

## Address

Paul Scherrer Institute  
WHGA/123  
CH-5232 Villigen PSI  
Switzerland

Tel: +41 56 310 33 37  
E-mail: [xavier.deupi@psi.ch](mailto:xavier.deupi@psi.ch)  
Web: <https://www.psi.ch/lbr/deupi-xavier>

## Professional activities

- 2015 - Senior Scientist. Condensed Matter Theory group (Research with Neutrons and Muons Department) and Laboratory of Biomolecular Research (Department of Biology and Chemistry), Paul Scherrer Institute, Switzerland.
- 2010 -2015 Scientific Officer and Project Leader. Condensed Matter Theory group (Research with Neutrons and Muons Department) and Laboratory of Biomolecular Research (Department of Biology and Chemistry), Paul Scherrer Institute, Switzerland.
- 2005 - 2010 Research Scientist. Universitat Autònoma de Barcelona, Spain.
- 2003 - 2005 Postdoctoral Fellow. Kobilka Lab. Stanford University School of Medicine, USA.
- 1998 - 2003 Teaching Assistant (Biostatistics undergraduate program). Universitat Autònoma de Barcelona, School of Medicine, Spain.

## Education

- 1998 - 2003 Ph.D. in Biochemistry and Molecular Biology from Universitat Autònoma de Barcelona (Catalunya, Spain). September 2003. Thesis title: "*Influence of Ser and Thr residues in the geometry of transmembrane helices: implications on the structure and function of G protein-coupled receptors*". Thesis Advisor: Prof. L. Pardo.
- 1998 - 2002 Master's Degree in Biochemistry and Molecular Biology from Universitat Autònoma de Barcelona (Catalunya, Spain). July 2002. Thesis title: "*Study of the 3D structure of G protein-coupled receptors*". Diploma Advisor: Prof. L. Pardo.
- 1992 - 1998 Bachelor's Degree in Chemistry from Institut Químic de Sarrià, Universitat Ramon Llull (Barcelona, Catalunya, Spain). July 1998.

## Grants

- 2016 - 2018 Research Grant from the Swiss National Science Foundation (SNSF, Sinergia) for the project "*Targeting Cancer Cells with Hybrid and Heterovalent Ligands at Controlled Distances*" (co-applicant).
- 2013 - 2016 Research Grant from the Swiss National Science Foundation (SNSF) for the project "*Structural basis of G protein-coupled receptor activation by biased ligands*" (main applicant).
- 2010 - 2013 Research Grant from the Swiss National Science Foundation (SNSF) for the project "*Linking G protein-coupled receptor structure to signaling output*" (co-applicant).
- 2009 - 2012 Research Grant from the Ministry of Science and Innovation (Spain) for the project "*Study of the processes of ligand binding and activation of vasopressin and adenosine receptors*" (main applicant).
- 2008 - 2010 Postdoctoral Senior Grant from the Ministry of Education and Science (Spain), within the Ramón y Cajal Program.
- 2006 - 2008 Postdoctoral Junior Grant from the Ministry of Education and Science (Spain), within the Juan de la Cierva Program.

## Research collaborations with companies

- 2011 - 2013 Actelion Pharmaceuticals Ltd. (Switzerland) “*Structure-function relationship of GPCRs*” (co-coordinator).
- 2008 Laboratorios Salvat, S.A. (Spain) “*Structural modeling of the 5-HT<sub>2c</sub>, 5-HT<sub>2b</sub> y 5-HT<sub>2a</sub> serotonin receptors, and their complexes with ligands*” (coordinator).

## Thesis supervised

- 2016 Milos Matkovic, Department of Biology at ETH Zürich (Switzerland). “*Study of GPCR activation using molecular dynamics simulations*” (co-supervisor).
- 2012 Angel Gonzalez Wong, Universidad Andrés Bello, Health Sciences School (Chile). “*Structural bioinformatics of G protein-coupled receptors and its application in biomedicine*” (co-supervisor).

## Other

- Member of the Management Committee and Work Group leader in the COST european research network: “*GLISTEN: GPCR-Ligand Interactions, Structures, and Transmembrane Signalling*” ([http://www.cost.eu/domains\\_actions/cmst/Actions/CM1207](http://www.cost.eu/domains_actions/cmst/Actions/CM1207)).
- Evaluator of grant applications for the Swiss National Science Foundation (SNSF, Switzerland), the National Evaluation and Foresight Agency (ANEP, Spain), the Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO, Belgium), the National Science Centre (Narodowe Centrum Nauki, NCN, Poland), and the Partnership for Advanced Computing in Europe (PRACE).
- Guest Editor for Biochimica et Biophysica Acta (Special Issue: “*Retinal Proteins -You can teach an old dog new tricks*”).
- Guest Associate Editor for Frontiers in Pharmacology, section Experimental Pharmacology and Drug Discovery (research topic: “*GPCRs: structure, signal transduction, and contribution in pathophysiology*”).
- Reviewer for the journals Nature Chemistry, Nature Biotechnology, Proceedings of the National Academy of Sciences USA, Journal of the American Chemical Society, Nucleic Acids Research, Biochemistry, PLoS ONE, ACS Medicinal Chemistry Letters, MedChemComm, Journal of Computer-Aided Molecular Design, Journal of the Royal Society Interface, Journal of Pharmacology and Experimental Therapeutics, Chirality, Molecular BioSystems.
- F1000 Associate Faculty Member (<http://f1000.com/prime/thefaculty/member/1456358952500384>).
- Co-organizer of the 15th International Conference on Retinal Proteins. October 2012, Ascona (Switzerland). <http://psi.ch/icrp2012>.

