

Thesis Title	Localization of the Hormone-Producing Cells in the Pars Distalis of <i>Rana catesbeiana</i> and its Changes During Development and Seasonal Variation
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ABSTRACT

The distribution of hormone-producing cells in pars distalis of *Rana catesbeiana* and their changes during development and seasonal variation were investigated by Mallory's Trichrome (MT) stain and immunocytochemical methods using specific monoclonal antibodies, including anti-frog GH, PRL, ACTH, b-LH, b-FSH and anti-human b-TSH and Avidin-Biotin technique. Based on MT staining pattern, cell in pars distalis could be divided into three groups: namely, the reddish acidophils which were stained with acid fuchsin, and the bluish basophils which were stained with aniline blue. The last group are chromophobes which have very little cytoplasm and were unstained. Acidophils were dominant during 1-8 months of development, while basophils started to appear at 7th months and were increased markedly at 11th-14th months.

The changes of pars distalis of sexually mature frogs during seasonal variation could be divided into two periods, which match the ovarian and testicular changes and the spawning: the breeding period (April-September),

and the non-breeding period (December-January). It was found that, in the two periods, acidophils were distributed throughout the gland but tended to concentrate in the dorsal region, whereas basophils were also scattered throughout the gland but tended to concentrate in the centro-posterior region. In contrast, chromophobes were located in the anterior region. Basophils were dominant in the breeding season, while acidophils were dominant in the non-breeding season. During the two seasons, the immunoreactive GH cells were concentrated in the postero-dorsal region, whereas the immunoreactive PRL cells were evenly distributed throughout the gland. The immunoreactive group I LH and FSH cells were distributed rather evenly throughout all region of the gland except in the peripheral and the anterior region, while group II cells were concentrated in the antero-ventral and peripheral region. The immuno-reactive ACTH cells were uniformly distributed in the antero-ventral region of pars distalis, while the immunoreactive TSH cells were scattered at the postero-ventral region. These appear little variation in relative numbers of all cell types. However, PRL, FSH and LH cells tend to show more intense staining, which is thought to be equivalent to secretory activity in the breeding than in the non-breeding season.