

Special Issue

Bacterial Endospores: Stress Resistance and Germination

Message from the Guest Editors

Bacterial spores are the ultimate survival capsule occurring in nature. They have been around for eons and have evolved an unprecedented survival ability amongst all Life on Earth, even in the face of many adverse environmental conditions, such as: i) extreme acid and alkaline conditions; ii) the environmental niche of the gastrointestinal tract of hosts; iii) desiccation; iv) extreme temperatures, including those used in contemporary food manufacturing. The resistance conferred by the spores of both anaerobes, such as Clostridia and aerobic organisms, from the genus Bacillus has been long enigmatic, as the structures involved in spore resistance were, by nature, refractive to detailed biochemical analysis methods. In recent decades, genetic analyses and, more recently, genomic and proteomic analysis have contributed to unravelling some of the secrets of bacterial spore stress resistance, as well as spore germination mechanisms. Nevertheless, the mechanism(s) of the extreme high heat resistance of many spore formers remains unresolved, as do questions about spore germination triggering and the stress resistance of spores of many recently identified gut microbes.

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