NCB5OR in fatty acid desaturation

Saturated Fatty Acids (SFA) → Lipotoxicity

NCB5OR or cytochrome b5 & cytochrome b5 reductase + Stearoyl-CoA Desaturase

Monounsaturated Fatty Acids (MUFA) → Triglyceride Synthesis

SCD activity in liver microsome

SCD Index in COS7 cells

Insulin

Glucagon

50 µm

WT KO WT KO WT KO

4 weeks 7 weeks 21 weeks

vector Ncb5or SCD1 Ncb5or/SCD1

WT KO

vs. SCD1 mRNA vs. SCD1 protein

 WT KO

2.1 2.2 2.3 2.4 2.5 2.6

Ncb5or SCD1 Ncb5or/SCD1

-/- +/+
Study Focus and Methods

- Enzymatic studies with mouse microsomes and recombinant proteins
- Triglyceride synthesis in cultured cells
- Fatty acid profiling of mouse tissues
- Metabolic homeostasis among adipose tissues, pancreatic islets and liver
- Intervention through diet, caloric restriction and exercises
- Conditional knockout of Ncb5or in adipose tissue and pancreatic β-cells

- Molecular biology
- Biochemistry and Lipid analysis with TLC and GC
- Cell culture and transfection
- Indirect calorimetry and Vital View 4000 system (heart rate, core body temperature, activities, etc)
- Histology and immunohistochemistry
- Tissue transplantation