

## **Comprehensive Seminar**

### **Investigating gut metabolism and physiology as a consequence of nutritional perturbations and systemic metabolic inputs**

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The small intestine tunes organismal physiology in response to changing metabolite levels through regulation of nutrient uptake, utilisation and simultaneous cross-tissue signalling. Previous studies have shown that expression of nutrient transporters and gut peptides exhibit dynamic changes in response to acute dietary perturbations. However, it is largely unknown how the catabolic and anabolic responses in the small intestine exhibit dynamicity in response to dietary factors such as nutrient input and time of feeding. Large scale perturbations in intestinal metabolism were also found to contribute to pathophysiology of metabolic disorders implicating the importance of gut metabolism in maintaining organismal physiology. Therefore, understanding the plasticity of intestinal catabolic and anabolic responses in a physiological setting becomes important. Moreover, expression of transporters and gut peptides have been shown to have high region-specificity within the small intestine. Whether this inherent difference in region-specific nutrient uptake also contributes to segregation of catabolic and anabolic responses across the Duodenum, Jejunum and Ileum remains to be understood.

The biggest gap in the field has however been much more fundamental. Barring a few correlative studies, there is a paucity of reports on the regulatory mechanisms that help elicit coordinated changes in intestinal physiological functions (uptake, metabolism and endocrine signalling) in response to dietary inputs. Uncovering whether these regulatory mechanisms themselves show region-specificity would be necessary to understand the plasticity of intestinal functions across Duodenum, Jejunum and Ileum, and their contribution to the whole-body physiological homeostasis.

***Tuesday, Apr 11<sup>th</sup> 2023***

***10:00 AM (Tea / Coffee 09.45 AM)***

***Auditorium, TIFR-H***