

The alumni talk by Dr. Pratik Chaudhari took place on Friday, October 18, 2024, at 4 PM in the Khonalkar Shodhika seminar room. The title of his presentation was "Early Life Adversity Programs Accelerated Aging." Dr. Mahalaxmi introduced Dr. Chaudhari to the audience.

Dr. Chaudhari completed his Ph.D. in Life Sciences at ACTREC, Tata Memorial Centre, Navi Mumbai, in February 2018. His research focused on the role of hemidesmosomal linker proteins in the neoplastic progression of oral carcinomas under the guidance of Dr. Milind Vaidya. Currently, he is an early career fellow with India Alliance (DBT and Wellcome Trust), working in Prof. Vidita Vaidya's laboratory at the Tata Institute of Fundamental Research in Mumbai, India. His primary research question addresses the influence of early life adversity on metastasis in limbic brain regions and central-peripheral inflammation across the lifespan. He aims to assess interventional strategies that may reverse the early stress-induced phenotype of accelerated aging.

During his presentation, Dr. Chaudhari explained how adverse experiences in early life lead to enhanced anxio-depressive-like behaviors in adulthood, as well as accelerated aging-related changes, including cognitive decline later in life. However, the molecular and cellular changes induced by early adversity that contribute to these phenotypes remain unclear. Using a rodent model of early adversity involving maternal separation (MS), his research examines the contributions of mitostasis and peripheral-central inflammation in early adversity-mediated accelerated aging.

Dr. Chaudhari provided novel information indicating that a history of maternal separation is associated with significant dysregulation in mitostasis, accompanied by an inflammatory state in the hippocampus that emerges in an age-dependent manner. This is linked to impaired mitochondrial function and cognitive decline in middle-aged rats with a history of maternal separation. The changes in the middle-aged brain are also associated with robust peripheral inflammation and aging-related phenotypes in MS animals, which appear to precede the central phenotypes. Additionally, he noted alterations in the permeability of the blood-brain barrier in the hippocampus of middle-aged maternally separated rats. There was a moderate to strong correlation between cognitive decline and peripheral inflammatory load in the animals with a history of maternal separation.

A total of 40 participants, including faculty, PhD students, and postdoctoral researchers, attended the event. The event concluded with a vote of thanks and a felicitation of Dr. Chaudhari by the alumni group, which included Dr. Pratik Chandrani, Dr. Nazia Chaudhary, Dr. Mahalaxmi, Dr. Shalaka, and Dr. Manoj Mahimkar. Group photos from the event are as follows