

## 1. Institution

Chair for Molecular Animal Breeding and Biotechnology, and Laboratory for Functional Genome Analysis (LAFUGA), Gene Center, LMU Munich, Feodor-Lynen-Str. 25, D-81377 Munich, Germany  
[www.lmb.uni-muenchen.de](http://www.lmb.uni-muenchen.de); [www.lafuga.de](http://www.lafuga.de); [www.ematko.de](http://www.ematko.de)

## 2. Principal investigator and contact person

Eckhard Wolf ([ewolf@lmb.uni-muenchen.de](mailto:ewolf@lmb.uni-muenchen.de))

## 3. Key personnel

Georg J. Arnold	<a href="mailto:arnold@lmb.uni-muenchen.de">arnold@lmb.uni-muenchen.de</a>	proteomics
Stefan Bauersachs	<a href="mailto:bsachs@lmb.uni-muenchen.de">bsachs@lmb.uni-muenchen.de</a>	genomics, bioinformatics
Helmut Blum	<a href="mailto:blum@lmb.uni-muenchen.de">blum@lmb.uni-muenchen.de</a>	genomics, bioinformatics
Thomas Fröhlich	<a href="mailto:frohlich@lmb.uni-muenchen.de">frohlich@lmb.uni-muenchen.de</a>	proteomics
Stefan Krebs	<a href="mailto:krebs-st@lmb.uni-muenchen.de">krebs-st@lmb.uni-muenchen.de</a>	genomics, bioinformatics
Valeri Zakhartchenko	<a href="mailto:V.Zakhartchenko@gen.vetmed.uni-muenchen.de">V.Zakhartchenko@gen.vetmed.uni-muenchen.de</a>	nuclear transfer

## 4. Research profile

The laboratory studies key steps of reproduction, such as the interaction between early embryos and their maternal environment (DFG FOR 478 “Mechanisms of embryo-maternal communication; BMBF FUGATO “Fertilink – functional genome research for the improvement of fertility”), and analyses growth factor systems (growth hormone, insulin-like growth factors, EGF receptor ligands) regulating pre- and postnatal growth. Both mouse and large animal models (cattle, pig) are used to unravel common and species-specific key events in normal and assisted reproduction and consequences for growth and development. Moreover, reproductive biotechnology is used for the generation of large animal models, e.g., for xenotransplantation (DFG FOR 535 “Xenotransplantation”), for diabetes research (DFG GRK 1029 “Functional genome research in veterinary medicine”), and for osteoporosis (DFG FOR 793 “Fracture healing in osteoporosis”).

## 5. Key technologies and tools

Transcriptomics – proteomics – bioinformatics – peptide-induced antibodies – custom arrays – in vitro production of embryos – somatic cell nuclear transfer (bovine, pig, rabbit) – lentiviral transgenesis – transgenic reporter systems – complex culture systems for oviduct epithelial and endometrium cells

## 6. Selected publications (max. 5)

Bauersachs S, Mitko K, Blum H, Wolf E. Technical note: Bovine oviduct and endometrium array version 1: a tailored tool for studying bovine endometrium biology and pathophysiology. *J Dairy Sci.* 2007 Sep;90(9):4420-3.

Bauersachs S, Ulbrich SE, Gross K, Schmidt SE, Meyer HH, Wenigerkind H, Vermehren M, Sinowatz F, Blum H, Wolf E. Embryo-induced transcriptome changes in bovine endometrium reveal species-specific and common molecular markers of uterine receptivity. *Reproduction.* 2006 Aug;132(2):319-31.

Klein C, Bauersachs S, Ulbrich SE, Einspanier R, Meyer HH, Schmidt SE, Reichenbach HD, Vermehren M, Sinowatz F, Blum H, Wolf E. Monozygotic twin model reveals novel embryo-induced transcriptome changes of bovine endometrium in the preattachment period. *Biol Reprod.* 2006 Feb;74(2):253-64.

Mitko K, Ulbrich SE, Wenigerkind H, Sinowatz F, Blum H, Wolf E, Bauersachs S. Dynamic changes in messenger RNA profiles of bovine endometrium during the oestrous cycle: Focus on Mammalian Embryogenomics. *Reproduction.* 2008 Feb;135(2):225-240.

Wuensch A, Habermann FA, Kurosaka S, Klose R, Zakhartchenko V, Reichenbach HD, Sinowatz F, McLaughlin KJ, Wolf E. Quantitative monitoring of pluripotency gene activation after somatic cloning in cattle. *Biol Reprod.* 2007 Jun;76(6):983-91.