Editorial

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Flow chemistry has transitioned from a niche technique to a standard tool in the chemist's arsenal, particularly valuable when addressing challenging reactions. While continuous processes have long been a mainstay in bulk chemical manufacturing, their adoption by synthetic organic chemists accelerated in the early 2000s, driven by academic and pharmaceutical industry innovations. This shift has spurred the development of scalable solutions for reactions involving hazardous intermediates, photochemistry, and electrochemistry, benefiting both large-scale and small-scale operations. Microfluidics, in particular, offers significant promise for high-throughput screening and rapid analysis.

This issue of CHIMIA showcases several key advancements in flow chemistry and related techniques, with contributions across the globe. Viri *et al*. demonstrate the power of microfluidics for high-throughput screening and directed evolution in agrochemical R&D, enabling rapid screening of millions of biomolecule variants. Deadman advocates for the expansion of the Open Reaction Database to encompass flow chemistry data, improving reaction prediction and experimental design. Baumann *et al.* reviews recent advancements in the safe and efficient generation of reactive intermediates using flow photochemistry, metalation, and electrochemistry. Gioiello *et al.* provides a review focusing on continuous flow technology for generating reactive intermediates. Roura Padrosa *et al*. emphasizes the critical role of enzyme immobilization in flow biocatalysis, showcasing innovative strategies for enhanced stability and reusability. Laudadio highlights the transformative impact of flow electrochemistry across various scales of synthesis. Sharma explores the synergistic combination of flow chemistry, photoredox catalysis, and electrochemistry for efficient and sustainable synthesis. Marti *et al.* details the development of a scalable dynamic cascade flow reactor for challenging heterogeneous processes. Finally, Röder *et al.* present a continuous flow process for the asymmetric hydrogenation of benzylphenylephrone, including a detailed kinetic model for process optimization.

We believe this collection of articles will stimulate further exploration and adoption of flow chemistry and related techniques across diverse chemical disciplines.

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The CHIMIA Editorial is very grateful to Dr. Claudio Battilocchio and Dr. Jean-Philippe Krieger for their great efforts in organizing this issue on *Enabling R&D with Flow Chemistry and Microfluidics* showcasing the diverse usage of flow chemistry in various areas of research and industry which is being carried out in Switzerland and beyond.
Cover Image prepared using, Imagen3, Prompt: 'a glass microfluidic chip'.