

## Research interests

Mental illness generates a significant burden of disability and entails enormous family, social and health care costs. In order to develop selective drugs, in vivo animal experimentation is crucial to block specific pathways involved in the onset of certain symptoms. Mouse is the animal most frequently used to generate transgenic models. Although these transgenic mice can be created by a variety of experimental processes depending on the research objective, in recent years CRISPR-Cas9 gene editing technique has become the most popular. Because of its speed, efficiency, cost and apparent ease, it has been a true revolution in the field. Research in gene editing and animal reproduction is essential for progress in other areas as it will allow the development of more selective tools for different research projects, as is the case of the Neuropsychopharmacology group.

Primary research lines:

- Create genetically modified animal models using CRISPR/Cas9 technology at the UPV/EHU facilities in order to carry out key experiments in research projects of the Neuropsychopharmacology Group.
- Cryopreservation of genetically modified mouse lines of interest to the group.
- Rederivation of acquired embryos for specific research purposes.
- Study of the involvement of the opioid and cannabinoid system in reproduction.

## Recent publications:

Totorikaguena L., **Olabarrieta E.**, Agirregoitia N., Agirregoitia E. Obozitoak in vitro heltzeko teknika (IVM): enbrioiaren garapen egokirako erronka. *EKAIA Euskal Herriko Unibertsitateko Zientzia eta Teknologia Aldizkaria* (2020).

**Olabarrieta E.**, Totorikaguena L., Romero-Aguirregomezcorta J., Agirregoitia N., Agirregoitia E. Delta and Kappa opioid receptor son mouse sperm cells: expression, localization and involvement on in vitro fertilization. *Reproductive toxicology*, (2020).

Totorikaguena L., **Olabarrieta E.**, Lolicato F., Romero-Aguirregomezcorta J., Smitz J., Agirregoitia N., Agirregoitia E. The endocannabinoid system modulates the ovarian physiology and its activation can improve in vitro oocyte maturation. *Journal of Cellular Physiology*, (2020).

**Olabarrieta E.**, Totorikaguena L., Romero-Aguirregomezcorta J., Agirregoitia N., Agirregoitia E. Mu opioid receptor expression and localisation in murine spermatozoa and its role in fertilisation in vitro. *Reprod. Fertil. Dev.* (2019).

**Olabarrieta E.**, Totorikaguena L., Agirregoitia N., Agirregoitia E., Implication of mu opioid receptor in the in vitro maturation of oocytes and its effects on subsequent fertilization and embryo development in mice, *Mol. Reprod. Dev.* (2019).

Totorikaguena L., **Olabarrieta E.**, López-Cardona AP., Agirregoitia N., Agirregoitia E. Tetrahydrocannabinol Modulates in Vitro Maturation of Oocytes and Improves the Blastocyst Rates after in Vitro Fertilization. *Cell Physiol. Biochem.* (2019).

Totorikaguena L., **Olabarrieta E.**, Matorras R., Alonso E., Agirregoitia E. Agirregoitia N. Mu opioid receptor in the human endometrium: dynamics of its expression and localization during the menstrual cycle. *Fertil. Steril.* (2017).