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Material development for Rapid Prototyping for futur medical application

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Photocurable liquid monomers were crosslinked by laser irradiation to form cytocompatible, non-degradable polymers with adjustable mechanical properties to build up artificial blood vessel structures. The mechanical properties of the vessel-like material is mimicing the natural ideal and is ready to be biofunctionalized and seeded with epithelial cells in the inner side of the photopolymeric tube system. Similar a high porous and branched tubesystem is manufactured by stereolithograhly to find its application as blood supplying system for tissue engineering.

Synthesis of model photoaktive crosslinker are indroduced that allow the adaptation of mechanics in photopolymers for artificial soft tissues. Mechanical studies regarding the elasticity, tear strength and tear tensile strength of the photopolymers are presented.

Biography

Wolfdietrich Meyer has completed his PhD in 2005 on Bioanalytical Electrochemistry. As a post doc he did research on nanoparticles applied for MRI contrast agents at the Charité in Berlin. From 2009 on he is focusing on material development for 3D printing for medical application at the Fraunhofer Institute for Applied Polymer Research.

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