THE UNIVERSITY OF ARIZONA

The Department of Cellular and Molecular Medicine

Faculty Candidate Seminar

"The Stag Hunt Game in Cancer: How Cells Cooperate Within Cancer Populations and Stroma to Divide and Conquer"

Kshitiz, PhD
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Yale University

Monday, February 20th
Kiewit (UACC 2951)
9:00 am

Speaker Host: Nathan Ellis, PhD

Cancer populations, even isogenic ones, undergo role specification during stromal invasion. A typical invading fork of a tumor is led by a migratory leader cells, followed by a rapidly dividing mass of cells. Most tumors exist in hypoxic environments, but paradoxically continue to proliferate, and exhibit metastatic behavior. How do individual cancer cells cooperate to facilitate the emergence of a collective phenotype that facilitates a desired outcome in stress conditions like hypoxia? The first suspect is intercellular communication, but it is not understood how stratification of roles might emerge, particularly when such cooperation would require a subset of cells to make sacrifices. In this talk, we will show how hypoxic cancer cells can undergo quorum sensing to facilitate the emergence of phenotypic heterogeneity within the population. In addition, the talk will also focus on another mode of communication, between cancer and stroma, and the evolutionary understanding of why tumors become invasive in primates, including humans.

Bio: Kshitiz is an Associate Research Scientist in the Institute of Systems Biology at Yale University, and in Investigator in the Cancer Systems Biology Institute at Yale. His scientific interests include cell-matrix interactions, mechanobiology, intercellular communication and systems biology. He is a poet, a classical dance critic, and presenter.