**Effects of gonadotropin releasing hormone on reproductive behavior and hormone levels in a seasonally breeding lizard**

Many people in the world struggle with infertility, which is often caused by misregulation of the hormones that control reproduction. The hypothalamus pituitary gonadal (HPG) axis regulates reproduction through the release of gonadotropin releasing hormone (GnRH) to the pituitary gland. GnRH activates the pituitary gland to release follicle stimulating hormone (FSH) and luteinizing hormone (LH). LH and FSH then go to the gonads where they help to produce gametes (sperm and eggs) and steroid hormones. Seasonally breeding animals offer a unique opportunity to study reproduction in the same animal when they are fertile (breeding season) and infertile (non-breeding season). The non-breeding season can be further broken down into refractory and post-refractory periods. During the refractory period, breeding-like environmental conditions do not stimulate breeding. During the post-refractory period, breeding-like environmental conditions can cause animals to begin to reproduce. To test the role of GnRH in these two non-breeding periods, male green anole lizards (*Anolis carolinensis*) were injected with GnRH or saline (control) during the refractory and post refractory periods. The presence of reproductive behavior was observed and plasma was collected to measure LH levels using an enzyme-linked immunosorbent assay (ELISA). We expect that GnRH will increase LH levels and breeding behaviors in the anoles in both non-breeding periods, which would suggest that increased GnRH levels cause the lizards to begin breeding. Our study will reveal the role of GnRH in controlling the timing of reproduction.