

Estradiol enhances auditory responses to communication signals in Túngara frogs



Lauren Eberly

Major: Biology and Spanish

Faculty Advisor: Dr. Sabrina Burmeister, Biology



Background

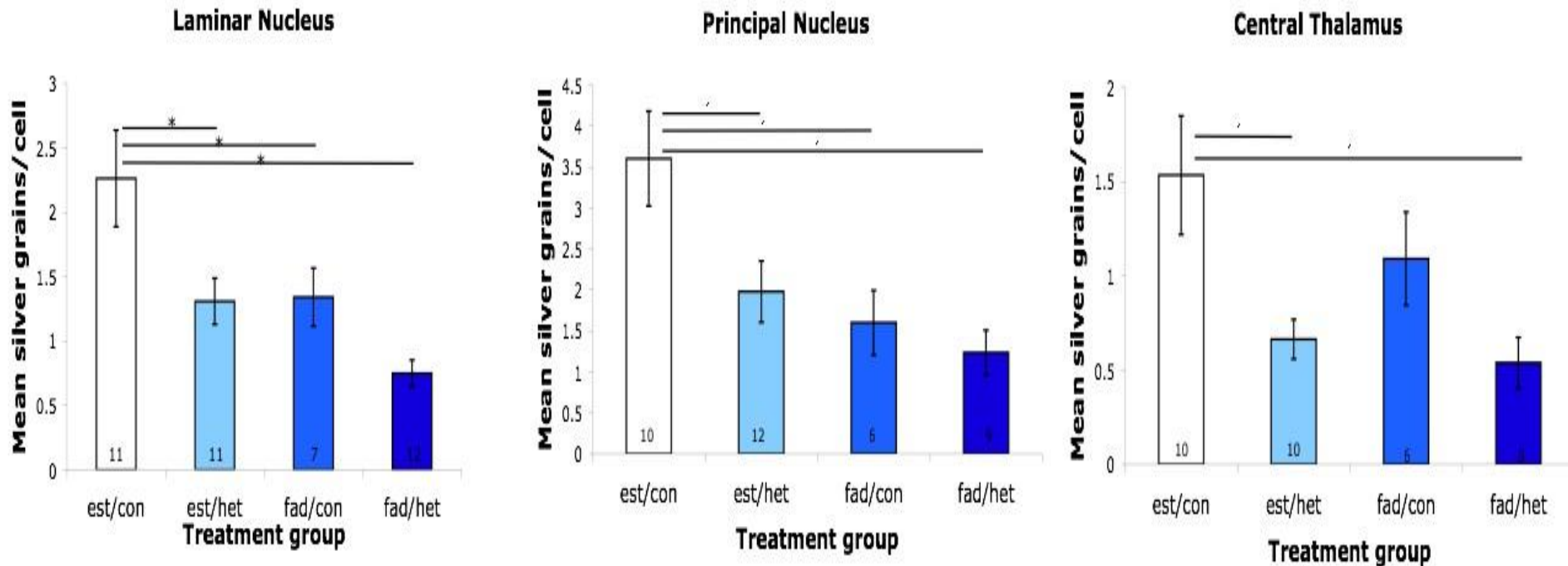
- The torus semicircularis, a key point in the central auditory system, consists of three subnuclei: the laminar, principal, and magnocellular nuclei.
- The steroid hormone estradiol is sufficient to induce sexual behavior in túngara frogs (*Physalaemus pustulosus*)
- The laminar nucleus exhibits an enhanced neural response in response to exposure to mate choruses and human chorionic gonadotropin
- The laminar, principal nuclei and thalamic nuclei show neural biases to conspecific over heterospecific calls



Goal

- To test the hypothesis that estradiol modulates neural response to conspecific stimuli within the central auditory system.

Results



- In the laminar and principal nuclei of the torus semicircularis, estradiol caused higher gene expression, suggesting that estradiol may regulate auditory selectivity to conspecific signals
- Similar findings were not detected in the central thalamus, suggesting that estradiol's role of modulation might be primarily focused in the laminar and principal nuclei.