

Liebig-Lectureship

der Liebig-Vereinigung für Organische Chemie
in der Gesellschaft Deutscher Chemiker

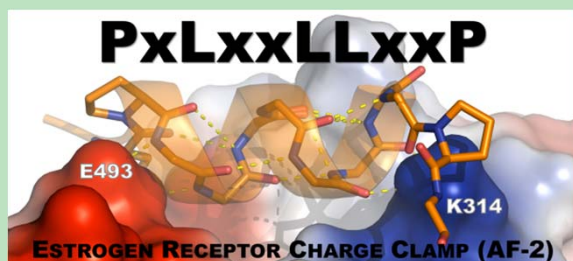


Oktober 2013

Prof. Dr. Ir. Luc Brunsveld
TU Eindhoven, Niederlande

(Supra)Molecular Modulation of Protein-Protein Interactions

Our group synthesizes novel molecules and supramolecular architectures and explores these for modulating protein-protein interactions. The nuclear receptor – cofactor interaction is the key protein protein interaction that transfers ligand induced changes in the nuclear receptor conformation to the transcriptional machinery. A molecular understanding of this process and its regulation is necessary to fully control and predict the effects of nuclear receptor targeting. With the Estrogen Receptors as examples, molecular strategies to elucidate this protein-protein interaction at the molecular level are discussed. Using synthesis and screening techniques, the importance of helix length control is brought forward as a key element in tuning and inhibiting the Estrogen Receptor – cofactor interaction and its functional effects.^[1]



Molecular elucidation of protein interactions

Supramolecular chemistry has primarily found its inspiration in biomolecules and their interactions. Synthetic host-guest systems are applied for the controlled and reversible dimerization and immobilization of proteins.^[2] Specifically, cucurbituril based systems are being used to recognize specific protein elements.^[3] In this way, supramolecular inducers of dimerization can be generated that act as allosteric modulators and activators of enzyme dimerization and activation. Supramolecular self-assembling platforms are synthesized to enable 1-D protein assembly along a self-assembling scaffold.^[4]

- [1] e.g. *J. Am. Chem. Soc.* **2013**, *135*, 4364-4371; *Proc. Natl. Acad. Sci.* **2013**, 10.1073/pnas.1220809110.
[2] e.g. *Angew. Chem. Int. Ed.* **2007**, *46* 1798-1802; *J. Am. Chem. Soc.* **2012**, *134*, 19199-19206.
[3] e.g. *Angew. Chem. Int. Ed.* **2010**, *49*, 895-898; *Angew. Chem.* **2013**, *125*, 2987-2991.
[4] e.g. *J. Am. Chem. Soc.*, **2012**, *134*, 8086-8089; *Chem. Sci.* **2013**, *4*, 2886-2891.

Luc Brunsveld (1975) was educated at TU Eindhoven, Osaka University, University of Illinois at Urbana-Champaign, and Max Planck Institute of Molecular Physiology (PhD with Profs. Bert Meijer and Jeffrey Moore, postdoctoral studies with Prof. Herbert Waldmann). After a stay in pharmaceutical industry (Organon Research Laboratories Oss), he started his independent academic career at the MPI in Dortmund supported by a Sofja Kovalevskaja Award in 2005. In 2008 he received an ERC starting grant and moved to the TU Eindhoven to chair the chemical biology laboratory. He recently received the golden medal of the Royal Netherlands Chemical Society 2012.

Dienstag, 15. Oktober 2013
Mittwoch, 16. Oktober 2013
Donnerstag, 17. Oktober 2013
Dienstag, 22. Oktober 2013
Mittwoch, 23. Oktober 2013
Donnerstag, 24. Oktober 2013

Technische Universität Berlin
Universität Jena
Universität Frankfurt
Universität Konstanz
LMU München
Universität Göttingen

Die Liebig-Vereinigung für Organische Chemie richtete 1999 eine Vortragsreihe – die Liebig-Lectureship – für herausragende ausländische Vertreter der organischen Chemie ein. Die Liebig-Lectureship wird an exzellente junge Wissenschaftler vergeben. Die Vortragsreihe führt die damit Ausgezeichneten an fünf oder mehr Forschungsinstitute ihrer Wahl.

Eine Veranstaltung der

