

Special Issue

Nanomaterials and Regulated Cell Death Pathways: Novel Therapeutic Opportunities

Message from the Guest Editor

Currently, over two dozen distinct types of regulated cell death (RCD) have been described, including apoptosis, cuproptosis, ferroptosis, necroptosis, PANoptosis, pyroptosis, etc., which rely on unique but frequently overlapping molecular pathways. A growing body of evidence indicates that RCDs play an important role in maintaining homeostasis and ensuring host defence. Moreover, RCDs contribute to the pathogenesis of a wide array of diseases, especially cancer. Thus, targeting RCDs has emerged as a promising therapeutic avenue in multiple pathologies. Notably, nanomaterials hold great potential as modulators of RCDs, and the RCD-based nanotherapeutic strategy is currently under extensive exploration in oncology. This Special Issue focuses on the development of novel nanoscale materials that can modulate RCDs and the investigation of their application as RCD-modulating nanotherapeutic agents. Studies that explore the molecular pathways through which nanomaterials induce RCDs are gladly welcomed. Investigation of the RCD-based nanomedicines will pave the way for improving the effectiveness of cancer therapy and expand our knowledge of the intricate cell death machinery.

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