

# LYDIA GRMAI, Ph.D.

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## EDUCATION

- Ph.D., Basic Medical Sciences 2011-2017  
*New York University*
- B.S., Biochemistry & Molecular Biology (cum laude) 2007-2011  
*University of Maryland, Baltimore County (UMBC)*

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## RESEARCH EXPERIENCE

- Postdoctoral Associate, University of Pittsburgh** Aug 2021-present  
Advisor: Dr. Deepika Vasudevan, Dept. of Cell Biology
- Identified interorgan cues downstream of stress response signaling in fat tissues that coordinate oogenesis and ovulation
  - Characterizing co-regulation of stress and hormonal signaling pathways in the context of reproduction
- Postdoctoral Associate, Duke University Medical Center** Nov 2021-present  
Advisor: Dr. Kafui Dzirasa, Dept. of Psychiatry
- Establishing novel genetic tools for modulating neural circuits in *Drosophila*
  - Investigating the systemic regulation of reproductive behaviors
- Postdoctoral Associate, Johns Hopkins University** Jan 2018-Jul 2021  
Advisor: Dr. Mark Van Doren, Dept. of Biology
- Identified a genetic link between systemic hormone signaling and sexual identity in the fruit fly *Drosophila melanogaster*
  - Designed a live reporter for assessing tissue-specific steroid hormone signaling activity
  - Found that sexual identity influences gonad development via interorgan communication
- Ph.D. Candidate, New York University School of Medicine** Apr 2012-Dec 2017  
Advisor: Dr. Erika Bach, Dept. of Biochemistry & Molecular Pharmacology
- Demonstrated that the transcription factor Chinmo is a gatekeeper of male sexual identity in the adult *Drosophila* testis via novel regulation of the sex determination pathway
  - Purified rare somatic stem cells from the *Drosophila* testis and performed transcriptional profiling to identify regulatory networks downstream of Chinmo
  - Identified a secreted factor in stem cells that maintains testis niche quiescence
- Undergraduate Researcher, University of Maryland, Baltimore County** Sep 2008-May 2011  
Advisor: Dr. Suzanne Ostrand-Rosenberg, Dept. of Biology
- Identified a mechanism by which tumor-induced myeloid-derived suppressor cells (MDSC) prevent immunotherapy-mediated breast cancer treatment using a mouse model
  - Performed *ex vivo* leukocyte culture and flow cytometry to determine that a pro-inflammatory environment yields MDSC that accumulate rapidly and are more resistant to Fas-mediated apoptosis

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## MANUSCRIPTS IN PREP

**Grmai L**, Jimenez E, Baxter E, Van Doren M. Sexual identity controls steroid hormone signaling during gonad niche development. (anticipated submission: Aug 2023)

**Grmai L\*\***, Mychalczuk M\*, Vasudevan D<sup>‡</sup>. Characterizing sex differences in the Integrated Stress Response in *Drosophila*. \*equal contribution †co-corresponding author (anticipated submission: Sep 2023)

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## DATA PUBLICATIONS & REVIEWS

**Grmai L**, Michaca M, Lackner E, Nampoothiri VP N, Vasudevan D (2023). Integrated Stress Response signaling acts as a metabolic sensor in fat tissues to regulate oocyte maturation and ovulation. *bioRxiv* doi: [10.1101/2023.02.27.530289](https://doi.org/10.1101/2023.02.27.530289) (currently under peer-review)

**Grmai L\***, Pozmanter C\*, Van Doren M (2022). The role of Sxl in *Drosophila* germline sexual identity instruction. *Sexual Development*. PMID: [35259743](https://pubmed.ncbi.nlm.nih.gov/35259743/) \*equal contribution

Herrera SC, Sainz de la Maza D, **Grmai L**, Margolis S, Plessel R, Burel M, O'Connor M, Amoyel M, Bach EA (2021). Proliferative stem cells maintain quiescence of their niche by secreting the Activin inhibitor Follistatin. *Dev Cell*. PMID: [34363758](https://pubmed.ncbi.nlm.nih.gov/34363758/)

