

Nanoparticles-based therapy for ischemic cardiopathies

DESCRIPTION OF THE TECHNOLOGY

Acute myocardial infarction is one of the leading causes of morbidity and mortality in Western societies. Currently, the treatment of choice consists of rapid reopening of the occluded artery. However, co-adjuvant therapeutic options should be sought to help reduce the extent of fibrosis.

Researchers from the University of Valencia, the INCLIVA Health Research Institute, and the La Fe Health Research Institute have developed a technology for treating fibrosis using extracellular vesicles derived from adult stem cells. These vesicles have been genetically modified to express N1ICD, HIF-1 α and TERT, enhancing therapeutic effects. Their small size allows them to penetrate affected tissues more effectively than conventional treatments.

ADVANTAGES

- **Lower invasiveness:** An alternative to traditional cell therapy, avoiding the use of whole cells.
- **High tissue penetration:** Their small size allows them to reach deep areas of tissue.
- **Biocompatibility:** Does not trigger an adverse immune response.
- **Personalization:** Possibility to modify the vesicles to treat other pathologies.

STATE OF DEVELOPMENT

They have been tested in a murine model of type I myocardial infarction (permanent ligation of the left anterior descending coronary artery) and type II

(isoproterenol-induced cardiac injury), significantly reducing fibrosis and cardiac hypertrophy while increasing microvascular density. The results were further validated in a porcine model of ischemia-reperfusion injury.

APPLICATION

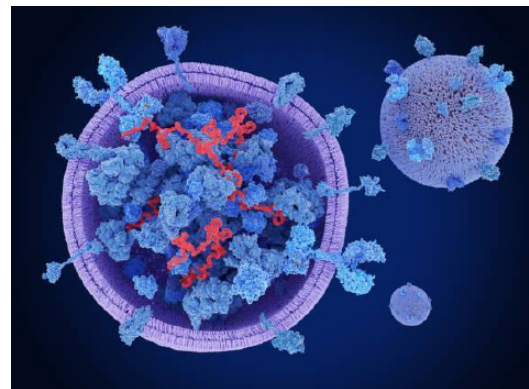
Pharmaceutical and/or biotechnology companies.

INTELLECTUAL PROPERTY RIGHTS

European patent EP24383371 with a priority date of December 13, 2024.

COLABORATION SOUGHT

Biotechnology or pharmaceutical companies are being sought to sign a licensing agreement or co-develop this technology.



CONTACT

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