



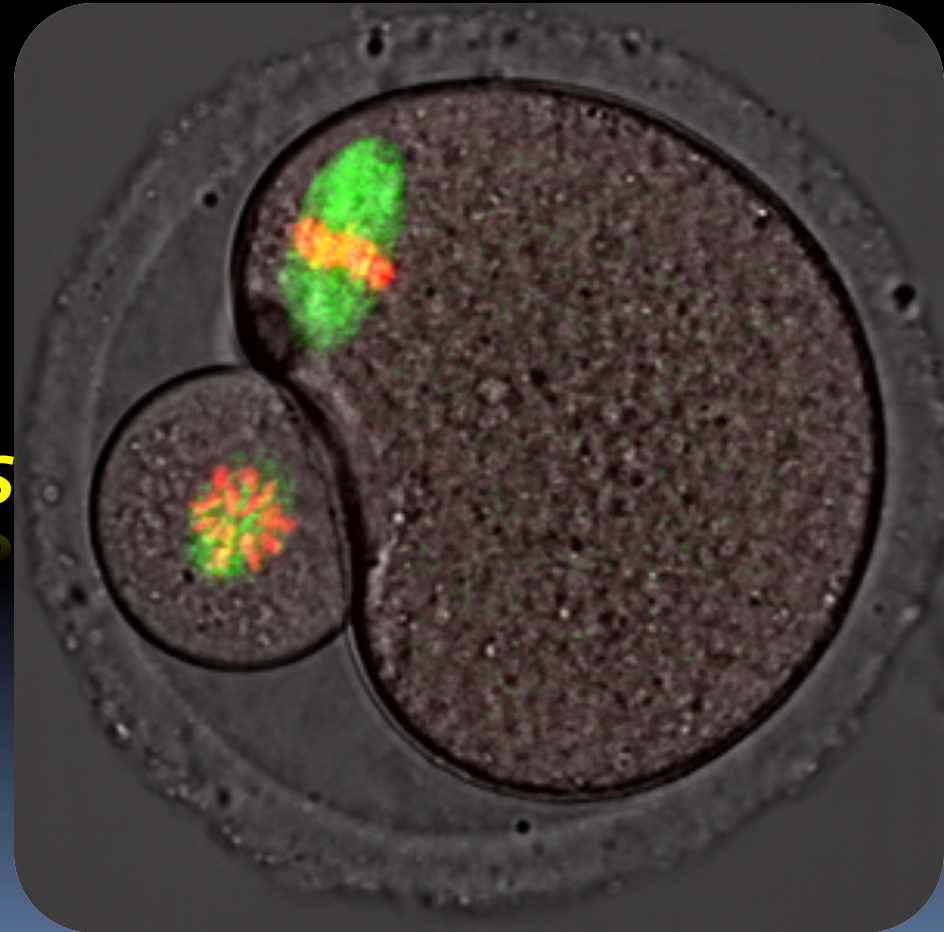
# Biotechnology of Reproduction

UNIVERSITY of  
TERAMO

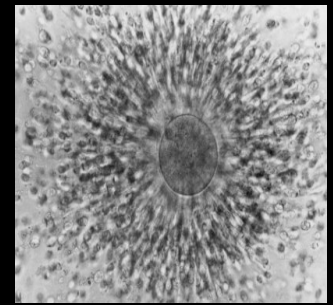
INTEGRATED COURSE  
**BIOLOGY OF GAMETES,  
IVM AND IVF TECHNIQUES**

TUTORS OF THE INTEGRATED COURSE:

