

Ekaterina TISHCHENKO-BARSUK, PhD

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91440 Bures-sur-Yvette, France

EDUCATION

- 2012** **Clinical Research Associate, Professional Qualification**
CLINACT, Sevres, Paris.
- 1996-2001** **Ph. D., Biophysics**
Moscow Institute of Physics and Technology, Engelhardt Institute of Molecular Biology, Moscow, Russia
Dissertation: "Intercalating Insert into Internucleotide Linkages as a Method of Stabilization and Detection of Short DNA-Duplexes and DNA-triplexes"
- 1990-1996** **M.S., Biophysics**
Moscow Institute of Physics and Technology, Department of Physical and Chemical Biology, Moscow, Russia
Thesis "Heterogeneous Complexes of Ethidium Bromide and Their Role in Stabilizing the (dA)n-(dT)n-structures"

PROFESSIONAL EXPERIENCE

- 2013** **National Security Agency of Medicines and Health Products (ANSM), France**
European project manager - INFHEP Department (Pole of infectious diseases and Pole of dermatology, gastroenterology and metabolic rare diseases)
- 2012** **Saint-Antoine Hospital, Paris, France**
Clinical Research Associate Trainee - Pharmacy of Clinical Trials and Specific Status Drugs
- 2012** **Cochin Hospital, Paris, France**
Clinical Research Associate Trainee - Department of Clinical Trials in Hepatology
- 2008-2009** **INRA, AgroParistech, Paris, France.**
Research Scientist - UMR 763 Bioadhésion et Hygiène des Matériaux,
 - Automated screening of biofilm viability depending on the action of antimicrobial agents
 - Spatial Architecture and Biofilm Inactivation Dynamics
 - Advanced Control of the Biocide Action on Biofilms
- 2005-2006** **Geneva University, Geneva, Switzerland**
Research Assistant - Biochemistry Department
 - Processing of a GPI-anchored protein in living cell *Dictyostelium discoideum*
 - Cell motility and phagocytosis
- 1996-2001** **Engelhardt Institute of Molecular Biology, Moscow, Russia**
Research Scientist - Protein Synthesis Chemistry Laboratory
 - Intercalating Insert into Internucleotide Linkages as a Way of Stabilization and Detection of Short DNA- Duplexes and DNA-triplexes.
 - Stabilizing effect of 5-nitroindol (Universal Base) on DNA Duplexes Immobilized on Gel Matrix
- 1994-1996** **Engelhardt Institute of Molecular Biology, Moscow, Russia**
Research Assistant - Biopolymer Physics Laboratory
 - Heterogeneous Complexes of Ethidium Bromide and Their Role in the Stabilizing of the (dA)n.(dT)n-Structures*Research Grant from the Soros Foundation*
- 1993-1994** **Shemiakin Institute of Bio-Organic Chemistry, Moscow, Russia**
Research Assistant - Genetic Bioengineering Laboratory

SKILLS

Expertise Areas: Clinical Research, Research in Molecular Biology, Biophysics, Biochemistry and Data Analysis

Clinical Research

- French laws BPC, CT-1; international laws GCP-ICG, GMP, VHP
- Management of clinical research projects of the infectious diseases and dermatology, gastroenterology and metabolic rare diseases
- Essential Documents in Clinical Research
- General aspects of physiopathology
- Principal aspects of clinical research methodology
- Pharmacovigilance

Biophysics

- Time-lapse fluorescence microscopy, Confocal microscopy
Amoeba motility; dynamics of biofilm inactivation; life-dead staining;
- Absorption spectroscopy:
UV-visible-near infrared absorption; Ligand binding studies; Temperature-stability and formulation-stability profiles; Spectral properties of native DNA, DNA-oligonucleotides and complexes DNA+ligand
- Fluorescent spectroscopy:
Fluorescent properties (fluorescent spectra, polarized fluorescence), Ligand binding to macromolecules (using dye-intercalator for DNA studies);
- Circular Dichroism

Molecular biology and biochemistry

- Amoeba and bacteria electro-transfection
- Cell fixation and immuno-staining
- Western blotting
- Discontinuous electrophoresis, 2D electrophoresis, Protein electrophoresis by Laemmli gels
- Extraction, cloning, sequence of DNA E-coli
- Chemical modification of DNA (by Os, KMnO₄, DEP, S1 nuclease)
- Synthesis of standard nucleotides and their purification by HPLC

Data analysis

- Programming and mathematical/statistical analysis: Matlab, Microcal Origin
3D model of the cell velocity; biofilm inactivation models; single cell movement and cell oscillation in biofilms
- Image analysis:
Matlab, ImageJ *modelling, analysis and quantification of amoeba motility, inactivation dynamics of biofilms*
Imaris *quantification of biofilm 3D structure*
- Computing systems: Macintosh, Windows
- Databases: Pubmed, Swiss-Prot.

