NMR studies of protein-small molecule and protein-peptide interactions

Guan, J.

List of Publications

J.-Y. Guan, P. H. J. Keizers, W.-M. Liu, F. Löhr, E. Heeneman, S. P. Skinner, H. Schwalbe, M. Ubbink and G. Siegal. **Small molecule binding sites on proteins established by paramagnetic NMR spectroscopy.** *J. Am. Chem. Soc.*, **2013**, *135* (15), 5859–5868

J.-Y. Guan, J. M. Foerster, J. W. Drijfhout, M. Timmer, A. Blok, G. M. Ullmann and M. Ubbink. **An ensemble of rapidly interconverting orientations in electrostatic protein-peptide complexes characterized by NMR spectroscopy**. *Manuscript submitted to ChemBioChem.*

C. H. Röhrig, C. Loch, J.-Y. Guan, G. Siegal and M. Overhand. **Fragment-based synthesis and SAR of modified FKBP ligands: influence of different linking on binding affinity.** *ChemMedChem* **2007,** 2, 1054–1070.

Curriculum vitae

Jia-Ying Guan (官佳穎) was born on 1 December 1980 in Yi-Lan, Taiwan. She obtained her early education in the beautiful countryside of Yi-Lan and the technology town of Hsin-Chu, and then completed her bachelor in chemistry from National Taiwan University in Taipei.

After spending a few years in Taipei, she decided to take an adventure in the other side of the world, a country that has more bikes than people– the Netherlands. She did internships in the bioorganic synthesis group and the protein chemistry group in the Leiden Institute of Chemistry. The topics of her internships include fragment-based synthesis of FKBP12 ligands, synthesis of bacterial teichoic acid subunits, and comparison of various NMR screening techniques. In 2008 she completed her master degrees in chemistry from Leiden University, with specialization in Biological Chemistry and Design and Synthesis.

In 2009 she started her PhD research in the Protein Chemistry group under the supervision of Prof. Dr. Marcellus Ubbink and Dr. Gregg Siegal. The research focused on the applications of paramagnetic NMR in protein-ligand studies. Part of the work described in this thesis was presented at the International Conference on Magnetic Resonance in Biological Systems (ICMRBS) 2012 in Lyon, France and Annual Dutch Meeting on Chemical Sciences in Veldhoven in 2012.

Acknowledgements

First of all, I would like to give a special gratitude to my supervisors Prof. Dr. Marcellus Ubbink and Dr. Gregg Siegal, who gave me the opportunity to explore the world of NMR. Without their guidance and persistent help this thesis would not have been possible. I would also like to express my deepest appreciation to all the collaborators and colleagues that contributed to the work : Dr. Frank Löhr, Prof. Harald Schwalbe, Dr. Christian Richter (Frankfurt), Johannes Foerster, Prof. Matthias Ullmann (Bayreuth), Dr. Jan Wouter Drijfhout (LUMC), Ed Heeneman, Martin van Son, Dr. Karthick Babu, Fons Lefeber and Kees Erkelens (Leiden).

I am grateful to all my committee members for patiently reading my thesis and providing suggestions. Furthermore, I would also like to acknowledge with much appreciation to Dr. Peter Keizers, Dr. Eiso AB and Dr. Mathias Hass, for sharing their knowledge about NMR, computation and Xplor. You are so knowledgeable and always willing to provide your advice, whenever possible.

Thanks to all my office mates in LCP10 and the ZoBio people for giving me a taste of the business world. I really miss those busy days running between the office, the NMR room and the wet lab.

I am thankful to Anneloes Blok and Dr. Monika Timmer for your help in the lab. Your warm and sunny characters work much better than the heaters in the building. Bedankt and Dziękuję!

It was a great time in Leiden with my lab mates and fellow PhD students. It is amazing to see how such a huge diversity makes ProtChem a global village. I also appreciated the opportunity to taste the cuisine from different countries and thank the supporters of my kitchen experiments who allowed me to enjoy cooking and baking without worrying about the calories myself. Thank Ingrid for taking care of all the administration work. For those that I have not mentioned, thank you for all the funny jokes and supportive conversations to remind me of the bright side of life.

Many thanks go to my Dutch family who made the Netherlands a sweet home away from home, particularly Dirkjan, who always listened to my complaints. I can’t say thank you enough for his tremendous support and help. Last but not least, I am grateful to my family in Taiwan that has been a safe haven for me when needed.