**Grmai L\***, Harsh S\*, Lu S, Korman A, Deb IB, Brodsky M, Wolfe S, Bach EA (2021). Transcriptomic analysis of feminizing somatic stem cells in the *Drosophila* testis reveal putative downstream effectors of the transcription factor Chinmo. *G3*. PMID: [33751104](https://pubmed.ncbi.nlm.nih.gov/33751104/) \*equal contribution

**Grmai L**, Hudry B, Miguel-Aliaga I, Bach EA (2018). Chinmo prevents *transformer* alternative splicing to maintain male sex identity. *PLOS Genetics*. PMID: [29389999](https://pubmed.ncbi.nlm.nih.gov/29389999/)

Zoranovic T, **Grmai L**, Bach EA (2013). Regulation of proliferation, cell competition, and cellular growth by the *Drosophila* JAK-STAT pathway. *JAK-STAT*. PMID: [24069565](https://pubmed.ncbi.nlm.nih.gov/24069565/)

Chornoguz O, **Grmai L**, Sinha P, Artemenko KA, Zubarev RA, Ostrand-Rosenberg S (2011). Proteomic pathway analysis reveals inflammation increases myeloid-derived suppressor cell resistance to apoptosis. *Mol Cell Proteomics*. PMID: [21191032](https://pubmed.ncbi.nlm.nih.gov/21191032/)

<https://orcid.org/0000-0001-5465-7401>

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## OTHER PUBLICATIONS

**Grmai L**. A 'citizen science' approach to transforming scientific research and education. *Dev Biol*. PMID: [36774278](https://pubmed.ncbi.nlm.nih.gov/36774278/)

**Grmai L**. From motor neurons to Malta: A graduate student profile (2023). *Dev Biol*. PMID: [36774278](https://pubmed.ncbi.nlm.nih.gov/36774278/)

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## FUNDING, HONORS, & MEMBERSHIPS (\*denotes funding)

ISFS Associate, Intersections Science Fellows Symposium	Oct 2023
<b>*NIH MOSAIC K99/R00 Pathway to Independence Award</b>	May 2023-Apr 2028
*DeLill Nasser Award for Career Development (GSA)	Feb 2023
Member, Society for Developmental Biology	Jul 2022-present
Member, American Society for Cell Biology	Jul 2022-present
<b>*Ruth L. Kirschstein Institutional National Research Service Award (T32)</b>	Sep 2021-Mar 2023
<b>Leading Edge Fellow, Howard Hughes Medical Institute</b>	Apr 2021-present
Member, Genetics Society of America (GSA)	Jan 2017-present
<b>Honorable Mention, Burroughs Wellcome Fund</b>	
<b>Postdoctoral Enrichment Program</b>	June 2019
<b>*NIH Research Supplement to Promote Diversity in Health Research</b>	Feb 2018
<b>*UNCF-Merck Graduate Science Research Fellowship</b>	Apr 2015
<b>*Ruth L. Kirschstein National Research Service Award (F31, declined)</b>	Mar 2015

Special McCracken Award, NYU School of Medicine	Apr 2015
<b>Honorable Mention, NSF Graduate Research Fellowship Program</b>	Mar 2013
Intern, Research Experience for Undergraduates, University of Michigan	Jun 2010-Aug 2010
<b>*MARC U*STAR Trainee</b>	Aug 2009-May 2011
Intern, Summer Research Opportunity Program, Northwestern University	Jun 2008-Aug 2008
<b>*Robert &amp; Jane Meyerhoff Scholar</b>	Jun 2007-May 2011

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## PROFESSIONAL DEVELOPMENT

Early Career Reviewer, <i>eLife</i>	Nov 2022 - present
ASCB PAIR-UP Imaging Workshop, Rockefeller University	Nov 2022
Building Your Brand Workshop, HHMI Leading Edge Fellows Program	Sep 2022
Science Communications Intern, Society for Developmental Biology	Aug 2022-Aug 2023
Career Education & Enhancement for Health Care Research Diversity Program	Jun 2022-Jan 2023
NextProf Science Future Faculty Workshop, University of Michigan	May 2021 (virtual)
FlyBoard Postdoc Representative	Mar 2021-Mar 2023
NextProf Science Future Faculty Workshop, University of Michigan	May 2020 (virtual)