**Summary**

Total publications: 52 (35 articles, 12 reviews and 5 book chapters)

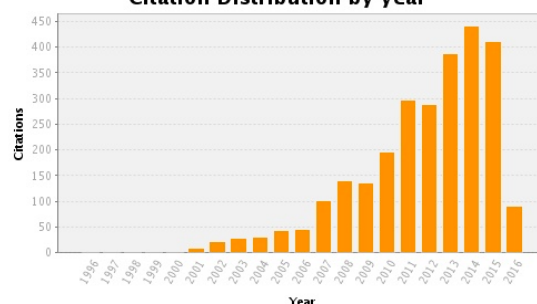
h-index: 24; total citations: 3057; average citations per article/review: 64

Scopus ID:

<http://www.scopus.com/authid/detail.url?authorId=6507252395>

Researcher ID:

<http://www.researcherid.com/rid/B-2424-2009>

**Citation Distribution by year****Peer-reviewed articles (2012 - 2017)**

- Koenen A, Babendreyer A, Schumacher J, Pasqualon T, Schwarz N, Seifert A, **Deupi X**, Ludwig A, Dreymueller D. *The DRF motif of CXCR6 as chemokine receptor adaptation to adhesion*. PLoS One. 2017 Mar 7;12(3):e0173486
- Venkatakrishnan AJ, **Deupi X**, Lebon G, Heydenreich FM, Flock T, Miljus T, Balaji S, Bouvier M, Veprintsev DB, Tate CG, Schertler GF, Babu MM. *Diverse activation pathways in class A GPCRs converge near the G-protein-coupling region*. Nature. 2016 Aug 25;536(7617):484-7.
- Singhal A, Guo Y, Matkovic M, Schertler G, **Deupi X**, Yan EC, Standfuss J. *Structural role of the T94I rhodopsin mutation in congenital stationary night blindness*. EMBO Rep. 2016 Oct;17(10):1431-1440.
- Hilbert M, Noga A, Frey D, Hamel V, Guichard P, Kraatz SH, Pfreundschuh M, Hosner S, Flückiger I, Jaussi R, Wieser MM, Thieltges KM, **Deupi X**, Müller DJ, Kammerer RA, Gönczy P, Hirono M, Steinmetz MO. *SAS-6 engineering reveals interdependence between cartwheel and microtubules in determining centriole architecture*. Nat Cell Biol. 2016 Apr;18(4):393-403.
- Isogai S, **Deupi X**, Opitz C, Heydenreich FM, Tsai CJ, Brueckner F, Schertler GF, Veprintsev DB, Grzesiek S. *Backbone NMR reveals allosteric signal transduction networks in the  $\beta$ 1-adrenergic receptor*. Nature. 2016 Feb 11;530(7589):237-41.
- D. Sun, T. Flock, **X. Deupi**, S. Maeda, M. Matkovic, S. Mendieta, D. Mayer, R.J. Dawson, G. F. X. Schertler, M. M. Babu, D. B. Veprintsev. *Probing Gai1 protein activation at single-amino acid resolution*. Nat. Struct. Mol. Biol. 2015 22(9):686-94.
- M. Perea, I. Lugtenburg, E. Mayol, A. Cordoní, **X. Deupi**, L. Pardo, M. Olivella. *TMAalphaDB and TMbetaDB: web servers to study the structural role of sequence motifs in  $\alpha$ -helix and  $\beta$ -barrel domains of membrane proteins*. BMC Bioinformatics 2015, 20;16:266.
- W. Wu, P. Nogly, J. Rheinberger, L.M. Kick, C. Gati, G. Nelson, **X. Deupi**, J. Standfuss, G.F.X. Schertler, V. Panneels. *Batch crystallization of rhodopsin for structural dynamics using an X-ray free-electron laser*. Acta Crystallogr. F Struct. Biol. Commun. 2015;71(Pt 7):856-60.
- E. M. Malmerberg, P.H. Bovee-Geurts, G. Katona, **X. Deupi**, D. Arnlund, C. Wickstrand, L.C. Johansson, S. Westenhoff, E. Nazarenko, G.F.X. Schertler, A. Menzel, W.J. de Grip, R. Neutze. *Conformational activation of visual rhodopsin in native disc membranes*. Sci Signal. 2015 10;8(367):ra26
- S. Manni, K.S. Mineev, D. Usmanova, E. N. Lyukmanova, M.A. Shulepko, M. P. Kirpichnikov, J. Winter, M. Matkovic, **X. Deupi**, A. S. Arseniev, K. Ballmer-Hofer. *Structural and functional characterization of alternative transmembrane domain conformations in VEGF receptor 2 activation*. Structure (2014) 22, 1077–1089.
- M. K. Ostermaier, C. Peterhans, R. Jaussi, **X. Deupi**, J. Standfuss. *Functional map of arrestin-1 at single amino acid resolution*. Proc Natl Acad Sci USA 2014, 111, 1825-1830.
- R. Jayachandran, X. Liu, S. Bosedasgupta, P. Muller, C. L. Zhang, D. Moshous, V. Studer, J. Schneider, C. Genoud, C. Fossoud, F. Gambino, M. Khelifaoui, C. Muller, D. Bartholdi, H. Rossez, M. Stieess, X. Houbaert, R. Jaussi, D. Frey, R. A. Kammerer, **X. Deupi**, J. P. de Villartay, A. Luthi, Y. Humeau, J. Pieters. *Coronin 1 Regulates Cognition and Behavior through Modulation of cAMP/Protein Kinase A Signaling*. PLoS Biology 2014, 12, e1001820.

