

SERGEY A. KORNILOV, PHD

Translational Science | Multi-Omics | Drug, Biomarker Discovery | Computational Systems Biology | ML & A.I.

@ sergey@kornilov.bio <https://www.linkedin.com/in/sergey-kornilov/> <https://github.com/biostochastics> 📍 Seattle, WA

SUMMARY

Translational and computational scientist with 10+ years of experience in behavioral and cognitive neuroscience; computational systems biology; biomarker development, patient stratification, and multi-modal as well as multi-omic data integration. Demonstrated success leading innovative projects and industry collaborations with Genentech, Gilead, Bryleos, Thorne, and others, generating \$1.5M in research revenue and securing \$5M+ in grant funding. Currently developing and guiding translational strategies for neurodegenerative diseases (ALS, Alzheimer's, PD/LBD, MS) with expertise in digital and molecular biomarker validation, clinical study design, *in silico* and A.I.-enabled drug development, and cross-functional team leadership. Combining rigorous computational approaches with deep biological understanding to arrive at actionable insights guiding therapeutic development. Passionate and talented data analyst driven to advance therapeutics development and transform patients' lives through innovative translational approaches.

EXPERIENCE

Principal Translational Scientist & Consultant

Biostochastics, LLC 08/2024 - Present Seattle, WA

- Clients include a U.S.-based bio-technology company where I am co-developing a proprietary physical pharmacy platform, directing the research and end-to-end translational strategy for their flagship asset. Designing and implementing *in silico*, *in vitro*, preclinical, as well as clinical and observational RWE studies.
- Advised a Swiss neuro-technology startup developing digital biomarker solutions for Lewy body Disease and Alzheimer's, developed the central patient and medical provider-centered market surveys;

Senior Research Scientist 2

Institute for Systems Biology 08/2019 - 07/2024 Seattle, WA

- Accelerated ~\$1,500,000 in research contract revenue;
- Designed a double-blind placebo-controlled study of a nutraceutical; led the project from initial SoW to draft of study data publication / CSR report;
- Interfaced with key stakeholders on projects evaluating the multi-omic effects of medications (ocrelizumab, remdesivir, finasteride, SSRIs, statins, NAD+);
- Led computational, statistical analysis, ML and writing efforts for six projects with Genentech, Gilead, Finasteride Assoc., iCarbonX US, Bryleos, and Thorne
- Helped co-develop new Olink PEA protocol for Illumina's P3 flowcell, resulting in 30% in savings for proteomics services; ensured QA/QC; provided statistical and experimental design support customers of the Molecular Core and ISB scientists

Research Scientist II - Statistical Geneticist

Arivale, Inc 10/2018 - 05/2019 Seattle, WA

- Oversaw transition to a genotyping microarray chip for DTC genetics program;
- Identified subtypes of consumers of a commercial scientific wellness program;
- Developed genetic insights (polygenic scores for obesity, T2DM); collaborated with the clinical team to create digestible physician- and client-facing materials;

Research Assistant Professor (TIMES, GENESIS Lab)

University of Houston 06/2017 - 09/2018 Houston, TX

- Led bioinformatics analyses for the molecular core at GENESIS; developed the full bioinformatics pipeline HPC for WES and WGS; oversaw lab expansion via acquisition of a benchtop Ion S5+ sequencer, design of experiments.
- Led the neurophysiological component of a clinical trial with Houston Juvenile Court Probation Department (co-authored P20 grant P20HD091005 securing >\$2,400,000 in direct costs to conduct the trial), developed trial biomarkers.

KEY ACHIEVEMENTS

Research Excellence

Published 65+ articles, advancing developmental neuroscience, multi-omic precision medicine, and systems biology. Recipient of an SRCD outstanding doctoral dissertation in developmental science award for early research on molecular genetic and neurophysiological bases of developmental disorders.

Funding Acquisition Success

Secured over \$6.5 million funding for clinical trials, enhancing patient stratification and biomarker validation.

Leadership

Formal training in biotechnology project management. I am currently guiding a translational program covering several neurodegenerative diseases at an emergent biotech company that I consult for.

EDUCATION

PhD, Experimental Psychology

University of Connecticut

2009 - 2014 Storrs, CT

- Neurophysiological and Genetic Bases of Developmental Language Disorder

PhD, Educational Psychology/Psychometrics

Moscow State University

2009 - 2012 Moscow, Russia

POST-DOCTORAL TRAINING

Duncan Scholar in Human and Mol. Genetics

Baylor College of Medicine

2016 - 2018 Houston, TX

Postdoctoral Fellow 2

University of Houston; Texas Institute of Measurement, Evaluation, and Statistics

2016 - 2017 Houston, TX

Postdoctoral Associate

Yale University; School of Medicine

2014 - 2016 New Haven, CT

SPECIALIZED TRAINING

Project Management in Biotechnology (Program)

University of Washington & UCSD

Disease Modeling and Target Discovery (Course)

In Silico Medicine

Next-Generation DNA Sequencing (Course)

National Human Genome Research Institute

TETRAD: Graphical and Causal Modeling (Course)

American Statistical Association

Structural Equation Modeling (Course)

Freie Universitat, Berlin

EXPERIENCE

Research Scientist

St. Petersburg State University 01/2016 - 12/2017 Russian Federation

- Conceptualized, executed, and secured the "mega-grant" renewal for the Translational Neuroscience of Early Childhood laboratory; built out experimental design, EEG data acquisition, and signal processing expertise of the team. Trained and led a team of 3 PhDs and two graduate students. Acted as Deputy Lab Director. Launched a translational program that is still running and being published.