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## PRESENTATIONS

Poster, European <i>Drosophila</i> Research Conference, Lyon, France	Oct 2023
Platform Talk, Annual <i>Drosophila</i> Research Conference, Chicago, IL	Mar 2023
Symposia Talk, American Society for Cell Biology Annual Meeting, Washington, DC	Dec 2022
Invited Seminar, SDB Ethel Browne Harvey Postdoctoral Seminar Series (virtual)	Nov 2022
Invited Talk, Next Generation in Biomedicine Symposium, Broad Institute	Oct 2022
Poster, Cell Biology Department Retreat, University of Pittsburgh	Sept 2022
Poster, Annual <i>Drosophila</i> Research Conference, San Diego, CA	Apr 2022
Poster, Cell Biology Department Retreat, University of Pittsburgh	Sep 2021
Poster, Annual Rustbelt RNA Meeting (virtual)	Sep 2021
Invited Seminar, UIUC CDB Fall Seminar Series (virtual)	Sep 2021
Invited Seminar, Leading Edge Symposium, HHMI (virtual)	Jun 2021
Platform Talk, Student Success Summit, State University of New York	Apr 2021
Platform Talk, Annual <i>Drosophila</i> Research Conference (virtual)	Mar 2021
Platform Talk, The Allied Genetics Conference (virtual)	Apr 2020
Seminar, INSPIReD Seminar Series, Johns Hopkins University	Oct 2019
Poster, Annual <i>Drosophila</i> Research Conference, Dallas, TX	Mar 2019
Poster, Germ Cells Meeting, Cold Spring Harbor, NY	Oct 2018
Poster, Annual <i>Drosophila</i> Research Conference, San Diego, CA	Mar 2017
Poster, Germ Cells Meeting, Cold Spring Harbor, NY	Oct 2016
Poster, NYU Stem Cell Retreat (outstanding presentation)	May 2016
Platform Talk, NYU Molecular Pharmacology Retreat (outstanding presentation)	Apr 2016
Poster, NYU Molecular Pharmacology Retreat (outstanding presentation)	Apr 2015
Poster, Germ Cells Meeting, Cold Spring Harbor, NY	Oct 2014
Invited Talk, UMBC MARC Seminar Series, Baltimore, MD	Sep 2014
Platform Talk, ABRCMS (outstanding presentation award)	Nov 2009
Poster, UMBC Undergraduate Research Symposium (outstanding presentation)	Oct 2009

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## TEACHING & MENTORING

### Teaching Experience:

Biology Instructor, Virtual Summer Research Institute  
 Jun-Aug 2020, 2021, and 2022 via Zoom (*Farmingdale State College*)

- Assisted development of a virtual summer research experience for 18 Biology students
- Led a 3-week module (15 course hours) teaching students how to approach and dissect academic literature, delivering lectures on *Drosophila* genetics, and facilitating journal clubs
- Developed a 2-week laboratory course component for scholars to test a novel hypothesis experimentally in *Drosophila*
- Mentored two student groups through a virtual summer research project, presented in a poster symposium upon program completion

Teaching Assistant, Developmental Systems, Sackler Developmental Genetics Program  
*Fall 2016 & Fall 2017, New York, NY*

- Led a tutorial for first year graduate students on using the *Drosophila* testis as a model for studying stem cell maintenance
- Taught students common fly genetics techniques including adult fly dissection, immunofluorescence staining, and confocal microscopy.

