

## Special Issue

# Advances in Design, Synthesis and Applications of Peptide Nucleic Acid

### Message from the Guest Editors

PNA represents a unique class of synthetic nucleic acid analogs that have gained significant attention due to their promising applications in various biotechnology and therapeutics fields. The application of PNA extends across a diverse range of fields, including molecular diagnostics, gene editing, and nanotechnology. In diagnostics, PNA-based probes offer superior sensitivity and specificity for target detection, enabling the accurate diagnosis of various diseases. Using PNA as a gene editing tool holds great promise for genome manipulation with minimal off-target effects. Improvements in delivery systems, such as nanoparticle-based carriers and cell-penetrating peptides, have facilitated the efficient delivery of PNA therapeutics, overcoming the challenges associated with cellular uptake and bioavailability. This Special Issue encapsulates the recent progress in the design, synthesis, and development of PNA molecules, highlighting their structural features, synthesis methodologies and emerging applications.

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### Guest Editors

Dr. Maria Moccia  
Dr. Concetta Avitabile  
Dr. Annalisa Masi

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### Deadline for manuscript submissions

closed (30 July 2025)



## International Journal of Molecular Sciences

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