

## **Stem cells to create artificial pancreases which could cure diseases such as diabetes**

LOCATION: Seville

DURATION: 1'35"

**SUMMARY:** This project is run in collaboration with Imperial College London and the Pi and Sunyer Biomedical Research Institute of Barcelona. Researchers from a lab at the Pablo de Olavide University have been able to identify the instructions stored in the genome which enable them to build a pancreas using stem cells. This achievement has boosted regenerative medicine and provides great hope for curing diseases such as diabetes.

VTR:

The Developmental Biology Institute of Andalusia. The work going on in these labs in Seville is opening new possibilities in terms of creating artificial pancreases using stem cells.

**JOSÉ LUIS GÓMEZ-SKÁRMETA**  
Researcher

*"We have focussed on finding out how to build a pancreas, what the genome instructions are to build the early stages of a pancreas; the cells that will make up all the cells of the pancreas."*

This is the pancreas, the organ which controls the digestion of food and sugar levels in the blood. When it doesn't function correctly, it can cause disease. The most common of all is diabetes.

**JOSÉ LUIS GÓMEZ-SKÁRMETA**  
Researcher

*"The pancreas is a key organ, in fact it is one of the most sensitive in the body. In understanding how it is made, we can try to build an artificial version."*

They have identified the genes that, upon being activated, instruct stem cells to develop in a way that produces new pancreatic cells. This was achieved in collaboration with Imperial College London and the Pi and Sunyer Biomedical Research Institute of Barcelona. What will this enable in the future? Using stem cells of an individual to regenerate their unhealthy pancreas. Or they could even create fully functioning artificial pancreases. When will they be able to do this?

**JOSÉ LUIS GÓMEZ-SKÁRMETA**  
Researcher

*"Relatively soon... five, six, seven years... Something like that."*

In this way, a cure will be found for diabetes, for example. And by knowing more about genes, we can avoid mutations which cause diseases. At the moment, they have used artificially-created pancreatic cells on these zebra dish. The result was successful. A big step in this laboratory at the University of Pablo de Olavide.

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