

Matt Niederhuber



Genomics | Lasers | Wings

I am a developmental and computational biologist with strong experience in generating and analyzing large NGS datasets. I'm passionate about communicating science through writing and by obsessing over data visualization.

Experience

Doctoral Candidate

August 2016 - August 2023

Advisor: Dr. Daniel J. McKay

University of North Carolina, Chapel Hill NC

- > Led two projects on the regulation of enhancer activity in *Drosophila* wing development that resulted in first-author publications
- > Hands-on experience performing NGS assays like FAIRE-seq and CUT&RUN, generating NGS libraries, and performing library QC
- > Experience writing custom code in Python, R, and Bash to process raw NGS data, manage pipelines, analyze high-dimensional data, and generate publication quality graphics

Research Assistant II

June 2014 - July 2016

PI: Dr. Pamela A. Silver

Harvard Medical School, Boston MA

- > Led a project that studied the 3-D structure of the Cyanobacterial carboxysome using super-resolution microscopy that resulted in a first-author publication

Research Assistant

June 2013 - June 2014

PI: Dr. Jerard Hurwitz

MSKCC, New York NY

Education

PhD - Genetics & Molecular Biology

2016 - 2023

University of North Carolina

Chapel Hill, NC

- > NSF Graduate Research Fellow

Certificate - Premedical Sciences

2011 - 2013

Columbia University

New York NY

BA - English Literature

2006 - 2010

Kenyon College

Gambier, OH

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Skills

Computational:

NGS data processing,
NGS data exploration
and analysis,
HPC, Unix CLI,
Pipeline customization,
Snakemake, Git, ImageJ,
Adobe Creative Suite

Programming:

R, Python, Bash, HTML

Wet Lab:

Molecular techniques,
Microscopy,
NGS library prep,
FAIRE-seq, CUT&RUN,
Cell culture, Cloning

Selected Publications

Academic:

Niederhuber MJ, Leatham-Jensen M, McKay DJ. 2023. The SWI-SNF nucleosome remodeler constrains enhancer activity during *Drosophila* wing development. bioRxiv. DOI: 10.1101/2023.07.17.549384

Niederhuber MJ, McKay DJ. 2021. Mechanisms underlying the control of dynamic regulatory element activity and chromatin accessibility during metamorphosis. COIS. DOI: 10.1016/j.cois.2020.08.007

Nystrom SL*, **Niederhuber MJ***, McKay DJ. 2020. Expression of E93 provides an instructive cue to control dynamic enhancer activity and chromatin accessibility during development. Development. DOI: 10.1242/dev.181909 *equal contributors

Popular:

"UNC Scientists Partner with Citizen Scientists to Map Earth's River Obstructions."
UNC Institute for the Environment, 2019.

"Making Time Matter: How Hormone Pulses Direct Chromatin Accessibility During Development."
Development: The Node, 2017.

"Yes, This Exists: A Biohacker Hotline"
Popular Science, 2013.