

Full-time Postdoctoral Position

Structural studies of kidney Solute Carriers

Faculty of Sciences

Chemistry Department
Structure and Function of Biological Membranes Research Unit - SFMB
Martens Chloé research group

A two-year **postdoctoral position** is available in the group of Dr. Martens. Research in the Martens group focuses on structural studies of membrane proteins in native-like environment using innovative mass spectrometry-based methods^{1,2}.

About the lab

You will be joining the Structure and Function of Biological Membranes Research Unit within the Chemistry department of the University of Brussels (ULB). The laboratory is dedicated to advancing a better understanding of the structure, function, and role of biological membranes in cells and cellular organelles. It is an interdisciplinary workplace, bringing together about twenty researchers and students with different backgrounds, comprising structural biologists, biophysicists and microbiologists. The SFMB research unit has access to a large platform of technologies for structural studies of proteins and has recognized expertise in cutting-edge biophysical approaches including structural resolution (X-ray, cryo-EM, AFM-IR) and protein dynamics (HDX-MS, DEER, smFRET).

For a primer on who we are, what we do and our latest publications, see chloemartenslab.com and sfmb.ulb.be.

Your Job

You will undertake a new and exciting project, aimed at shedding light on the molecular mechanism of essential **kidney drug transporters** from the Solute Carriers family (SLCs). Allosteric modulation of drug transporters is a promising and novel approach to control drug

¹ Martens C, et al. Direct protein-lipid interactions shape the conformational landscape of secondary transporters. Nat Commun. 2018 Oct 8;9(1):4151. doi: 10.1038/s41467-018-06704-1

² Martens C, et al. Integrating hydrogen-deuterium exchange mass spectrometry with molecular dynamics simulations to probe lipid-modulated conformational changes in membrane proteins. Nat Protoc. 2019 Nov;14(11):3183-3204. doi: 10.1038/s41596-019-0219-6.

bioavailability and mitigate toxic side-effects. However, the molecular mechanisms of SLCs are difficult to capture in physiological conditions, undermining efforts to control SLC-mediated drug transport. In this project, you will decipher both the structure and dynamics of SLC transporters by combining cryo-EM microscopy with new MS-based and biochemical approaches. This will serve as a molecular rationale to screen for and identify specific allosteric modulators of SLCs.

Profile

- PhD in protein biochemistry or a related field.
- Strong interest in the role of human transporters in health and disease.
- A solid publication record with first-author research publication(s) in peer-reviewed international journals.
- Expertise in biophysical or biochemical methods to study protein structure.
- Previous experience with mass spectrometry data acquisition and analysis is a plus.
- Self-motivated, proactive, curious and independent.
- The ability to work in a multidisciplinary team is a must.

We offer

- A fully funded postdoctoral position for 2 years with a possible one-year extension.
- A rewarding job where your daily work has long-term impact. You will join a young and dynamic research group and will contribute to shaping the lab's approach to science.
- The opportunity to be an active player in the development of the research group, including involvement in grant writing and in hiring of new members.
- Paid parental leave, health insurance, unemployment benefits, pension rights, child benefits.
- The leafy Plaine campus of the Université Libre de Bruxelles (ULB) a research university located in the heart of the Belgian capital, giving researchers opportunity to embrace all the perks of a vibrant European city.

Starting Date: as soon as possible. Applications will be reviewed on a rolling basis until the position is filled.

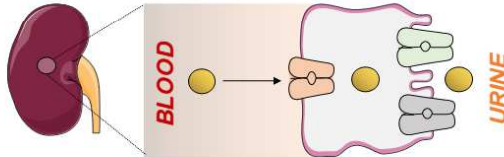
How to apply?

Please send a CV, a list of publications, a cover letter with a short overview of research activities (max. 3 pages) and the name of two to three references to Chloe.Martens@ulb.be.

Structural resolution
Molecular basis of ligand binding



**Role of kidney SLC
transporters in drug toxicity?**



H/D exchange-MS
to probe transporter dynamics

