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Application of fragment-based drug discovery to membrane proteins

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Curriculum vitae

Virginie's profile was drawn by her brother, Johan Früh



Virginie Früh was born in Lausanne, Switzerland, on the 22nd of April, 1978. At the age of 9 months she was brought to travel the world with her parents, where she attended international schools in Manila, Jakarta, and Sri Lanka. After obtaining her International Baccalaureate in Colombo, she studied Biology at the University of Lausanne and transferred to complete her Bachelor of Science in Coastal Marine Biology (Scarborough, United Kingdom) in 2001, with a First Class Honours degree. She carried out several voluntary positions in the tropics in the aim to protect coral reef and fishermen communities. She returned to Switzerland to work for a pharmaceutical company for a temporary contract of 5 months, and another of 8 months, where she was responsible of cell culture media development. She continued to apply for PhD positions when Dr. Gregg Siegal and Prof. Ad. IJzerman accepted her as a candidate with shared time between the LIC and LACDR of the University of Leiden. She started her PhD in September 2004 in the aim to adapt the Target Immobilized NMR Screening (TINS) methodology to the challenging membrane proteins such as GPCRs, ion channels, and enzymes. The project also involved applying TINS to membrane proteins with alternative solubilization media. Several collaborations with other academic research groups and industries were established during her PhD project, including the group of Prof. Rob Leurs (LACDR, Amsterdam, Netherlands), Prof. Lukas Tamm and Prof. John Bushweller (University of Virginia, USA), Prof. Jean-Luc Popot (IBPC, France), Dr. Gregg Siegal and Dr. Rob Heetebrij (internal collaboration with ZoBio, Leiden, Netherlands) and Herman Verheil (Pyxis Discoveries, Delft, Netherlands). Part of the work was presented at the Figon Medicine Days in October 2008, where she was awarded the first prize for the oral presentation. She now has returned to Switzerland where she aims to continue working in the field of biochemistry, and to continue work on her association *ekolibrium*, co-founded with Didier Thomas and Ayi Ardisastra, which aims at encouraging and gathering ecological research through the production of documentaries made by the Swiss youth for the Swiss public.

List of publications

- 1- Früh, V.; Heetebrij, R.; Siegal, G. **Fragment-Based Drug Discovery: A Practical Approach**; John Wiley & Sons: Chichester, 2008; Chapter 6, pp 135-158.
- 2- Früh, V.; IJzerman, A.P., Siegal, G. **How to catch a membrane protein in action: A review of functional membrane protein immobilization strategies and their applications.** *Accepted for review. Chemical Reviews (2009)*
- 3- Früh, V.; Zhou, Y., Loch, C., AB, E., Verheij, H., Bushweller, J.H., Siegal, G. **Application of Fragment Based Drug Discovery to Identify Inhibitors of the Integral Membrane Enzyme DsbB.** *Accepted for review. Nature Chemical Biology (2009).*
- 4- Früh, V.; Heetebrij, Grinkova, Y. N. , Sligar, S. G., Siegal, G. **Self assembly of Protein – Nanodisc Complexes: A solubilization strategy which enables fragment based drug discovery of membrane proteins in aqueous buffers.** *Manuscript in preparation (2009).*

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The cliché that none of this would be possible without all of you is impossible to avoid because it's true....

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