

**1. Institution:** Department of Medicine and Animal Surgery. Faculty of Veterinary. University of Murcia. Campus de Espinardo, 30100. Murcia. Spain.

**2. Principal investigator and contact person:** Emilio A. Martinez ([emilio@um.es](mailto:emilio@um.es)). In vivo and in vitro embryo production and embryo vitrification.

### 3. Key personnel

NAME	EMAIL	RESEARCH AREA DETAILS
Juan M. Vazquez	vazquez@um.es	Sex sorted sperm
J. Roca	roca@um.es	Sperm cryopreservation
Maria A. Gil	mariagil@um.es	In vitro production of embryos
Inmaculada parrilla	parrilla@um.es	Sex sorted sperm
Cristina Cuello	cuello@um.es	Embryo vitrification
Xiomara Lucas	xiolucas@um.es	Sperm cryopreservation

### 4. Research profile

With more than 20 years' experience in porcine reproductive biology and biotechnology, the group presents a solid background different technologies such as deep intrauterine insemination, cryopreservation of gametes and embryos, *in vitro* production of embryos, embryo collection and non-surgical embryo transfer, and technology for sexing sperm. The group has developed several biomodels to study the regulation of the oviductal and uterine maternal environment by gametes and embryos *in vivo*

### 5. Key technologies and tools

- \* non-surgical deep intrauterine embryo transfer technology,
- \* embryo vitrification
- \* *in vitro* production of embryos
- \* sexing sperm with flow cytometry
- \* laparoscopic intraoviductal insemination
- \* sperm quality evaluation
- \* reproductive surgery
- \* sperm cryopreservation

### 6. Selected publications (max. 5)

Georgiou AS, Snijders APL, Sostaric E, Aflatoonian R, Vazquez JL, Vazquez JM, Roca J, Martinez EA, Wright PC, Fazeli A. **2007**. Modulation of the oviductal environment by gametes. **Journal of Proteome Research**. 6:4656-4666.

Almiñana C, Gil MA, Cuello C, Caballero I, Roca J, Vázquez JM, Gomez E, Martínez EA. 2008. In vitro maturation of porcine oocytes with retinoids improves embryonic development. **Reproduction, Fertility and Development**. 20:483–489.

Caballero I, Vázquez JM, Mayor GM, Almiñana C, Calvete JJ, Sanz L, Roca J, Martinez EA. **2009**. PSP-I/PSP-II spermadhesin exert a decapacitation effect on highly extended boar spermatozoa. **International Journal of Andrology**. 32 (5): 505-513.

Sanchez-Osorio J, Cuello C, Gil MA, Parrilla I, Maside C, Almiñana C, Lucas X, Roca J, Vazquez JM, Martinez EA. **2010**. Vitrification and warming of in vivo-derived porcine embryos in a chemically defined medium. **Theriogenology**. 73 (3):300-308.

Gil MA, Hernandez M, Roca J, Almiñana C, Lucas X, Cuello C, Vazquez JM, Martínez EA. 2010. Pentoxifylline added to freezing or post-thaw extenders does not improve the survival or in vitro fertilising capacity of boar spermatozoa. **Reproduction**. 139(3):557-64.