

## CELLULAR THERAPY INTENDED FOR THE TREATMENT AND/OR PREVENTION OF DIABETES MELLITUS

### Summary of the offer

A Research Group from the Andalusian Public Health System (SSPA *as per its Spanish acronyms*) has discovered a number of nucleotide and amino acid sequences which are considered useful for the achievement of specific mutated enzymes with a higher level of activity, thus, allowing the creation of highly efficient pancreatic islets intended for transplantation to patients by means of somatic cell therapy whether for the treatment and/or prevention of diabetes mellitus.

### Description of the offer

The pancreatic islets transplantation is currently the sole cell therapy available intended for the treatment of unstable type-I diabetes mellitus. By means of this therapy, it has been possible to achieve the normalization and balance of the blood glucose level in those patients suffering the mentioned disease, the extinction of severe hypoglycaemia as well as the prevention of progressive and chronic diabetes complications. But unfortunately, the long-term insulin independence has not been achieved yet, mainly due to the ischemic and

mechanical stress suffered by the islets in the transplantation proceeding recording a survival rate of 10-20%.

Another of the limiting factors of this therapy is the availability of donated organs, as it is necessary around 2-3 pancreas of donors to treat a patient, given that it is necessary around 12,000 equivalent islets per kilogram of body weight. Therefore, the objectives aimed are to improve the survival rate and the function of the transplanted islets, jointly with the reduction of the number of islets needed.

The technology offered describes nucleotide coding sequences of specific enzyme protein variations showing an enzymatic activity increase. These variations allow the achievement of pancreatic islets genetically modified (lentivirus) which are highly efficient and have a bigger size, given the supra-physiological activation of the enzyme and the high increase in the proliferation, stability and survival rate of the B-cells produced.

### Advantages of the offer

The *in-vitro* trials carried out prove the **increase of the proliferation and efficiency.**

The pancreatic islets achieved include the advantages listed below:



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- Better survival resistance to the mechanical stress involved in the transplantation process.
- Longest period of functionality.
- Higher capacity of proliferation once they have been transplanted.
- It is necessary a lower number of islets for the transplant, given they are bigger and have a higher metabolic rate.

### Industrial Property

This technology is registered as a patent.

### What we are looking for?

The research group is aimed to enter a license agreement for exploitation and/or a collaboration agreement.

### Classification

Category: Cellular therapy  
Sub-Category: Metabolic & Endocrinology/Endocrinology and Metabolic Disorders



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