

Editorial

Recent advancements in corpus luteum development, function, maintenance and regression: Forum introduction

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The corpus luteum is a dynamic tissue whose cellular composition is traced to the remnants of the ovarian follicle, neovascularization and infiltration of immune cells. The corpus luteum undergoes dramatic morphological and functional changes throughout its lifespan. Functionally the corpus luteum is responsible for the provision of progesterone in support of pregnancy. Depending on the species and the physiological state, the corpus luteum lifespan can last from less than a day to almost a year. During this time, whether it is during the development, maintenance, or regression stage the corpus luteum function is mediated by a number of influences including steroids, growth factors, gonadotropins, prostaglandins, cytokines, and peptide hormones. The variable expression of these factors and their receptors control the fate of the corpus luteum.

The present series of reviews was designed to address some of these topics while focusing primarily on recent advances that have either not been covered or covered only superficially in recent reviews, and on areas of corpus luteum function that have changed considerably since they were originally addressed. In addition, the authors that contributed to this series of reviews were encouraged to identify areas that were controversial, to recognize differences among species, to convey a sense of direction that research efforts were taking, and finally to suggest areas for new research opportunities that will clarify or extend our knowledge of corpus luteum function.

The corpus luteum forum is organized to sequentially convey recent developments in the development, func-

tion and regression of the corpus luteum. The initial review provides evidence gained from the phenotypic analysis of transgenic mice that has revealed unexpected and novel actions of particular molecules required for ovulation and corpus luteum function. The next set of reviews conveys the critical nature of angiogenesis for the overall development and function of the corpus luteum. The reviews also highlight the critical nature the endothelial cell as a pivotal element in the process of corpus luteum regression. Another series of reviews provides recent concepts on the control of the secretory nature of the corpus luteum. Highlighted are novel mechanisms for the control of luteal steroidogenesis, and recent developments in the regulation by prostaglandin F_{2α} of prostaglandin and oxytocin secretion. The final series of reviews provide new directions for immune cell regulation of corpus luteum function via major histocompatibility complex molecules, chemokines and cytokines. The contributing authors have provided the state-of-the-art reviews that not only summarize our current knowledge of corpus luteum function but also to extend our insight into directions for further exploration.