**Prof. Luisa Gioia**  
**Prof. Barbara Barboni**



# Unit 1



- **Oocyte maturation**
- **Oocyte quality**

- **IVM techniques**

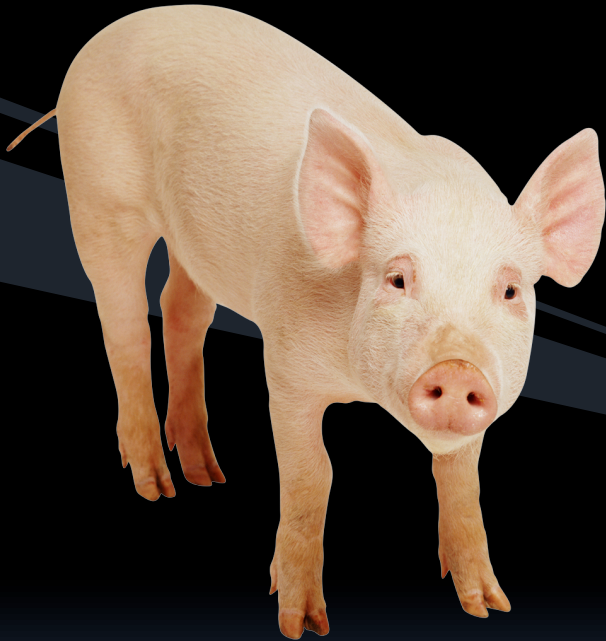
*How to manage the oocyte maturation in vitro:*

- culture media and culture systems for IVM
- recover and selection of follicles and COCs
- ovine oocyte maturation in vitro

**domestic animals**



## IVM and IVF techniques



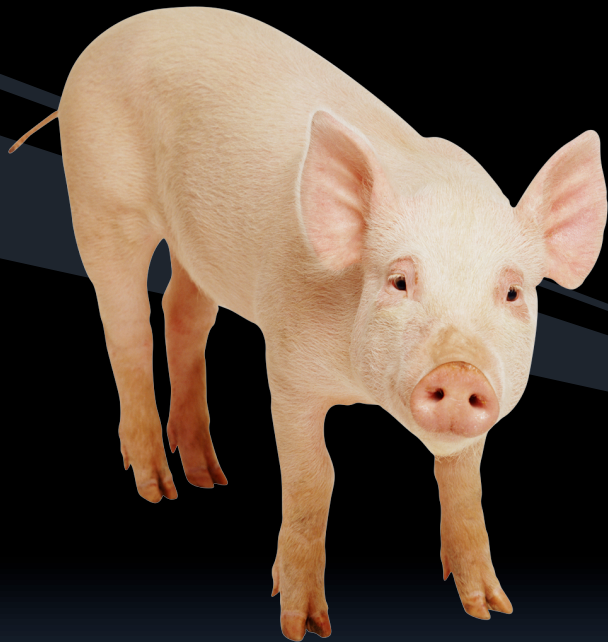
Gametes obtained from **domestic animals** (referred as to large Mammals) are used to practice with the laboratory techniques.

More in particular, the gametes are obtained from **SWINE (PIG) and OVINE (SHEEP) species**





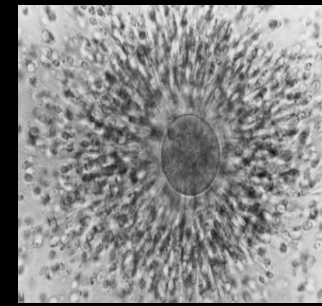
## IVM and IVF techniques



**Pay attention!**  
The choice of culture system  
and protocol depends  
largely on the species and  
on the experimental goal!



# Unit 2



- **Molecular control of oocyte maturation**
- The sperm: regulation of capacitation
- **Oocyte-sperm interaction**

- **IVM and IVF techniques**

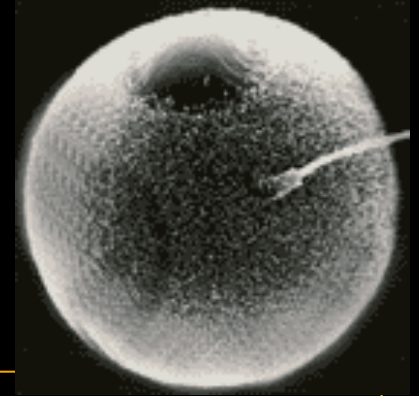
Assessment of oocyte meiotic competence

Semen analysis and sperm preparation for IVF

Protocols for in vitro capacitation

**domestic animals**


# Unit 3



- **Fertilization and oocyte activation**
- **IVF in assisted reproductive techniques (ART)**

- **IVF techniques**
- **Protocols for embryo production in vitro: from immature oocyte to zygote**

**models:**  
- domestic animals  
- humans (simulation)



Pay attention/  
Take home message



**IVM and IVF techniques:**

Always keep in mind the theoretical evidence learned about the physiological processes in order to choose the right culture system for your experiments conducted *in vitro*!



# Pay attention!

At the end of a topics, the **KEY POINTS** are summarized and highlighted.

Of course, other informations and details about that topic must be studied too!