



Basic Study of Reproductive Physiology in Mammals

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Research Fields : Reproductive Physiology
Reproductive Endocrinology

Keywords : Mammals, Ovary, Granulosa cells, Cumulus cells, Oocyte, *In Vitro* Maturation

● Research Topics

In mammals, it is well known that oocyte maturation during follicular development and ovulation process is quite important to develop blastocyst stage after fertilization. In the laboratory of physiology, we conduct our research to elucidate the basic mechanism of oocyte maturation during the stage. Furthermore, we also study to apply the fundamental insight to prevention of reproductive disorder in animal, establishment of novel method of *in vitro* maturation in domestic animal, and assisted reproductive technique of human.

Recent theme

Basic study (mouse, rat, and pig)

- Analysis of secretory mechanism of EGF-like factor in granulosa/cumulus cells during follicular development and ovulation process.
- Analysis of biosynthesis of steroid hormone in granulosa/cumulus cells during follicular development and ovulation process.
- Search of novel factor to induce oocyte maturation during follicular development and ovulation process.

【References】

- Yamashita et al., *Biol Reprod*, 2003
Yamashita et al., *Endocrinology*, 2005
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Shimada et al., *Mol Endocrinol*, 2007
Kawashima et al., *Reproduction*, 2008
Yamashita et al., *J Ovarian Res*, 2009

Yamashita et al., *J Reprod Dev*, 2010

Yamashita et al., *Biol Reprod*, 2011

Yamashita and Shimada, *J Reprod Dev*, 2012

Yamashita et al., *Endocrinology*. 2014

【Award】

- 2006 Society for the Study of Reproduction Trainee Research Award
2006 Society for the Study of Reproduction Lobar Foundation Merit Award
2007 Japan Society for Ova Research Best Presentation Award
2009 Japan Society of Reproductive Endocrinology Best Presentation Award
2011 The society of Reproduction and Development Outstanding Paper Award
2013 The society of Reproduction and Development Young Investigator Award
2014 Japanese Society of Animal Science Best Presentation Award
2015 Japanese Society of Animal Science Best Presentation Award

● Collaboration

- Masayuki Shimada, Ph.D

Laboratory of reproductive endocrinology, Graduate School of Biosphere Science, Hiroshima University.

- Mitsugu Hishunuma, Ph.D and Ryo Nishimura, Ph.D

Laboratory of theriogenology, School of Veterinary Medicine, Faculty of Agriculture, Tottori University.

● Expected Results and Application

- Animal Production Using *In Vitro* Maturation.
- Assisted Reproductive Technique of Human