Screening for compounds to treat obesity and metabolic disease by generating brown fat

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Technology description

Researchers in Prof. Brian Feldman’ s laboratory have developed a patented drug screen to identify compounds that could potentially treat obesity and metabolic disease by converting cells to calorie-burning brown fat. This screen identifies individual agents that inhibit the hormone nuclear receptor vitamin D receptor (VDR) and thereby program either adipose precursor cells or other cells (including fibroblasts) to become brown fat. Brown fat is a thermogenic tissue that increases energy expenditure, burning calories and altering systemic metabolism to improve insulin sensitivity. VDR is a critical regulatory component to determine whether fat cells become the brown tissue that expends energy or the white tissue that stores it. VDR inhibitors identified by this screen could offer a first-in-class approach for treating for patients with obesity, diabetes and other metabolic diseases by altering the composition of adipose tissue.

Additional Information

http://med.stanford.edu/feldmanlab.html

Application area

Drug development for obesity and metabolic disease- cellular assay to screen for VDR inhibitor agents that generate brown fat

Advantages

First in class approach- to treat obesity and metabolic syndrome by altering the composition of adipose tissue to generate more thermogenic brown fat cellsIdentifies single agents- compounds identified by this screen can generate brown fat independently, without genetic modifications or a combination of drugsMinimize side effectsof therapy by identifying compounds that activate brown fat in a context-specific way

Institution

Stanford University

Inventors

Brian Feldman