Therapy for Restoration of Impaired Insulin Secretion

Invention Summary

This invention describes the use of ebselen in the treatment for diabetes and hyperglycemia, which has been shown to improve glucose-stimulated insulin secretion (GSIS) in islets.

Technology Overview

Insulin resistance has long been considered the cause of type 2 diabetes, however defective insulin secretion has been more recently suggested as a factor in this prevalent disease. In a healthy individual, pancreatic islet beta cells respond to high blood glucose concentrations by secreting their stored insulin (GSIS).

Ebselen is a mimic of glutathione peroxidase and is well-known for its antioxidant activity. It has been trialed therapeutically for conditions such as conjunctivitis, infections, and ischemic stroke, and has the potential to be repurposed for treatment of type 2 diabetes.

The inventor demonstrated proof of principle in mice with four different genotypes, which showed improved GSIS after they were treated with ebselen.

Technical Merits

- Identification of a novel metabolic effect of ebselen
- Ebselen improved GSIS in four different genotypes that were tested
- Ebselen is a mimic of glutathione peroxidase, an enzyme that protects from oxidative damage.

Potential Applications

Treatment for type 2 diabetes and hyperglycemia.

Advantages

- Restores GSIS
- Ebselen already has been trialed for therapeutic use in treating oxidative injuries.

Publications

- Patent application No. [US 2015/0297564](http://example.com)