



Greg J. Morton, PhD

Project: *Defining the role of the brain in control of glucose levels*

Institution: University of Washington

Award year: 1/1/2020 - 12/31/2021 at \$115,000 per year

Award type: Innovative Basic Science

Project overview: A major organ that remains relatively unexplored in regard to its role in Type 2 diabetes (T2D) is the brain. Dr. Morton's project involves unraveling the role of the brain in control of glucose levels. He has identified a certain region of the brain that alters glucose regulation in response to changes in temperature of the external environment.

The problem: T2D is characterized by a combination of reduced insulin production and utilization, ultimately resulting in elevated glucose levels. The past twenty years have brought several new classes of therapies for T2D that have collectively reduced complications related to diabetes by improving glucose control. Still, we lack medications that have the ability to reverse the disease. Therefore, it is important that we identify new ways to correct glucose control in people with T2D

The research: A major organ that remains relatively unexplored in regards to it's role in T2D is the brain. Dr. Morton's project involves unraveling the role of the brain in control of glucose levels. He has identified a certain region of the brain that alters glucose regulation in response to changes in temperature of the external environment. For example, Dr. Morton has shown that mice exposed to a cold environment exhibit dynamic changes in both the production and utilization of insulin. Incredibly, Dr. Morton demonstrated that it is actually the brain that seems to be responsible for causing these changes in insulin production and utilization in response to temperature changes. In this project, Dr. Morton plans to determine specifically how this region of the brain relays changes in external temperature to changes in insulin. He will assess whether manipulation of this region of the brain can alter glucose and insulin levels independent of any temperature changes.

The potential outcome: If indeed manipulation of this region of the brain can alter insulin and glucose levels, it represents a potential new target for treating people with T2D. Dr. Morton's project has the potential to make a transformational change by demonstrating a new way in which we might be able to treat people with T2D.