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Hybrid Nanozymes: From Concept to Biomedical Applications

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Message from the Guest Editor

Nanozymes are an array of novel nanomaterials with catalytic activity and enzymatic reaction kinetics. Since their discovery, their remarkable properties have attracted attention. Compared with natural enzymes, they possess many advantages, such as inherent nanomaterial characteristics, a high catalytic stability, a low cost, feasible mass production, and robustness to harsh environments. At present, the major challenge in the practical implementation of nanozymes resides in their limited types and poor substrate selectivity; therefore, intensive efforts have been devoted to the rational design and engineering of hybrid nanozymes. For example, the catalytic performance of nanozymes can be modified by adjusting their size, shape, composition, and structure; a multifunctional catalytic system can be obtained through hierarchical structure design and and/or multi-component fabrication. Coupling with biological molecules can improve biocompatibility and achieve novel properties.

In this Special Issue, we would like to collect publications describing the concepts, catalytic mechanisms, and applications of hybrid nanozymes with a hierarchical structure and/or multiple components.