

Invitation to M.Tech. Thesis Defense of Siddhant Kalra: May 19, 2020 (Tuesday): 14.00-15.00 IST

In Partial Fulfillment of the Requirements for the Degree of

M.Tech. CB

Siddhant Kalra (MT18241)

Will defend his thesis

Title: "CancerSmell: Molecular basis of chemosensation in cancer cells"

IIIT-D Faculty and Students are invited

Date: May 19, 2020 (Tuesday)

Time: 14.00-15.00 IST

Place: Online (Google Meet)

Examiner:	Internal:	Debarka Sengupta
	External/Internal:	Arjun Ray
	Advisor:	Gaurav Ahuja

Abstract

"Ectopically expressed olfactory receptors (ORs) have been linked with a multitude of clinically-relevant physiological processes. Traditionally, limited-resolution bulk RNA sequencing techniques have been used to estimate their abundance in cancer tissues, which largely shadowed their potential roles due to their overall low expression levels. Even after the introduction of the single-cell transcriptomics techniques, a comprehensive delineation of ORs expression dynamics in tumor cells remained unexplored. Our targeted investigation into single malignant cells revealed a complex landscape of combinatorial OR expression events in malignant cells. We observed a systematic decline in the number of expressed ORs per cell as well as their expression intensities during the cancer cell differentiation. Further, we constructed expression signatures based on a large spectrum of ORs and tracked their enrichment in bulk expression profiles of tumor samples from The Cancer Genome Atlas (TCGA). TCGA tumor samples stratified on the basis of the OR-centric signatures exhibited divergent survival probabilities. In summary, our comprehensive analysis positions ORs at the cross-road of tumor cell differentiation and molecular prognosis of cancer. "

