iGReD - NuReP – Nuclear Receptor and Pathophysiology

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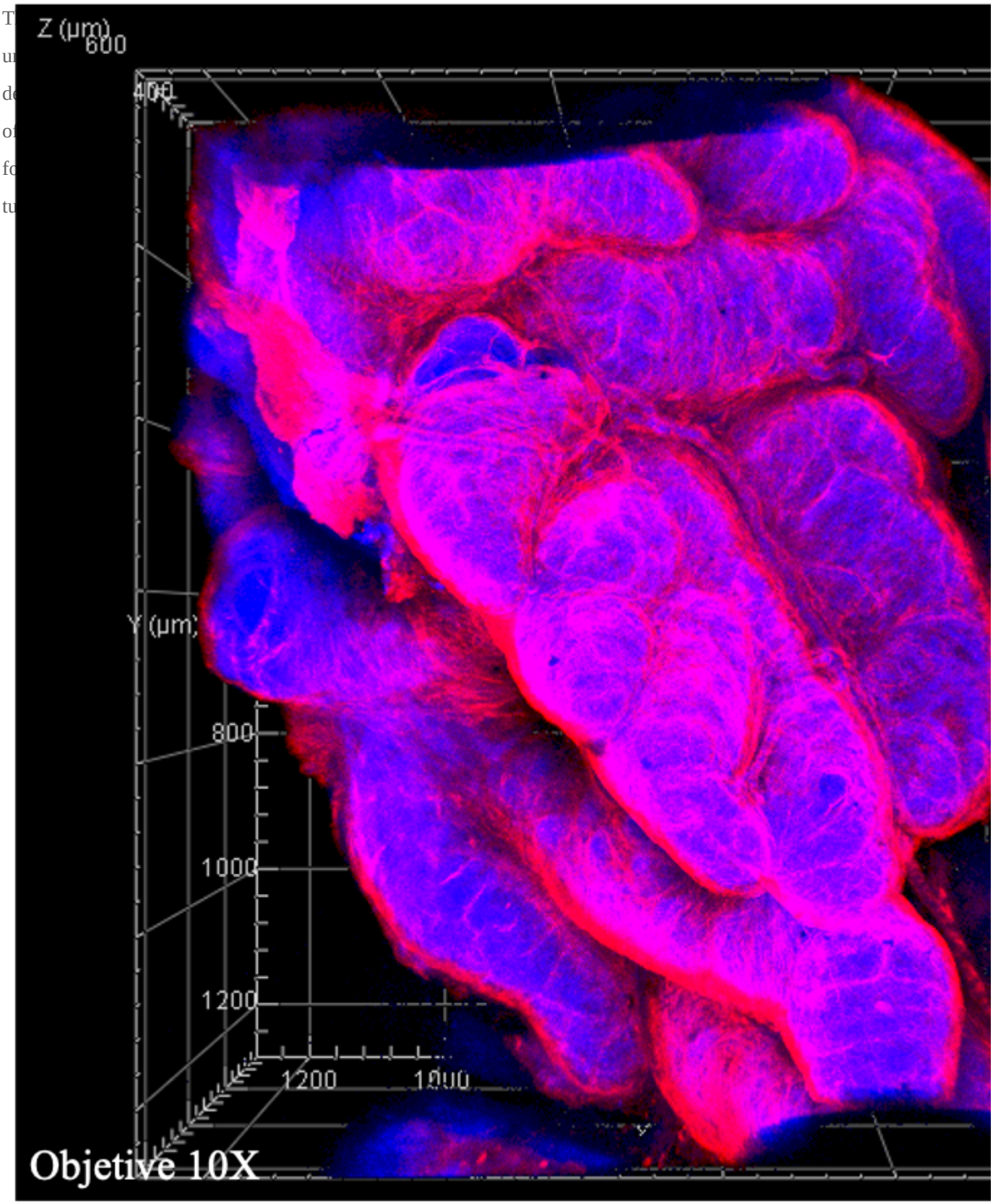

3D reconstruction of the mouse anterior prostate lobe following PECAM1 (red) and DAPI (blue) labelling to construct the three-dimensional network of the vascular tree using X-Clarity technology.

Our research focuses on the prostate gland to understand how an imbalance in cholesterol metabolism could be linked to cancer development. Two research areas are explored:

1. the development of new genetic and biological tools, which provide us with relevant models in the field of cholesterol metabolism. Thus, we are exploring the metabolic dysregulation of cholesterol during the various stages of prostate cancer (PCa). In parallel, we have identified new modulators that could target LXRs and/or the androgen receptor in the prostate, two crucial nuclear receptors in prostate pathophysiology. We developed innovative tools to decipher the molecular mechanisms leading to carcinogenesis using new models such as Drosophila.

2. Cooperation with clinicians, within the GCCA, to establish clinical networks and to complete or initiate collection of human samples. The use of the latter allows us to transfer our results directly from academic research to clinical research. This close collaboration with the GCCA partners feeds a growing translational research activity in our group.

