Special Issue

Gene Editing Using Synthetic Nucleic Acids

Message from the Guest Editor

Recently, gene editing using synthetic nucleic acids has emerged as a powerful approach to precisely modifying DNA. Synthetic nucleic acids, such as peptide nucleic acids (PNAs), morpholinos, Phosphorothioate Oligonucleotides, Xeno Nucleic Acids (XNAs), and locked nucleic acids (LNAs), are artificial molecules designed to mimic or bind to DNA/RNA with high specificity and stability. These synthetic nucleic acids offer advantages over traditional methods, including the ability to target specific genes without relying on nucleases, enabling applications such as the correction of genetic mutations or the silencing of harmful genes. Their resistance to enzymatic degradation enhances their potential in therapeutics, such as treating genetic disorders and cancers. This technology is continually evolving, promising safer, more effective tools for precise genome editing in medicine and research.

Guest Editor

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