

MSc internship or visiting PhD student in chemical biology (6-12 months)

The TRP ion channel subfamily M is expressed in sensory neurons and plays a role in the detection of pain. One member of this family, TRPM3 is a promising target for new analgesic treatments, but the lack in understanding of their structure and mechanism explains that to date no TRP channel targeting drugs have been successfully developed. In recent cell biology research, it was discovered that TRPM3 interacts with a known antifungal. Upon interaction, the TRPM3 seems to open a second pore, but details are unclear.

This project aims to develop novel chemical tools to study small molecules that modulate TRP activity, the so called affinity based probes (AfBPs). These tools will enable the study of TRPM3 and provide insights into its structure, which will shed light on the channel's function and biological relevance.

In this research, you will use **chemical synthesis** in order to develop affinity based probes (AfBPs) for TRPM3 channels. Following you will be able to test the AfBPs you developed. At first in order to assess if they display similar behaviour as the antifungal and then using **patch clamp** to identify how the molecule binds to the channel.

You will increase the knowledge on the TRPM3 channels, which will contribute to the future design and development of therapeutics against the TRPM3 channel. Your results may enable the design of the first inhibitor of the TRPM3 channel.

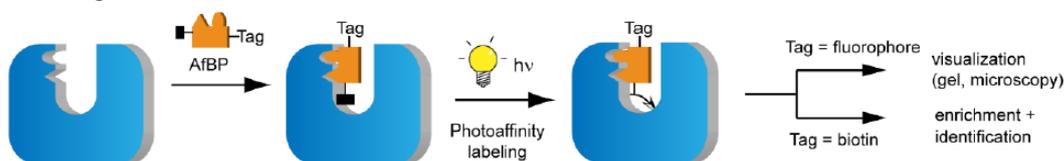


Figure 1. The principle of affinity-based probes incorporating photocrosslinkers.

Techniques/skills involved:

1. Development of affinity based probes by solid and liquid phase organic synthesis
2. Protein expression and purification
3. Patch clamp assays
4. Tandem mass spectrometry

Profile

- Ambitious MSc or PhD student in chemistry or a related area
- Knowledge and/or practical skills in synthetic organic chemistry
- Experience with biochemistry experiments is a plus.

Interested?

For more information please contact Prof. dr. Steven Verhelst (steven.verhelst@kuleuven.be) or Dr. Marta Barniol-Xicota, mail: marta.barniolxicota@kuleuven.be