

1. Institution

Laboratory of Biomedical Embryology, Department of Animal Sciences, Centre for Stem Cell Research, Faculty of Veterinary Medicine, University of Milan, via Celoria 10, 20133 Milano - Italy.

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2. Principal investigator and contact person

Fulvio Gandolfi (fulvio.gandolfi@unimi.it) +3902 5031 7990

3. Key personnel

Tiziana A.L. Brevini	tiziana.brevini@unimi.it	embryology, stem cell biology
Stefania Antonini	Stefania.Antonini@unimi.it	gene expression, bioinformatics
Georgia Pennarossa	Georgia.Pennarossa@unimi.it	tissue culture and immunohistochemistry

4. Research profile

The laboratory works on the mechanisms that regulate oocyte quality as a key factor for embryonic development. Aspects currently studied include: the relationship between maternal nutrition and oocyte-cumulus cells RNA content and protein expression; the relationship between cumulus cells gene expression and oocyte quality as a marker for oocyte selection in assisted reproduction techniques; the molecular mechanisms that mediate the effects of environmental contaminants on oocyte competence.

Our studies are mainly based on quantitative PCR and immuno-histochemical analysis of oocytes, embryos generated in vitro and somatic cells. Cell cultures and co-cultures are also performed.

We commonly work with human, pig, sheep and mouse material.

5. Key technologies and tools

In vitro embryo production - quantitative PCR – Immuno-histochemistry – Tissue culture and stem cell cultures

6. Selected publications (max. 5)

Brevini TA, Cillo F, Antonini S, Tosetti V, Gandolfi F. Temporal and spatial control of gene expression in early embryos of farm animals. *Reprod Fertil Dev* 2007;19: 35-42.

Cillo F, Brevini TA, Antonini S, Paffoni A, Ragni G, Gandolfi F. Association between human oocyte developmental competence and expression levels of some cumulus genes. *Reproduction* 2007;134: 645-650.

Brevini TA, Vassena R, Francisci C, Gandolfi F. Role of Adenosine Triphosphate, Active Mitochondria, and Microtubules in the Acquisition of Developmental Competence of Parthenogenetically Activated Pig Oocytes. *Biol Reprod* 2005;72: 170-175.

Brevini TA, Cillo F, Colleoni S, Lazzari G, Galli C, Gandolfi F. Expression pattern of the maternal factor zygote arrest 1 (Zar1) in bovine tissues, oocytes, and embryos. *Mol Reprod Dev* 2004;69: 375-380.

Brevini TA, Vassena R, Paffoni A, Francisci C, Fascio U, Gandolfi F. Exposure of pig oocytes to PCBs during in vitro maturation: effects on developmental competence, cytoplasmic remodelling and communications with cumulus cells. *Eur J Histochem* 2004;48: 347-356.