

# Biology Seminar

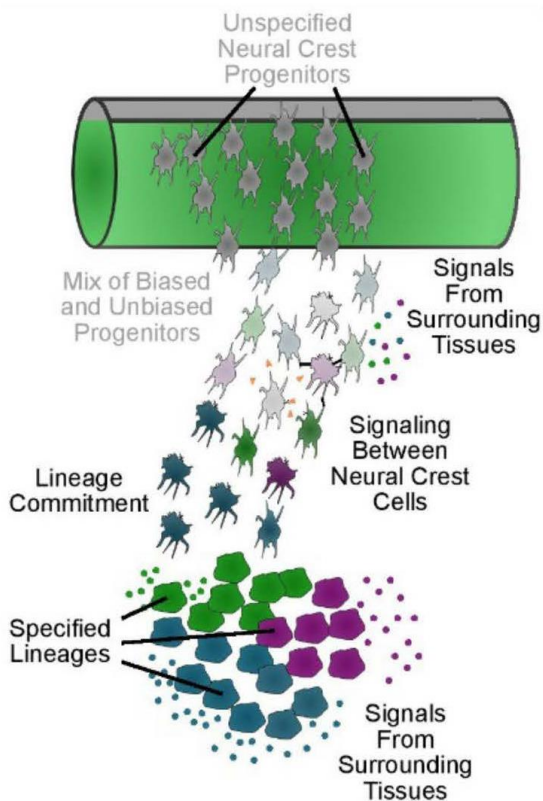
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## A Simple Twist of Fate: Genetic Analysis of Neural Crest Cell Fate Determination

Wednesday, April 27, 2022  
HCK 132, 12:00pm PST



Single cell approaches are causing biologists to re-evaluate classical ideas of cell types and how they arise during embryonic development. One population of particular interest is the neural crest, because it migrates throughout the body to give rise to a huge variety of derivatives such as peripheral neurons, pigment cells and bones of the skull. How do such migratory cells navigate through ever-changing environments yet reliably acquire these diverse fates? Our single cell transcriptomic studies in zebrafish suggest that they do so through a series of lineage bifurcations. I will present evidence

that components of the neural crest gene regulatory network that we identified (including two Twist transcription factors) control these cell fate choices. Computational models of our single cell data also reveal distinct transitional states and cell-cell signals leading to different lineage bifurcations, which we are currently testing. These results hint at general principles for how cell fate choices are made in many cell types both in development and disease.