

DARYA PAVLOVNA VANICHKINA

TAFT/SIMONS LABORATORY

Institute for Molecular Bioscience
University of Queensland
St Lucia, Queensland 4072
Phone (07) 3346 2356

CONTACT INFORMATION

Skype: darya_van
Email: d.vanichkina@gmail.com
darya.vanichkina@uqconnect.edu.au
www.daryavanichkina.com

CURRENT POSITION

Genomics and bioinformatics research higher degree student (thesis under review) investigating the transcriptional landscape of the mammalian nervous system using RNA sequencing. Supervised by Dr Ryan Taft, co-supervised by A/Prof Ernst Wolvetang, Dr Cas Simons, Dr Guy Barry and Prof John Mattick. Focused on:

- Uncovering a novel role for the ncRNA *Gomafu* in mammalian neuronal activity
- Characterisation of the Ataxia Telangiectasia cerebellar neuronal progenitor transcriptome
- Characterisation of the oligodendrocyte precursor transcriptome
- Genome-wide identification of miRNA targets using a novel nucleoside analogue

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

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
- 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 (2014). **The long non-coding RNA *Gomafu* is acutely regulated in response to neuronal activation and involved in schizophrenia-associated alternative splicing.** *Molecular psychiatry* 19, pp. 486 - 494
- Kalebina TS, Sokolov SS, Selyakh IO, Vanichkina DP, Severin FF (2015) **Amiodarone induces cell wall channel formation in yeast *Hansenula polymorpha*** *Springerplus* 4:453

RESEARCH EXPERIENCE (prior to PhD)

Senior Thesis

Institute of Bioorganic Chemistry Fall 2009 - 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 and Western blotting investigated the expression of PIWI orthologs in normal and cancerous human tissues and embryonic material.

Junior Thesis

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

Characterisation 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. Characterised a novel transcript, cell type specific transcript from *chr19* using Step-out RACE and bioinformatic analyses, showing a correlation between chromatin conformation, DNA methylation and transcription.

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. Assisted senior faculty at the Department in conducting lectures and seminars, helped prepare grant applications and reports, and was responsible for achievement of supplies, book keeping, and inventory management.

RESEARCH TECHNIQUES & SKILLS

Running independent and collaborative research projects

RNA sequencing data analysis: differential gene & isoform expression analysis, alternative splicing, novel transcript annotation, repeat expression, RNA editing investigation, small RNA expression

Data visualisation: UCSC, Ensembl and ECR genome browsers

Microarray data analysis: differential gene expression and genotyping

Functional analysis: single enrichment, gene-set based & ontology analysis

Biostatistics: NGS and microarray normalisation, regression, multiple testing correction

Systems biology and biological networks analysis, including using Cytoscape, Metacore GeneGO & Ingenuity Pathway Analysis

Programming: python, R, awk, bash UNIX shell scripting, MySQL databases, version control using git, high performance computing using portable batch systems. Bioinformatics pipeline establishment on HPC clusters.

Molecular biology techniques: nucleic acid and protein purification, RT end point & quantitative PCR, RACE, Western & Northern blotting, NGS library preparation, cell culture & molecular cloning, *in situ* hybridization, immunofluorescence & immunohistochemistry

Microscopy: brightfield, confocal and electron - sample preparation, imaging and image analysis

CONFERENCE PRESENTATIONS

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

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"*

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*

HONOURS AND AWARDS

Boehringer Ingelheim Travel Grant (August 2014) Boehringer Ingelheim Travel Grant to visit the laboratory of A/Prof. Goncalo Castelo-Branco at Karolinska Institutet

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

3 Minute Thesis Competition - 1st place (August 2013) IMB, UQ

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

TEACHING, COMMUNITY OUTREACH & PROFESSIONAL PARTICIPATION

Software Carpentry Instructor, June 2015 - present

IMB Science Ambassador, August 2012 - present

Tutor, SCMB UQ, involved in Bioinformatics, Genetics and Microbiology undergraduate courses: BIOL3004 (Sem. 1, 2013, 2014, 2015), BIOL2200 (Sem. 1, 2012, 2013, 2014, 2015); MICR3004 (Sem. 2, 2012, 2013); MICR3003 (Sem. 1, 2011, 2012, 2015); BIOL2202 (Sem. 2, 2011)

ATSE Wonder of Science Young Science Ambassador, 2014

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

REFEREES

Professor John Mattick

Garvan Institute of Medical Research

j.mattick@garvan.org.au

Dr Cas Simons

Institute for Molecular Bioscience, UQ

c.simons@imb.uq.edu.au

Dr Ryan Taft

Illumina Inc.

rtaft@illumina.com

A/Prof Scott Beatson

School of Chemistry & Molecular Bioscience, UQ

s.beatson@uq.edu.au