



The research group of Veterinary Physiology and Biochemistry is searching for motivated Master Students to join us on an Intriguing Scientific Journey into the Earliest Steps of Life

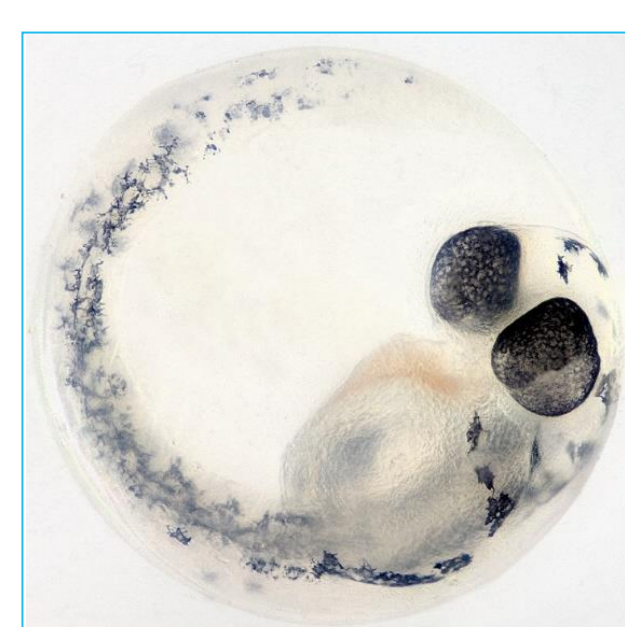
Gamete Research Centre, University of Antwerp, Universiteitsplein 1, B-2610 Wilrijk



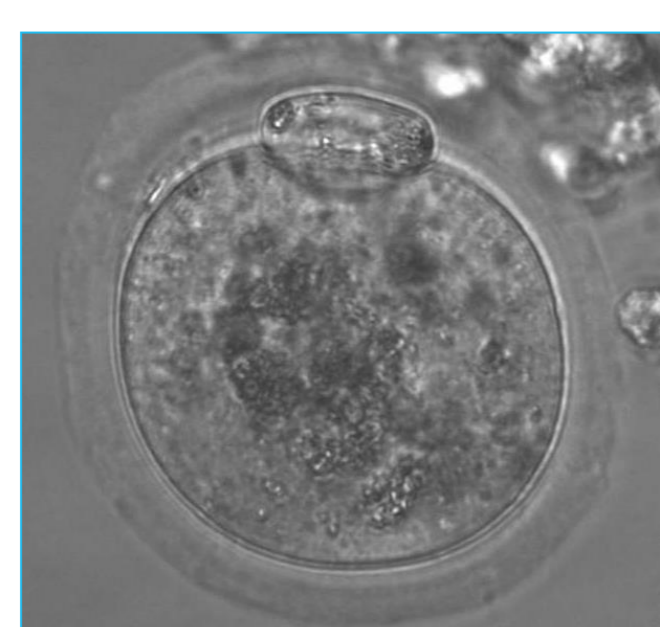
Your job description

You conduct a research project in the field of “Fertility Preservation”, “Maternal Health and impact on Fertility” or “Mechanistic Toxicology”.

