Self-assembling peptides as potent cell-type specific enhancers of retroviral gene transfer (extension)

Initiative: Integration molekularer Komponenten in funktionale makroskopische Systeme (beendet, nur noch

Fortsetzungsanträge)

Bewilligung: 26.06.2016

Laufzeit: 3 Jahre

The aim of this project is to create bioactive peptide nanofibrils (PNFs) that enhance retroviral gene transfer in vitro, ex vivo and in vivo in a safe and cell-type specific fashion, which will be exemplified for treatment of the genetic disease hemophilia B. Functionalized PNFs will be developed that enhance in vitro, ex vivo and in vivo gene delivery in a cell-type specific fashion. The safety and efficacy of our approach will be verified in a mouse model of hemophilia B. Functionalizaton with hepatocyte-targeting peptides, introduction of break points into the peptide sequence and imaging groups will be crucial to achieve cell-type or organ-specific gene transfer and to control the stability and distribution of PNFs in vivo. The realization of the approach would represent a breakthrough in biomedical research and opens exciting future prospects for the treatment of various diseases.

Projektbeteiligte

Prof. Dr. Tanja Weil
Max-Planck-Institut für Polymerforschung
Mainz
Department Synthese von Makromolekülen
Mainz

Prof. Dr. Frank Kirchhoff
Universitätsklinikum Ulm
Medizinische Fakultät
Institut für Molekulare Virologie
Ulm

Prof. Dr. Jan Münch
Universitätsklinikum Ulm
Medizin
Institut für Molekulare Virologie
Ulm

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Generation and Characterization of Virus-Enhancing Peptide Nanofibrils Functionalized with Fluorescent Labels
Water-Dispersible Polydopamine-Coated Nanofibers for Stimulation of Neuronal Growth and Adhesion.
Autonomous Ultrafast Self Healing Hydrogels by pH Responsive Functional Nanofiber Gelators as Cell Matrices
Sequence-Optimized Peptide Nanofibers as Growth Stimulators for Regeneration of Peripheral Neurons
Structure, function and antagonism of semen amyloids