NATIONAL INSTITUTE OF CHEMISTRY

TECHNOLOGY OFFER

MACROPOROUS SYNTHETIC POLYPEPTIDE SCAFFOLDS

Fields of use
Advanced Materials, Biobased and Degradable Polymers

Intellectual property
Know-how

Technology Readiness Level
TRL3

Current state of technology
Laboratory tested

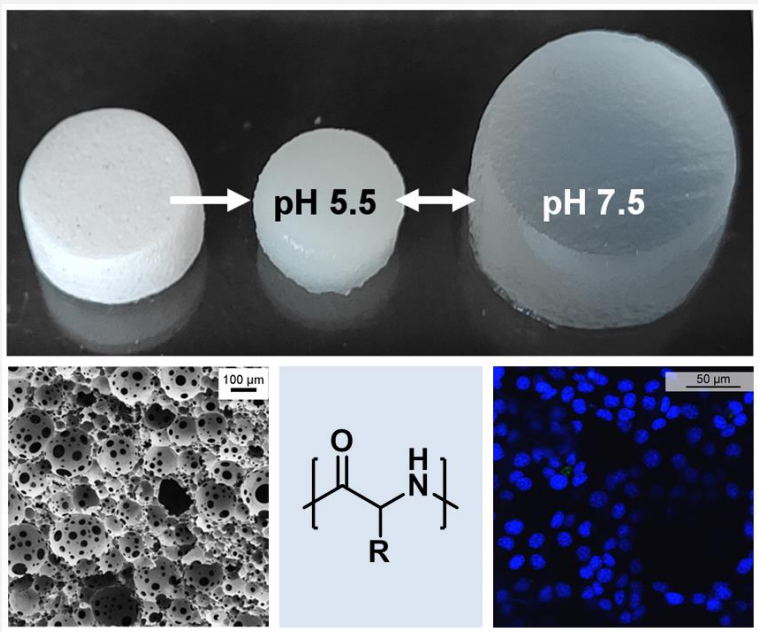
Next steps needed
Partner search for product development and *in vivo* testing.

Partner sought
R&D collaboration to further develop the technology. Licensing or sell of IP rights.

Developed by
Department of Polymer Chemistry and Technology

Contact
Knowledge Transfer Office
Phone: + 386 1 47 60 529
E-mail: knowledge.transfer@ki.si

More information about the invention



The ultimate goal of scaffolding for tissue engineering is to create functional and implantable scaffolds capable of providing suitable micro-environments for optimal cell growth, differentiation and function. In this respect, the scaffolds should be biocompatible and biodegradable, possess an interconnected macroporous structure for cell penetration and transfer of metabolites and nutrients and suitable functionality to promote cell adhesion. Synthetic polypeptides have been identified as one of the most promising candidates for the scaffold design due to their biodegradability, biocompatibility and cell adhesive properties.

Technology
Invention provides a synthetic method to prepare functional macroporous scaffolds composed entirely of synthetic polypeptides by emulsion templating. The materials are distinguished by highly interconnected macroporous morphology and tailored physical and chemical properties.

Main advantages
The wide variety of available amino acids offers considerable chemical diversity, allowing preparation of biocompatible and biodegradable polymer scaffolds with tunable physico–chemical properties, such as hydrophobicity, solvent uptake, mechanical properties, conjugation with biomolecules, and stimuli-responsive behaviour.

KONZORCIJ ZA PRENOS TEHNOLOGIJ IZ JRO V GOSPODARSTVO

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