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Title: **Elucidating the invasive-proliferative switch**

Summary:

During development and homeostasis, cells coordinate the decision between growth and arrest. This is true during morphogenesis, where cells and tissues orchestrate complex behaviors to shape tissues and build organs. Our *overall objective* is to understand how cells switch between invasive and proliferative fates. Our *central hypothesis* is that transcriptional and post-translational mechanisms are required for the maintenance of invasive versus proliferative fates. We have previously identified a functional link between cell cycle arrest and the invasive capacity of the roundworm nematode, *C. elegans,* anchor cell. We will test our central hypothesis by examining the relationship between cell cycle regulation, Notch and Wnt signaling as cells switch between invasive and proliferative fates. Our research is *innovative*, as it seeks to challenge the dogma that invasion and proliferation occur concomitantly. As many therapeutic approaches for diseases that are caused by invasive pathologies, particularly cancer metastasis, utilize cell cycle checkpoint activation, insights gained here may directly inform on treatment strategies to limit invasive behaviors in disease contexts. Thus, we will provide new mechanistic understanding into how cells switch between proliferative and invasive fates, pivotal to our knowledge of both normal development and how this switch is hijacked and dysregulated in disease states.