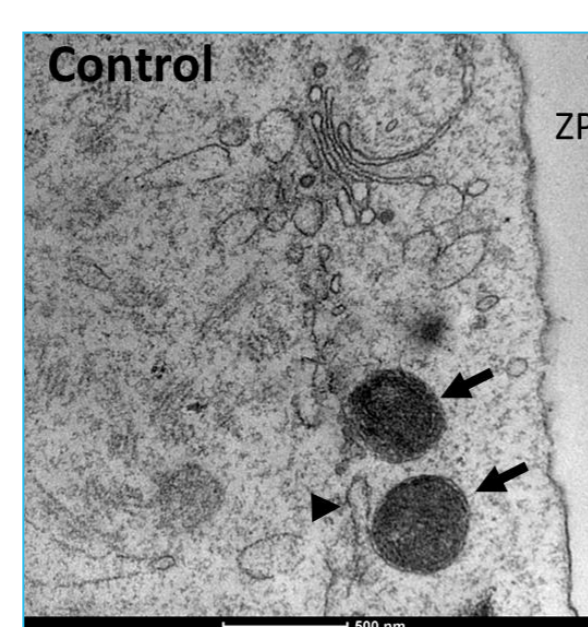
Research Questions



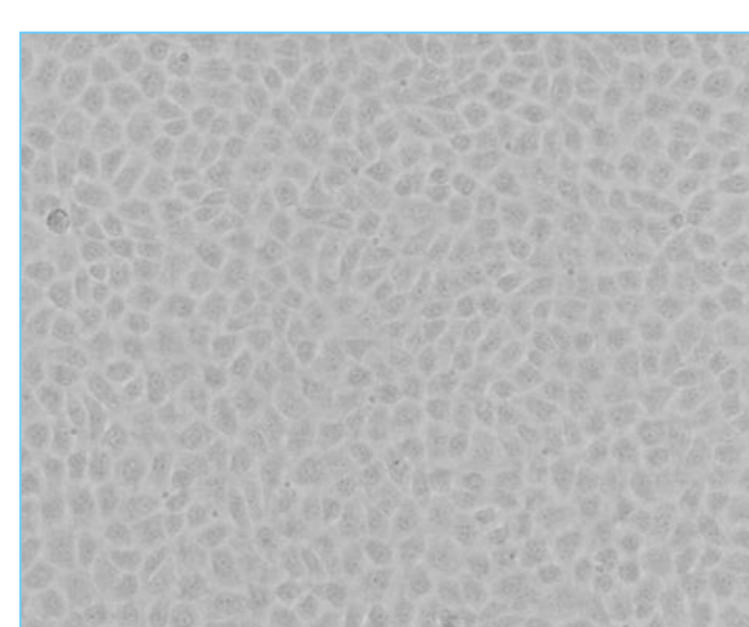
Zebrafish embryo



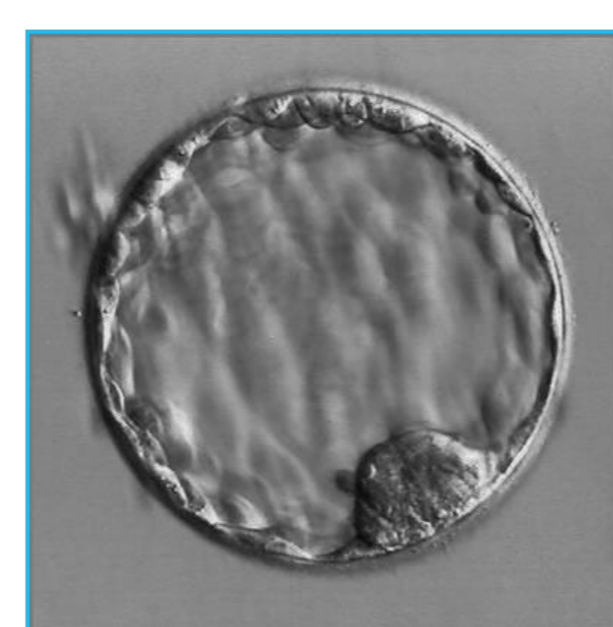
Mouse *in vitro* follicle culture



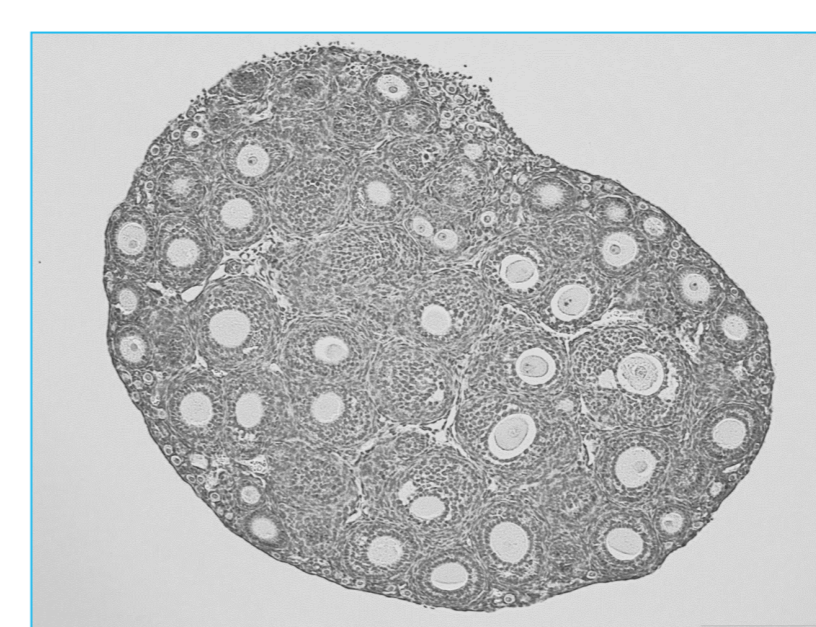
TEM



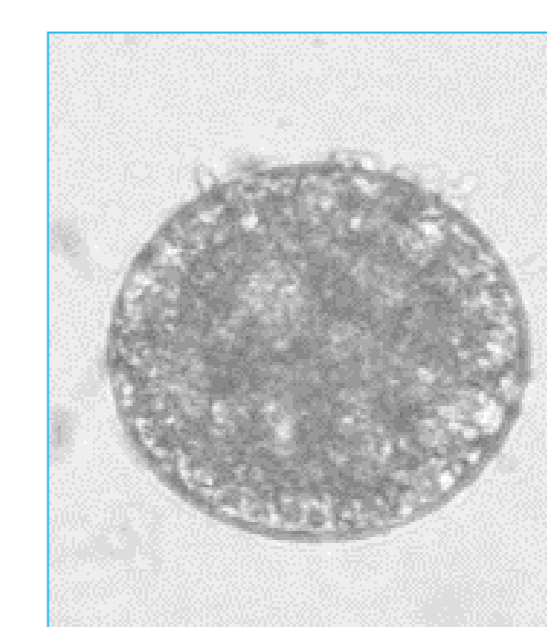
Bovine Endometrium Culture



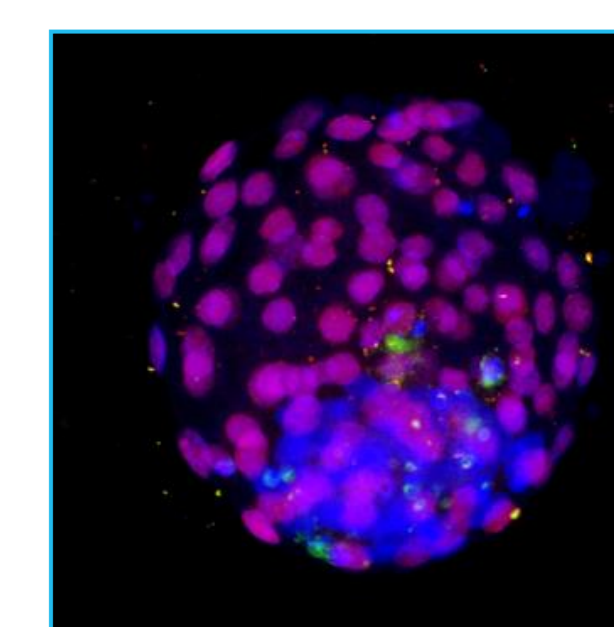
Bovine *in vitro* embryo culture



Histology of ovaries



Bovine *in vitro* follicle culture



Fluorescent staining

Maternal Health and impact on Fertility

- How does a western-type diet influence oocyte and embryo development?
- Do mitochondria influence cellular stress signaling in the oocyte in response to metabolic stress?
- Can anti-oxidants protect oocyte quality under maternal metabolic stress conditions?
- Is the oviductal and uterine micro-environment also affected by metabolic disorders? To what extent are cell functions altered?
- Does the composition of the follicular fluid change when the mother is obese or has an unhealthy diet?
- Does maternal fat rich diet affect the offspring's health?
- Does a too high bodymass of the mother have an epigenetic effect on the offspring?
- Can we design preconception care strategies for the mother to improve fertility?



Fertility Preservation

- Can we improve cryopreservation protocols to increase the chance on viable offspring?
- What is the possible effect of vitrification on subsequent *in vitro* follicular development?
- How to preserve pre-antral follicles and oocytes to maximize subsequent *in vitro* embryo production?
- How to monitor follicle survival, viability and function post freezing?
- What to be expected from the search for new, innovative cryoprotecting agents? Would antifreeze proteins from deep-sea fish be an option?
- Is there a hidden stock of stem cells present in the ovary to replenish the oocyte reserve?
- Can oocytes be produced from stem cells present in individuals who naturally do not have oocytes?
- Is *in vitro* gametogenesis the long-awaited solution for the most extreme cases of infertility in human and endangered species?

