



# **PhD Thesis Project Offer**

# (valid during the calendar year 2025)

## Provisional Title of the Doctoral Thesis

Contribution of fatty kidney to the development of kidney disease associated with the Metabolic syndrome: Role of fibrosis.

# Subject area\* / Research line

Sciences of health

Insulin resistance, obesity, chronic kidney disease

# Summary of the Doctoral Thesis (maximum 300 words)

About 700 million people in the world, which is around 10% of the world population, have kidney disease, which is manifested by the appearance of microalbuminuria and / or loss of kidney function. Naturally, the shedding of podocytes (specialized kidney cells) occurs, and is followed by their appearance in the urine (podocyturia). But when there is kidney damage, the number of detached podocytes increases markedly, being a previous step to the appearance of microalbuminuria, which is what is currently being measured in clinical practice. Therefore, the detection of podocyturia can be used as a marker of early kidney damage. Which makes especially interesting, is because currently when kidney damage becomes clinically evident and detectable, the patient may have already developed irreversible lesions that progress, firstly, to a Chronic Kidney Disease (CKD) and ultimately to renal failure and the consequent need for a renal replacement therapy (dialysis) or a transplant. Thus, the detection of podocyturia would mean that the treatment would be started earlier and the irreversible process would not be reached. The main aim of this project is to detect incipient kidney damage, with a personalized quantification of podocyturia through a portable device (PODOSCAN) capable of reliably detecting and quantifying podocytes in human urine. In the event that these ranges are exceeded, the PODOSCAN screen will show an alarm signal in the clinical practice, for a more in depth study of incipient kidney damage, preventing the progression of a kidney disease with the consequent improvement of the health of the patient and the saving of health expenses to the National Health System.

# Is the development of this thesis associated with the execution of any research project? If so, provide details of the project (title, funding entity, and execution period)

Contribution of fatty kidney to the development of kidney disease associated with the syndrome





## Academic Profile of the Student (maximum 200 words)

Candidates will preferably have degrees in **Pharmacy, Biochemistry, Biology, Medicine** or in any discipline in the branch of Life Sciences. Academic record greater than 2.2 (scale 1-4), with specific training and experience in animal models being assessed. Training already completed in Master's or DEA and English language will be valued.

We are looking for candidates who are highly motivated by research and interested in physiology and molecular biology. The ideal candidate must have a good knowledge of the English language, teamwork skills and ease of communication. He is also motivated by teaching related subjects in Bachelor's Degrees of the Faculty of Health Sciences.

## Contact: institutional email of the Supervisor

Gema Medina Gómez gema.medina@urjc.es

## Institutional Website of the Supervisor

https://gestion2.urjc.es/pdi/grupos-investigacion/lipobeta

\*See the Subject Areas at <u>https://www.urjc.es/informacion-practica#oferta-proyectos-de-tesis</u>. Each project will be included in a single subject area.