Compositions acting as (Pro)Renin receptor antagonists for the treatment of non-alcoholic fatty liver Disease (18020

Published date: June 26, 2019

Technology description

Background

Non-alcoholic fatty liver disease (NAFLD) is an umbrella term for a range of liver conditions where excess fat is stored in the liver, and affects people with little to no alcohol use. Non-alcoholic steatohepatitis (NASH) is a potentially serious form of the disease that includes liver inflammation and potential scarring, cirrhosis, and liver failure, similar to damage caused by heavy alcohol use. NAFLD incidence is growing worldwide with an incidence of 20-30% in Western Countries (Bellentaniet al). It is the most common chronic liver condition in obese patients with prediabetes or type 2 diabetes mellitus (Cusiet al). It is estimated that in the US population, 80 to 100 million people have NAFLD, and 3-12% have NASH. (Mayo Clinic , NIH NIDDK)

Description

Our researchers at the University of Nevada, Reno have developed a novel method and composition for the treatment of NAFLD through antagonism of the (pro)rennin receptor (PRR), and suggest PRR may be a novel target for treatment of liver steatosis and type II diabetes. PRR antagonism reduces NAFLD by acting on central nervous system and directly acting on liver. Our data indicates that PRR knockout in neurons within our mouse model protects and attenuates the development of High fat diet (HFD)-induced diabetes, Glucose intolerance, Pancreatic islet hypertrophy and function and HFD-induced liver steatosis and is associated with activation of liver lipolysis signal pathway activation, suggesting a regulatory role in the development of HFD-induced metabolic syndromes. Administration of PRR antagonist reduced HFD-induced NAFLD development and was associated with reduced peroxisome proliferator-activated receptors (PPARs) and the renin-angiotensin system activations in the liver, two key pathways for NAFLD development.

Advantages

PRR antagonist will reverse the development of NAFLD.

Currently, there is no particular drug approved for treatment of NAFLD in patients with T2D.

Institution

University of Nevada, Reno