DOMAIN EXPERTISE AND SKILLS

Multi-Omics and Systems Biology

NGS • High-throughput Proteomics (Olink and SomaScan) • Metabolomics •
Transcriptomics (bulk and scRNA-Seq) • Spatial Omics • Pathway Analyses •
Cell Type Deconvolution • Dimensionality Reduction • (Un)Supervised ML •
Network-Based Multi-Omic Integration • WCGNA • MEGENA •
Dynamic Dashboards (Shiny and Streamlit) • Meta-Analysis

Biomarker Discovery and Drug Development

Target Engagement • Pharmacodynamic Biomarkers • Patient Stratification •
Predictive Biomarkers • Longitudinal Biomarker Analysis •
Surrogate Endpoint Development • Translational Biomarker Strategy •
Pre- and Clinical Trial Design & Analysis • A.I.-driven Drug Development •
Advanced Statistical Modeling (Networks, AI/ML) • MoA Characterization

Regulatory and Compliance

FDA CSR Documentation • Biomarker Validation • Statistical Analysis Plans •
Data Integrity Procedures • Context of Use Documentation • GxP Principles •
Analytical Method Validation • CDISC (SDTM / ADAM)

PUBLICATIONS

(selected)

- **Kornilov, S.**, Price, N., Gelinass, R., ... & Magis, A. (2024). Multi-Omic characterization of the effects of Ocrelizumab in patients with relapsing-remitting multiple sclerosis. *Journal of the Neurological Sciences*. 467, 123303
- Heath, L. Earls, J., Magis, A., **Kornilov, S.**, ... Price, N. (2022). Manifestations of Alzheimer's disease genetic risk in the blood are evident in a multiomic analysis in healthy adults aged 18 to 90. *Scientific Reports*, 12(6117).
- Wilmanski, T., **Kornilov, S.**, ... & Gibbon, S. (2022). Heterogeneity in statin responses explained by variation in the human gut microbiome. *Cell Med*, 3(6), 388-405
- The COVID-19 Genetics Consortium Writing Group. (2021). Mapping the human genetic architecture of COVID-19. *Nature*, 600(7889), 472-477
- **Kornilov, S.**, Lucas, ... & Magis, A. (2020). Plasma levels of soluble ACE2 are associated with sex, Metabolic Syndrome, and its biomarkers in a large cohort, pointing to a possible mechanism for increased severity in COVID-19. *Critical Care*, 24, 452.
- **Kornilov, S.A.**, Rakhlin, N., Kopolov, R., Lee, M., Yrigollen, C., Caglayan, A., Magnuson, J.S., Mane, S., Chang, J., & Grigorenko, E.L. (2016). Genome-wide association and exome sequencing study of language disorder in an isolated population. *Pediatrics*, 137(4), e20152469.
- **Kornilov, S.A.**, Zhukova, M.A., Ovchinnikova, I.V., ... & Grigorenko, E.L. (2019). Language outcomes in adults with a history of institutionalization: behavioral and neurophysiological characterization. *Scientific Reports*, 9, 1-13.

AWARDS

Outstanding Doctoral Dissertation
in Developmental Science
Society for Research in Child Development

Post-doctoral Merit Award
Society for Neurobiology of Language

Best Research Project in Genetics
GoldenHelix, Inc

Isabelle Liberman Award
University of Connecticut

PUBLIC SERVICE

Grant Reviewer
Medical Research Council (UK)

Outstanding Doctoral Dissertation Committee
Reviewer for SRCD

Ad Hoc Reviewer

Peer-reviewed Journals
Nature Communications, Scientific Reports, PLoS Medicine,
Child Development, American Journal of Medical Genetics
Part B, Advanced Science, Applied Neuropsychology: Child,
Genes, Metabolites, Learning and Individual Differences,
Assessment, Brain Sciences, Journal of Clinical Laboratory
Analysis, Diagnostics.

High School Intern Program

Institute for Systems Biology
Seattle, WA

CORE COMPETENCIES

Translational Research Design & Execution

Advanced Inferential Statistics (HLM, SEM, IRT, Robust
Statistics) and Biostatistics

Computational Systems Biology & Precision Health

Neuroimaging, Multi-Omics, and Digital Biomarkers

Neurodegenerative Diseases and Neurodevelopmental
Disorders

Data Science, Machine Learning, Cloud Environments
(AWS/Google, GitHub, Docker)

Data Visualization & Communication (Shiny, Quarto,
Jupyter Notebooks)

Statistical Programming (R [Expert], Python, SQL)

LANGUAGES

English 
Russian 