

Curriculum vitae

Vladimir Volkov

PERSONAL INFORMATION

Date of birth: Nov-25 1984
Nationality: Russian Federation
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EDUCATION

2011 PhD, Biophysics
Center for Theoretical Problems of Physico-Chemical Pharmacology,
Russian academy of sciences, Moscow, Russia.
Supervisor: Fazly Ataullakhanov
2005 Diploma, Pharmaceutical chemist
Pharmaceutical Dept., Moscow Sechenov Medical Academy, Russia.

CURRENT POSITION

2016 - Postdoctoral Researcher
Department of Bionanoscience, Faculty of Applied Sciences, Delft
University of Technology, Delft, The Netherlands

PREVIOUS POSITIONS

2011 – 2016 Leading research associate, Junior group leader. Center for theoretical
problems of physico-chemical pharmacology, Russian academy of
sciences, Moscow, Russia.
2008 – 2011 Research associate. Center for theoretical problems of physico-chemical
pharmacology, Russian academy of sciences, Moscow, Russia
2007 – 2011 Professional research assistant. University of Colorado at Boulder, Dept. of
Molecular, Cellular and Developmental Biology, Boulder, CO USA.
2005 – 2008 PhD student. Research center for hematology, Moscow, Russia
2004 – 2005 Undergraduate diploma project. Research center for hematology, Moscow,
Russia

FELLOWSHIPS AND GRANTS

- 2016 Seal of Excellence from the European Commission under the Horizon 2020's Marie Skłodowska-Curie actions call (2017)
- 2012-2016 Postdoctoral Fellowship from Dmitry Zimin Dynasty Foundation
- 2014-2016 Russian foundation for basic research (RFBR) grant 14-04-00057 "In vitro reconstruction of a kinetochore using recombinant CENP-F protein"
- 2014-2015 RFBR grant 14-04-31061 "Study of mechanism of cargo transport by disassembling microtubules".

TEACHING ACTIVITIES

- 2017 Research facilitator for Prof. Marileen Dogterom's Physiology course at Marine Biological Laboratory, Woods Hole, MA, USA.
- 2017- Co-lecturer for the course "Optics and applications for Nanobiology students" (undergraduate level) – joint by Bionanoscience and Imaging Physics Departments, TU Delft.
- 2017- Teaching assistant for the laser tweezers Research Practicum at the Department of Bionanoscience, TU Delft (undergraduate level).
- 2012-2015 Practical course on laser tweezers for the Biophysics students of Moscow state university and Moscow Institute of Physics and Technology (undergraduate level).
- 2013-2015 Summer school on "Modern methods in experimental biophysics", Moscow, Russia (graduate and undergraduate level).
- 2015 "Biophysics of the cell" course at Moscow state university and Moscow Institute of Physics and Technology (undergraduate level).

COMMISSIONS OF TRUST

- 2014-2016 member of the Science Council at the Center for theoretical problems of physico-chemical pharmacology, Russian academy of sciences
- 2014- reviewer for *eLife*, *Proceedings of National Academy of Sciences USA*, *Biophysical Journal*, *Molecular Biology*, *Current Topics in Medicinal Chemistry*, *Journal of Visualized Experiments*

Invited Presentations:

- 2020 Institut Curie, Orsay, France
- 2019 University of Oxford, Department of Biochemistry
- 2019 Research Institute of Molecular Pathology, Vienna, Austria.
- 2018 Max F. Perutz Laboratories, Vienna, Austria.
- 2015 Max-Planck Institute for Molecular Physiology, Dortmund, Germany.
- 2015 Swiss Federal Institute of Technology (ETH), Institute of Biological Chemistry; Zurich, Switzerland.
- 2014 International Conferences on Laser Applications in Life Sciences, Neu-Ulm, Germany.
- 2012 Research Institute of Molecular Pathology, Vienna, Austria.

Selected talks:

- 2019 Dynamic Kinetochore Workshop, Paris, France.
- 2019 Mitotic spindle: From living and synthetic systems to theory; Split, Croatia.
- 2018 ASCB-EMBO Annual Meeting, San Diego, CA USA. Minisymposium on Spindle Mechanics and Chromosome Segregation
- 2018 EMBO Symposium “Microtubules: From Atoms to Complex Systems”, EMBL Heidelberg, Germany.
- 2017 DutchBiophysics 2017, Veldhoven, Netherlands.
- 2016 EMBO Symposium “Microtubules: From Atoms to Complex Systems”, EMBL Heidelberg, Germany.
- 2015 EMBO Dynamic Kinetochore Workshop, Copenhagen, Denmark.

