1145-92-2047 **Leif Zinn-Bjorkman*** (zinn@math.ucla.edu) and **Frederick R Adler**. *Modeling factors that regulate cell cooperativity in the zebrafish posterior lateral line primordium.*

Collective cell migration is an integral part of organismal development. We consider migration of the zebrafish primordium during development of the posterior lateral line, a sensory system that detects water movement patterns. Experiments have shown that the chemokine ligand CXCL12a and its receptors CXCR4b and CXCR7b are key players for driving migration of the primordium, while FGF signaling helps maintain cohesion. In this work, we formulate a mathematical model of a laser ablated primordium separated into two smaller cell collectives: a leading collective that responds to local CXCL12a levels and a trailing collective that migrates up a local FGF gradient. Our model replicates recent experimental results, while also predicting a "runaway" behavior when FGF gradient response is inhibited. We also use our model to estimate diffusion coefficients of CXCL12a and FGF in the lateral line. (Received September 24, 2018)