

## REGENERATION OF HYPOTHALAMIC NEURO-ARCHITECTURE USING LIVER ENZYME GENE TRANSFER AS AN APPROACH TO TREAT POST-DIETING BODY WEIGHT REBOUND

**Final Report:** Currently, Minnesota's obesity rate is 28.4% among adults and 10.4% among 10-17 years old kids. An increase in statewide as well as worldwide obesity has led to rising needs for health care and a surge in diseases like type-2 diabetes, cardiovascular diseases, and cancers. Successful weight loss can widely reduce the risk of such health outcomes. However, the vast majority of obese people who lost weight return to their pre-diet body weight soon after dietary or medicine intervention. During the first year of this awarded project, we have been testing and validating a new strategy using viral vector based gene therapy for body weight management in obesity. We believe that there is a control system built into every person's brain dictating how much body fat he or she should carry – a kind of thermostat for body fat. Some individuals have a high setting, while others have a low one. Our approach to control obesity is to apply the safe and long-term effective gene transfer approach to lower the set point by reprogramming key neuronal circuits that control hunger and fat storage.

This program showed satisfactory progress to continue funding, but ended after one year when the principal investigator moved to a different area of Mayo Clinic.