***Iroquois* genes may play an important role in pharyngeal development**

Kelsey M. Donahue and Emily T. Shifley

Department of Biological Sciences, Northern Kentucky University, Highland Heights, KY 41099

 During early stages of vertebrate development, embryonic cells differentiate to form adult tissues and organs. These cells use various genetic signaling pathways to guide their development. Our study is focused on the Fibroblast Growth Factor (FGF) signaling pathway, which is known to be important for the development of the pharynx, an embryonic structure that gives rise to craniofacial features, the thymus and parathyroid glands. We used *Xenopus laevis* as our model organism and performed a microarray to identify novel targets of the FGF pathway in the developing pharynx. We hypothesized that targets of the FGF signaling pathway may play important roles in the development of the pharynx and its derivatives. Among the possible FGF targets identified by the microarray were two members of the *Iroquois* family of transcription factors. We analyzed the expression patterns of the *Iroquois* family in *Xenopus* embryos with *in-situ* hybridization found that several are expressed in the developing pharynx. We inhibited *Iroquois* translation by injecting *Xenopus* embryos with morpholinos and analyzed these *Iroquois* loss-of-function embryos with *in-situ* hybridization to visualize pharyngeal gene expression, finding some changes. We also analyzed *Iroquois* loss-of-function tadpoles with skeletal preparations and found defects in their craniofacial features compared to sibling control embryos. Overall, we have begun to characterize the *Iroquois* genes as possible FGF pathway targets in the developing pharynx. The more we learn about the genetic signaling cascades guiding embryonic development, the more we can understand why certain birth defects occur.