Public Abstract
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Nervous system development involves extensive cell migration, causing immature neurons to move from proliferative zones to specific locations to generate functional circuits. Defective in neuronal migration can cause severe anomalies including mental retardation and learning disabilities. Therefore, it is important to understand the molecular mechanisms underlying neuronal migration. We use zebrafish as a model to study one such migration. In the zebrafish and mouse hindbrain, Facial Branchiomotor Neurons (FBMNs), which mediate jaw and facial movements in mammals, migrate caudally (tangentially) from rhombomere 4 (r4) into r6 and r7. The transmembrane protein Strabismus (Stbm) is a component of the non-canonical Wnt/PCP pathway and is necessary for the normal migration of FBMNs. To understand the mechanisms by which stbm regulates neuronal migration, I sought (1) to identify the cell types where stbm function is required for FBMN migration (2) to analyze the various domains of Stbm and their requirement for FBMN migration and (3) to analyze other genes interacting with stbm to regulate FBMN migration.