

**Publications of students of the FWF
funded PhD Program
“Structure and Interaction of
Biological Macromolecules”**

August, 2015

40 publications

(excluding those submitted and in preparation)

Group BLAAS

Harutyunyan S, Armenia; graduated 22.10.2014

Kumar M, India, 10.11.2014

Published

Weiss VU, Subirats X, Pickl-Herk A, Bilek G, Winkler W, **Kumar M**, Allmaier G, Blaas D, Kenndler E. Characterization of rhinovirus subviral A particles via capillary electrophoresis, electron microscopy and gas-phase electrophoretic mobility molecular analysis: Part I. *Electrophoresis*. 2012 Jul;33(12):1833-41.

Harutyunyan S, Kumar M, Sedivy A, Subirats X, Kowalski H, Köhler G, Blaas D. Viral uncoating is directional: exit of the genomic RNA in a common cold virus starts with the poly-(A) tail at the 3'-end. (2013) *PLoS Pathog*. 9(4):e1003270.

Harutyunyan S, Kowalski H, Blaas D (2014) The Rhinovirus subviral a-particle exposes 3'-terminal sequences of its genomic RNA. *J Virol*. ;**88**:6307-17

Kumar M and Blaas D. (2013) Human rhinovirus subviral a particle binds to lipid membranes over a twofold axis of icosahedral symmetry. *J Virol*. **87**, 11309-11312

Weiss VU, Subirats X, **Kumar M, Harutyunyan S**, Gösler I, Kowalski H, Blaas D. (2015) Capillary electrophoresis, gas-phase electrophoretic mobility molecular analysis, and electron microscopy: effective tools for quality assessment and basic rhinovirus research. *Methods Mol Biol*. **1221**, 101-128.

Harutyunyan S, Sedivy A, Köhler G, Kowalski H, Blaas D. Application of FCS in studies of rhinovirus receptor binding and uncoating. (2015) *Methods Mol Biol*. **1221**, 83-100.

Group **CLAUSEN**

Mastny M, Austria, graduated 13.05.2013

Mastny M, Heuck A, Kurzbauer R, Heiduk A, Boisguerin P, Volkmer R, Ehrmann M, Rodrigues CD, Rudner DZ, Clausen T. (2013) CtpB assembles a gated protease tunnel regulating cell-cell signaling during spore formation in *Bacillus subtilis*. *Cell*. **155**, 647-658.

pGroup **DJINOVIC-CARUGO**

Song J, Korea, graduated 24.05.2014

Onipe A, Nigeria, graduated 30.06.2104

Gkougkoulia E, Greece, graduated 18.08.2014

Rodriguez A, Cuba, on-going (child leave for 1 year)

Published

Duff RM, Tay V, Hackman P, Ravenscroft G, McLean C, Kennedy P, Steinbach A, Schöffler W, van der Ven PF, Fürst DO, **Song J**, Djinović-Carugo K, Penttilä S, Raheem O, Reardon K, Malandrini A, Gambelli S, Villanova M, Nowak KJ, Williams DR, Landers JE, Brown RH Jr, Udd B, Laing NG. (2001) Mutations in the N-terminal actin-binding domain of filamin C cause a distal myopathy. *Am J Hum Genet.* **88**, 729-740.

Kley RA, Serdaroglu-Ofłazer P, Leber Y, Odgerel Z, van der Ven PF, Olivé M, Ferrer I, **Onipe A**, Mihaylov M, Bilbao JM, Lee HS, Höhfeld J, Djinović-Carugo K, Kong K, Tegenthoff M, Peters SA, Stenzel W, Vorgerd M, Goldfarb LG, Fürst DO. (2012) Pathophysiology of protein aggregation and extended phenotyping in filaminopathy. *Brain.* **135**. 2642-2660.

