

CV and publications of Dr. Alexey Larionov

MSc Bioinformatics, PgCert Academic Practices, PhD Medicine, Bachelor Medicine

www.larionov.co.uk

Current employment (since September 2021): Lecturer in Bioinformatics

Bioinformatics group; School of Energy, Environment and Agrifood; Cranfield University, UK

My current research interest lies in long-reads sequencing data analysis, including whole 16S gene/ rRNA-operon sequencing, and differential isoforms expression in long-reads RNA-seq data. Also, I am a co-investigator in RestREco project (<https://restreco.com/consortium-members>), where I supervise bioinformatics for the soil metagenomics data.

My teaching responsibilities in Cranfield University include leading modules for the MSc postgraduate course in Applied Bioinformatics (including Introduction to Bioinformatics using Python, and Introduction to Epigenetics, Proteomics and Metagenomics modules), supervision and marking of MSc student group projects and MSC thesis projects, as well as ad-hock activities like progress evaluation and examining PhD theses.

Along with tasks carried out for the employment in Cranfield, I still occasionally publish about genetic predisposition to cancer (completing analyses of data collected during my previous job in Cambridge), teach in European Institute of Bioinformatics (the Bioinformatics for PIs course, the Cancer Genomics course, and the Rare Variants analysis webinar). My other academic activities include reviewing and editing (see <https://publons.com/researcher/1373942/alexey-larionov/peer-review/>).

Previous employments

2013-2021: Research Associate (Bioinformatics)

Department of Medical Genetics, School of Clinical Medicine, Cambridge University, UK

When I worked for the Medical Genetics Department in Cambridge University my main task was to provide bioinformatics support to diverse research projects in heritable predisposition to cancer.

I analyzed data for a wide range of different projects: from small rare-disease datasets to the large datasets derived the 100-Thousand Genomes (Genomics England) project. I designed and implemented pipelines in different computational environments including HPC clusters and cloud computing (AWS); the analysis types included secondary bioinformatics (from FASTQ to VCF) and various tasks down-stream of VCF (variant annotation and prioritization, rare variant association analyses, selection of variants based on functional and biological criteria, etc). During that employment I have contributed to a number of well cited papers in reputable journals (see publications 2013-2021) and completed multiple additional courses in different aspects of bioinformatics.

My teaching included supervising research projects and marking theses for the postgraduate course in Genomic Medicine, provided by the Department of Medical Genetics.

Along with the tasks carried out for the employment in Cambridge, I published about hormonal and targeted treatments in breast cancer (carrying over from my previous research in Edinburgh), and continued teaching in the Endocrine Physiology and Pharmacology Honors course in Edinburgh University. My other academic activities included reviewing, editing (<http://www.springer.com/us/book/9783319179711>), and I reviewed grants for CRUK and Breast Cancer Now.

2008-2013: Research Fellow

Edinburgh Cancer Research Centre, The University of Edinburgh, UK

My main task was to study transcriptional profiles of breast cancer biopsies to understand and predict response and resistance to aromatase inhibitors (a hormonal treatment) in breast cancer.

My specific tasks and responsibilities included:

- Selection of optimal sets of informative genes (based on differential gene expression between responders and non-responders)
- Design and validation of classification algorithms for response prediction (comparing regression models, SVM and decision tree- based algorithms)
- Low level microarray data analysis (mainly R-libraries for Illumina and Affymetrix RNA microarrays)
- Supervision and support for PhD, MSc and MD students within the research group
- Preparation of publications, grant applications and presenting results at international conferences

I reported scientific results obtained during that employment in multiple well cited papers and scientific meetings (see list of publications prior 2013). Along with bioinformatics and wet-lab tasks during that employment I completed MSc in Applied Bioinformatics (Cranefield University, 2012) and PgCert in Academic Practices (Edinburgh University, 2013), reviewed papers for multiple journals and reviewed grants for Genesis Oncology Trust (currently The Cancer Research Trust, New Zealand) and Health Research Board (HRB, Ireland).

2002 – 2007: Research Fellow

Breast Research Unit, Edinburgh Western General Hospital, HNS Lothian, UK

Tasks and responsibilities: Study mechanisms and markers of endocrine resistance in breast cancer, validate micro-array gene expression results with RT-qPCR:

- Development of real-time quantitative PCR methodology for gene expression measurements in clinical samples of breast cancer
- Organizing clinical samples storage and clinical annotations
- Extraction of RNA from tumour biopsies, design and validation of PCR primers, qPCR data analysis

During that employment I performed qPCR analysis in hundreds of samples for multiple genes pre-selected from previous micro-array results. Also, I developed and published a standard curve based method for qPCR data analysis, which has already been cited more than 900 times (Larionov et al, BMC bioinformatics, 2005).

