

Curriculum vitae

Andrey N. Bessonov, Ph.D.

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Personal information:

Date of birth: 07.07.1982
Place of birth: Saint-Petersburg, Russian Federation
Nationality: Russian

Education:

St. Petersburg Physico-Mathematical Lyceum №239 (Russia)	B.S. Diploma	1998
St. Petersburg State University (Russia)	M.S. Chemistry	2003
Institute of Cytology of Russian Academy of Science	Ph.D. in Biophysics & Cell Biology	2006

Professional Experience:

Research Assistant, Department of intracellular signalization and transport, Institute of Cytology of RAS, St. Petersburg, Russia	2002 – 2007
Research Associate/Marie-Curie Fellow, School of Engineering and Science, Jacobs University, Bremen, Germany	2007 – present

Area of Interest: antimicrobial peptides, lipid bilayers, protein-lipid interaction, cytoskeletal proteins, antibiotic resistance, bacterial porins, membrane transport

Present work responsibilities: In collaboration with partner groups within EU-Project MRTN-CT 2005-019335 (Translocation) by combining high sensitive electrophysiology methods with liposome swelling assay and FRET technique we investigate transport of novel antibiotics through various bacterial porins. Experimental data are compared with microbiological assays and computer modeling results. Thus it's possible to overcome the limitations of particular methods and obtain the objective picture of translocation mechanism which can be directly applied in pharmaceutical industry for development of highly efficient antibacterial drugs.

Additional work responsibilities: supervision of PhD and Master students involved in the Project in Jacobs University and visiting students from partner groups; design and maintenance of the Group and EU-project web-pages; organization of the conferences (EU-project Annual Meeting-2008, 2009; 436th WE Heraeus Seminar 2009; Annual Biophysical Summer Schools at Jacobs University Bremen-2008, 2009); maintenance, market research and upgrade of BLM equipment.

Experimental Techniques and Experience:

Planar lipid bilayer technique, liposome swelling assay, micro-BLM (Nanion™ Port-a-patch based), dynamic light scattering, stopped-flow technique, electrochemical methods (cyclic voltamperometry, chronoamperometry, faradaic impedance spectroscopy), modified electrodes technique, advanced PC user, statistical software (Origin, Excel), single-channel recording and analysis (pClamp software), web design (Macromedia Dreamweaver), diverse graphics and multimedia software.

Language skills:

Russian – native

English – fluent

German – conversational

French – basic knowledge

Awards

ISSEP award	2004
Biophysical Society International Travel Grant	2004
St.-Petersburg Government Grant for gifted young scientists	2005, 2006

Membership

Biophysical Society	2004 – present
Russian Biochemical Society	2004 – 2007

Extracurricular activities:

Football, beach volleyball, power fitness, jogging

Winner of Saint-Petersburg Tourism Tournament within Lyceum team 1997, 1998

Scientific Publications

Refereed Journal Articles

1. James C.E., Mahendran K.R., Molitor A., Bolla J.-M., **Bessonov A.N.**, Winterhalter M., Pages J.-M. 2009. How beta-lactam antibiotics enter bacteria: a dialogue with the porins. PLoS ONE (accepted for publication).
2. Ostroumova O.S., Malev V.V., **Bessonov A.N.**, Takemoto J.Y., Schagina L.V. 2008. Altering the activity of syringomycin E via the membrane dipole potential. Langmuir. 24:2987-2991.
3. **Bessonov A.N.**, Schagina L.V., Takemoto J.Y., Gurnev P.A., Kuznetsova I.M., Turoverov K.K., Malev V.V. 2006. Actin and amphiphilic polymers influence on channel formation by syringomycin E in lipid bilayers. European Biophysics Journal. 35:382–392
4. **Bessonov A.N.**, Schagina L.V., Turoverov K.K., Kuznetsova I.M., Takemoto J.Y., Malev V.V. 2006. Influence of cooperative adsorption of macromolecules on the channel-forming activity of syringomycin E in lipid bilayers. Biol. Membrany (Russian). 23:261–270.
5. **Bessonov A.N.**, Gurnev P.A., Kuznetsova I.M., Takemoto J.Y., Turoverov K.K., Malev V.V., Schagina L.V. 2004. Interaction between filamentous actin and lipid bilayer causes the increase of syringomycin E channel-forming activity. Tsitologiya (Russian). 46:628–633.
6. Gurnev P.A., **Bessonov A.N.**, Takemoto J.Y., Schagina L.V., Malev V.V. 2004. Conductance of ion channels induced by syringomycin E in lipid bilayers with asymmetrically distributed surface charge. Biol. Membrany (Russian). 21:325–332.
7. Gurnev P.A., **Bessonov A.N.**, Kuznetsova I.M., Malev V.V., Pershina V.P., Pinaev G.P.,