Mechanistic Toxicology

Development of non-animal test strategies

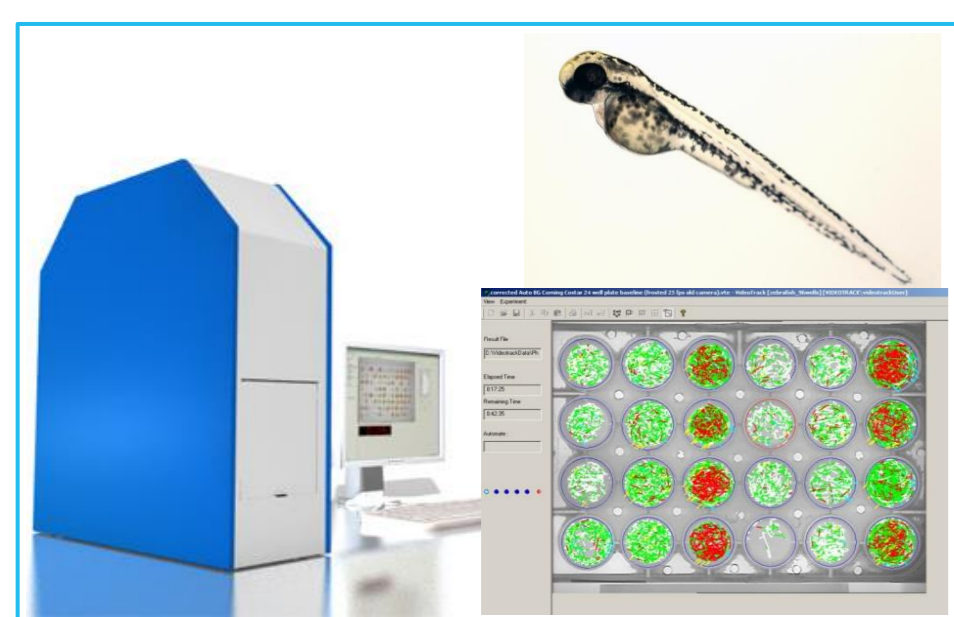
Can we use zebrafish embryos and even simpler assays as an alternative to the current fish toxicity tests for chemical safety evaluation based on our understanding of toxicological mechanisms?

Human toxicology

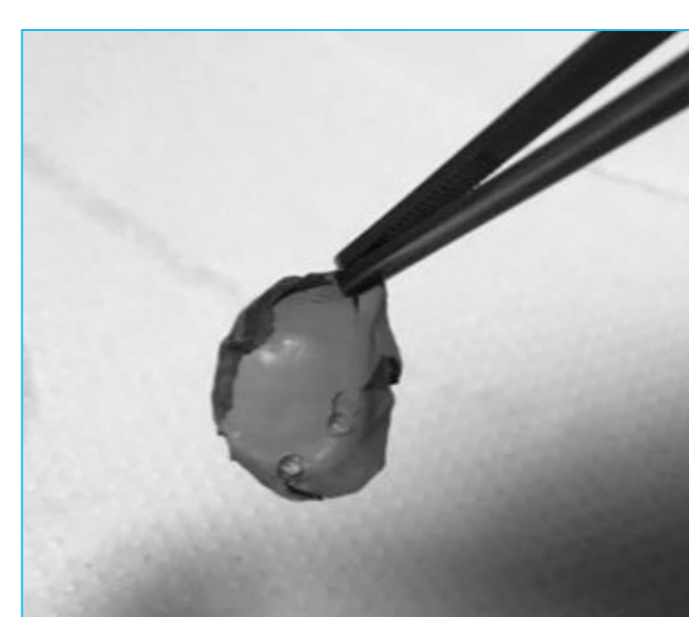
Can a zebrafish disease model aid in understanding the role of environmental pollutants in the origin of human disease (e.g., obesity)? How does this affect reproductive capacity?

