

The Marlin Lab

2023 in Review

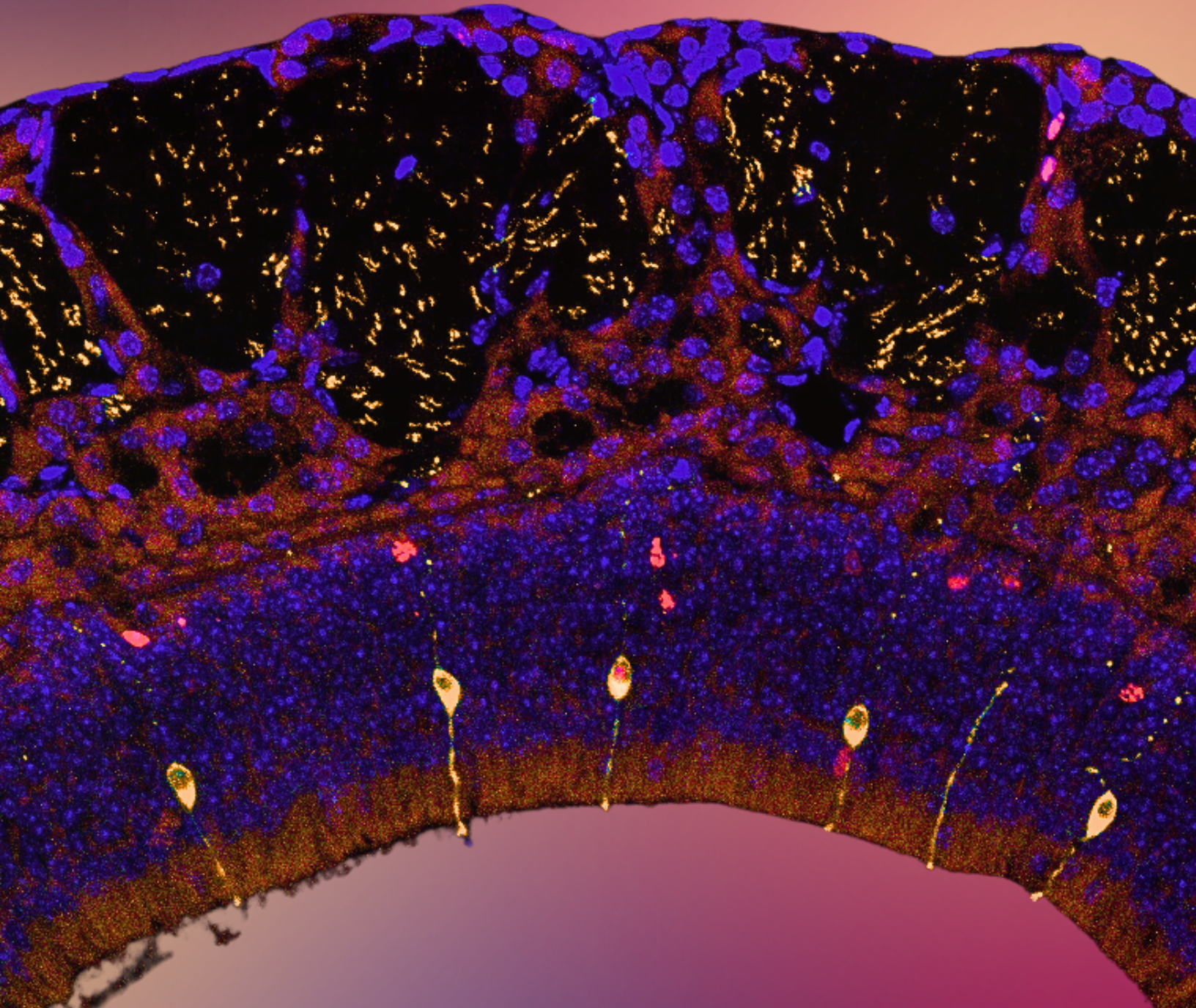


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MESSAGE FROM BIANCA

The Marlin Lab continues to explore the intricate balance between innate and learned behaviors, unraveling how organisms activate innate behavior, such as parental instincts, at the right time and how acquired knowledge is passed down through generations.

