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The Expanding Horizon of Translational Chemistry: From Fundamental Knowledge to Global Impact

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The concept of Translational Research emerged as a response to the pressing need to bridge the gap between basic scientific discoveries and their practical applications - particularly in the biomedical and clinical sciences. Today, this philosophy has matured and transcended its original scope. In an increasingly interconnected and interdisciplinary scientific landscape, chemistry - the central science - holds the unique potential to drive translational efforts across a diverse range of disciplines. It is from this understanding that Translational Chemistry arises.

At its core, Translational Chemistry embodies the integration of chemical principles and innovations into applications that address real-world challenges. But its scope extends further - it reflects a mindset, a methodological approach that breaks down disciplinary silos, enabling chemical knowledge to interface seamlessly with biology, physics, engineering, environmental sciences, and medicine. It is this cross-pollination that fuels innovation and economic progress.

The field is not limited to pharmaceutical development or medical diagnostics. Instead, it spans the entire chemical spectrum - from synthetic organic and inorganic chemistry to analytical and physical chemistry, and into more specialized domains such as:

- Biochemistry and Biological Chemistry, where molecular-level understanding enables breakthroughs in disease mechanisms and drug design;
- Forensics and Conservation Science, where chemistry aids in crime scene analysis or the restoration of cultural heritage;
- Pharmaceutical and Medicinal Chemistry, where drug development and analytical innovation converge to translate discovery into life-saving therapeutics;
- Environmental Chemistry, addressing global sustainability and pollution mitigation;
- Chemical Engineering and Industrial Chemistry, where scalability, safety, and process optimization transform lab discoveries into products;
- Materials Chemistry and Nanochemistry, enabling the design of functional materials with applications in energy, electronics, and beyond.

Translational Chemistry is, therefore, not a new discipline, but rather a new paradigm - an interface perspective - that recognizes the pivotal role of chemistry in societal advancement. It promotes a looped model of innovation:

From fundamental research → technological development → industrial implementation → societal benefit → and back to fundamental inquiry informed by new questions.

This inaugural first issue of the Translational Chemistry: An Interface Journal is a testament to this vision. Here, we present contributions that exemplify this translational ethos - from novel chemical sensors with diagnostic utility, to catalytic systems with industrial relevance, to sustainable chemical processes designed to meet the goals of the green economy. These studies demonstrate how chemistry can serve as a connector between lab-scale discovery and large-scale impact.

The rich and diverse panel of editors aim for this journal to serve as a platform where chemists and scientists from all related disciplines find a common language and a shared mission: to apply the rigour and creativity of chemistry to solve global challenges. Whether you're designing a new compound, developing a device, or scaling a process, Translational Chemistry invites you to think beyond your bench - to the clinic, the factory, the ecosystem, the museum, the classroom, the daily live.

Translational Chemistry is not only a scientific approach, but a collaborative spirit. It is an invitation to connect ideas, methods and people - to build a chemical interface that is as human as technical.

We welcome all those who see chemistry not just as a science, but as a force for transformation.

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