



In brief

Paris, 29 January 2014

## Europe supports stem cell research for the treatment of diabetes

**A €6 million grant awarded to the HumEn project by the European Commission has helped bring together the main institutes carrying out stem cell research, including Inserm, and European industrial partners wishing to develop insulin-producing cells as a future cell replacement therapy for diabetes.**

The complete maturation of human pluripotent stem cells into transplantable beta cells\* that may cure diabetes has not yet been achieved in the laboratory.

The objective of the HumEn project is to develop functional insulin-producing beta cells, which are lacking in people with diabetes,\* from pluripotent stem cells. The advantage of pluripotent stem cells as a source of beta cells is that, in theory, they represent an unlimited source of insulin-producing cells.

The HumEn project, funded by the European Commission and coordinated by the University of Copenhagen, brings together six institutional partners, including Inserm, and three industrial partners. Together, they bring their expertise in complementary research sectors such as the development and physiology of beta cells, beta cell transplantation, biology of human pluripotent stem cells, polymer chemistry, specialised engineering and epigenetics. The ultimate objective is to develop functional beta cells that produce insulin and respond to glucose, and to enable patients to benefit from these advances in treatment as early as possible.

*“We hope that the knowledge generated by this project will contribute one day to improved treatment and quality of life for the growing population of people with diabetes,”* comments Raphaël Scharfmann, a research director at Inserm Unit 1016 – Institut Cochin, a partner in the HumEn project.

### **\*Stem cells in diabetes treatment**

A deficiency of insulin underlies all forms of diabetes, and currently affects 366 million individuals worldwide. In Europe, the number of people with diabetes is estimated at 52.8 million.

Beta cells play a central role in diabetes. They are located in the pancreas and produce insulin, the hormone that controls the transport of energy in the form of glucose to the muscles via the bloodstream. In type 1 diabetes, the immune system destroys the beta cells, whereas in type 2 diabetes, sensitivity to insulin is reduced, causing the body to require increasingly larger quantities of insulin, which the beta cells cannot secrete.

At present, the only solution for replacing destroyed or dysfunctional beta cells is transplantation with a complete pancreas or with islets of functional cells. Only a small number of patients qualify for this treatment, because of the shortage of donors.

## **Further information:**

The HumEn project is supported through the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° HEALTH-F4-2013-602889

### **Partners in the HumEn project:**

[DanStem, University of Copenhagen, UCPH, Denmark](#)

[Helmholtz Zentrum München, German Research Center for Environmental Health, HMGU, Germany](#)

[University of Edinburgh, UEDIN, United Kingdom](#)

[Inserm – Institut Cochin, France](#)

[Department of Immunology, Genetics and Pathology \(IGP\), University of Uppsala, UU, Sweden](#)

[Developmental Genetics, Max Planck Institute for Heart and Lung Research, MPG, Germany](#)

[CYTOO SA, France](#)

[MATERIOMICS, The Netherlands](#)

[MILTENYI, Germany](#)

### **HumEn is becoming part of a vast European consortium working on stem cells**

At the same time, the European Commission has just awarded grants to support seven research projects on stem cells. HumEn has already been able to establish collaborations with the PluriMes, Neurostemcellrepair and ThymiStem projects. Together these projects enable Europe to remain at the forefront of stem cell research, in order to create new commercial opportunities and improve the competitiveness of the European biomedical sector.

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