Review Article

**Endocrine and local control of the primate corpus luteum**

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**Abstract**

The primate corpus luteum is a transient endocrine gland that differentiates from the ovulatory follicle midway through the ovarian (menstrual) cycle. Its formation and limited lifespan is critical for fertility, as luteal-derived progesterone is the essential steroid hormone required for embryo implantation and maintenance of intra-uterine pregnancy until the placenta develops. It is well-established that LH and the LH-like hormone, CG, are the vital luteotropic hormones during the menstrual cycle and early pregnancy, respectively. Recent advances, particularly through genome analyses and cellular studies, increased our understanding of various local factors and cellular processes associated with the development, maintenance and repression of the corpus luteum. These include paracrine or autocrine factors associated with angiogenesis (e.g., VEGF), and that mediate LH/CG actions (e.g., progesterone), or counteract luteotropic effects (i.e., local luteolysis; e.g., PGF2α). However, areas of mystery and controversy remain, particularly regarding the signals and events that initiate luteal regression in the non-fecund cycle. Novel approaches capable of gene “knockdown” or amplification”, in vivo as well as in vitro, should identify novel or underappreciated gene products that are regulated by or modulate LH/CG actions to control the functional lifespan of the primate corpus luteum. Further advances in our understanding of luteal physiology will help to improve or control fertility for purposes ranging from preservation of endangered primate species to designing novel ovary-based contraceptives and treating ovarian disorders in women.

**Keywords**

Luteinization; Luteolysis; LH–CG; Luteotropic factors; Luteolytic factors