



Péter LUKÁCS



Finishing year: 2016

Supervisor: Hannes Todt,
Medical University of Vienna

Thesis title: Exploring the extracellular access pathway for charged local anaesthetics in voltage-gated sodium channels.

Current Position and Employer: PI at Plant Protection Institute, Centre for Agricultural Research, Martonvásár, Hungary (after Postdoc at Eötvös Lorand University, Budapest, Hungary)

MolTag alumni page:

[Peter Lukacs \(univie.ac.at\)](http://univie.ac.at)

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How would you summarize your thesis results in 3 sentences?

Our bacterial channel based Voltage-gated sodium channel homology model predicted a large hydrophilic cavity when a key residue in the mammalian NaV1.4 (W1531) at the pore loop was mutated to smaller sidechains. The mutant protein indeed had altered selectivity demonstrating that a nonselective channel opened towards the pore. In addition, charged lidocaine derivative QX-222 became effective on the mutant, demonstrating that the new pathway is large enough to let large organic ions into the central cavity.

What did you do after your PhD?

I was invited as Postdoc to Eötvös Loránd University, Dept. of Biochemistry, Opto-Neuropharmacology Research Group. Here my project was to test photoreactive sodium channel inhibitor analogs. After we successfully finished this project, I moved to the Centre for Agricultural Research. **Here I am the leader of a multidisciplinary research project aiming to develop an olfactory receptor based volatile organic compound sensor.** The goal is to develop a simple but sensitive system at least as sensitive as the recent gold standard, the gas chromatograph coupled to a mass spectrometer. This new system is based on deep-learning analysis methods we develop with the help of an IT company.

What was the impact of the MolTag program on your further career?

MolTag is a great background for me to handle such complex projects as the program itself was built on the principle to discover several fields of science and integrate the interesting and useful parts into your research.

What did you particularly like about the MolTag program?

The **lab rotations and the retreats were great opportunities** to get new skills, and do networking

