

Special Issue

Peptide Self-Assembly

Message from the Guest Editor

Peptides are fundamental molecular building blocks that reflect their pivotal roles as central structural elements of the biological systems. Ordered peptide assemblies at the nano-, micro-, and macroscale enable living organisms to execute their physiological functions, and biology is harnessing the unique physical properties of these assemblies. Peptides exhibit biocompatibility and chemical diversity characteristics akin to those of proteins while also possessing distinctive characteristics such as relatively high stability, structural simplicity, ease of production, and flexibility in molecular design. Peptides and their derivatives can spontaneously assemble into diverse structures with intriguing and tunable physicochemical properties. Applications of peptide materials are therefore rich in variety, encompassing drug delivery systems, tissue regeneration, supercapacitors, and biosensors. Contributions to this Special Issue will present the latest advances into the mechanism and assembly of peptide materials, deepen our understanding of their biological role in life processes, and reveal innovative peptide-based functional materials and emerging applications.

Guest Editor

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Deadline for manuscript submissions

20 September 2025



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



mdpi.com/si/221370

*International Journal of
Molecular Sciences*
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