

**Mini-Symposium:
Uterine Biology—State of the Art—**

Preface

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The mammalian uterus is one of the reproductive organs, and it is involved in many reproductive events, for example: such as implantation, decidualization, placentation and parturition. In most of mammalian species, these events are primarily regulated by estrogen and progesterone. However, the signaling pathways controlled by estrogen and progesterone are very complicated and it still remains to be clarified which molecules are involved in these processes. The strategy using knockout mice is leading us to a better understanding of the molecular mechanisms involved in above reproductive events.

In this mini-symposium “Uterine Biology —State of the Art—”, recent discoveries and findings in uterine biology are introduced. Estrogen and progesterone have important roles in embryo implantation in mammals. Ito and Kashiwazaki summarize the current understanding of estrogen dependent pathway during embryo implantation in mammals, and Hirota and his colleagues describe the current knowledge about progesterone dependent pathways during embryo implantation. During pregnancy, the embryo requires intake of energy and other important materials from the maternal side. Therefore, angiogenesis is also an essential event for the maintenance of pregnancy. Matsumoto and his colleagues discuss some important factors in this process. Following embryo implantation, decidualization of uterine tissues is required for subsequent processes. Yoshie and his colleagues focus on the molecular pathways of decidualization using human endometrial cells, in particular, the cAMP-dependent mechanism, and report their recent findings. I hope these mini-reviews will be useful information for basic researchers, clinicians and embryologists.