Ribeiro, E. d. A., Pinotsis, N., Ghisleni, A., Salmazo, A., Konarev, P. V., Kostan, J., Sjoebloom, B., Schreiner, C., Polyansky, A. A., **Gkougkoulia, E. A.**, Holt, M. R., Aachmann, F. L., Žagrović, B., Bordignon, E., Pirker, K. F., Svergun, D. I., Gautel, M., and Djinović-Carugo, K. (2014) The structure of human muscle α -actinin: Insight into the intramolecular regulation of ligand binding and Z-disk assembly. *Cell* (Accepted September 2014).

Song, J., Kostan, J., Drepper, F., Knapp, B., Ribeiro, E., Konarev, P., Grishkovskaya, I., Wiche, G., Gregor, M., Warscheid, B., and Djinović-Carugo, K. (2015) Structural Insights into Ca^{2+} -Calmodulin Regulation of Plectin 1a - Integrin $\beta 4$ Interaction in Hemidesmosomes Structure. In press

In preperation

Onipe, A., I. Grishkovskaya and K. Djinović-Carugo. "Crystallization and X-Ray Diffraction Studies of the PdZ Domain of Human Myofibrillar Z-Disc Zasp/Ldb3." Acta Crystallographica Section F-Structural Biology and Crystallization Communications.

Onipe, A., I. Grishkovskaya, N. Pinotsis, V. Stefania, C. Schreiner, E. Ribeiro, F. Drepper, P. Van der Ven, D. Fuerst, B. Warscheid and K. Djinović-Carugo. " Structural insights into the architecture of dimeric human muscle Z-disk myotilin."

Pinotsis, N., **E. Gkougkoulia**, J. Kostan, M.B. Khan, K. Zielinska, C. Schreiner, M. Brunner, J. Neuhold, A. Lehner, A. Virel, L. Backmann and K. Djinović-Carugo. Crystal structure of α -actinin from *E. hystolitica*.

Onipe, A., Grishkovskaya, I., and Djinović-Carugo, K. (In preparation) Crystallization and X-ray diffraction studies of the PDZ domain of human myofibrillar Z-disc ZASP/LDB3.

Group KONRAT

Kızılsavaş G, Turkey, thesis being written up (1 year child leave)

Geist L, Austria, graduated 20.11.2013

Platzer G, Austria, graduated 12.02.2014

Published

Kızılsavaş G, Saxena S, Zerko S, Koźmiński W, Bister K, Konrat R. (2013) (1)H, (13)C, and ⁽¹⁵⁾N backbone and side chain resonance assignments of the C-terminal DNA binding and dimerization domain of v-Myc. *Biomol NMR Assign.* **7**, 321-324.

Geist L, Henen MA, Haiderer S, Schwarz TC, Kurzbach D, Zawadzka-Kazimierczuk A, Saxena S, Zerko S, Koźmiński W, Hinderberger D, Konrat R. (2013) Protonation-dependent conformational variability of intrinsically disordered proteins. *Protein Sci.* **22**, 1196-1205.

Stanek J, Saxena S, **Geist L**, Konrat R, Koźmiński W. Probing local backbone geometries in intrinsically disordered proteins by cross-correlated NMR relaxation. (2013) *Angew Chem Int Ed Engl.* **52**, 4604-4606.

Solyom Z, Schwarten M, **Geist L**, Konrat R, Willbold D, Brutscher B. BEST-TROSY experiments for time-efficient sequential resonance assignment of large disordered proteins. *J Biomol NMR.* (2013) **55**, 311-321.

Geist L, Zawadzka-Kazimierczuk A, Saxena S, Zerko S, Koźmiński W, Konrat R. (1)H, (13)C and (15)N resonance assignments of human BASP1. (2013) *Biomol NMR Assign.* 315-319.

Henen MA, Coudeville N, **Geist L**, Konrat R. (2012) Toward rational fragment-based lead design without 3D structures. *J Med Chem.* **55**, 7909-7919.

Coudeville N, Hoetzing M, **Geist L**, Kontaxis G, Hartl M, Bister K, Konrat R. (2011) Lipocalin Q83 reveals a dual ligand binding mode with potential implications for the functions of siderocalins. *Biochemistry.* **50**, 9192-9199.

