Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

You are when you eat: Aligning daily biological rhythms and food timing to preserve metabolic health during obesity and aging

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Several dietary interventions, primarily aimed at altering nutrition quality (what you eat) and quantity (how much you eat) have been proposed to manage obesity and metabolic syndrome. However, such interventions typically have low long-term adherence. Time restricted feeding/eating (TRF/TRE) is a lifestyle intervention wherein food intake is restricted to a consistent 6-10 hr time window per day during the active phase, without an explicit change in nutrition quality or quantity. Preclinical studies in the past decade have shown that TRF prevents body-weight gain and fatty liver disease, and improves gut health, insulin sensitivity and blood pressure regulation. Most of these beneficial effects are also observed in humans, with better long-term adherence in the participants. However, the molecular basis of TRF-mediated benefits is still not well understood. Moreover, most of the preclinical studies have been performed in young, male mice and the effect of age or sex as biological variables affecting TRF outcomes has not been tested.

In this talk, I will discuss our findings regarding the sex-specific and sex-independent effects of TRF in young and middle-aged mice subjected to a Western diet. I will demonstrate our multi-omics approach towards understanding TRF in mice, and provide insights into how multiple tissues elicit a coordinated response to regulate metabolic pathways. Additionally, I will illustrate how the daily feeding-fasting cycles regulate biological rhythms and discuss the possible molecular mechanisms involved in mediating the beneficial effects of TRF. We believe these findings and the resources will offer a framework for future mechanistic studies and guide human TRE interventions for various disease conditions with or without pharmacotherapies.

Thursday, Apr 11th 2024

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Seminar Hall, TIFR-H