2023 has been a big year for us! Our paper (Liff et al., 2023) was published in *eLife*, demonstrating how fear conditioning can lead to intergenerationally inherited changes in the olfactory system, affecting odor perception in both parent mice and their offspring. This discovery illuminates how odor perception is altered across generations, offering new insights into the transmission of acquired traits and the dynamic nature of sensory perception.

Another highlight was receiving the prestigious Howard Hughes Medical Institute (HHMI) Freeman Hrabowski Award, a testament to our commitment to addressing systemic inequity and historical exclusion in academia and education. In our lab, we are more than researchers; we are advocates for change, striving to dismantle the barriers that exist within the scientific community.

Our work is driven by a pledge to not only push the boundaries of knowledge but to ensure that our scientific journey paves the way for a more inclusive and equitable academic world.



Moving forward
TOGETHER

THE MARLIN LAB 2023



BIANCA JONES MARLIN, PHD



SHANIECE JONES
Lab Coordinator



ANGÉLICA VINA-
ALBARRACIN
Lab Manager



NOUR MIMOUNI, PHD
Postdoctoral Scientist



THIAGO ARZUA, PHD
Postdoctoral Scientist



BEKA STECKY
Graduate Student



VALENTINE ANDREU
Graduate Student



BRIANA MCRAE
Graduate Student



DIANNE-LEE FERGUSON
Research Technician



AVERY CARDEIRO
Research Technician



RACHEAL LEE
Undergraduate
Student



SLOANE GOLDBERG
Undergraduate
Student



STEPHEN CADIEUX
Lab Coordinator



CLARA LIFF
Lab Manager

2023 LAB ALUMNI

The Marlin Lab
TEAM



Projects & Publications



TRANSGENERATIONAL EPIGENETIC INHERITANCE

OUR RESEARCH

MATERNAL BEHAVIOR

- Exploring how trauma affects the brain and can be inherited, focusing on norepinephrine signaling pathways to the olfactory system.
- Identifying heritable changes in olfactory neurons due to stress using transcriptomics.
- Examining trauma transmission from germlines and during pregnancy to the fetus.
- Investigating neural mechanisms that amplify responses to infant cues.



Fear conditioning biases olfactory stem cell receptor fate

Clara W. Liff, Yasmine R. Ayman, Eliza C.B. Jaeger, Hudson S. Lee, Alexis Kim, Angélica Viña Albarracín, Bianca Jones Marlin



JNE Journal of

JNE Neuroendocrinology

REVIEW ARTICLE Open Access

Integration of olfactory and auditory cues eliciting parental behavior

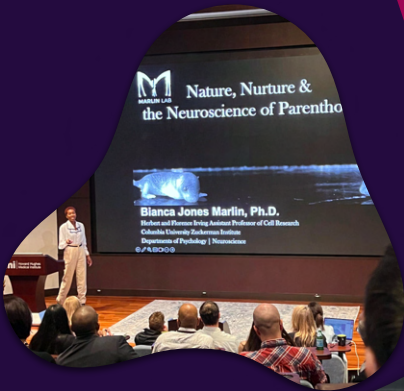
Briana R. McRae, Valentine Andreu, Bianca Jones Marlin

First published: 22 May 2023 | <https://doi.org/10.1111/jne.13307>

Briana R. McRae and Valentine Andreu contributed equally to the study.



We love Science Talk



Team Talks

- Departmental talks & lab meetings
- Society for Neuroscience
- Black in Neuro workshops and socials
- Endocrinology Meeting
- Howard Hughes Medical Institute Presentation
- Barnard College Summer Research Institute Liza Orzeck '68 Presentation
- Annual Meeting of the Perinatal Research Society
- Polycystic Ovary Syndrome Society Meeting
- For Women in Science program - L'Oreal UNESCO
- Boehringer Ingelheim North America meeting