Coudeville N, **Geist L**, Hoetzing M, Tollinger M, Konrat R. Siderocalin Q83 exhibits differential slow dynamics upon ligand binding. (2011) *J Biomol NMR.* **51**, 83-88.

Coudeville N, **Geist L**, Hötzing M, Hartl M, Kontaxis G, Bister K, Konrat R. The v-myc-induced Q83 lipocalin is a siderocalin. (2010) *J Biol Chem.*; **285**, 41646-41652.

- Auer R, Kloiber K, Vavrinska A, **Geist L**, Coudevylle N, Konrat R. Pharmacophore mapping via cross-relaxation during adiabatic fast passage. (2010) *J Am Chem Soc.* **132**, 1480-1481.
- Orbán-Németh Z, Henen MA, **Geist L**, Zerko S, Saxena S, Stanek J, Koźmiński W, Propst F, Konrat R. Backbone and partial side chain assignment of the microtubule binding domain of the MAP1B light chain. (2013) *Biomol NMR Assign.* Jan 22. [Epub ahead of print]
- Platzer G**, Schedlbauer A, Chemelli A, Ozdowy P, Coudevylle N, Auer R, Kontaxis G, Hartl M, Miles AJ, Wallace BA, Glatter O, Bister K, Konrat R. (2011) The metastasis-associated extracellular matrix protein osteopontin forms transient structure in ligand interaction sites. *Biochemistry* **50**, 6113-6124.
- Kurzbach, D., **Platzer, G.**, Schwarz, T. C., Henen, M. A., Konrat, R. & Hinderberger, D. (2013). Cooperative unfolding of compact conformations of the intrinsically disordered protein osteopontin. *Biochemistry* **52**, 5167-5175.
- Kurzbach, D., Schwarz, T.C., **Platzer, G.**, Höfler, S., Hinderberger, D. & Konrat, R. (2014). Compensatory adaptations of structural dynamics in an intrinsically disordered protein complex. *Angew Chem Int Ed Engl* **53**, 3840-3843.
- Platzer G.**, Žerko S., Saxena S., Koźmiński, W., Konrat, R. ^{(1)H}, ^{(15)N}, ^{(13)C} resonance assignment of human osteopontin. (2015) *Biomol NMR Assign.* 2015 in press, PMID: 25616494.

Group **MARLOVITS**

Brunner MJ, Austria, graduated 30.01.2014

Kosarewicz A, Poland, graduated 10.10.2013

Published

Schraidt O, Lefebre MD, **Brunner MJ**, Schmied WH, Schmidt A, Radics J, Mechtler K, Galán JE, Marlovits TC. (2010) Topology and organization of the Salmonella typhimurium type III secretion needle complex components. PLoS Pathog. **6**, e1000824.

Brunner MJ, Resch GP. Automated monitoring to reduce electron microscope downtime. (2009) Ultramicroscopy. 109, 1389-1392.

Kosarewicz A, Königsmaier L, Marlovits TC. (2012) The blueprint of the type-3 injectisome. Philos Trans R Soc Lond B Biol Sci. **367**, 1140-1154.

Hornung P, Troc P, Malvezzi F, Maier M, Demianova Z, Zimniak T, Litos G, Lampert F, Schleiffer A, **Brunner M**, Mechtler K, Herzog F, Marlovits TC, Westermann S A cooperative mechanism drives budding yeast kinetochore assembly downstream of CENP-A. (2014) J Cell Biol. **206**, 509-524

In press:

Brunner MJ, Fronzes R.*, Marlovits TC*. Envelope spanning secretion systems in Gram-negative bacteria. In: Bacterial Membranes: Structural and Molecular Biology Fronzes R. (eds)

Group **PETERS**

Georg Petzold, Germany, graduated 02.03.2012

Huis In 't Veld, PJ, Netherlands, graduated 11.02.2013

Published

Nishiyama, T., Sykora, MM., **Huis In 't Veld, PJ.**, Mechtler, K., Peters, JM. (2013). Aurora B and Cdk1 mediate Wapl activation and release of acetylated cohesin from chromosomes by phosphorylating Sororin. *Proc Natl Acad Sci U S A.* **110**, 13404-13409

