MSE 2024

24 - 26 Sep 2024 (Darmstadt)

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Topic B: Biomaterials

B04: Bioinstructive polymers and hydrogels

Polymers provide promising strategies to instruct cellular behavior. Their chemical and physical properties can be precisely controlled and surface functionalization strategies can be used to control their interaction with biological material, such as cells. Hydrogels are hydrated, physically and/or chemically crosslinked polymeric networks. They are widely used to mimic the extracellular matrix of tissues in 2D and 3D, successfully instructing cell behavior.

As “material and form follow function”, hydrogels can be made of natural as well as synthetic polymers and in almost any shape, depending on the task they need to fulfill. Due to this versatility including their vast diverse chemical properties, polymers in many forms - including hydrogels - are widely used in biomaterials science and cell biology to study effects of mechanical properties, surface topology, 3D architecture, biofunctionalization and growth factor binding on biological systems. Furthermore, they are promising tools in tissue engineering due to their tunable physical and chemical properties.

This symposium aims to bring together researchers from different fields who develop bio-instructive platforms using polymers and/or hydrogels. Light will be shed on the different types of polymers and hydrogels, on processing strategies such as additive manufacturing, and on their potential in fundamental biomaterials research as well as on clinical translational and biotechnological applications.

Symposium Organizer


Prof. Dr. Dorothea Brüggemann
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