

Investigating Pancreatic Beta Cells



Maike Sander

Professor, Departments of Pediatrics & Cellular and Molecular Medicine

CURRENT RESEARCH

Understanding how cells fail in diabetes

Diabetes is a metabolic disorder that affects over 150 million people worldwide and is a leading cause of death in many countries. Despite current treatment regimens of several insulin injections per day, blood glucose levels still fluctuate significantly in diabetic patients, making diabetes the sixth leading cause of death in the United States. Further, diabetics are at a higher risk of developing pancreatic cancer; only around 5% of patients with pancreatic ductal adenocarcinoma (PDAC) will survive longer than five years. Dr. Maike Sander, Professor in the Departments of Pediatric & Cellular and Molecular Medicine at the University of California, San Diego, is leading one of the premier laboratories worldwide for advancing our understanding of pancreatic cell differentiation. Dr. Sander is studying the properties of beta cells in the hope of enabling the body to regenerate its own beta cells or to produce large numbers of functional beta cells from human pluripotent stem cells (hPSCs) for implantation into the human body. Her lab has played a significant role in providing the preliminary research that initiated the first-ever stem cell based phase 1/2 clinical trial for type 1 diabetes, led by the San Diego-based biotech company Viacyte, Inc, which implanted stem cell-derived beta cell precursor into human diabetic patients. The first patient was implanted with generated beta cells in December 2014.

The goal of Dr. Sander's laboratory is to develop therapies for the treatment of pancreatic diseases, such as diabetes mellitus and pancreatic cancer. Research in her lab is focused on understanding the molecular mechanisms that underlie the formation and function of the diverse cell types of the pancreas...

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AFFILIATION

 University of California, San Diego

EDUCATION

- Doctor of Medicine 1994, University of Heidelberg Medical School

AWARDS

- Appointed Director of the Pediatric Diabetes Research Center, 2012
- Elected member of the American Society for Clinical Investigation, 2011
- Grodsky basic research scientist award, 2008
- Career development award, 2001-2006

RESEARCH AREAS

Life Science, Genomics / Congenital, Metabolic / Diabetes, Stem Cell

FUNDING REQUEST

Your contributions will afford Dr. Sander the necessary equipment and supplies she needs to conduct her research. These include mice, stem cells, observational and analytical lab equipment, and the required materials to simulate in vivo human conditions. The next major milestone for her lab is the validation of a novel drug target to increase beta cell replication, which requires identifying biomarkers for disease in mice and translating them into humans, as well as identifying potential side effects.