Establishment of immunoassay of new testicular hormone, insulin-like peptide 3, and its application

**Background & Objectives**
- Insulin-like peptide 3 (INSL3), which was discovered in 1993, is a hormone secreted from testicular Leydig cells.
- INSL3 has roles to stimulate testicular descent and spermatogenesis in mouse and rats.
- Secretory patterns and roles of INSL3 were unknown in farm and companion animals.
- INSL3 assays for cattle, goats and dogs were unavailable.
- Thus, we developed the INSL3 immunoassay procedures for the domestic animals.
- We are elucidating secretion dynamics of INSL3 in peripheral blood and examining applications to diagnose testicular functions.

**Establishment of INSL3 assay**

**INSL3 EIA•TR-FIA protocol**

**Plasma INSL3 concentrations in male dogs during puberty and with cryptorchid testis**

- Comparison between normal and cryptorchid dogs of plasma INSL3 and testosterone concentrations

**Fetal gender prediction based on maternal plasma testosterone and INSL3 concentrations at midgestation and late gestation in cattle**

- Over 80% accuracy for the prediction of fetal gender based on maternal plasma testosterone and INSL3 concentrations from midgestation to late gestation.

**Publications**

- Hannan MA et al., Theriogenology, 2015
- Kibushi M et al., Theriogenology, 2016