Medvedovic J, Ebert A, Tagoh H, Tamir IM, Schwickert TA, Novatchkova M, Sun Q, **Huis In 't Veld PJ**, Guo C, Yoon HS, Denizot Y, Holwerda SJ, de Laat W, Cogné M, Shi Y, Alt FW, Busslinger M (2013). Flexible long-range loops in the VH gene region of the Igh locus facilitate the generation of a diverse antibody repertoire. *Immunity.* **39**, 229-344.

Frye, JJ., Brown, NG., **Petzold, G.**, Watson, ER., Grace, CR., Nourse, A., Jarvis, MA., Kriwacki, RW., Peters, JM., Stark, H., Schulman, BA. (2013). Electron microscopy structure of human APC/C(CDH1)-EMI1 reveals multimodal mechanism of E3 ligase shutdown. *Nat Struct Mol Biol.* **20**, 827-835

Uzunova, K., Dye, BT., Schutz, H., Ladurner, R., **Petzold, G.**, Toyoda, Y., Jarvis, MA., Brown, NG., Poser, I., Novatchkova, M., Mechtler, K., Hyman, AA., Stark, H., Schulman, BA., Peters, JM. (2012). APC15 mediates CDC20 autoubiquitylation by APC/C(MCC) and disassembly of the mitotic checkpoint complex. *Nat Struct Mol Biol.* **19**, 1116-1123

Buschhorn, BA., **Petzold, G***, Galova, M., Dube, P., Kraft, C., Herzog, F., Stark, H., Peters, JM. (2011). Substrate binding on the APC/C occurs between the coactivator Cdh1 and the processivity factor Doc1. *Nat Struct Mol Biol.* **18**, 6-13

Huis in 't Veld PJ, Herzog F, Ladurner R, Davidson IF, Piric S, Kreidl E, Bhaskara V, Aebersold R, Peters JM. (2014) Characterization of a DNA exit gate in the human cohesin ring. *Science.* **346**, 968-972

* Joint first authors

Group SKERN

Neubauer D, Austria, graduated 14.08.2013

Fedosyuk S, Ukraine, graduated 17.06.2104

Sára T, Czech Republic, graduated 10.06.2014

Published

Neubauer D, Aumayr M, Gösler I, Skern T. (2013) Specificity of human rhinovirus 2A(pro) is determined by combined spatial properties of four cleavage site residues. J Gen Virol. **94**, 1535-1546

Fedosyuk S, Grishkovskaya I, de Almeida Ribeiro E Jr, Skern T. (2014) Characterization and Structure of the Vaccinia Virus NF- κ B Antagonist A46. J Biol Chem. **289**, 3749-3762.

Sára T, Konrat R, Skern T. (2013) Strategies for purifying variants of human rhinovirus 14 2C protein. Protein Expr Purif. **95C**, 28-37.

In preparation:

Aumayr, M., **Fedosyuk, S.**, Ruzicska, K., Sousa-Blin, C, Kontaxis, G. and Skern, T. Picornaviral proteinases form a triangular complex with initiation factors to shut off host cell protein synthesis. Manuscript in preparation

Fedosyuk, S, Radakovics, K, Bezerra, G.A, Sammito, M, Uson, I, Djinovic-Carugo, K. and Skern, T. Structure and function of the vaccinia virus immunomodulator A46 protein N-terminal domain. Manuscript in preparation

Group **STOLT-BERGNER**

Spitzenberger B, Austria, graduated 16.12.2011

Malle E, Zhou H, Neuhold J, **Spitzenberger B**, Klepsch F, Pollak T, Bergner O, Ecker GF, Stolt-Bergner PC. (2011) Random mutagenesis of the prokaryotic peptide transporter YdgR identifies potential periplasmic gating residues. *J Biol Chem.* **286**, 23121-23131.