

## Two distinct populations of tectal neurons have unique connections within the retinotectorotundal pathway of the pigeon (*Columba livia*)

Karten, Harvey J.

Cox, Kevin

Mpodozis, Jorge

The tectofugal pathway is a massive ascending polysynaptic pathway from the tectum to the thalamus and then to the telencephalon. In birds, the initial component of this pathway is known as the tectorotundal pathway; in mammals, it is known as the tectopulvinar pathway. The avian tectorotundal pathway is highly developed; thus, it provides a particularly appropriate model for exploring the fundamental properties of this system in all amniotes. To further define the connectivity of the tectorotundal projections of the tectofugal pathway, we injected cholera toxin B fragment into various rotundal divisions, the tectobulbar projection, and the ventral supraoptic decussation of the pigeon. We found intense bilateral retrograde labeling of neurons that stratified within layer 13 and, in certain cases, granular staining in layer 5b of the optic tectum. Based on these results, we propose that there are two distinct types of layer 13 neurons that project to the rotundus: 1) type I neurons, whi