

Special Issue

Microbial Resistance Mechanisms in Biotechnology: From Extremes to Applications

Message from the Guest Editors

Microorganisms thriving in extreme environments possess unique resistance systems that enable them to survive and function under harsh conditions such as extreme temperatures, pH levels, salinity and radiation. This Special Issue aims to explore the molecular and genetic mechanisms underlying these resistance systems, highlighting their evolutionary adaptations and physiological responses. The focus will be on identifying and characterizing essential resistance genes and pathways, as well as understanding the ways in which these microorganisms maintain stability and activity under extreme conditions. Additionally, the Special Issue will investigate the potential biotechnological applications of these resistance systems, including their use in industrial processes, environmental remediation and the development of novel bioproducts. By examining both the fundamental biology and applied aspects, this Special Issue seeks to provide comprehensive insights into the resilience of extremophiles and their potential to drive innovations in biotechnology.

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