

MONDAY

COLLOQUIUM

Epigenetic Regulation Programs Steatosis to Fibrosis Transition

Chandrima Das (SINP, Kolkata)

10 Aug 2026 (Monday) | 16:00 Hrs (Tea / Coffee 15:45 Hrs) | Venue: TIFRH Auditorium

Maintaining metabolic homeostasis under stress is critical for cellular function. Saturated Fatty Acid (SFA) can lead to myriad of alterations in the hepatic cells. Apart from the lipolysis, here we focus to understand an uncharted territory of fatty acid metabolism, viz. Fatty Acid Chain elongation, during SFA-mediated metabolic stress in hepatic cells and mice model. Remarkably, we observed that SFA can cause substantial change in the epigenetic landscape and we focused to understand the functional dynamics imparted by a crucial metabolic regulator Transcription Factor 19 which acts in unison with CBP/p300 histone acetyl transferase leading to increase in the H3K27 acetylation status of the genes involved in the chain elongation pathway. This directly affected the cellular triglyceride content promoting the formation of hepatic steatosis. In-turn, TCF19 depletion activates the pro-inflammatory genes, stiffening the extracellular matrix (ECM) and accelerating the progression of hepatic fibrosis. These findings highlight an epigenetic pathway through which TCF19 modulates lipid metabolism, providing insights into its protective role in hepatic steatosis to fibrosis transition.