- A. Singhal, M. K. Ostermaier, S. A. Vishnivetskiy, V. Panneels, K. T. Homan, J. J. Tesmer, D. Veprintsev, **X. Deupi**, V. V. Gurevich, G. F. Schertler, J. Standfuss. *Insights into congenital stationary night blindness based on the structure of G90D rhodopsin*. EMBO Rep 2013, 14, 520-526.
- M. Olivella, A. Gonzalez, L. Pardo, **X. Deupi**. *Relation between sequence and structure in membrane proteins*. Bioinformatics 2013, 29, 1589-1592.
- R. Rahmeh, M. Damian, M. Cottet, H. Orcel, C. Mendre, T. Durroux, K. S. Sharma, G. Durand, B. Pucci, E. Trinquet, J. M. Zwier, **X. Deupi**, P. Bron, J. L. Baneres, B. Mouillac, S. Granier. *Structural insights into biased G protein-coupled receptor signaling revealed by fluorescence spectroscopy*. Proc Natl Acad Sci USA 2012, 109, 6733-6738.
- **X. Deupi**, P. Edwards, A. Singhal, B. Nickle, D. Oprian, G. Schertler, J. Standfuss. *Stabilized G protein binding site in the structure of constitutively active metarhodopsin-II*. Proc Natl Acad Sci USA 2012, 109, 119-124.

## Reviews, News and Views, Editorials (2012 - 2017)

- C.L. Piscitelli, J. Kean, C de Graaf, **X. Deupi**. *A Molecular Pharmacologist's Guide to G Protein-Coupled Receptor Crystallography*. Mol Pharmacol. 2015 88(3):536-51.
- J. Heberle, **X. Deupi**, G. Schertler. *Retinal proteins - you can teach an old dog new tricks*. Biochim Biophys Acta 2014, 1837, 531-532.
- **X. Deupi**. *Relevance of rhodopsin studies for GPCR activation*. Biochim Biophys Acta 2014, 1837, 674-682.
- **X. Deupi**. *Molecular dynamics: A stitch in time*. Nat Chem 2014, 6, 7-8.
- A. J. Venkatakrishnan, **X. Deupi**, G. Lebon, C. G. Tate, G. F. Schertler, M. M. Babu. *Molecular signatures of G-protein-coupled receptors*. Nature 2013, 494, 185-194.
- F. Brueckner, C. L. Piscitelli, C. J. Tsai, J. Standfuss, **X. Deupi**, G. F. Schertler. *Structure of  $\beta$ -adrenergic receptors*. Methods Enzymol 2013, 520, 117-151.
- **X. Deupi**, J. Standfuss, G. Schertler. *Conserved activation pathways in G-protein-coupled receptors*. Biochem Soc Trans 2012, 40, 383-388.
- **X. Deupi**, X. D. Li, G. F. Schertler. *Ligands Stabilize Specific GPCR Conformations: But How?* Structure 2012, 20, 1289-1290.

## Book Chapters (2012 - 2017)

- D. Veprintsev, **X. Deupi**, J. Standfuss. *G protein-coupled receptor activation based on X-ray structural studies*. Encyclopedia of Biophysics (Ed.: G. Roberts), Springer, 2013.
- **X. Deupi**. *Quantification of Structural Distortions in the Transmembrane Helices of GPCRs*. Membrane Protein Structure and Dynamics: Methods and Protocols, Methods in Molecular Biology (Eds.: N. Vaidehi, J. Klein-Seetharaman), Humana Press, 2012, vol. 914, pp. 219-235.