

A NOVEL METHOD TO GENERATE INSULINE-PRODUCING CELLS

A research group from IDIBAPS and CIBER has developed a unique way to effectively transform fibroblasts into cells with the capacity of insulin secretion.

The Need

Current treatments for both types of diabetes can thus manage blood glucose levels, but do not address the cause of the disease. Furthermore, these treatments often involve lifelong adjustments and are not exempt of complications, such as hypoglycemia. A potential cure of Type 1 diabetes consists of pancreatic islet transplantation. However, this treatment requires organ donors, which are limited, administration of immunosuppressive drugs, and entails the possibility of transplant rejection.

The Solution

The present invention relates to field of methods for the obtention of β -like cells capable of insulin secretion, from cells of a mesenchymal lineage, particularly from fibroblast cells. This procedure would overcome the current limitations associated with standard solutions.

Innovative Aspects

- Unique treatment to effectively transform fibroblasts into β -like cells capable of insulin secretion.
- The treatment significantly increases insulin gene expression levels, as compared to primary fibroblast cells or fibroblast cells cultured following traditional approaches.
- Additionally, results show that inhibition of the specific transcription factors in fibroblast cells under the registered protocol induces de novo expression of the granin family genes (considered essential for the biogenesis of insulin secretory granules).
- The group of protocols included in the invention are optimized to obtain high performance activity in the cells regarding insulin secretion metabolism.

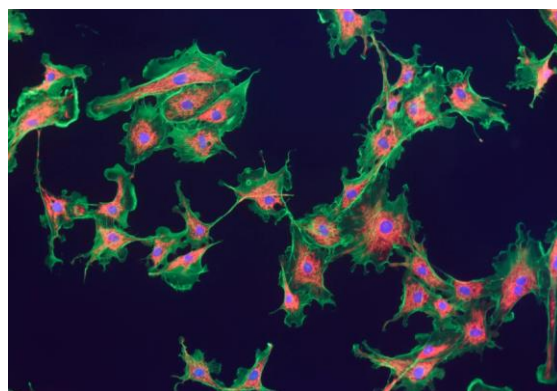


Fig. 1 Fibroblasts through microscopy

Stage of Development:

The technology is currently undergoing its lab optimization phase, within a preclinical framework.

Intellectual Property:

- Priority patent application filed (July 2025)

Aims

Looking for a partner interested in a license and/or a collaboration agreement to develop and exploit this asset.

Contact details