

## 1. Institution

INRA (National Institute of Agronomical Research), Developmental Biology and Reproduction Lab, Integrative Physiology of Pregnancy group, Domaine de Vilvert, F-78350 Jouy en Josas, France

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## 2. Principal investigator and contact person

Pascale Chavatte-Palmer ([pascale.chavatte@jouy.inra.fr](mailto:pascale.chavatte@jouy.inra.fr)) or the contacts below

## 3. Key personnel

Yvan Heyman	<a href="mailto:yvan.heyman@jouy.inra.fr">yvan.heyman@jouy.inra.fr</a>	IVF and nuclear transfer, embryo transfer (ruminants)
Patrice Laigre	<a href="mailto:patrice.laigre@jouy.inra.fr">patrice.laigre@jouy.inra.fr</a>	Fetal and placental ultrasound (rabbits and ruminants)
Sylvaine Camous	<a href="mailto:sylvaine.camous@jouy.inra.fr">sylvaine.camous@jouy.inra.fr</a>	Endocrinology of pregnancy (P4, PAGs, ...) (ruminants)
Valérie Berthelot	<a href="mailto:valerie.berthelot@agroparistech.fr">valerie.berthelot@agroparistech.fr</a>	Lipid metabolism in food animals (ruminants, rabbits)
Kais Algubory	<a href="mailto:kais.algubory@jouy.inra.fr">kais.algubory@jouy.inra.fr</a>	Pregnancy and antioxidant adaptive mechanisms (ruminants, rodents)
Guy Germain	<a href="mailto:guy.germain@jouy.inra.fr">guy.germain@jouy.inra.fr</a>	Genomics and onset of parturition (ruminants, previously primates)

## 4. Research profile

The "Integrative Physiology of Pregnancy " group is part of a large research unit (Developmental Biology and Reproduction) directed by Jean-Paul Renard ([jean-paul.renard@jouy.inra.fr](mailto:jean-paul.renard@jouy.inra.fr)).

Several model species are used: rodents, rabbits, small ruminants and cattle. We are exploring the embryonic, feto-placental and post-natal effects of interactions between the maternal environment and gametes and embryos through various experimental approaches, the main ones being:

- nuclear transfer in cattle
- pre- and post-conceptional maternal hyperlipidic and/or hypercholesterolemic diets and obesity using a rabbit model
- studies of placental vascularisation in vivo with or without placental disturbance in sheep

This work is performed in close interaction with researchers from other groups within the unit, including Véronique Duranthon (oocyte and embryo genomics) ([veronique.duranthon@jouy.inra.fr](mailto:veronique.duranthon@jouy.inra.fr)), Isabelle Hue (genomics, gastrulation) ([isabelle.hue@jouy.inra.fr](mailto:isabelle.hue@jouy.inra.fr)), Olivier Sandra (genomics of implantation) ([olivier.sandra@jouy.inra.fr](mailto:olivier.sandra@jouy.inra.fr)) and Michel Guillomot (placental development) ([michel.guillomot@jouy.inra.fr](mailto:michel.guillomot@jouy.inra.fr)).

## 5. Key technologies and tools

in vitro production of embryos – somatic cell nuclear transfer (bovine, rabbit) – pregnancy follow-up (endocrinology, in vivo imaging and foetal/placental surgery in rabbits and ruminants, placental histology) – long term follow-up (growth, food intake)

and behaviour, adiposity) and physiology (rabbits and ruminants) – lipid analysis – analysis of anti-oxidant enzymes activity and expression (all species)

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

Chavatte-Palmer P, Laigre P, Simonoff E, Chesne P, Challah-Jacques M, Renard JP. In utero characterisation of fetal growth by ultrasound scanning in the rabbit. *Theriogenology* 2008; 69: 859-869.

Everts RE, Chavatte-Palmer P, Razzak A, Hue I, Green CA, Oliveira R, Vignon X, Rodriguez-Zas SL, Tian XC, Yang X, Renard JP, Lewin HA. Aberrant gene expression patterns in placentomes is associated with phenotypically normal and abnormal cattle cloned by somatic cell nuclear transfer. *Physiol. Genomics* 2008; 33: 65-77.

Heyman Y, Chavatte-Palmer P, Berthelot V, Fromentin G, Hocquette JF, Martignat L, Renard JP. Assessing the quality of products from cloned cattle: an integrative approach. *Theriogenology* 2007; 67: 134-141.

Constant F, Guillomot M, Heyman Y, Vignon X, Laigre P, Servely JL, Renard JP, Chavatte-Palmer P. Large Offspring or Large Placenta Syndrome? Morphometric Analysis of Late Gestation Bovine Placentomes from Somatic Nuclear Transfer Pregnancies Complicated by Hydrallantois. *Biol Reprod* 2006; 75: 122-130.

Chavatte-Palmer P, De Sousa N, Laigre P, Camous S, Ponter AA, Beckers J-F, Heyman Y. Ultrasound fetal measurements and pregnancy associated glycoprotein secretion in early pregnancy in cattle recipients carrying somatic clones. *Theriogenology* 2006; 66: 829-840.