

1. Institution

Department of Anatomy and Cell Biology, Martin Luther University Faculty of Medicine, Grosse Steinstrasse 52, D-06097 Halle (Saale), Germany (<http://www1.medizin.uni-halle.de/iaz/index.htm>)

2. Principal investigator and contact person

Professor Bernd Fischer, Dr. med. (MD), Dr. agr. (PhD) (bernd.fischer@medizin.uni-halle.de), Chair for Anatomy and Reproductive Biology, Head of Department (<http://www1.medizin.uni-halle.de/iaz/english/Kurzbf-englisch.htm>)

3. Key personnel

Anne Navarrete Santos	a.navarrete-santos@medizin.uni-halle.de	Molecular biology, stem cell biology, metabolic programming
Sünje Fischer	suenje.fischer@medizin.uni-halle.de	Molecular biology, adipokines
Julia Haag	julia.haag@medizin.uni-halle.de	Molecular biology, stem cell biology, metabolic programming
Katja Horling	katja.horling@medizin.uni-halle.de	Molecular biology, Ah receptor, folliculogenesis
Nicole Ramin	nicole.ramin@medizin.uni-halle.de	Molecular biology, embryo metabolism
René Thieme	rene.thieme@medizin.uni-halle.de	Molecular biology, gastrulation

4. Research profile

The laboratory has investigated the development of *in vivo* grown and *in vitro* cultured preimplantation embryos in several mammalian species. The recent focus is on role of (i) insulin and IGFs during embryo pre- and periimplantation development and gastrulation (DAAD D/07/15753: Metabolic programming: Role of insulin, IGFs, adipokines and microRNA networks on trophoblast and placental development), (ii) glucose and glucose transporters, (iii) energy metabolism and metabolic programming in embryos and stem cells (DFG NA 418/4-2: IGF/IGFR expression and methylation as mechanism of metabolic programming in preimplantation embryos), (iv) adipokine network for blastocyst metabolism and implantation, and (v) toxicity of xenobiotics, such as phthalates, PCB and dioxin, in mammalian embryonic cells (EU FP7-REEF N°212885: Reproductive effects of environmental chemicals in females).

5. Key technologies and tools

Transcriptomics – proteomics – custom arrays – *in vitro* culture of embryos (rabbit, mouse) - *in vitro* culture of murine embryonic stem cells – diabetic rabbit model – obese mouse model

6. Selected publications (max. 5)

Pocar, P., Augustin, R., Gandolfi, F., Fischer, B. (2003) Toxic effects of *in vitro* exposure to p-tert-octylphenol on bovine oocyte maturation and developmental competence. *Biol. Reprod.* 69, 462-468

Tonack, S., Rolletschek, A., Wobus, A., Fischer, B., Navarrete Santos, A. (2006) Differential expression of glucose transporter isoforms during embryonic stem cell differentiation. *Differentiation* 74, 499-509

Tonack, S., Kind, K., Thompson, J.G., Wobus, A.M., Fischer, B., Navarrete Santos, A. (2008) Dioxin affects glucose transport via the arylhydrocarbon receptor signal cascade in pluripotent embryonic carcinoma cells. *Endocrinology* 148, 5902-5912

Navarrete Santos, A., Ramin, N., Sarah Tonack, S., Fischer, B. (2008) Cell lineage-specific signalling of insulin and insulin like growth factor (IGF) 1 in rabbit blastocysts. *Endocrinology* 149, 515-524

Schmidt, T., Fischer, S., Tsikolia, N., Navarrete Santos, A., Ramin, N., Fischer, B. (2008) Expression and role of adipokines in preimplantation rabbit and mice embryos. *Histochem Cell Biol* (in press)