Institut de Biologie Valrose

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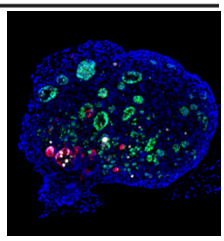

A funded PhD position is available in the group "Sex determination in Mice" at iBV, Nice.

Context

The gonads, ovaries or testes, control most aspects of mammalian sexual development. Despite this central role, the molecular and cellular bases of ovarian and testicular differentiation from an embryonic gonadal primordium are largely unknown. Our laboratory has pioneered in the identification of R-spondin1 (RSPO1, a WNT/ß-catenin signaling activator) as a master regulator of ovarian differentiation in humans and mice. We have demonstrated that XX mice harboring a *Rspo1* mutation undergo sexual reversal with gonads showing both ovarian and testicular characteristics (ovotestes).

The PhD project

One of our major goals is to unravel how the action of RSPO1 orchestrates ovarian differentiation. The PhD student will use available RNA-seq data from XX and XY control and *Rspo1* mutant gonads and several mouse mutant lines to: 1- Determine what are the gonadal cell populations under RSPO1 control for their specification, proliferation or differentiation, 2- Identify the molecular targets of RSPO1/WNT/ß-catenin signaling, 3- Characterize the function of target genes potentially involved in ovarian development, 4- Analyze whether these genes are mutated in a cohort of DSD (Disorders/differences of Sex Development) patients, and validate their role in these pathologies by introducing mutations into IPSCs (induced Pluripotent Stem Cells, in collaboration with the team led by Anu Bashambu, Institut Pasteur, Paris).
Methodological approaches mastered in our laboratory will be used: bio-informatics analysis (in collaboration with the team led by Fréderic Chalmel, IRSET, Rennes), mouse genetics, histology, immunofluorescence, in situ hybridization, confocal imaging, quantitative PCR, in vitro gonad culture, flow cytometry.

Necessary skills

- Master training in cell biology or development, with a strong interest for embryonic development.
- A first experience in molecular biology, cellular biology and/or mouse genetics would be appreciated.
- A strong motivation to work on mouse models is expected. The candidate will be offered at the beginning of his/her thesis a level 1 animal experimentation training.
- No Knowledge of French required. Working knowledge in English needed.

About the host institute

The institute of Biology Valrose (iBV) is a major international research center located in Nice, France. All seminars and meetings are in English. The iBV provides state of the art core facilities, with a collaborative scientific environment and a lively atmosphere.
http://ibv.unice.fr/research-team/chaboissier

Application process

The position will be funded for 3 years through an ANR grant and would ideally start in fall 2020.
https://anr.fr/fr/actualites-de-lanr/details/news/determination-du-sexe-et-anomalies-du-developpement-le-projet-anr-sexdiff/
If you are interested, please contact Aitana Perea-Gomez (Aitana.PEREA-GOMEZ@univ-cotedazur.fr) or Marie-Christine Chaboissier (Marie-Christine.CHABOISSIER@univ-cotedazur.fr) with your CV and a brief statement of your research interests, key areas of expertise and up to 3 recommendation contacts.

References linked to the project

Tang F, Richardson N, Albina A, Chaboissier MC, Perea-Gomez A. (2020). Mouse Gonad Development in the Absence of the Pro-Ovary Factor WNT4 and the Pro-Testis Factor SOX9. *Cells. 2020 Apr 29;9(5). pii: E1103.*

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Biason-Lauber A, Chaboissier MC. (2015). Ovarian development and disease: The known and the unexpected. *Semin Cell Dev Biol. 2015 Sep;45:59-67.*

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