge to enable cell culture performance prediction."

About the company

Yokogawa Insilico Biotechnology GmbH develops and delivers predictive Digital Twins to advance biopharmaceutical process development and manufacturing. Leading biopharmaceutical companies worldwide use Insilico Digital Twins for cell line development, media design, and process control. Founded in 2021, Yokogawa Insilico Biotechnology GmbH, based in Stuttgart, Germany, is a subsidiary of Yokogawa Electric Corporation, based in Tokyo, Japan

Yokogawa Insilico released its “Insilico Advisor,” to help improve the efficiency of biologics manufacturing by providing for model predictive monitoring of the cell culture process.

Another significant development challenge facing the industry is poor solubility, especially when it comes to antibody-drug conjugates (ADCs). This emerging class of medicines — designed to target and destroy cancer cells while preserving healthy cells — can fail in the clinic due to poor aqueous solubility.

Our next winner, **ChetoSensor** technology from **MilliporeSigma**, the U.S. and Canada Life Science business of Merck KGaA, offers a viable solution to solubility woes. The chito-oligosaccharide is designed to improve solubility, reduce aggregation, improve therapeutic index and conjugation efficiency, and achieve a higher drug-to-antibody ratio in ADCs.

The technology works with a broad range of linkers/payloads, provides flexibility with the linkage site and conjugation technologies, and also works with non-traditional antibodies which would not be considered otherwise. ChetoSensor is being highlighted for its ability to give hope to ADCs that were previously terminated, helping to bring these novel treatments to cancer patients around the world.



ADVANCED INSTRUMENTS
OsmoTECH HT Automated
Micro-Osmometer

Our next winner is being recognized for its ability to speed scale-up in upstream environments.

Advanced Instruments’ OsmoTECH HT Automated Micro-Osmometer

offers a solution to cumbersome manual osmolality testing processes, which can require multiple interactions and limit the efficiency of testing.

The automation-friendly 96-well plate format with a low sample requirement of just 50 uL is specifically designed to meet the high-throughput needs of cell line development, clone screening, early process development and formulation development. It has the consumable capacity to perform up to 1000 tests allowing for uninterrupted testing.


Accelerate time-to-market, mitigate risks, and capitalize on the value of data


Yokogawa Insilico Biotechnology

Transform your data into new opportunities through virtual experimentation.

Yokogawa Insilico Biotechnology provides software solutions for predictive biomanufacturing using digital twins. The biopharma industry uses our software to accelerate time-to-market, to mitigate risks, and to capitalize on the value of data.


 **SELECTOR**
Identifies top clones

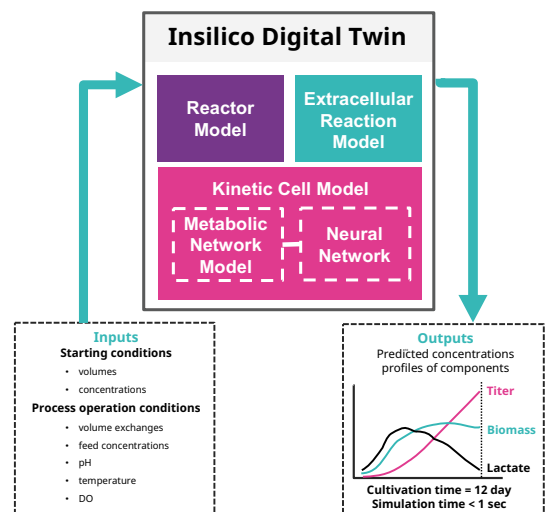
 **COMPOSER**
Optimizes media composition

 **FEEDER**
Optimizes feeding strategy

 **SCALER**
Scale-up/Scale-down

 **CONTROLLER**
Model-predictive control

 **NAVIGATOR**
Characterizes the design space



Let our experts guide your digital transformation journey
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YOKOGAWA 
Co-innovating tomorrow™