

Private Company

## Unique methods to measure intestinal water and cotransporter regulation

MEDICINE

### Background

Absorption of monosaccharides in the small intestine is pivotal for caloric intake of mammals and adjusted in accordance with food supply, food composition, and energy demand in diverse physiological and pathophysiological situations. In respect to caloric intake, D-glucose, D-galactose, and D-fructose are the most relevant monosaccharides. For absorption, monosaccharides must cross a layer of epithelial cells that are connected by tight junctions which do not allow permeation of monosaccharides. Because monosaccharides are hydrophilic, they cannot permeate cell membranes passively. Hence, for absorption of D-glucose, D-galactose, and D-fructose, transporters in the luminal brush border membrane and basolateral membrane of small intestinal epithelial cells are required.

The use of oral rehydration solutions is common practice for treating and preventing dehydration during times of illness and/or sweat loss. Oral rehydration solutions leverage these sugar cotransporters due to other common water transporters being blocked by toxins where water absorption is temporarily suspended. The use of amino acid cotransporters is also of interest in the oral rehydration solution, specifically the SLC family.

### What we're looking for

- Consultations/connections with experts
- A research collaboration with the desired goal of utilizing validated intestinal models for testing different compositions of oral rehydration solutions and their impact of intestinal water absorption, solute absorption, and potential to regulate cotransporter activity (specifically sugar and amino acid cotransporters)

### Solutions of interest include:

- We are seeking to connect with key opinion leaders in the area
- Established, unique, or novel methodologies to measure outcomes
- Novel formulations/bioactives to augment intestinal water absorption

### Our must-have requirements are:

- Model must be capable of assessing intestinal water absorption

- Model must be capable of assessing intestinal solute absorption
- Model must be capable of assessing cotransporter regulation
- Reason to believe the model can deliver the targeted outcomes mentioned above

#### **Our nice-to-have requirements are:**

- System / model has the flexibility to be adapted to other health related outcomes such as gut health etc
- Partner would ideally be able to run and execute the model on behalf of the company for specified health related outcomes

#### **What's out of scope:**

- Animal or animal derived models or systems

#### **Acceptable technology readiness levels (TRL): Levels 1-9**

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

## **What we can offer you**

### **Eligible partnership models:**

#### **Sponsored research**

#### **Benefits:**

##### **Sponsored Research**

Funding is proposal dependent, but an accepted proposal could expect support in range of \$25,000 - \$100,000 USD (milestone dependent) with the potential for follow up funding.

#### **Expertise**

Partners will interact with a project lead to mutually develop a project plan and engage in regular meetings to ensure success. Partners will have access to company experts as appropriate.

Please contact the University of South Florida Technology Transfer office representative for submission - Roisin McNally at [rmcnally@usf.edu](mailto:rmcnally@usf.edu).