



## From Molecule to Medicine: Innovator-CDMO Synergy in Modern Drug Development

KEY WORDS Sustainable drug production Emerging technologies such as continuous flow chemistry and biocatalysis Electrochemistry and photocatalysis

**Cheng Yi Chen** Asymchem Laboratories (Tianjin), China



## Process Development Using 3D Metal Printed Reactors and Bayesian Optimization

KEY WORDS Additive manufacturing Computer aided process development

**Daniel Mink** InnoSyn BV, The Netherlands



## Enabling Complex API Syntheses with Engineering Enzymes

KEY WORDS Directed Evolution Cascade reactions RNA

**David Entwistle** Codexis, USA



## Advancing Functional Molecule Synthesis

KEY WORDS Low Reaction Solid-Supported Catalyst Machine Learning

**Takashi Ohshima** Kyushu University, Japan



## Development of Efficient Catalytic Flow Process: Strategies and Insights for Pharmaceutical Applications

KEY WORDS Process Development Continuous Manufacturing (CM) Fixed-Bed Reactor (FBR)

**Eunpyo Hong** SK pharmteco SM Asia, South Korea



## Enabling Technologies to Drive the MSD Portfolio

KEY WORDS Technology Process Research Biocatalysis

**Rebecca Ruck** MSD, USA



## Beyond the Paradigm: Liquid Phase Synthesis of N-Alkyl Rich Cyclic Peptide from the First ScaleUp Manufacturing

KEY WORDS Highly Convergent Synthetic Strategy Epimerization-Resistant Fragment Coupling Data Chemistry-Based Route Prediction

**Hiroshi Iwamura** Chugai Pharmaceutical, Japan



## Developing Data Science Tools for Synthetic Chemists

KEY WORDS Data Science Machine Learning Catalysis

**Matthew S. Sigman** University of Utah, USA



## Innovations in SHIONOGI Process Chemistry: Scalable Manufacturing Strategies for COVID-19 Antivirals

KEY WORDS Process Development Scale-Up Continuous Flow Synthesis

**Takahiro Kawajiri** SHIONOGI, Japan



## Validating Continuous Manufacturing Across Multiple Scales Including Downstream Processes and Our Vision for 2030

KEY WORDS Taylor-Couette crystallization System orchestration Horizontal reactor

**Joji Tsurumoto** iFactory, Japan



## Process Chemistry Realisation for Neglected Tropical Diseases (NTDs) to Achieve Affordable and Quality Medicines towards Patient Benefits

KEY WORDS NTDs Safe & Scalable Cost of Goods ICH

**Anil S. Khile** Eisai Pharmaceuticals India, India



## Scaling Electrochemistry: From Lab Curiosities to Continuous Processes

KEY WORDS Flow synthesis Chalcogenide chemistry Reductions

**Thomas Wirth** Cardiff University, UK



## Ligand Development for More Efficient Cu-catalyzed Arylation of Nucleophiles

**Dawei Ma** Shanghai Institute of Organic Chemistry, China

\* in alphabetical order

\* These titles are current as of March.