Ecotoxicology

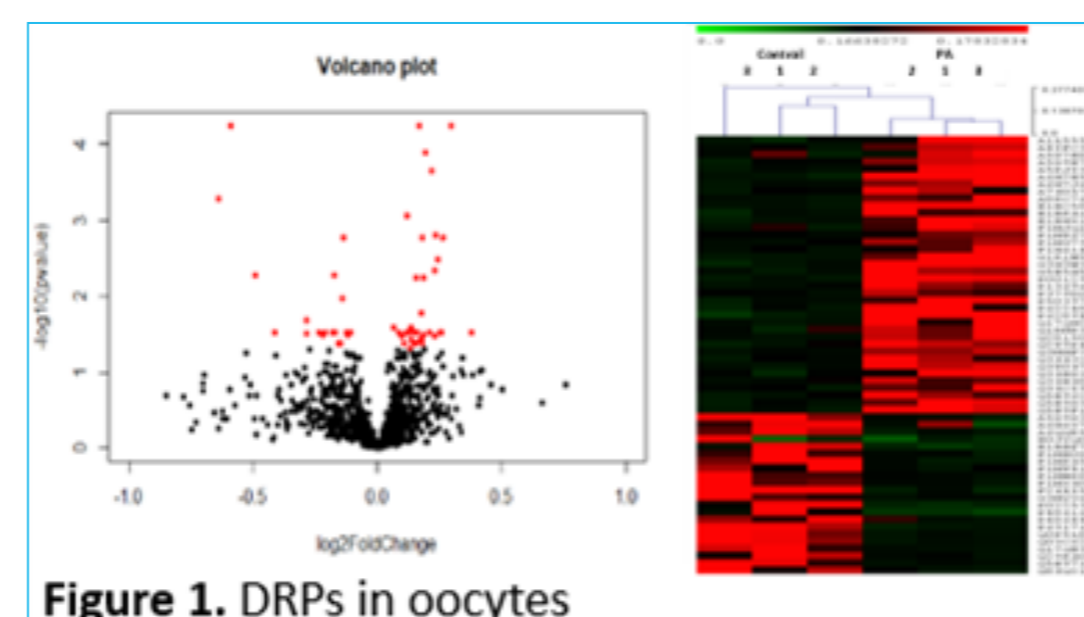
How do pollutants interact with normal cellular processes in fish embryos?
How does this lead to adverse effects such as morphological abnormalities, altered swimming behaviour and reduced growth?



Swim pattern analysis



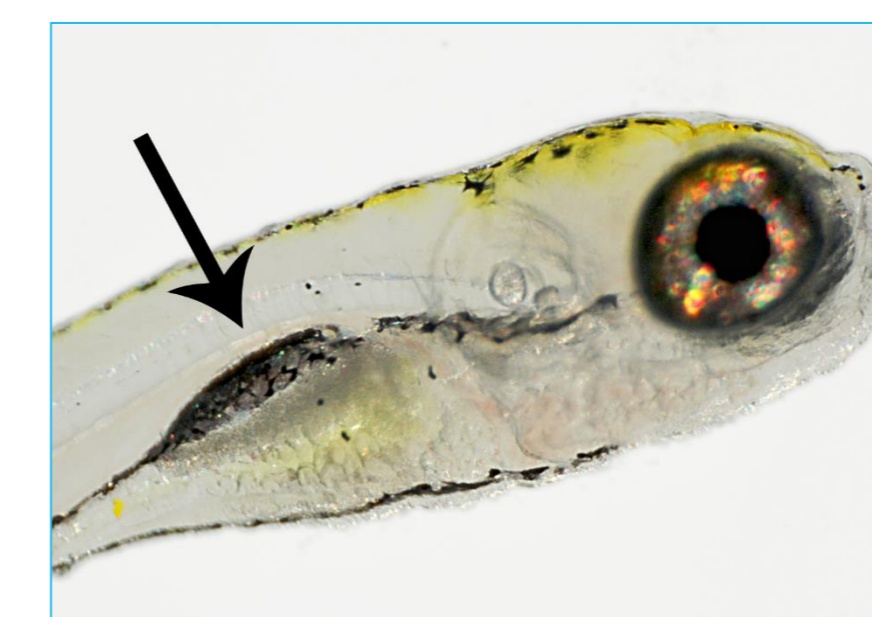
Vitrification



Heat map



Zebrafish housing



Morphological analysis



In vivo mouse experiments

We offer

- A full-time position in a dynamic research group
- High quality science
- Good support and ample opportunities to learn
- A critical environment
- Help in publishing your results

Profile and Requirements

- Highly motivated and critical researcher
- Good reader and speaker
- Fast learner
- Good laboratory skills

How to apply?

For Fertility Preservation you contact peter.bols@uantwerpen.be and ruth.appeltant@uantwerpen.be

For Maternal Fertility and Health you contact jo.leroy@uantwerpen.be and waleed.marei@uantwerpen.be

For Mechanistic toxicology you contact dries.knapen@uantwerpen.be and lucia.vergauwen@uantwerpen.be at the Zebrafishlab.