1044-35-39 **Khalid Boushaba*** (boushaba@iastate.edu), 396 Carver Hall, Iowa State University, Ames, IA 50011, **J. Essner**, 636 Science Hall II, Ames, IA 50011, and **H. A. Levine**, 396 Carver Hall, Iowa State, Ames, IA 50011. *A mathematical model for cell signaling and endothelial migration in a living zebra fish embryos.*

Angiogenesis in the zebrafish embryo begins after the first day of development. During this time the intersegmental vessels in the trunk develop from the dorsal aorta in the first wave of embryonic angiogenesis. Previous work suggests a link between VEGF and Syndecan-2, which may function as a co-receptor for VEGF. We are currently developing equations that include terms expressing reaction, diffusion, and cell movement biased by "convection" like terms to model this interaction. These terms model the chemotactic influences on cells, and hence the interaction of the cells with the extracellular matrix that results in their directed movement towards the diffusible growth factor. Using this approach as a framework, we expect to develop mathematical models for angiogenesis for zebrafish that are both predictive and descriptive of growth factor signaling and extracellular matrix interactions during cell migration. Based on the high degree of conservation of signaling pathways involved in angiogenesis, we expect that modeling these processes in zebrafish will be directly applicable to tumor angiogenesis. (Received July 29, 2008)