Session	Sensors, AI, Automation
Title	CHITOSE's Integrated Biomanufacturing Platform (SuuKo™): AI-Driven Bioprocess Optimization
Company	CHITOSE Laboratory
Speaker	Tetsushi Kawai
TRL	TRL 4-7
Keywords feedstock (max 2)	Any
Keywords technology (max 2)	AI, sensors
Keywords End-Product (max 2)	Any

Abstract:

Commercial biomanufacturing requires two inseparable elements: high-performance host strains and optimized process control. To bridge this gap, CHITOSE Laboratory offers SuuKo™, an integrated biomanufacturing platform.

Grounded in 15+ years of experience, CHITOSE combines synthetic biology with proprietary mutagenesis to generate and fine-tune superior production strains. To fully unlock a strain's potential, bioprocess optimization must move beyond trial and error and subjective expert intuition. Utilizing proprietary multidimensional sensors, SuuKo™ continuously captures complex biological dynamics in real time. These data are used to explore process conditions, develop soft sensors predicting offline parameters like product titers, and enable real-time closed-loop autonomous parameter control beyond human capabilities.

In commercial partnerships, SuuKo™ proved its ability to go beyond conventional productivity limits: doubling protein production in filamentous fungi with Ajinomoto, outperforming top expert conditions, and deriving optimal conditions in just 11 experiments that increase cell productivity (20% yield increase, 50% biomass reduction) with Meiji.

CHITOSE Laboratory seeks European biomanufacturers, precision fermentation firms, industrial hosts for scale-up, and engineering partners for commercial deployment.