Anna Gribkova

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Education

PhD, Lomonosov Moscow State University — **Oct 2019 – Oct 2023**
Faculty of Biology, Bioengineering Department — Moscow, Russia

MSc, Lomonosov Moscow State University — **Sep 2017 – June 2019**
Faculty of Biology, Bioengineering Department — Moscow, Russia
Major: Bioinformatics, Pharmacology
GPA 4.94 (5.0 is max). *Diploma summa cum laude*

BSc, Lomonosov Moscow State University — **Sep 2013 – Jun 2017**
Faculty of Biology, Bioengineering Department — Moscow, Russia
Major: Biochemistry, Biophysics, Molecular biology
GPA (5.0 is max). *Diploma summa cum laude*

Research experience

Integrative Biology Group
Bioengineering Department, Faculty of Biology, Moscow State Lomonosov University
Supervisors – Dr. Alexey K. Shaytan, Dr. Grigoriy Armeev

PhD research project: Bioinformatic analysis of physical and chemical properties of chromatin proteins with respect to liquid-liquid phase separation — **Oct 2019 - current**

Master research project: Construction and analysis of an interactome between nucleosomes and chromatin proteins, https://intbio.org/histoneppidb/ — **Sep 2017 – May 2019** Moscow, Russia

Bachelor research project: Modeling of the free energy profile of DNA unwrapping from histone octamer — **Sep 2015 – May 2017** Moscow, Russia

The laboratory of Computational Systems and Applied Programming Technologies — **Nov 2018 – Mar 2019** Moscow, Russia
Research Computer Center Lomonosov Moscow State University
Supervisor – Dr. Vladimir B. Sulimov

Research project: Investigation of enthalpy of Protein-Ligand Complexes using quantum-chemical methods

BostonGene, IT Healthcare — **May 2018 – Oct 2020** Moscow, Russia
Research Analyst
Predictive biomarker search and analysis. Profound analysis of drugs' mechanism of action. Co-author of the patent #11568959 (Tumor microenvironment-based methods for assessing CAR-T and other immunotherapies)

Research skills

Bioinformatic skills

Programming languages: Python (pandas, numpy, matplotlib, seaborn, scikit-learn, TensorFlow, Biopython), R (basic, DESeq2)

Simulation: GROMACS, NAMD

Visualization: VMD, Chimera, PyMol, Blender

Other: MM/PBSA, 3DNA, STATISTICA, Clustal W, MEGA, Blast, Psi-Blast, Git/GitHub, IntelliJ IDEA, bash

Laboratory skills	Basic biochemical techniques, gene and protein engineering, biological spectroscopy, confocal microscopy, isolation and identification of microorganisms
Business skills	Project management and planning, customer development

Publications [google scholar]

1. A. E. Bigildeev, V. I. Alekseev, **A. K. Gribkova**, G. S. Timokhin, G. A. Komarova & A. K. Shaytan / The Role of Changes in Structure and Dynamics of Chromatin due to COVID-19 // Russian Journal of Genetics, 2024
2. A. K. Shaytan, R. V. Novikov, R. S. Vinnikov, **A. K. Gribkova**, and G. S. Glukhov / From DNA-protein interactions to genetic circuit design using CRISPR-dCas systems // Frontiers in Molecular Biosciences, 2022
3. G. A. Armeev, **A. K. Gribkova**, A. K. Shaytan / Nucleosomes and their complexes in the cryoEM era: trends and limitations // Frontiers in Molecular Biosciences, 2022
4. R. L. Seal, P. Denny, E. A. Bruford, **A. K. Gribkova** et al. / A standardised nomenclature for mammalian histone genes // Epigenetics & Chromatin, 2022
5. D. Espiritu, **A.K. Gribkova**, S. Gupta, A.K. Shaytan, A.R. Panchenko / Molecular mechanisms of oncogenesis through the lens of nucleosomes and histones // The Journal of Physical Chemistry Part B: Biophysics, Biomaterials, Liquids, Soft Matter, 2021
6. R.V. Novikov, **A.K. Gribkova**, J.G. Kacher, P.A. Zaytsev, G.A. Armeev, G.S. Gluhov, A.K. Shaytan/ Design of nucleic acid biosensors based on CRISPR/Cas systems and reporter split-proteins // Vestnik Moskovskogo universiteta, 2021
7. A.V. Sulimov, D.C. Kutov, **A.K. Gribkova** et al. / Search for approaches to supercomputer quantum-chemical docking // 5th Russian Supercomputing Days, RuSCDays. Springer International Publishing Cham, 2019
8. G.A. Armeev, **A.K. Gribkova**, I. Pospelova et al. / Linking chromatin composition and structural dynamics at the nucleosome level // Current Opinion in Structural Biology, 2019
9. **A.K. Gribkova**, G.A. Armeev, A.K. Shaytan / Investigation of histone-DNA binding energy as a function of DNA unwrapping from nucleosome using molecular modeling // Vestnik Moskovskogo universiteta. Seriya 16. Biologiya, 2017