### Research Trainees:

MELISSA MYCHALCZUK, Undergraduate Researcher Sep 2021-May 2023  
 Deepika Vasudevan Laboratory; University of Pittsburgh  
 Current Position: Ph.D. Student; Cornell University

SAMANTHA GOETTING, Rotation Student May 2021- Jul 2021  
 Current Position: Ph.D. Candidate; Mark Van Doren Laboratory; Johns Hopkins University

TAYLAR MOUTON, Rotation Student Jan 2020-Mar 2020  
 Current Position: Ph.D. Candidate; Nichole Broderick Laboratory; Johns Hopkins University

JOANNA MADDELA, Undergraduate Researcher Jun 2019-Aug 2019  
 Current Position: Undergraduate MARC Scholar; California State University, Northridge

WESLEY YON, Rotation Student Jan 2019-Mar 2019  
 Current Position: Ph.D. Candidate; Taekjip Ha and Yixian Zheng Laboratories; Johns Hopkins University

DARIA NAUMOVA, Rotation Student April 2018-Jun 2018  
 Current Position: Ph.D. Candidate; Marnie Halpern Laboratory; Dartmouth University

REBECCA PLESSEL, Undergraduate Researcher Jun 2015-Aug 2015  
 Current Position: Ph.D. Candidate; Ian Mohr Laboratory; New York University School of Medicine

SHALLY MARGOLIS, Ph.D., Undergraduate Researcher Jun 2012-July 2015  
 Ph.D, 2021, University of California, Berkeley  
 Current Position: Postdoc; Alexander Messke Laboratory, University of Washington

## DIVERSITY, EQUITY, INCLUSION (DEI) EFFORTS

### Advocacy:

Vice-President, Meyerhoff Alumni Advisory Board (MAAB)

*June 2015-August 2019*

Communications Committee Chair, Meyerhoff Alumni Advisory Board (MAAB)

*August 2022-present*

- Organized a national networking event and facilitated programming for >1,000 Meyerhoff alumni & STEM professionals
- Personally mentored dozens of scholars over the last 8 years, many of whom are now enrolled in/have graduated from PhD programs throughout the nation

Founding Member, INSPIReD at JHU (Inspiring Scientists, Promoting Inclusion, Recognizing Diversity)

*January 2019-present, Baltimore, MD*

- Supports scientists from historically excluded backgrounds by building a diverse and inclusive community on campus and providing opportunities to present their research to the community
- Began developing initiatives to increase the visibility of scholars that are systemically excluded

### Outreach:

Speaker, Undergraduate Research Association at Farmingdale State College (FSC)

*Nov 2022, virtual*

- Undergraduate Research Association comprises ~50 student researchers at FSC
- Prepared a seminar presentation to share my research as well as my academic journey

Panelist, Career Day, Clear Direction Mentoring

*May 2020, virtual*

- Clear Direction Mentoring provides immersive mentorship in the STEM fields for under-represented minority and disadvantaged high school students
- Invited to lead a 90-minute (virtual) session with current high school scholars to discuss my career path as a biomedical researcher

Lead Facilitator, Application Preparedness Workshop

*Oct 2018, Bowie, MD (Bowie State University)*

*Nov 2017, Farmingdale, NY (Farmingdale State College)*

- Invited to organize and direct part of an all-day workshop aimed to aid students (particularly URM/low income/adult learners) in preparing strong fellowship/internship applications

Organizer, Graduate School Prep Day, NYU School of Medicine

*March 2016, New York, NY*

- Co-organized an all-day workshop for over 60 NYC undergraduates including an admissions panel, a graduate student panel, and workshops on writing personal statements, IDP/career planning, and the GRE

Co-founder/Student Leader, Sackler Diversity Initiative, NYU School of Medicine

*Aug 2015-Aug 2017, New York, NY*

- Organized research seminars featuring URM scientists from across the country
- Conceived, budgeted, and implemented programs and forums with the goal of fostering an inclusive and socially conscious research community at NYU

Student Recruiter for NYU School of Medicine, Annual Biomedical Research Conference for Minority Students (ABRCMS)

*Nov 2012-2014, San Jose, CA/Nashville, TN/San Antonio, TX*

- Connected with hundreds of talented undergraduate scientists from historically excluded backgrounds
- Recruited several of these scholars to NYU for graduate school, many of whom are still mentees and colleagues

Lead Facilitator, Personal Statement Workshop, Meyerhoff Summer Bridge Program

*July 2012 & 2013, Baltimore, MD*

- Invited to direct workshops on writing personal statements for internships and fellowship applications at a pre-college summer program for incoming Meyerhoff Scholars