Dr. Peter Schmidt

Date of Birth	August 09, 1978
Gender	male
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Current Position	Research Assistant
Children	3
Parental Leave	07–09/2010; 06–08/2011

Research Area

Since 2006, I have been investigating the Y_1 and Y_2 receptors as member of the Daniel Huster lab. I have established the recombinant expression of the receptor proteins using *E. coli* and we are also developing cell-free expression systems for efficient isotope labeling for NMR studies. My expertise is the functional folding of the Y receptors in different phospholipid and detergent environments. Finally, I study the interaction of the Y receptors in interaction with their natural ligand NPY using solid-state as well as solution NMR techniques.

Academic Training

2006–2009	Graduate student, junior research group "Structural biology of Membrane Proteins", Institute for Biotechnology, University Halle-Wittenberg, Germany
2004–2006	Diploma thesis, ScilProteins GmbH, Halle, Germany
2000–2006	Undergraduate student of bioengineering, Institute for Engineering Science, University Halle-Wittenberg, Germany

Scientific Certificates

2009	Dissertation in Biophysics, University Halle-Wittenberg, Germany "Prokaryotic expression, *in vitro* folding and reconstitution of the Neuropeptide Y receptor type 2 for structural investigations by NMR" Advisor: Prof. Huster
2006	Diplom-Ingenieur (Dipl.-Ing.) (equivalent to M.Sc.), ScilProteins GmbH, Halle/ University Halle-Wittenberg, Germany "Production of recombinant human BMP-7 in the prokaryotic expression system E. coli", Advisor: Prof Rudolph

Professional Career

Since 2020	Project leader of project A03, SFB 1423
2014 and 2016	Guest researcher, group of Jens Meiler, Centre for Structural Biology, VU, Nashville, USA
2013–2015	Head of ESF junior research group, Institute of Medical Physics and Biophysics, Leipzig University, Germany
2011–2012	Head of "Formel1" junior research group, Medical Department, Leipzig University, Germany

2011	Guest researcher, group of Daniel Nietlispach, Biochemistry Department, University of Cambridge, UK
2010	Guest researcher, group of Anthony Watts, Biochemistry Department, University of Oxford, UK

Scientific Activities, Honors, Awards

2016	Teaching graduate-level summer course at VU, Nashville, USA
Since 2010	Lecturer in practical physics for undergraduate students of medicine, biology and biochemistry, and supervisor in charge for Master- and PhD-students all in the Institute of Medical Physics and Biophysics, Leipzig University, Germany

Most Important Publications

[1] Laugwitz JM, Haeri HH, Kaiser A, Krug U, Hinderberger D, Beck-Sickinger AG, **Schmidt P**. Probing the Y_2 Receptor on Transmembrane, Intra- and Extra-Cellular Sites for EPR Measurements. *Molecules*, 2020;25; 4143.

[2] Vogel A, Bosse M, Gauglitz M, Wistuba S, **Schmidt P**, Kaiser A, Guruvich VV, Beck-Sickinger AG, Hildebrand PW, Huster D. The Dynamics of the Neuropeptide Y Receptor Type 1 Investigated by Solid-State NMR and Molecular Dynamics Simulation. *Molecules*, 2020; 25; 5489.

[3] Pacull EM, Sendker F, Bernhard F, Scheidt HA, **Schmidt P**, Huster D, Krug U. Integration of Cell-Free Expression and Solid-State NMR to Investigate the Dynamic Properties of Different Sites of the Growth Hormone Secretagogue Receptor. *Front Pharmacol.* 2020;11; 562113

[4] Krug U, Gloge A, **Schmidt P**, Becker-Baldus J, Bernhard F, Kaiser A, Montag C, Gauglitz M, Vishnivetskiy SA, Gurevich VV, Beck-Sickinger AG, Glaubitz C, Huster D. The Conformational Equilibrium of the Neuropeptide Y2 Receptor in Bilayer Membranes. *Angew Chem Int Ed Engl.* 2020; 59; 23854-23861.

[5] Yang Z, Han S, Keller M, Kaiser A, Bender BJ; Bosse M, Burkert K, Kögler LM, Wifling D, Bernhardt G, Plank N, Littmann T, **Schmidt P**, Yi C, Li B, Ye S, Zhang R, Xu B, Larhammar D, Stevens RC, Huster D, Meiler J, Zhao Q, Beck-Sickinger AG, Buschauer A, Wu B. Structural basis of ligand binding modes at the neuropeptide Y Y_1 receptor. *Nature,* 2018; 556; 520-524.

[6] **Schmidt P**, Bender BJ, Kaiser A, Gulati K, Scheidt HA, Hamm HE, Meiler J, Beck-Sickinger AG, Huster D. Improved in Vitro Folding of the Y2 G Protein-Coupled Receptor into Bicelles. *Front Mol. Biosci.* 2017; *4*; 100.

[7] Kaiser A, Mueller P, Zellmann T, Scheidt HA, Thomas L, Bosse M, Meier R, Meiler J, Huster D, Beck-Sickinger AG, **Schmidt P**. Unwinding of the C-Terminal Residues of Neuropeptide Y is critical for Y_2 Receptor Binding and Activation. *Angew Chem Int Ed Engl.* 2015; 54:7446-9.

[8] **Schmidt P**, Thomas L, Mueller P, Scheidt HA, Huster D. The G Protein-Coupled Neuropeptide Y Receptor Type 2 is Highly Dynamic in Lipid Membranes as Revealed by Soli-State NMR Spectroscopy. *Chemistry*. 2014; 20:4986-92.

[9] Witte K, Kaiser A, **Schmidt P***, Splith V, Thomas L, Berndt S, Huster D, Beck-Sickinger AG. Oxidative *In vitro* Folding of a Cysteine Deficient Mutant of the G Protein-Coupled

Neuropeptide Y_2 Receptor Improves Stability at High Concentration. *Biol Chem*. 2013; 394:1045-56. (**corresponding author)*

[10] Hofmann S, Frank R, Hey-Hawkins E, Beck-Sickinger AG, **Schmidt P**. Manipulating Y Receptor Selectivity of Short Neuropeptide Y Analogs by Introducing Carbaboranes. *Neuropeptides*. 2013; 47:59-66.

[11] Bosse M, Thomas L, Hassert R, Beck-Sickinger AG, Huster D, **Schmidt P**. Assessment of a Fully Active Class A G Protein-Coupled Receptor Isolated from *in vitro* Folding. *Biochemistry*. 2011; 50:9817-25.

[12] **Schmidt P**, Berger C, Scheidt HA, Berndt S, Bunge A, Beck-Sickinger AG, Huster D. A reconstitution protocol for the *in vitro* folded human G protein-coupled Y-2 receptor into lipid environment. *Biophys Chem*. 2010; 150:29-36.

[13] Schimmer S*, Lindner D*, **Schmidt P***, Beck-Sickinger AG, Huster D, Rudolph R. Functional Characterization of *in vitro* Folded Human Y-1 Receptor in Lipid Environment. *Protein Pept Lett*. 2010; 17:605-9. (**contributed equally)*

[14] **Schmidt P**, Lindner D, Montag C, Berndt S, Beck-Sickinger AG, Rudolph R, Huster D. Prokaryotic Expression, *in vitro* Folding, and Molecular Pharmacological Characterization of the Neuropeptide Y Receptor Type 2. *Biotech Progr*. 2009; 25:1732-9.