Bianca's Invited Talks

- Brains 2023 Cross-Cohort Symposium
- European College of Neuropsychopharmacology Congress
- Perinatal Research Society
- Princeton University Department of Molecular Biology Butler Seminar Series Princeton
- Society of Behavioral Neuroendocrinology Keynote Address
- Transforming Science Conference
- NOVA Your Brain Panel
- Gordon Research Conference, Modulation of Neural Circuits and Behavior, Diablerets
- Tel Aviv University Reimagining Inheritance Workshop
- Hebrew University of Jerusalem, Edmond & Lily Safra Center for Brain Sciences Special Seminar
- Weizmann Institute Department of Brain Sciences Neuroscience Seminar
- Mount Holyoke College Hastorf Lecture
- University of Massachusetts Amherst Neuroscience and Behavior Colloquium
- Center for Depression, Anxiety, and Stress Research's (CDASR) Speaker Series
- Harvard Center for Brain Science Seminar
- Winter Conference on Neural Plasticity
- Stavros Niarchos Foundation Brain Insight Lecture Series

Lab Wins

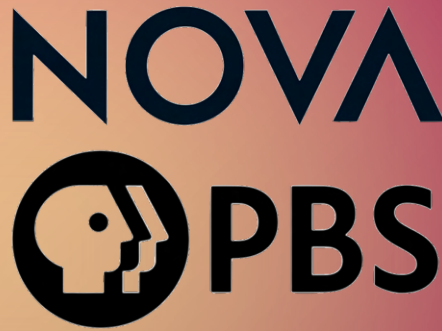
At the Bench

- Valentine's first figure!
- Sloane picked a research project!
- Beka's RNA-seq data is showing patterns!
- Thiago's first recordings from moving mice!
- Nour's first ELISA, RT-PCR, RNA-seq results, and first placentae & embryo collections!
- Dianne's first full round of iDISCO cleared tissue images!
- Avery's mastery of main olfactory epithelium extraction!
- Racheal is an independent cryosection-queen now!
- Briana's first first-author publication in the Marlin Lab!

In the Spotlight

- Briana was selected for Society for Neuroscience Early Career Policy Ambassador
- Nour was elected as co-chair of the Androgen Excess & Polycystic Ovary Syndrome Society- Early Career Leadership team
- Thiago received the Leon Levy Scholarship in Neuroscience

Media Coverage



progress happens together
abcam
The Guardian Labs



PBS NOVA:
Your Brain: Who's in Control?

Therapy for Black Girls:
How Trauma Affects the Brain

Abcam, The Guardian Labs:
Be bolder and dream bigger

BrainFacts.org:
How a Favorite TV Show Led to a Neuroscience Career

The Atlantic:
Scientists Tried to Break Cuddling. Instead, They Broke 30 Years of Research.

Grey Matters:
Lost in Translation. *Published by Sloane*

Nature:
CRISPR voles can't detect 'love hormone' oxytocin — but still mate for life.

The Science Life:
How does this scientist tackle overlooked women's health issues? *Featuring Nour*

The Atlantic



nature



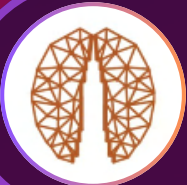
Awards & Funding



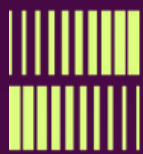
Bruce McEwen Memorial Early Career Investigator Award



