PREFACE

2026: The Year of Innovation, Sustainability, and Education in Protein and Peptide Science

As we open the first issue of *Current Protein & Peptide Science* for 2026, it is with great optimism and admiration for how far our field has come and how boundless its horizons have become. Proteins and peptides stand today at the very center of modern bio-inspired science, uniting fundamental chemistry with translational medicine, and redefining what is possible in molecular design, therapeutics, and biotechnology.

Recent years have brought extraordinary progress. In protein science, deep learning–based structure prediction has matured into a powerful engine for discovery, guiding rational design and enabling the visualization of dynamic protein complexes in unprecedented detail. Cryo-electron microscopy and computational protein design continue to reveal new molecular architectures and functions, enabling the design of bio-inspired molecular systems, such as artificial enzymes and self-organized assemblies, engineered through creative synthetic strategies to perform functions once reserved for nature.

In parallel, peptide science has entered a true age of innovation. The integration of machine learning, high-throughput synthesis, and bioinformatics is accelerating the discovery of stable, selective, and cell-permeable peptides. Macrocyclic, stapled, and self-assembling peptides are transforming therapeutics and biomaterials, while peptide–drug conjugates and hybrid constructs blur the traditional boundaries between chemistry and biology.

A particularly promising frontier is the development of peptide-based cosmetics, where bioactive sequences are harnessed to promote skin regeneration, protection, and repair through molecular mechanisms that mirror therapeutic pathways. This expanding field underscores the versatility of peptides not only as medicines but also as agents of wellbeing and sustainability.

At the same time, the rise of green synthetic methodologies, including solvent-free reactions, enzymatic ligation, and recyclable solid supports, is reshaping peptide manufacturing. These sustainable approaches demonstrate that scientific excellence and environmental responsibility can progress hand in hand.

Education plays a pivotal role in this transformation. The future of protein and peptide science depends on our ability to train a new generation of scientists fluent in both molecular design and sustainability. Organic chemistry carries the responsibility to educate and equip these young researchers in peptide chemistry, providing the foundational knowledge, synthetic skills, and ethical awareness necessary to drive innovation responsibly. Fostering this culture of integrated education will ensure that progress continues to serve both science and society.

As we step into 2026, *Current Protein & Peptide Science* reaffirms its mission to inspire curiosity, collaboration, and creativity. This year, we will continue to champion young investigators, promote interdisciplinary thematic issues, and emphasize the importance of education and sustainability as the foundation for progress in the protein and peptide sciences.

Let this year be one of bold ideas and shared vision, where proteins and peptides continue to illuminate the path toward a deeper understanding of life, and toward innovations that will shape the future of health, beauty, and biotechnology**.**

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