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Assessing Redundancy in Hox Gene Function by Early Knockdown of
Hoxa-5 and Combinations of Hox Genes

Hox genes are key regulators in patterning vertebral elements along the anterior-posterior axis of vertebrates. Here we examine how the early role of *Hoxa-5* and how a combination of *Hox* genes pattern the cervical-thoracic transition (C14-T1) in chick embryos. Little is known about the evolution of ribless cervical elements—as compared to ribbed thoracic elements—in the avian lineage, yet the Hox code is a candidate for explaining this change in development. Early knockdown of *Hoxa-5*, as well as, simultaneous knockdown of *Hoxa-4*, *Hoxa-5*, and *Hoxa-6* via RNA interference was performed to study how each influences vertebral morphology at the cervical-thoracic transition of chicks. Skeletal staining will be used to compare vertebral morphologies of wildtype and knockdown embryos. Examining how the *Hox* code may have played a role in the development of ribless cervical vertebrae in birds may provide us with a deeper understanding of skeletal development and evolution in the avian lineage.