Turoverov K.K., Takemoto J.Y., Tikhomirova A.V., Schagina L.V. 2003. Effects of actin and some polyions on channel-forming activity of syringomycin E in bilayer lipid membranes Biol. Membrany (Russian). 20:421–428.

Abstracts

1. **Bessonov A.N.**, Hajjar E., Petrescu M., Winterhalter M. 2009. Permeation Of Beta-lactam Antibiotics Through E. Coli OmpF Altered By Constriction Zone Mutations. Abstracts of the 53th Annual Meeting of the Biophysical Society, Boston, February 28–March 4.
2. Kozhinjampara M.R., Mach T., **Bessonov A.N.**, Weingart H., James C.E., Pages J.-M., Hajjar E., Kumar E., Ceccarelli M., Winterhalter M. 2009. The porin passport control – conductance measurements and biological relevance. Abstracts of the 53th Annual Meeting of the Biophysical Society, Boston, February 28–March 4.
3. Hajjar E., Spiga E., Pages J.-M., Mahendran K., Mach T., **Bessonov A.N.**, Winterhalter M., Ruggerone P., Ceccarelli M. 2009. The biophysics of antibiotics translocation through OmpF revealed by computer simulations. Abstracts of the 53th Annual Meeting of the Biophysical Society, Boston, February 28–March 4.
4. **Bessonov A.N.** 2008. Investigation of antibiotic translocation via bacterial porins. Marie Curie Conference, Barcelona, July 17–18.
5. Mahendran K.R., **Bessonov A.N.**, Weingart H., Ivanov A., Mach T., James C.E., Pages J.-M., Kumar A., Ceccarelli M., Winterhalter M. 2008. Understanding antibiotic translocation through porins from *E. coli* and *E. aerogenes*. Abstracts of the 52th Annual Meeting of the Biophysical Society, Long Beach, February 2–6.
6. Ostroumova O.S., **Bessonov A.N.**, Takemoto J.Y., Schagina L.V. 2008. Membrane dipole potential modulates syringomycin E channel formation. Abstracts of the 52th Annual Meeting of the Biophysical Society, Long Beach, February 2–6.
7. **Bessonov A.N.**, Schagina L.V., Gurnev P.A., Takemoto J.Y., Kuznetsova I.M., Turoverov K.K., Malev V.V. 2006. Cooperative adsorption of actin and synthetic polymers on syringomycin E modified planar lipid bilayers. Abstracts of the 50th Annual Meeting of the Biophysical Society, Salt Lake City, February 18–22. Biophys. J. 90: 62a.
8. **Bessonov A.N.**, Babakov V.N., Kuznetsova I.M., Turoverov K.K., Malev V.V., Takemoto J.Y., Schagina L.V. 2005. Structural specificity of G-actin adsorption on model lipid membranes. Abstracts of the 49th Annual Meeting of the Biophysical Society, Long Beach, February 12–16. Biophys. J. 88: 425a.
9. Schagina L.V., **Bessonov A.N.**, Gurnev P.A., Kuznetsova I.M., Malev V.V., Takemoto J.Y., Turoverov K.K. 2004. G- and F-actin affects channel-forming activity of syringomycin E in model lipid membranes. Abstracts of international symposium “Biological motility”, Puschino, may 23 – june 1. 62–63.
10. **Bessonov A.N.**, Gurnev P.A., Malev V.V., Takemoto J.Y., Schagina L.V. 2004. Konig’s polyanion modulates syringomycin E – induced conductance of lipid bilayers. Abstracts of the 48th Annual Meeting of the Biophysical Society, Baltimore, February 14–18. Biophys. J. 86: 206a.
11. **Bessonov A.N.** 2004. Role of the filamentous actin in the channel-forming activity of phytopathogen syringomycin E. 2004. Abstracts of 8th international conference of young scientists, Puschino, may 17 – 21. 77.