2001 – 2002

Clinical Research Associate

PSI Pharma Support Inc., St. Petersburg, Russia

Monitoring patients' well-being and regulatory compliance in breast cancer clinical trials.

2000

Postdoctoral Research Fellow (fellowship awarded by the Royal Society)

Breast Research Unit, The University of Edinburgh, UK

Study local estrogen production in breast cancer tissue and in other peripheral tissues. Resulted into two well-cited 1-st author papers.

1992 – 1999

Postgraduate student (specialization in clinical oncology) then **PhD student** (oncology) then **Researcher**

N.N.Petrov Institute of Oncology, St. Petersburg, Russia

Education

- 2011-2013 Postgraduate Certificate in Academic Practices**
Edinburgh University, UK
- 2010-2012 MSc in Applied Bioinformatics** (bursary awarded by BBSRC)
Cranfield University, UK
- 2001-2002 Postgraduate Certificate in computer sciences**
State Polytechnical University, St. Petersburg, Russia
- 1994-1997 PhD in medicine** – as recognized by UK NARIC
N.N.Petrov Institute of Oncology, St. Petersburg, Russia
- 1992-1994 Postgraduate specialization in medical oncology**
N.N.Petrov Institute of Oncology, St. Petersburg, Russia
- 1984-1992 Bachelor degree in medicine** (diploma with distinction) – as recognized by UK NARIC
I.P.Pavlov State Medical University, St. Petersburg, Russia

Selected publications

Articles

These are only papers published within the last 5 years (since 2018) or cited at least 100 times.

My overall citation count is 4,501 and the overall h-index is 26, as given by Google Scholar on 24Feb2023:

<https://scholar.google.co.uk/citations?hl=en&user=hGLiJ-kAAAAJ>

Articles published within the last 5 years (2018-present)

Larionov A et al (2023) The contribution of germline pathogenic variants in breast cancer genes to contralateral breast cancer risk in BRCA1/BRCA2/PALB2-negative women. *Cancers* <https://doi.org/10.3390/cancers15020415>

Yngvadottir B, ... **Larionov A et al (2022)** Frequency of pathogenic germline variants in cancer susceptibility genes in 1336 renal cell carcinoma cases. *Human Molecular Genetics* <https://doi.org/10.1093/hmg/ddac089> **Cited 2 times**

Fewings E, ... **Larionov A et al (2021)** Investigating the clinical, pathological and molecular profile of oncocytic adrenocortical neoplasms: a case series and literature review. *Endocrine Oncology*. <https://doi.org/10.1530/EO-21-0011>

Goldgraben M, ... **Larionov A et al (2020)** Genomic profiling of acute myeloid leukaemia associated with ataxia telangiectasia identifies a complex karyotype with wild-type TP53 and mutant KRAS, G3BP1 and IL7R. *Pediatric Blood & Cancer*. <https://doi.org/10.1002/pbc.28354> **Cited 2 times**

Fewings E, ... **Larionov A et al (2019)** Malta (MYH9 Associated Elastin Aggregation) Syndrome: Germline Variants in MYH9 Cause Rare Sweat Duct Proliferations and Irregular Elastin Aggregations. *J Invest Dermatol*. <https://doi.org/10.1016/j.jid.2019.03.1151> **Cited 6 times**

Larionov AA (2018) Current therapies for human epidermal growth factor receptor 2-positive metastatic breast cancer patients. *Front Oncol*. 8:89, <https://doi.org/10.3389/fonc.2018.00089> **Cited 76 times**

Fewings E, **Larionov A et al (2018)** Germline pathogenic variants in PALB2 and other cancer-predisposing genes in families with hereditary diffuse gastric cancer without CDH1 mutation: a whole-exome sequencing study. *Lancet Gastroenterol Hepatol*. [https://doi.org/10.1016/S2468-1253\(18\)30079-7](https://doi.org/10.1016/S2468-1253(18)30079-7) **Cited 88 times**

Most cited earlier articles (published before 2018, cited at least 100 times)