Selected conference presentations

Conference: MATHEMATICS. COMPUTER. EDUCATION — **Jan, 2024**, Dubna, Russia
Oral (in Russian): Using artificial intelligence to search for viral proteins that mimic human histones

EMBL Conference: Chromatin and epigenetics (awarded EMBL Conference fellowship) — **May, 2023**, Heidelberg, Germany
Poster: Comparative analysis of human nuclear proteome and chromatome composition from different experiments, databases and prediction algorithms

Conference: Genetic technologies in fundamental and practical research. — **Dec 2020,** Moscow, Russia
Oral (in Russian): Bioinformatic approaches to design guide RNA for set of detecting CRISPR/Cas systems

THE FEBS CONGRESS 2019 — **Jun 2019**, Krakow, Poland
Poster: Construction and analysis of an interactome between nucleosomes and chromatin proteins

Awards and Honors

Grant support for young scientists without a degree (postgraduate students) by Non-commercial Foundation for the Advancement of Science and Education INTELLECT — **2022-2023**

Scholarship of the Government of the Russian Federation in priority areas — **2021-2022**

Special scholarship on course Application of neural networks in research — **2021**

Increased State Academic Scholarship for noteworthy academic, research and athletic achievement (was awarded 9 times) — **Jan 2014 –July 2019**

E.N. Kondratieva Scholarship for excellent students (was awarded 2 times) — **Sept 2015 – May 2016**

Teaching experience

Instructor, "Introduction to Epigenetics and Chromatin" — **Apr 2023, 2024**
Developed course materials and taught 1-week course for master students, Sirius University of Science and Technology — Sirius, Russia

Instructor, "Python for Biologists", — **Nov 2021, 2022, 2023**
Developed course materials and taught 2-week course for master students, Sirius University of Science and Technology — Sirius, Russia

TA at Molecular Modeling course (Master's Program "Structural Biology and Biotechnology"), Lomonosov MSU — **Feb - May 2021**

TA at workshop on synthetic biology for bachelor students, Lomonosov MSU — **Sep 2019**

Extracurricular activities

IGEM 2020 — **Nov 2020**
Gold Medal, *Instructor of* Team Moscow 2020 — Boston, USA (online)
Project: HaploSense - biosensor for identification hepatitis C virus using CRISP/Cas System

iGEM 2019 — **Nov 2019**
Member of Team Moscow 2019: Bioinformatics, Human Practice — Boston, USA
Project: LymeExpress - biosensor for identification tick-borne diseases using CRISP/Cas System

BIOHACK 2019 — **Mar 2019**
Project: Development of a unified algorithm to search genomic rearrangements in the given structures. **First prize** — St.Petersburg, Russia

Ultimate frisbee
The winner of Russian Mixed Championship, personal award - most valuable player — **2017**
Spirit Captain in Lomonosov Moscow State ultimate frisbee team — **2014-2018**
Member of National junior ultimate frisbee team — **2015**