LIVING MATERIALS FOR BIOMEDICINE

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Functional micro/nano structures, polymers, and molecules suitable for biomedical applications can be derived from various living organisms. Living organisms themselves can serve as functional materials for specific purposes.
Unlike traditional industrial methods, the biosynthesis of materials takes place under mild conditions and with lower environmental impact. This approach holds promise for enabling sustainable large-scale production of functional nanomaterials for biomedical applications.
Examples such as biosilica, cellulose, lignin, polydopamine, and silk will be presented in the lecture. The use of microalgae and photosynthetic microorganisms as a source of materials for many biomedical applications will be also discussed.
The lecture will finally delve into the opportunities and challenges associated with this approach, highlighting potential future directions.

Key words: *Biomaterials, biosilica, lignin, polydopamine, microalgae*