Contribution ID: **79** Type: **Oral**

Automated industrial platform for fuel bioethanol using Clostridium with co-production of high-value peptides via clostridial IVTT

Thursday, May 16, 2024 11:30 AM (30 minutes)

Demand for plasmid DNA has increased tremendously with growth in cell and gene therapies and surged following the outbreak of the Covid-19 pandemic. Scaling up manufacturing capacity for production of high-quality plasmid DNA to meet demand will require automated solutions using industrial automation components that are more durable, dynamic, and powerful than lab instruments. This plasmid platform will be integrated with other platforms to provide a large-scale high-throughput automated system for all aspects of DNA production. Hyper scheduling of the modular units will allow for parallel operations using SCARA and 4,5,6 axis robots and continuous 24/7/365 operations. Such a platform is proposed for ethanol biofuel production from Clostridium, such as Clostridium autoethanogenum that can utilize xylose (main component of cellulosic biomass), grown on carbon dioxide or carbon monoxide using the resulting S30 fraction from the bacterial extract in industrial IVTT to make high-value peptides (such as natural sweetener brazzein) and proteins in kg quantities. The platform will be described in detail.

Primary author: Dr HUGHES, Stephen (CTO, Integrated Biorefining Corporation)

Presenter: Dr HUGHES, Stephen (CTO, Integrated Biorefining Corporation)

Session Classification: Plenary: Nuclear Astrophysics, Biology, DUNE Phase II

Track Classification: Biology