MEMBERSHIPS IN SCIENTIFIC SOCIETIES

- 2008- member of the American Society for Cell Biology (ASCB)
- 2010- member of the US Biophysical Society

Publications

1. Rodriguez-Garcia R, **Volkov VA**, Chen CY, Katrukha EA, Olieric N, Aher A, Grigoriev I, Lopez MP, Steinmetz MO, Kapitein LC, Koenderink G, Dogterom M, Akhmanova A. Mechanisms of motor-independent membrane remodeling driven by dynamic microtubules. (2020) *Current Biology* 30, 1-16.
2. PJ Huis in 't Veld*, **VA Volkov***, I Stender, A Musacchio, M Dogterom. Molecular determinants of the Ska-Ndc80 interaction and their influence on microtubule tracking and force-coupling. (2019) *eLife* 8:e49539
*equal contribution
3. McHugh T, Zou J, **Volkov VA**, Bertin A, Talapatra SK, Rappsilber J, Dogterom M, Welburn JPI. The depolymerase activity of MCAK shows graded response to Aurora B kinase phosphorylation through allosteric regulation. (2019) *J Cell Sci* 132(4): jcs228353
4. **Volkov VA***, Huis in 't Veld PJ*, Dogterom M, Musacchio A. Multivalency of NDC80 in the outer kinetochore is essential to track shortening microtubules and generate forces. (2018) *eLife* 7:e36764.
*equal contribution
5. Kanfer G, Peterka M, Arzhanik VK, Drobyshev AL, Ataulakhanov FI, **Volkov VA***, Kornmann B*. CENP-F couples cargo to growing and shortening microtubule ends. *Mol Biol Cell* (2017) 28(18): 2400-2409.
*equal contribution, co-corresponding authors.
6. **Volkov VA**, Grissom PM, Arzhanik VK, Zaytsev AV, Renganathan K, McClure-Begley T, Old WM, Ahn N, McIntosh JR. Centromere protein F includes two sites that couple efficiently to depolymerizing microtubules. *J Cell Biol.* (2015) 209(6):813-28.

This paper was highlighted in F1000: dx.doi.org/10.3410/f.725582329.793507790

7. **Volkov VA**, Zaytsev AV, Grishchuk EL. Preparation of segmented microtubules to study motions driven by the disassembling microtubule ends. *Journal of visualized experiments: JoVE* (2014) 85. doi: 10.3791/51150.
8. **Volkov VA**, Zaytsev AV, Gudimchuk N, Grissom PM, Gintsburg AL, Ataullakhanov FI, McIntosh JR, Grishchuk EL. Long tethers provide high-force coupling of the Dam1 ring to shortening microtubules. *Proc Natl Acad Sci U S A*. (2013) 110(19):7708-13. doi: 10.1073/pnas.1305821110.
9. McIntosh JR, **Volkov V**, Ataullakhanov FI, Grishchuk EL. Tubulin depolymerization may be an ancient biological motor. *J Cell Sci* (2010) 123 (Pt 20): 3425-34.
10. McIntosh JR, Grishchuk EL, Morphey MK, Efremov AK, Zhudenkov K, **Volkov VA**, Cheeseman IM, Desai A, Mastronarde DN, Ataullakhanov FI. Fibrils connect microtubule tips with kinetochores: a mechanism to couple tubulin dynamics to chromosome motion. *Cell*. (2008) 135(2):322-33.
11. Grishchuk EL, Efremov AK, **Volkov VA**, Spiridonov IS, Gudimchuk N, Westermann S, Drubin D, Barnes G, McIntosh JR, Ataullakhanov FI. The Dam1 ring binds microtubules strongly enough to be a processive as well as energy-efficient coupler for chromosome motion. *Proc Natl Acad Sci U S A* (2008) 105(40), 15423-15428
12. Grishchuk EL, Spiridonov IS, **Volkov VA**, Efremov AK, Westermann S, Drubin D, Barnes G, McIntosh JR, Ataullakhanov FI. Different assemblies of the DAM1 complex follow shortening microtubules by distinct mechanisms. *Proc Natl Acad Sci U S A* (2008) 105(19), 6918-692.
13. Korendyaseva TK, Kuvatov DN, **Volkov VA**, Martinov MV, Vitvitsky VM, Banerjee R, Ataullakhanov FI. An allosteric mechanism for switching between parallel tracks in mammalian sulfur metabolism. *PLoS computational biology* (2008) 4(5), e1000076.