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WALLS
SCIENCE
SUMMIT

SARTORIUS

KEY RESULTS OF THE ROUND TABLE

"THE RISE OF AUTONOMOUS LABS IN LIFE SCIENCES"

— *A new acceleration in drug discovery is emerging from autonomous labs*

Drug discovery still loses time, money and talent to slow laboratory workflows, fragmented datasets and late-stage clinical failures. At the same time, biology is becoming more complex and international competition is tightening. Europe needs interoperable autonomous labs, stronger data infrastructure and genuinely cross-disciplinary scientific talent to keep pace.

Autonomous labs bring together robotics, artificial intelligence (AI), high-quality omics datasets and automated experiment cycles to industrialise scientific discovery. They reduce human error, accelerate design–make–test loops and link molecular insights more directly to patient data. But their impact depends on shared platforms, rigorous data governance and researchers who understand how to integrate automation into real scientific decision-making.

THE PANEL CALL TO ACTION:

1 — Build shared platforms for autonomous labs.
Develop common operating systems, data standards and instrument interfaces so discovery workflows can run reproducibly across sites rather than in isolated automation islands.

2 — Make high-quality, Findable, Accessible, Interoperable and Reusable (FAIR) data a strategic asset.
Link electronic health records (EHRs) with omics datasets through public–private partnerships and generate synthetic data where needed, ensuring AI models can train on reliable, well-curated information.

3 — Redesign drug discovery around AI, automation and cross-disciplinary skills.
Shift academic and industrial training towards platform thinking, data analysis and systems integration, preparing scientists to collaborate across biology, AI and robotics.

4 — Establish robust governance for data and AI.
Set clear quality metrics, validation protocols and guardrails so automated workflows remain reproducible, bias-aware and compatible with good practice (GxP)-style regulation.

5 — Use automation to amplify human judgement, not replace it.
Design autonomous labs so AI proposes experiments, detects anomalies and simplifies complex reasoning, while humans set goals, interpret unexpected findings and decide when to override or reframe what the system is doing, preserving room for serendipity and truly novel discoveries.

This event is supported by Sartorius and assembled in the framework of the Falling Walls Science Summit 2025 in Berlin. The Falling Walls Science Summit is a leading international, interdisciplinary, and intersectoral forum for scientific breakthroughs. It commemorates the fall of the Berlin Wall and aims to promote dialogue between science and society.

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