Novel and Non-Invasive Imaging of Pancreatic Beta Cells

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Technology description

This invention provides a novel and non-invasive imaging technology for the diagnosis and prognosis of diabetes. Type 1 diabetes is connected to a loss of pancreatic beta-cells. Monitoring these cells using this method will help doctors to comprehend the development of the disease and the effectiveness of treatment in a non-invasive manner. This system measures human pancreatic beta-cell massin vivoby using cyclic GLP-1 analogues to create a molecular probe to assess pancreatic beta-cells using PET-CT.
Background:
According to the 2011 National Diabetes Fact Sheet (Center for Disease Control and Prevention) and the American Diabetes Association, diabetes was the seventh leading cause of death in 2007 and the estimated total cost of diagnosed diabetes in 2007 was $174 billion. Despite tremendous progress in understanding the basics of diabetes, it is still unclear, which factors are involved in the development of the disease and which govern the response to therapeutic intervention. However, as an important preventative and early diagnostic for Type1 Diabetes it is important to monitor pancreatic beta cells, which regulate blood glucose levels through the secretion of insulin.

Application area

· Early detection and treatment in pre-diabetic patients
· Evaluation of effectiveness of pharmaceutical intervention/islet transplantation
· Monitoring diseaseprogression in diabetic patients
United States patent 8,992,886 B2 issued March 31, 2015.

Advantages

·Non-invasive imaging:Non-invasive method of assessing pancreatic beta-cell mass in patients.
·Improved imaging:Reliable method of imaging the soft pancreas using PET, where current MRI and TI technology have difficulties.

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