

## 1. Institution

The Roslin Institute  
Royal (Dick) School of Veterinary Studies  
The University of Edinburgh

## 2. Principal investigator and contact person

Xavier Donadeu, DVM, MS, PhD, Xavier.Donadeu@roslin.ed.ac.uk

## 3. Key personnel

NAME	EMAIL	RESEARCH AREA DETAILS
Amandine Breton	Amandine.Breton@roslin.ed.ac.uk	Cell pluripotency in the horse
Catalina Diaz	Catalina.Diaz@roslin.ed.ac.uk	Equine early embryo development
Stephanie Schauer	Stephanie.Schauer@roslin.ed.ac.uk	Equine follicle development
Kate Walker	Kate.Walker@roslin.ed.ac.uk	Signaling pathways involved in follicular cell differentiation

## 4. Research profile

Our laboratory seeks to identify key features of cell pluripotency in horses that may facilitate 1) the derivation of pluripotent cell lines from equine embryonic or somatic cells and 2) an understanding of the unique mechanisms involved in early embryo development in horses.

Another objective is to identify molecular mechanisms involved in the development of dominant follicles and follicular-to-luteal cell differentiation in monovular species. A specific application of these studies may be the development of approaches to stimulate follicular activity during physiological or pathological anovulatory states in farm animals (e.g. the non-breeding season in horses).

## 5. Key technologies and tools

- Ultrasonography and ultrasound-guided transvaginal follicular manipulation/sampling and ovum pick-up as well as artificial insemination and embryo collection in large animals.
- State-of-the art genomic facilities (microarray and qPCR, sequencing and genotyping)
- Antibody-based analyses at the tissue, cell and molecular levels
- Cell culture and genetic manipulation of cells including ES cells.
- Production and use of viral vectors for transgene expression in cells
- State-of-the-art microscopy and FACS facilities

## 6. Selected publications (max. 5)

Doyle LK, Hogg CH, Watson ED, Donadeu FX. Seasonal effects on the response of ovarian follicles to IGF1 in mares. *Reproduction* 2008; 136:589-598

Gastal EL, Gastal MO, Donadeu FX, Acosta TJ, Beg MA, Ginther OJ. Temporal relationships among LH, estradiol, and follicle vascularization preceding the first compared with later ovulations during the year in mares. *Animal Reproduction Science* 2007; 102:314-321

Donadeu FX. Early markers of follicular growth during the anovulatory season in mares. *Animal Reproduction Science* 2006; 94:179-181

Donadeu FX, Ascoli M. The differential effects of the gonadotropin receptors on aromatase expression in primary cultures of immature rat granulosa cells are highly dependent on the density of receptors expressed and the activation of the inositol phosphate cascade. *Endocrinology* 2005; 146:3907-3916

Donadeu FX, Ginther OJ. Interrelationships of estradiol, inhibin and gonadotropins during follicle deviation in mares. *Theriogenology* 2004; 61:1395-1405