



Invitation to M.Tech. Thesis Defense of Rohit Gupta: May 20, 2021 (Thursday): 12.05-13.05 IST

In Partial Fulfilment of the Requirements for the Degree of

M.Tech. CB

Rohit Gupta (MT18247)

Will defend his thesis

Title: **“Genomic Investigation of Major Depressive Disorder”**

IIIT-D Faculty and Students are invited

Date: May 20, 2021 (Thursday)

Time: 12.05-13.05 IST

Online over Google meet (<https://meet.google.com/wex-drcf-tor>)

Examiner:	Internal:	Ganesh Bagler
	External/Internal:	Kuljeet Sandhu, IISER Mohali
	Advisor:	Vibhor Kumar

Abstract

"Research for Major Depressive Disorder(MDD) continues to be challenging because of the heterogeneity and diversity of etiology, neurobiology, neurochemistry involved. With multiple pathways or mechanisms for being implicated in the pathophysiology of MDD, we see that this condition is further complicated by affecting an individual in a myriad of ways such as cognition, physiological and psychological levels as well. Many studies every year continue to isolate new genetic risk loci - redefining and updating the genetic architecture for the same. Given the plethora of existing tools and techniques for analysis, here we combine multiple approaches ranging from differential gene expression analysis, single-cell analysis, and population genetics to arrive at new insights for understanding the mechanism of MDD.

Using Single-Cell Analysis Techniques we find novel insights into the deformation of various cell types that occurs in the onset of MDD. We find that the deformation of cell type alteration is not limited to one specific region - and this has cascading effects on the pathways. Lastly, analysis using population genetics reveals MDD genetic risk variants find selection in specific subpopulation groups."