- Turnbull AK, ... **Larionov AA, et al (2015)** Accurate prediction and validation of response to endocrine therapy in breast cancer. *J Clin Oncol*. <https://doi.org/10.1200/JCO.2014.57.8963> **Cited 112 times**
- Miller WR & **Larionov AA (2012)** Understanding the mechanisms of aromatase inhibitor resistance. *Breast Cancer Res*. <https://doi.org/10.1186/bcr2931> **Cited 104 times**
- Hrstka R, ... **Larionov A et al (2010)** The pro-metastatic protein anterior gradient-2 predicts poor prognosis in tamoxifen-treated breast cancers. *Oncogene*. <https://doi.org/10.1038/onc.2010.228> **Cited 123 times**
- Creighton CJ, ... **Larionov AA et al (2009)** Residual breast cancers after conventional therapy display mesenchymal as well as tumor-initiating features. *PNAS* <https://doi.org/10.1073/pnas.0905718106> **Cited 1,532 times**
- Miller WR, **Larionov A et al (2009)** Gene expression profiles differentiating between breast cancers clinically responsive or resistant to letrozole. *J Clin Oncol*. <https://doi.org/10.1200/JCO.2008.16.8849> **Cited 114 times**
- Miller WR, **Larionov A et al (2007)** Changes in breast cancer transcriptional profiles after treatment with the aromatase inhibitor, letrozole. *Pharmacogenet Genomics*. <https://doi.org/10.1097/FPC.0b013e32820b853a> **Cited 106 times**
- Mackay A, ... **Larionov A et al (2007)** Molecular response to aromatase inhibitor treatment in primary breast cancer. *Breast Cancer Res*. <https://doi.org/10.1186/bcr1732> **Cited 133 times**
- Tomlinson VAL, ... **Larionov A et al (2005)** Translation elongation factor eEF1A2 is a potential oncoprotein that is overexpressed in two-thirds of breast tumours. *BMC Cancer*. <https://doi.org/10.1186/1471-2407-5-113> **Cited 197 times**
- Larionov A et al (2005)** A standard curve based method for relative real time PCR data processing. *BMC Bioinformatics* <https://doi.org/10.1186/1471-2105-6-62> **Cited 1,003 times**

Book chapters

- Larionov A (2016)** Novel translational research of neo-adjuvant endocrine therapy. Chapter in *Personalized Treatment of Breast Cancer*. Editors: Masakazu Toi, Eric Winer, John Benson, Suzanne Klimberg. Springer, ISBN: 978-4-431-55551-3
- Larionov A & Miller WR (2015)** Prediction of Response to Aromatase Inhibitors in Breast Cancer. Chapter in *Resistance to Aromatase Inhibitors in Breast Cancer*. Editor: Alexey A Larionov, Series: *Resistance to Targeted Anti-Cancer Therapeutics*. Springer, ISBN: 978-3-319-17971-1
- Sims A, **Larionov A, et al. (2013)** Use of microarray analysis to investigate EMT gene signatures. Chapter in *Adhesion Protein Protocols*. Editor Amanda S. Coutts, Springer ISBN 978-1-62703-538-5

Book edited

- A. Larionov (editor) (2015)** Resistance to aromatase inhibitors in breast cancer. Springer, ISBN: 978-3-319-17971-1
<http://www.springer.com/us/book/9783319179711>

Conference talks

- Larionov A (2014)** Recent findings from translational research of neoadjuvant endocrine therapy. Invited lecture. Kyoto Breast Cancer Consensus Conference, 20-22 February 2014, **Kyoto, Japan**
- Larionov A (2013)** An invited faculty member for biomarker discovery panel discussion. Controversies in Breast Cancer conference, 9-10 February 2013, **Kolkata, India**
- Larionov A (2010)** Molecular heterogeneity of endocrine resistance in breast cancer: profiling of clinical specimens. Oral presentation in BIT Life Sciences' 3rd World Cancer Congress-Breast Cancer Conference: 25-27 April 2010, **Shanghai, China**
- Larionov A et al (2007)** Reproducibility and interpretation of quantitative gene expression measurements in breast cancer biopsies. Oral presentation in the 10th Nottingham International Breast Cancer Conference, 18 – 20 September, 2007, **Nottingham, UK**
- Larionov A et al (2004)** Data processing in real time PCR. Oral presentation in the 1st International qPCR Symposium & Application Workshop Transcriptomics, Clinical Diagnostics & Gene Quantification, 3rd - 6th March, 2004, **Freising-Weihenstephan, Germany**