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Translational Chemistry: From Molecular Discovery to Societal Impact

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Translational Chemistry (TC) is the discipline that converts molecular discovery into validated chemical solutions with measurable benefit for society.

TC is the chemistry of connection: it takes fundamental molecular knowledge and moves it toward practical, validated, socially useful applications. It is close to applied chemistry, but more demanding: it asks not only 'Does this molecule/material/sensor work in the lab?' but also 'Can it work in real samples, real devices, real environments, real patients, real industries, or real communities?'

The idea comes from the broader concept of translational science, where discoveries are moved across the pipeline from basic knowledge to usable solutions. The National Center for Advancing Translational Sciences (NCATS) defines translational science as work that overcomes barriers in the research pipeline to make research faster, more efficient, and more impactful. In chemistry, this means transforming chemical principles into technologies for health, environment, energy, materials, diagnostics, food safety, cultural heritage, pharmaceutics, and industrial innovation. TC should not only generate scientific knowledge but also improve quality of life, support sustainable development, strengthen evidence-based decision making, and contribute to addressing some of the major global challenges facing modern society.

A strong translational chemistry project normally includes three dimensions:

- **Fundamental chemical quality**

Clear synthesis, structure, mechanism, selectivity, stability, analytical figures of merit, reproducibility, and comparison with the state of the art.

- **Application realism**

Testing beyond ideal laboratory conditions: real samples, biological matrices, environmental waters, devices, polymers, paper strips, nanoparticles, formulations, or scalable protocols.

- **Impact pathway**

A plausible route from discovery to use: lower cost, greener process, improved diagnostic performance, safer materials, better sensitivity/selectivity, portability, sustainability, or social/clinical/industrial benefit.

For example, a fluorescent chemosensor is not truly translational only because it detects an ion in an pure organic solvent. It becomes translational when it is engineered into a film, paper device, polymer sheet, aqueous platform, biological assay, environmental test, or portable analytical method, with validated limits of detection, selectivity, robustness, and real-sample performance. The same applies to nanomaterials, catalysts, antimicrobial systems, drug-delivery platforms, or proteomic biomarkers.

The journal/editorial concept of 'Translational Chemistry' has been framed as an interface between fundamental chemical knowledge and global impact, emphasizing the integration of chemical principles into real-world solutions across medicine, biology, materials science, engineering, pharmaceutics, environment, and related areas. This is especially timely because modern chemistry is increasingly driven by measurement science, automation, computation, catalysis, and advanced materials - areas identified as important engines of future chemical innovation.

This issue represents an important step in the consolidation and visibility of the journal, as we continue to build a strong platform dedicated to high-quality research at the interface between fundamental chemistry and real-world applications. Our goal is to attract innovative, rigorous, and impactful contributions that clearly demonstrate how chemical knowledge can be translated into practical solutions for science, technology, health, environment, materials, and society.

By bringing together excellent contributions from recognized researchers and emerging leaders in the field, we aim to strengthen the scientific profile of the journal and support its progression toward broader indexing, international recognition, and the achievement of an Impact Factor in 2027.

We warmly encourage authors to submit original research articles, reviews, perspectives, and communications that reflect the mission of Translational Chemistry: transforming molecular discoveries into meaningful advances with measurable scientific and societal impact.

We envision Translational Chemistry as a meeting point where molecular innovation becomes tangible societal progress. We invite the scientific community to contribute to this vision by publishing rigorous, innovative, and application-oriented research that demonstrates how chemistry can address the grand challenges of our time.

Your contribution will be highly valuable in helping us shape the identity, quality, and future influence of the journal.