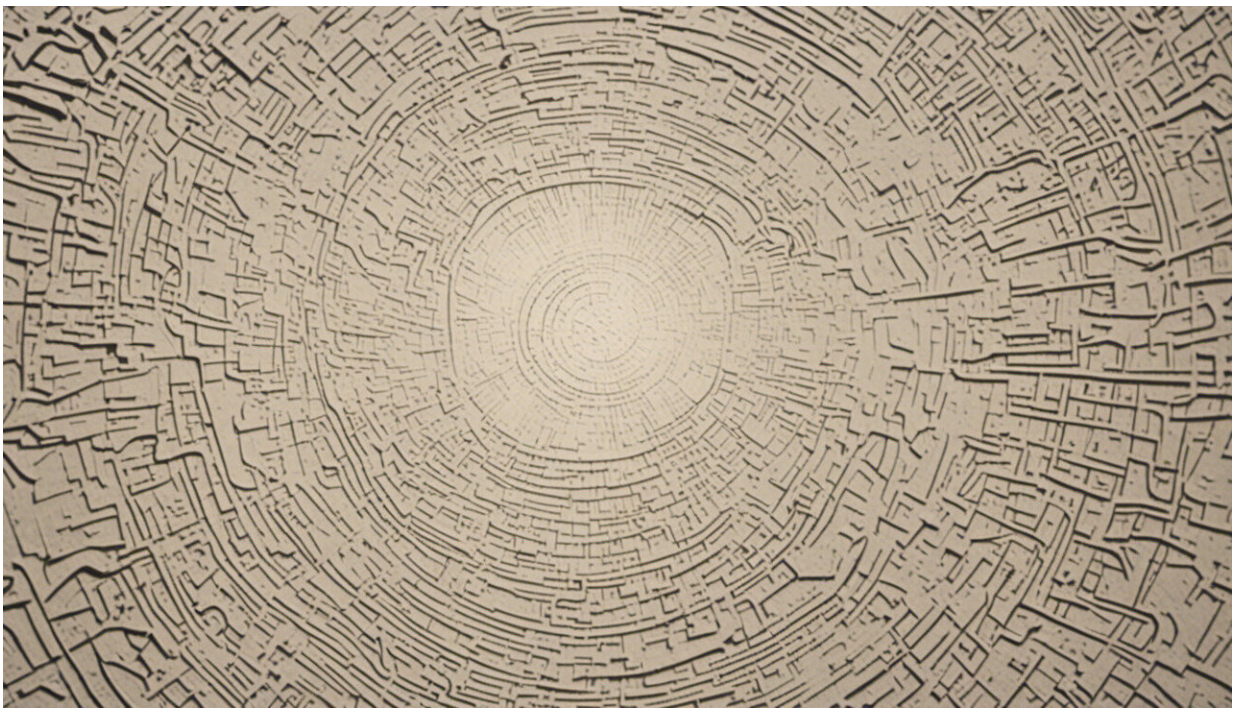
Medical Xpress

Stem-cell research to help Europe's growing population of diabetics

February 10 2014



Credit: AI-generated image (disclaimer)

More than 55 million people in Europe currently suffer from diabetes, and by 2030, this figure is expected to rise to 64 million. Although there is currently no cure, type 1 diabetes can be treated by transplanting islet cells or even a whole pancreas into a patient from a donor. Unfortunately, the number of diabetes patients far outweighs the number

of donors. Stem cells could play a vital role in addressing this gap.

Instead of using donor cells, new beta cells could be grown from stem cells and used in replacement therapy. There are several different ideas about where to get these stem cells and how they could be used. In order to boost research efforts in the area, the European Commission's FP7 HEALTH research programme recently granted 6 million euro to the HUMEN project which brings together six leading European research groups and three industry partners to focus on the stem cell-based treatment of diabetes.

Despite progress in creating insulin-producing beta cells from human pluripotent stem cells, scientists have so far been unable to develop mature, transplantable beta cells that can cure diabetes. Headed by Professor Henrik Semb from the Danish Stem Cell Center (DanStem), the HUMEN partners hope to make the breakthrough that will improve quality of life for our increasing population of diabetics. The project, which kicked-off at a meeting in Copenhagen at the end of January, will also help keep Europe at the forefront of stem cell research, and create new commercial possibilities and increased competitiveness for the European biomedical industry.

Project leader, Professor Semb noted, 'With this grant, we are able to bring together some of the best stem cell research groups in Europe. I believe that HUMEN's unique constellation of research competences, the inter-disciplinarity, and the very coordinated and collaborative approach that our project is based on, will enable us to reach the goal of developing functional, glucose-responsive, insulin-producing beta cells, and thus bring the new therapy closer to the patients.'HUMEN is not working in isolation - it is one of seven stem cell research projects that were recently granted funding from the European Commission. Although they focus on different disease areas and types of stem cells, they are all working to understand how stem cells work and how to

control them so they can be used in treatments for patients. More specifically, they are all investigating underlying mechanism of the self-renewing capacity of stem cells and their differentiation into mature functional cell types suitable for various cell-based therapeutic applications. Of these seven projects, HUMEN will be working in cooperation with three: PLURIMES, NEUROSTEMCELLREPAIR and THYMISTEM.

Provided by CORDIS