More specifically, our team is developing different research programs in order:

- to understand the role of cholesterol metabolism in the progression of cancer
- to explore how environmental chemical disruptors might alter cholesterol homeostasis in this pathology
- to identify novel selective modulators of nuclear receptors that control homeostasis in the prostate homeostasis
- to develop new non-mammalian in vivo models for PCa research.

AUTRES PARTENAIRES DU GCCA

- Jean PERRIN Comprehensive Cancer Center
- Clermont-Ferrand University Hospital
- IMoST : Molecular Imaging and Theranostic Strategies(https://groupe-cancer.uca.fr/en/research/research-activities-by-laboratory-department/imost-imagerie-moleculaire-et-strategies-theranostiques)

Inserm

Institut national
de la santé et de la recherche

(https://www.inserm.fr/en)

Centre National
de la Recherche
Scientifique

(http://www.cnrs.fr/en)

Lab

iGR
institut
génétiq
reprodu

& dévelo

(https://www.gred-clermont.fr/)

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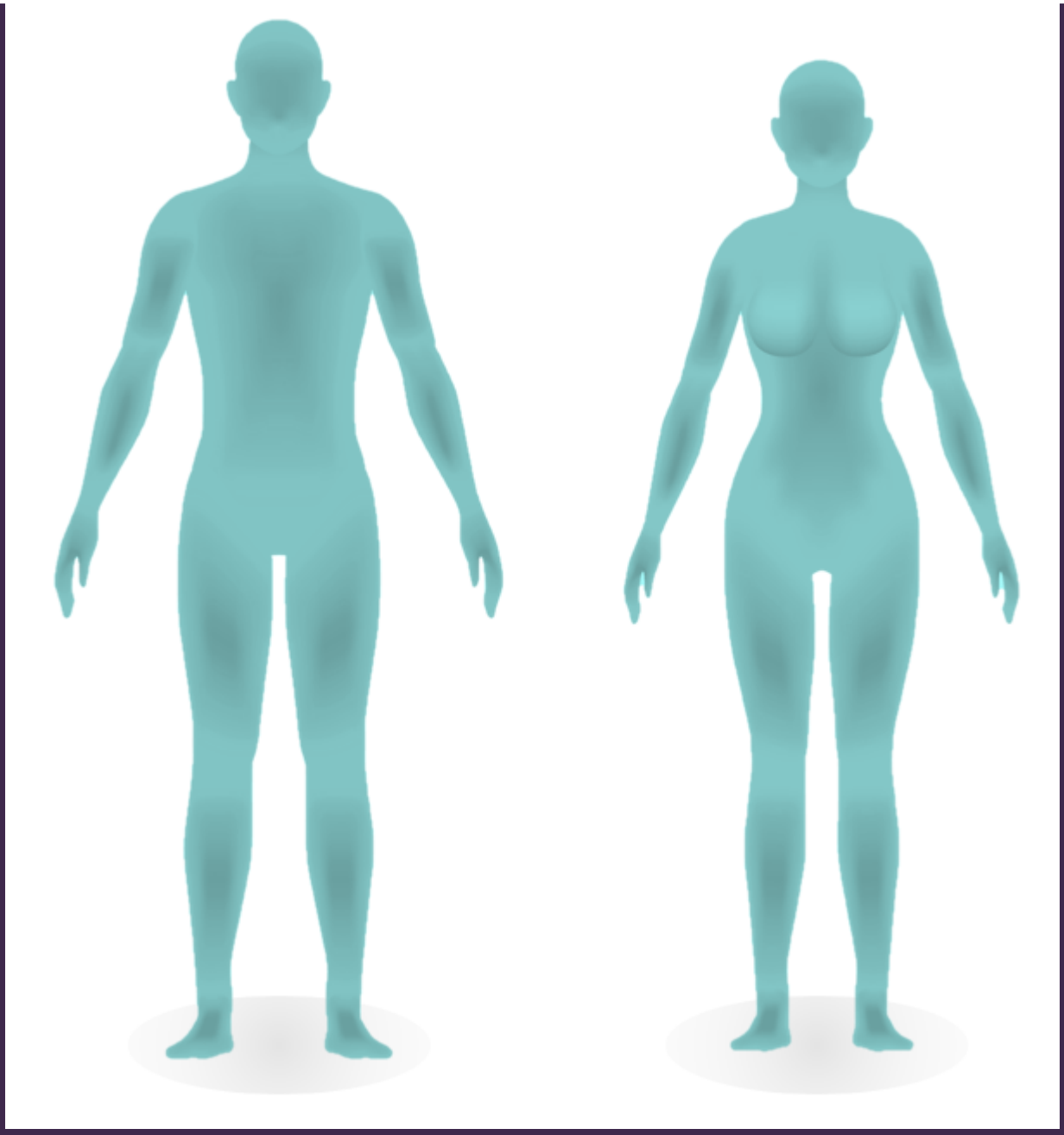
(https://groupe-cancer.uca.fr/en/research/research-activities-by-laboratory-department/igred-institut-de-genetique-reproduction-et-developpement)

Tumor sites



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