Daniel Sultanov PhD candidate
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EDUCATION

PhD **Biology**, New York University, *New York*, *NY* Sept. 2018 – May 2023 (expected)
Thesis: Intraspecies sequence diversity and evolution of ribosomal RNA
Dissertation advisor: Andreas Hochwagen, PhD

MSc **Molecular Biology**, Moscow State University, *Moscow, Russia* June 2018
Thesis: PARP-1 interaction with DNA breaks in chromatin
Thesis advisor: Vasily Studitsky, PhD

BSc **Molecular Biology & Biochemistry**, Moscow State University, *Moscow, Russia* June 2016
Thesis: Factor PARP-1 and recognition of DNA breaks in the nucleosome
Thesis advisor: Vasily Studitsky, PhD

RESEARCH EXPERIENCE

Genomics Researcher (PhD student) New York University, *New York*, *NY* Sept. 2018 – Present

- Lead a multidisciplinary project involving genomics, bioinformatics, structural and molecular biology
- Discovered and characterized ubiquitous sequence variation of ribosomal RNA in budding yeast, as a potential source of phenotypic diversity and novel translational regulation mechanisms
- Described previously understudied aspects of the evolution of multi-copy ribosomal RNA genes
- Develop large-scale computational and experimental approaches to streamline the exploration of new ribosomal variants with further validation as possible therapeutic targets and for future use in biotechnology and synthetic biology

Biochemistry Researcher Fox Chase Cancer Center, *Philadelphia, PA* Aug. 2016 – Aug. 2018

- Discovered a new epigenetic mode of protein PARP1 using FRET microscopy
- Initiated collaborative work on a previously undescribed mechanism of action of anti-cancer drugs
- Co-generated 2 successful grant proposals

TEACHING & MENTORSHIP EXPERIENCE

Teaching Assistant in Protein Biochemistry, New York University, *New York*, *NY* Sept. 2020 – Dec. 2022
Graduate-level course

- Taught 2 groups of students both online and in-person
- Prepared study material to help students better understand theory and techniques in protein biochemistry
- Organized midterm and final exams

Teaching Assistant in Principles of Biology, New York University, *New York*, *NY* Sept. 2019 – May 2020
Undergraduate-level course

- Facilitated discussions by using an interactive approach to teach groups of 15-25 students twice a week
- Adapted and taught online recitations to 2 groups of 24 students to broaden course accessibility

Research Supervisor Sept. 2021 – Nov. 2022

- Co-developed and oversaw large-scale whole genome sequencing research conducted by 2 graduate students

AWARDS & FELLOWSHIPS

- Fleur Strand Graduate Fellowship (NYU, USA, 2022)
  - ⇒ **Awarded to a student who shows promise in becoming a leader in biomedical research**
- Gladys Mateyko Research Award (NYU, USA, 2021)
  - ⇒ **Awarded to a student who demonstrated excellence in research**
- Best Graduate Poster Award (ASBMB Protein Data Bank Symposium, USA, 2021)
- Henry M. MacCracken Fellowship (NYU, USA, 2018-2023)
- Best Undergraduate Thesis Award (MSU, Russia, 2016)

PUBLICATIONS

- **Sultanov, D.** and Hochwagen, A. Varying strength of selection contributes to the intragenomic diversity of rRNA genes. *Nature Communications* 13, 7245 (2022).

PREPRINTS

- Molinar, T., **Sultanov, D.**, Klein, H., Hochwagen, A. Topoisomerase I promotes formation of a novel DNA intermediate in the ribosomal DNA. https://www.biorxiv.org/content/10.1101/2022.05.24.493248v1
- Rendleman, J., Mohammad, M., Pressler, M., Maity, S., Hronová, V., Gao, Z., Herrmannová, A., Lei, A., Allgoewer, K., **Sultanov, D.**, Hinckley, W., Szkop, K., Topisirovic, I., Larsson, O., Hatzoglou, M., Valášek, L., Vogel, C. Regulatory start-stop elements in 5' untranslated regions pervasively modulate translation. https://www.biorxiv.org/content/10.1101/2021.07.26.453809v2

INVITED TALKS

- Rockefeller University - Genome integrity meeting, USA 2022

CONFERENCE TALKS

- Biochemical society - Translation, UK 2021
- Temple University - Fels Institute Trainee Day, USA 2018

POSTER PRESENTATIONS

- Deep selection shapes the intragenomic diversity of ribosomal RNA. RNA 2022 (Annual meeting of the RNA Society), USA 2022
- A workflow to investigate sequence diversity of highly repetitive rRNA genes in eukaryotes. International Plant and Animal Genome Conference, USA 2022
- Mining for functional ribosomal variants in *Saccharomyces cerevisiae*. ASBMB Protein Data Bank Symposium – 50th year celebration, USA 2021
  - ⇒ **Received an award for "Best graduate poster"**

PEER REVIEWS

- **BMC Cancer** (1 manuscript)
- **Cancer Biology and Therapy** (2 manuscripts)
- **Gene** (2 manuscripts)
- **STAR Protocols** (6 manuscripts)

PROFESSIONAL AFFILIATIONS

- RNA Society
- Society for Molecular Biology and Evolution