CD36 Inhibition to Reduce Visceral Fat Accumulation and Increase Insulin Sensitivity

Invention Summary

This invention provides a method to reduce visceral fat accumulation and increase insulin sensitivity or glucose tolerance using CD36 antagonists.

Technology Overview

CD36 is a multifunctional receptor, participating in the regulation of many processes. Increased CD36 expression/function is associated with the pathology of atherosclerosis, stroke and neurodegenerative diseases.

Salvianolic acid B (SAB) was previously identified as a potent specific CD36 antagonist from high throughput screening. SAB is a hydrophilic component derived from the herb Danshen, which has been widely used in China for the prevention and treatment of atherosclerosis related disorders.

Cornell researchers discovered that mice treated with SAB during the 8 weeks of high fat diet displayed profound reduction in the abdominal (visceral) fat accumulation, compared to vehicle-treated mice (Fig.A). SAB also reduced fat deposit in the liver (Fig.B). Fasting blood glucose levels were similar in vehicle and SAB-treated mice. Upon glucose challenge (glucose tolerance test), SAB-treated mice cleared blood glucose much faster, indicating SAB’s effect in enhancing insulin sensitivity (Fig.C).

These studies demonstrate that the CD36 antagonist effectively inhibits abdominal visceral fat accumulation, reduces fat deposit in the liver, improves insulin sensitivity (faster blood glucose clearance). Inhibition of CD36 may have therapeutic usage in preventing and treating metabolic syndrome, pre -diabetes and diabetes, and dyslipidemia.

Potential Applications

- Dietary supplements for reducing visceral fat accumulation and increasing insulin sensitivity
- Treatment and prevention of diabetes and other metabolic disorders
Advantages

A novel target for reducing fat visceral fat accumulation and increasing insulin sensitivity

Publications