Miscellaneous

- **Research Supervision:** Supervised Multidisciplinary Research Graduate Students
- **Languages:** English (fluent), French (fluent, DELF-II), Russian (native), Ukrainian (native)
- **Full clean drivers license**
- **Interests:** Piano, reading, hiking, skiing

PUBLICATIONS

1. **Infiltration and takeover of the biofilm matrix by stealth swimmers**
PNAS, July 5 (2012), A. Houry, M. Gohar, J. Deschamp, E. Tishchenko, S. Aymerich, A. Gruss, R. Briandet
2. **Decipher biofilms structure and reactivity by multiscale time-resolved fluorescence analysis**
Advances in Experimental Medicine and Biology, 715:333-49 (2011), A. Bridier, E. Tishchenko, F. Dubois-Brissonnet, J.-M. Herry, V. Thomas, S. Daddi-Oubekka, F. Waharte, K. Steenskeste, M.-P. Fontaine-Aupart and R. Briandet.
3. **Intercalating Insert into Internucleotide Linkages as Method of Stabilization and Detection of Short DNA- Duplexes**
Nucleosides and Nucleotides, v.18, N6,7 (1999) 1495, E.I. Tishchenko, S.V. Kochetkova, E.N. Timofeev, I.L. Shchaveleva, and V.L. Florentiev.
4. **Stabilizing Effect of 5-Nitroindole (Universal Base) on DNA Duplexes Immobilized on Gel Matrix**
Journal of Biomol. Struct. Dyn., 15(3) (1997) 597, A. Kunitsyn, S. Kochetkova, N. Kolganova, E. Tishchenko, B. Gottikh, and V. Florentiev.
5. **Heterogeneous Complexes of Ethidium Bromide and Their Role in the Stabilization of the (dA)n.(dT)n-Structures** Molecular Biology Journal, Moscow (in Russian), 1996 Nov-Dec, (30)6 1370, E.I. Tishchenko, A.T. Karapetian, and O.F. Borisova.
6. **Methidium Intercalator Inserted into Synthetic Oligonucleotides**
Tetrahedron Letters, v.37, N47 (1996) 8467, E.N. Timofeev, I.P. Smirnov, A.H. Lawrence, E.I. Tishchenko, A.D. Mirzabekov, and V.L. Florentiev.

CONFERENCE PRESENTATIONS

1. **Inactivation Dynamics and Spatial Structure Changes of Biofilms (poster)**
EuroBiofilms 2009, Roma, Italy, Ekaterina Tishchenko, Karin Steenskeste, Marie-Pierre Fontaine-Aupart, Vincent Thomas, Florence Dubois-Brissonnet, Arnaud Bridier, Romain Briandet
2. **Fluorescence Microscopy Approaches to Study Antimicrobial Molecules Diffusion-Reaction inside Biofilms (poster)**
EuroBiofilms 2009, Roma, Italy, Samia Daddi Oubekka, Ekaterina Tishchenko, Karin Steenskeste, Francois Waharte, Romain Briandet, Marie-Pierre Fontaine-Aupart
3. **Time and Spatial Dynamics of the Antimicrobial Action in Biofilms**
3rd International Conference, Biofilms III, 2008, Munchen, Germany, Ekaterina Tishchenko, Vincent Thomas, Florence Dubois-Brissonnet, Arnaud Bridier, Karin Steenskeste, Marie-Pierre Fontaine-Aupart, Romain Briandet
4. **Motility in *Bacillus cereus* biofilms (poster)**
3rd International Conference, Biofilms III, 2008, Munchen, Germany, Ali Houry, Ekaterina Tishchenko, Stephane Aymerich, Michel Gohar and Romain Briandet.
5. **Dynamique Spatio-Temporelle de l'Action d'Agents Antimicrobiens au Sein de biofilms**
3emes Journées Thématique, Réseau national Biofilms, 2008, Dourdan, France, Ekaterina Tishchenko, Vincent Thomas, Florence Dubois-Brissonnet, Arnaud Bridier, Romain Briandet
6. **Characterisation of mechanisms of vesicular traffic and exocytosis in *Dictiostelium discoideum* (poster)**
38th Annual Meeting of the Union of Swiss Societies for Experimental Biology USGEB/USSBE, 2006, Geneva, Switzerland, M. Essid, N. Gopaldass, E. Tishchenko, T. Soldati.
7. **Intercalating Insert into Internucleotide Linkages as Method of Stabilization and Detection of Short DNA-Duplexes**
IV Enghelgardt International Conference of the Molecular Biology, 1999, Moscow, Russia, E.I. Tishchenko, S. V. Kochetkova, E. N. Timofeev, I.L. and V. L. Florentiev.
8. **Embedding an Intercalating Insert into Internucleotide Linkages a Method of Stabilization and Detection of Duplexes of Short Oligonucleotides with DNA**
XIII International Round Table "Nucleosides, Nucleotides and Their Biological Applications", 1998, Montpellier, France, E.I. Tishchenko, S. V. Kochetkova, E. N. Timofeev, I.L. Shchaveleva, and V. L. Florentiev.
9. **Investigation of the Intermolecular Associates of Tetraplex Form Nuclear Acids by Optical Methods**
XXXIX Scientific conference of Moscow Institute of Physics and Technology, 1996, Moscow, Russia, E.I. Tishchenko, O. P. Borisova and V. L. Florentiev.