

IMMUNO MODULATORY MATERIAL FOR BRAIN REPAIR

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Technology description

SUMMARY

UCLA researchers in the department of chemical and biomolecular engineering have developed a novel material of hyaluronic hydrogel scaffold with heparin nanoparticles to promote brain regeneration and recovery after stroke.

BACKGROUND

Stroke is the leading cause of disabilities in adults and more than 6 million Americans are living with the long-term consequences of stroke. The brain does not regenerate new tissues and neural connections after cell deaths caused by stroke, leaving behind a cavity and brain scar tissues. Therefore, novel therapies that increase the capacity of regeneration and recovery of brains after stroke are needed to minimize any long-term effect of stroke.

INNOVATION

A novel material of heparin nanoparticle-containing hyaluronic hydrogel scaffold was created to promote brain tissue repair after stroke. Heparin has the natural ability to bind many signaling molecules expressed after stroke that trigger scarring and degeneration of tissues. Therefore, heparin nanoparticles can absorb the aforementioned molecules, leaving behind a reparative tissue environment, in which the hyaluronic hydrogel scaffold facilitates regeneration of neural connections and blood vessels.

Application area

Brain regeneration after stroke

Advantages

First of its kind Effective in animal models

Institution

University of California, Los Angeles

Inventors

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