Special Issue

Bioengineering of Polysaccharide Production Systems

Message from the Guest Editors

Carbohydrates play a variety of functional roles in microbes, plants, and animals. Oligosaccharides and polysaccharides derived from these sources are used in drug and vaccine development, pollution remediation, food stabilization, and cosmetic chemistry, among other applications. The isolation of oligo- and polysaccharides from natural sources often involves multi-step purification techniques and can be labor intensive. As such, there is an impetus to not only understand the endogenous biosynthetic routes, but also to develop approaches for the efficient synthesis and functionalization of oligosaccharide- and polysaccharide-based biomaterials. Unlike nucleic acids and proteins, carbohydrates are not encoded for by the genome and thus the sequence and diversity of polymeric carbohydrates is determined by the existing biosynthetic pathways. Modern efforts using bioengineering methods exploit these pathways to increase carbohydrate production. This Special Issue welcomes submissions that focus on novel techniques in metabolic, genetic, and protein engineering leading to the large-scale production of natural and unnatural polysaccharides.

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Editor-in-Chief

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