Regulating Stem Cell Secretome Using Injectable Hydrogels with In Situ Network Formation.

Journal: Adv Healthc Mater

Publication Year: 2016

Authors: Lei Cai, Ruby E Dewi, Andrew B Goldstone, Jeffrey E Cohen, Amanda N Steele, Y Joseph Woo, Sarah C Heilshorn

PubMed link: 27709809

Funding Grants: Injectable Hydrogels for the Delivery, Maturation, and Engraftment of Clinically Relevant Numbers of Human Induced Pluripotent Stem Cell-Derived Neural Progenitors to the Central Nervous System

Public Summary:
A family of shear-thinning hydrogels for injectable encapsulation and long-term delivery (SHIELD) has been designed and synthesized with controlled in situ stiffening properties to regulate the stem cell secretome. The authors demonstrate that SHIELD with an intermediate stiffness (200-400 Pa) could significantly promote the angiogenic potential of human adipose-derived stem cells.

Scientific Abstract:
A family of shear-thinning hydrogels for injectable encapsulation and long-term delivery (SHIELD) has been designed and synthesized with controlled in situ stiffening properties to regulate the stem cell secretome. The authors demonstrate that SHIELD with an intermediate stiffness (200-400 Pa) could significantly promote the angiogenic potential of human adipose-derived stem cells.