NIH R25 Neuroscience Doctoral Readiness Program



Leon Levy Scholarship in Neuroscience



HYPOTHESIS FUND



Forbes
30 UNDER 30

hhmi

Freeman Hrabowski

SCHOLARS PROGRAM

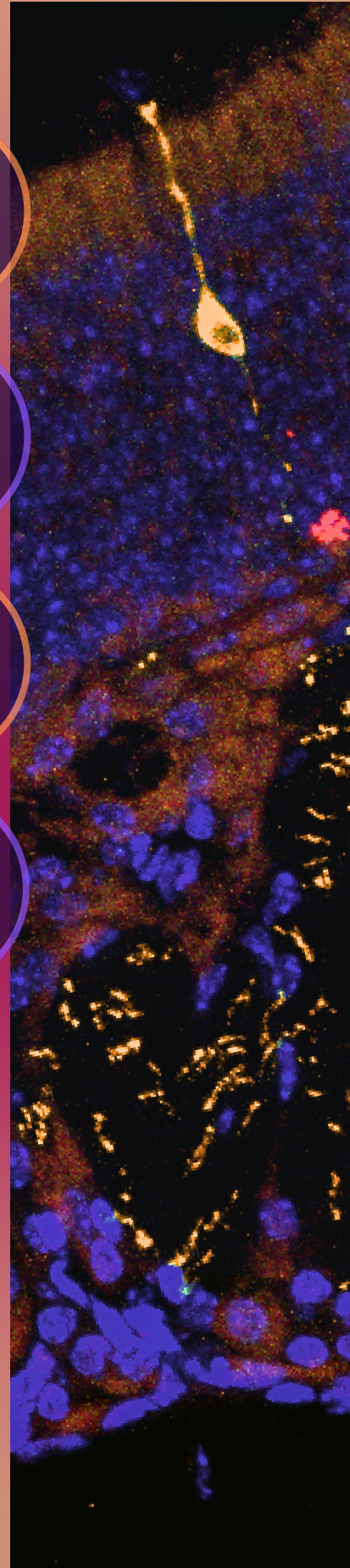


The
ERNEST E. JUST
LIFE SCIENCE SOCIETY



scialog[®]

RESEARCH CORPORATION
for SCIENCE ADVANCEMENT



THE MARLIN LAB 2023

Community ENGAGEMENT

Some causes & groups we were involved with



meals
for
unity



PCOS Challenge
THE NATIONAL POLYCYSTIC OVARY SYNDROME ASSOCIATION

BLACK PEOPLE SPACE



**Best
Friends
Animal
Society**



**The New York
Academy of Sciences**



BIOBUS
SATURDAY SCIENCE



**Zuckerman Institute
Gender Inclusion**



**SOCIETY for
NEUROSCIENCE**



**COLUMBIA
NEUROSCIENCE
SOCIETY**



**Columbia University
Neuroscience Outreach**

**ZUCKERMAN INSTITUTE
TRAINEE ADVISORY
COMMITTEE**



**COLUMBIA DOCTORAL PROGRAM
IN NEUROBIOLOGY AND BEHAVIOR**



Black Undergraduate Mentorship Program



*Advancing Chicanos/Hispanics
& Native Americans in Science*

2023 was giving...

#bigger #better
#wiser



Team Dinner at the Red Rooster was a hit:

“There was live music, the food was scrumptious and we all had a great time!”

Team
JOY

Looking Forward to

VAL - "MORE LAB MEETINGS!"

RACHEAL - "I AM LOOKING FORWARD TO BECOMING CLOSER WITH THE NEWER MEMBERS OF THE MARLIN LAB AND CREATING NEW MEMORIES WITH EVERYONE. I AM ALSO EXCITED TO LEARN MORE UNDER VALENTINE AND NOUR WHO ARE GREAT MENTORS!"

NOUR - "THE NEXT HALLOWEEN PARTY THAT I MISSED THIS YEAR!
ON A MORE SERIOUS NOTE:
LOOKING FORWARD TO SHARING SCIENCE AND MEMORIES WITH THE MARLIN LAB!"

SLOANE - "BEGINNING TO CONDUCT NEW RESEARCH WITH ANGELICA ON F1 BEHAVIOR!"

DIANNE - "I LOOK FORWARD TO POSSIBLY PRESENTING A POSTER AT SFN 2024"

AVERY - "NEW MEMBERS!"

THIAGO - "ALL THE NEW CHANCES TO TALK MORE ABOUT SCIENCE AND GETTING NEW RESULTS!"

BEKA - "GRADUATING!"

BRIANA - "BUILDING OUT MORE SCIENTIFIC STORIES"

CLOSING MESSAGE

As the year concludes, I reflect on the Marlin Lab's journey at Columbia University's Zuckerman Brain Institute, Department of Psychology and Neuroscience, with deep appreciation. Marking our fourth year, it has been filled with significant growth and achievements in our research domains.

This past year showcased our team's dedication, marked by securing vital grants that expanded our research scope and fostered innovative directions. These financial supports have been crucial in pushing our understanding's boundaries.

We've also made progress in preparing manuscripts for publication, offering new insights into behavior transmission across generations. These efforts set the stage for ongoing investigations, aiming to deepen our grasp of biological and psychological phenomena. All this while uplifting each other and uncovering the beauties and challenges of the biological world.