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**Title of project:** Dissecting a novel hepatic endocrine circuit that regulates pleasure-seeking and appetite via the central nervous system

### **ABSTRACT**

The *overall aim* of the proposed research is to delineate how the liver-derived hormone FGF21 inhibits sugar, and fermented sugar, appetite in mice, and to translate these observations to humans in hopes of inspiring improved treatments for obesity, type 2 diabetes, and non-alcoholic steatohepatitis. We *hypothesize* that FGF21 is a hepatoprotective appetite regulatory hormone, induced in humans by sugar and alcohol metabolism in the liver, that prevents excessive sugar and alcohol intake via a highly specialized population of FGF21 receptor positive neurons in the hypothalamus. The *expected outcome* of this research will be unprecedented anatomical, physiological, and genetic knowledge of the neural circuit that controls sugar and alcohol appetite in mammals.