



Beta Cell Imaging Solutions

Where Diabetes Prevention is the Cure

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INNOVATION PLAN

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I. Executive Summary

Company Overview: Beta Cell Imaging Solutions is an American **molecular imaging company** based in St. Louis Missouri with a mission to **detect changes in human Beta cell mass in individuals at risk of diabetes at least a decade before diagnosis by current standards**, so preventative lifestyle measures would in fact be a cure for diabetes and not just a management solution.

Why Beta Cell Imaging Solutions?

Type 2 Diabetes is a metabolic disorder which results from inadequate mass and function of Insulin producing Beta cells. By the time individuals are diagnosed with the earliest **detectable** stage of diabetes, they have lost approximately 50% of the Beta cell mass and function. However, the process of Beta cell degeneration, in a genetically susceptible individual and in the context of obesity and a sedentary lifestyle, starts at least a decade before diagnosis. In its earliest stages, lifestyle changes alone can prevent the development of Type 2 Diabetes and its complications. Unfortunately, the condition at the time of diagnosis can only be managed but not cured. This is because the earliest detectable stage of diabetes by current standards is associated with **irreversible** degeneration of Beta cell mass.

Why Molecular Imaging for Diabetes?

Current PET scanners are used to detect sizable masses in cancer diagnosis and monitoring. In the context of Diabetes, the insulin producing Beta cells are tiny (<100µm) and make up only 1-3% of the pancreas. The process of visualizing these tiny cells is now finally possible after decades of research but **only in mice**. However, as of January 2019, scientists at Vanderbilt University discovered **NTPDASE3, the most abundant human Beta cell surface marker**. Our company is leveraging this discovery to make molecular imaging of human Beta cells a reality.

What is a Human Beta Cell Targeting Contrast Agent?

Beta Cell Imaging Solutions has developed a unique, **patent pending**, human Beta cell targeting contrast agent to visualize human Beta cells. For individuals who are at risk of developing diabetes, our contrast agent will detect Beta cell abnormalities before their Beta cells are **permanently damaged**. Our contrast agent binds **specifically** to human Beta cells so these can then be visualized using a PET scanner.

Who are our Target Customers?

We will license our contrast agent to the U.S. Department of Health & Human Services and UnitedHealth Group Inc. as a solution to significantly curb future cost associated with annual diabetic related treatment.