Preliminary Program

(August 18, 2018)

Discovery, Development and Production of Emerging and Current Products I/II/III

Products such as Gene and Cell Therapy, Vaccines, Proteins (mAbs, Fusion Proteins, bispecifics, new constructs) as well as biobased chemicals and fuels will be covered in sub sessions planned by session chairs. Discuss various topics such as Product Design/Engineering and Product Quality as well as Manufacturing challenges like cost, scale of manufacturing and yield for the various products. Discuss product-related topics for biobased chemicals and fuels, such as optimization of pathway design, productivity, yield, purity, etc. for established products as well as discovery, application and biosynthesis of novel natural and non-natural products .

Current Technology Challenges and Opportunities: Case Studies I/II/III

Our objective is to bring these mammalian and microbial communities together to learn from the diverse case studies in sub-sessions planned by session chairs. Present mammalian-based, microbial-based, other production system-based case studies spanning upstream production, downstream purification, lab scale systems (HT screening/automation or low throughput), MFG systems (Continuous vs Fed-batch), bioprocess modelling and control to highlight the pros and cons/challenges and opportunities with current technology for making products. Issues more specific for microbial-based processes (e.g., use of low cost feedstocks (such as COx, gaseous alkanes, etc.), *in situ* product recovery, etc.

Emerging Technologies I/II

Discuss applications of AI and machine learning, and systems biology in personalized medicine. Discuss research involving optogenetics (application of light to control cells in living tissues and organisms); to epigenetics / molecular engineering in product development and in diseases.

Microbial Consortia: Novel Mechanisms and Applications

Discuss topics involving microbial consortia, either as tools for production (microbial consortia to degrade complex feedstocks or to produce chemicals / fuels), as products for nutraceuticals / therapeutics (e.g., gut microbiota).