

1. Institution

Head of the Institute of Anatomy, Histology and Embryology, Vetmeduni Vienna, Veterinaerplatz 1, A-1210 Vienna, Austria

2. Principal investigator and contact person

Sabine Kölle (sabine.koelle@vetmeduni.ac.at)

3. Key personnel

NAME	EMAIL	RESEARCH AREA DETAILS
Dr. Verena Oelschlaeger	verena.oelschlaeger@vetmeduni.ac.at	gameto-maternal interaction
Dr. Annika Triller	annika.triller@vetmeduni.ac.at	Sperm binding assay, chemotaxis of spermatozoa
Jill Molsner	jill.molsner@vetmeduni.ac.at	Transport of gametes in the oviduct

4. Research profile

Research in our labs is focused on gameto-maternal interaction and early embryo-maternal communication using the bovine and the mouse as models. Current research projects deal on the mechanisms of tubal transport, on physiology and pathology of sperm survival in the oviduct, on the effects of selected hormones on gameto-maternal interaction and on differences of signal transduction pathways between oviduct and embryo under in vivo and in vitro conditions.

5. Key technologies and tools

Digital Videomicroscopy, which allows to qualitatively and quantitatively analyze the interactions between oocyte, sperm and oviductal epithelium under near in vivo conditions.

Transmission and scanning electron microscopy of oocytes, sperm, embryos

Molecular analysis of oocytes, sperm and early embryos with **real-time-RT-PCR**

Immunohistochemistry of single oocytes, spermatozoa and embryos

6. Selected publications (max. 5)

Kölle S, Reese S, Kummer W (2010): New aspects of gamete transport, fertilization and embryonic development in the oviduct gained by life cell imaging. *Theriogenology* 73: 786-795.

Kölle S, Dubielzig S, Reese S, Wehrend A, Koenig P, Kummer W (2009): Ciliary transport, gamete interaction and effects of the early embryo in the oviduct: ex vivo analyses using a new digital videomicroscopic system in the cow. *Biol Reprod* 81: 267-274.

Kölle S, Dubois CS, Caillaud M, Lahuec C, Sinowatz F, Goudet G (2007): Equine zona protein synthesis and ZP structure during folliculogenesis, oocyte maturation and embryogenesis. *Mol Reprod Dev* 74:851-859

Kölle S, Stojkovic M, Reese S, Reichenbach HD, Wolf E, Sinowatz F (2004): Effects of growth hormone on the ultrastructure of bovine preimplantation embryos. *Cell Tiss Res* 317(1): 101-108.

Kölle S, Stojkovic M, Boie G, Wolf E, Sinowatz F (2003). Growth hormone-related effects on apoptosis, mitosis and expression of connexin 43 in bovine IVM cumulus-oocyte-complexes. *Biol Reprod* 68: 1584-1589.