Fundació IMIM

PRE-DOCTORAL POSITION
OFFER AT
NEPHROPATHIES RESEARCH GROUP

(Ref. 2217 - BARRIOS/RIERA)

OFFERS:

Nephropathies Research Group (Traslational Clinical Research Program) at Fundació IMIM offers a vacancy position for a master Student as a PhD candidate to work on an awarded national project (FIS 2023-2025) entitled "Unravelling the molecular mechanism of Diabetic and Non-Diabetic kidney disease pathophysiology and dapagliflozin advantages by means System Biology." Principal Investigators: Drs. Clara Barrios and Marta Riera.

The PhD Student candidate will apply for a *Contrato Predoctoral de Formación en Investigación en Salud (PFIS)* fellowship funded by Instituto de Salud Carlos III.

Candidate requirements:

- Bachelor Degree with outstanding qualifications in biology or related fields.
- Master Degree or admitted to a Master Degree program.
- English level B2 or equivalent.
- Candidates should soon be admitted to a Doctorate Program in a Spanish University by academic course 2022-2023.

Exclusion:

- Candidate in other PhD position for more than 12 months
- Candidate with PhD degree.

Summary of the project:

The incidence of chronic kidney disease (CKD) is progressively increasing and it will become the 4th leading cause of mortality in our country. We still do not fully understand the pathophysiological pathways involved in this silent and underdiagnosed pathology that carries a very high cardiovascular (CV) risk and mortality and we consider it imperative to delve into this aspect. For decades, therapeutic tools have been limited. Sodium-glucose co-transporter-2 (SGLT2) inhibitors have shown a clear improvement in the evolution of renal function and CV risk in both diabetic and non-diabetic populations. In this way, they have drastically modified the recommendations of clinical practice. However, we do not know what are the pathophysiological pathways that this group of drugs, initially formulated as antidiabetic, are modulating.

Our project aims for a mechanistic understanding of how CKD pathophysiology by different etiologies, can be overcome with SGLT2i. To that end, mathematical models that simulate CKD pathophysiology in the computer will be constructed by using TPMS technology, a systems biology and artificial intelligence-based technology used in a first step that is already underway, to further understand the likely mechanism related to drug clinical responses.

Subsequently, we will carry out the validation in human and experimental kidney tissue both in vivo and in vitro, to provide a solid mechanistic support of iSGLT2. For these purposes, we will set up, in vitro and in vivo kidney injury models and the modifications of the gene and protein expression of the molecules involved will analysed.
Our project will allow us to study possible pathophysiological pathways of kidney damage, both at the genetic and post-transcriptional levels, not previously identified as potential diagnostic markers, but, above all, it offers us the possibility of studying new pathways of therapeutic action.

Contact

More information and full Curriculum Vitae and motivation letter submission to the following email addresses: Dra. Marta Riera (mriera1@imim.es) and Dra. Clara Barrios (cbarrios@psmar.cat).

Deadline: 15th November 2022