

DARYA PAVLOVNA VANICHKINA

PRESENT ADDRESS

Taft Laboratory
Institute for Molecular Bioscience
University of Queensland
St Lucia, Queensland 4072

CONTACT INFORMATION

Work phone: (07) 3346 2356
Skype username: darya_van
Email: d.vanichkina@gmail.com
d.vanichkina@imb.uq.edu.au

CURRENT POSITION

Research higher degree student. Working on the activity-dependent changes in cellular RNA as a result of neuronal activity under the supervision of Dr. Ryan Taft. Co-supervised by A/Prof. Ernst Wolvetang, Dr. Cas Simons, Dr. Guy Barry and Professor John Mattick.

EDUCATION

Department of Molecular Biology, Biology Faculty of Lomonosov Moscow State University
Specialist Degree in Biochemistry, with a Major in Molecular Biology
Degree conferred with Highest Honours in June 2010

EXPERIENCE

Senior Thesis

Institute of Bioorganic Chemistry Fall 2009 - June 2010
Laboratory of Structure and Functions of Human Genes

Investigating the Expression of PIWI Orthologs in Normal and Cancerous Human Tissues *Advisor: T.L. Azhikina, PhD, D.Sc.; Reviewer: Professor A.A. Kolesnikov, PhD, D.Sc.*

Using RT-qPCR demonstrated that expression of human PIWIL homologues is lower in various types of germ cell tumors than in normal tissue taken from the same patient, contradicting studies describing the overexpression of HIWI (*Qiao et al. 2002*) and HILI (*Lee et al. 2006*) specifically in most seminomas as compared to NSGCT, thereby showing the impracticability of their use in clinical practice as seminoma tumor markers.

Conducted the first study of PIWIL expression in human embryonic material, and demonstrated that these genes are transcribed at specific stages during lung and esophageal development, at much higher levels than characteristic of the respective adult tissues.

Junior Thesis

Institute of Bioorganic Chemistry April 2008 - Fall 2009
Laboratory of Structure and Functions of Human Genes

Characterization of a novel transcript from human locus *ATP4A-KIAA0841 (chr19)* *Advisors: T.L. Azhikina, PhD, D.Sc.; Reviewer: Professor S. V. Razin, PhD, Corresponding Member of the Russian Academy of Sciences*

Characterized a novel transcript from a model locus of *chr19* studied at the LSFHG using Step-out RACE, thereby showing a correlation between epigenetic status (chromatin conformation and DNA methylation patterns) and transcriptional activity. Demonstrated the cell-type specific expression of this transcript, and conducted bioinformatic analysis of conservation, coding capacity and secondary structure of this RNA.

Research Assistant

Lomonosov Moscow State University Spring 2005 - 2007
Department of Molecular Biology

Visualization of amiodarone-induced DNA exchange in yeast using electron, confocal and fluorescent microscopy *Advisor: T.S. Kalebina, PhD, D.Sc.*

Using electron, fluorescent and confocal microscopy techniques visualized DNA transfer through the cell wall in pre-apoptotic yeast cells under the influence of amiodarone. Also assisted senior faculty at the Department of Molecular Biology in conducting lectures and seminars, helped prepare grant applications and reports, and was responsible for achievement of supplies, book keeping, and inventory management as part of my primary duties as a research assistant.

RESEARCH INTERESTS

I am interested in using bioinformatic and systems biology approaches to understand how the human genome works: how much variability at the genetic level is there between individuals, and how does it affect our phenotype and propensity to disease? What layers of regulation determine which genes are expressed, to generate which transcripts, and what roles can non-coding RNA (especially lncRNA) play in the cell? What molecular mechanisms underpin differentiation and the function of the adult nervous system? What are the roles of RNA editing, how widespread is it, and how can we accurately use HTS to elucidate the extent of editing in various tissues, and in response to stimuli?

PUBLICATIONS

Lybæk H, de Bruijn D, Engelsman-van Dijk den AH, Vanichkina D, Nepal C, Brendehaug A, and Houge G (2013) **RevSex duplication-induced and sex-related differences in the SOX9 regulatory region chromatin landscape in human fibroblasts.** *Epigenetics* 9(3) pp. 416-427 doi:10.4161/epi.27474.

Barry G, Briggs JA, Vanichkina DP, Poth EM, Beveridge NJ, Ratnu VS, Nayler SP, Nones K, Hu J, Bredy TW, Nakagawa S, Rigo F, Taft RJ, Cairns MJ, Blackshaw S, Wolvetang EJ, Mattick JS (2013). **The long non-coding RNA Gomafu is acutely regulated in response to neuronal activation and involved in schizophrenia-associated alternative splicing.** *Molecular psychiatry* doi: 10.1038/mp.2013.45

CONFERENCE PRESENTATIONS

Ataxia-telangiectasia iPS-derived neuronal transcriptome *35th Lorne Genome Conference, Lorne, Victoria 2014*

Activity-dependent transcriptional dynamics in mouse cortical and human iPS - derived neurons *33rd Lorne Genome Conference, Lorne, Victoria 2012*

A Novel Non-coding Human Transcript from Locus ATP4A-HAUS5 (Chr19) *14th International Pushchino School-Conference for Young Scientists "Biology- Science of the XXI century" 2010*

Characterization of a Novel Transcript from Human Locus ATP4A-HAUS5 (Chr19) *XVII International student, postgraduate and young scientist conference "Lomonosov" 2010*

Characterization of a Novel Transcript from Human Locus ATP4A-KIAA0841 (Chr19) *XXII Winter School for Young Scientists "Promising Areas of Physico-chemical Biology and Biotechnology" 2010*

HONORS AND AWARDS

Student Poster Prize (February 2014) 35th Lorne Genome Conference, Lorne, Victoria 2014

3 Minute Thesis Competition - 1st place (August 2013) Institute For Molecular Bioscience, University of Queensland

ANZ Trustees Scholarship for Medical Research (2010 - present)

R.B. Khesin Award for Outstanding Junior Thesis (April 2009) Department of Molecular Biology, Lomonosov Moscow State University

NON-RESEARCH ACTIVITIES

IMB Science Ambassador, August 2012 - present

Tutor, SCMB UQ, involved in Bioinformatics, Genetics and Microbiology undergraduate courses: BIOL3004 (Semester 1, 2013; Semester 1, 2014), BIOL2200 (Semester 1, 2012; Semester 1, 2013; Semester 1, 2014); MICR3004 (Semester 2, 2012; Semester 2, 2013); MICR3003 (Semester 1, 2011; Semester 1, 2012); BIOL2202 (Semester 2, 2011)

President, Students of the Institute of Molecular Bioscience Student Association (SIMBA), August 2011 - August 2012

Mentor/Advisor, Club of Young Biologists, Moscow Zoo and Club of Young Biologists, Zvenigorod Biological Station, Lomonosov Moscow State University, Fall 2004 - December 2010