

Daniel Sultanov PhD candidate
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EDUCATION

PhD Biology , New York University, <i>New York, NY</i>	Sept. 2018 – May 2023 (expected)
<u>Thesis:</u> Intraspecies sequence diversity and evolution of ribosomal RNA	
<u>Dissertation advisor:</u> Andreas Hochwagen, PhD	
MSc Molecular Biology , Moscow State University, <i>Moscow, Russia</i>	June 2018
<u>Thesis:</u> PARP-1 interaction with DNA breaks in chromatin	
<u>Thesis advisor:</u> Vasily Studitsky, PhD	
BSc Molecular Biology & Biochemistry , Moscow State University, <i>Moscow, Russia</i>	June 2016
<u>Thesis:</u> Factor PARP-1 and recognition of DNA breaks in the nucleosome	
<u>Thesis advisor:</u> Vasily Studitsky, PhD	

RESEARCH EXPERIENCE

Genomics Researcher (PhD student) New York University, <i>New York, NY</i>	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, <i>Philadelphia, PA</i>	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, <i>New York, NY</i>	Sept. 2020 – Dec. 2022
<i>Graduate-level course</i>	
• 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, <i>New York, NY</i>	Sept. 2019 – May 2020
<i>Undergraduate-level course</i>	
• 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>

CONFERENCE TALKS

- **Sultanov, D.** and Hochwagen, A. Functional intraspecies ribosome heterogeneity on the rRNA level. Translation, UK 2021
- **Sultanov, D.**, Gerasimova, N., Studitsky, V. A new action of PARP1 in damaged chromatin. Fels Institute Trainee Day, Philadelphia, USA 2018

POSTER PRESENTATIONS

- **Sultanov, D.** and Hochwagen, A. Deep selection shapes the intragenomic diversity of ribosomal RNA. RNA 2022 (Annual meeting of the RNA Society), USA 2022
- **Sultanov, D.** and Hochwagen, A. A workflow to investigate sequence diversity of highly repetitive rRNA genes in eukaryotes. International Plant and Animal Genome Conference, USA 2022
- **Sultanov, D.** and Hochwagen, A. 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