TuftsMedicine

Woman, Mother + Baby Research Institute Annual Report 2024 - 25

Woman, Mother + Baby Research Institute

Letter from Director

I am so proud of all we accomplished this year, WoMB! Despite the many external pressures and challenges, we stayed focused on our mission, reimagined our institute, welcomed new investigators and hosted an energizing gathering of women's health researchers across Tufts.

The celebration of our re-branding as "WoMB" in April stands out as one of my greatest memories of 2025. Over the following months, it was extraordinary to see how we have embraced our new identity and feel the energy and renewal it gave our institute. Our expanded mission has taken us to a new level and I am excited to see where it leads this year.

If the WoMB launch party was our "re-birth," the inaugural Tufts Women's Health Summit we hosted in June was our debutante ball! Dr. Vivian Pinn's keynote and the fantastic lightning talks and workshops were standout. We had more than 85 attendees and I am frequently asked what we are planning for Summit 2.0… more to come on that. In addition to these keystone events, we doubled our funding portfolio (!), welcomed new PIs and Associate PIs, and maintained our strong employee engagement scores.

As you all know, 2025 was not without significant challenges. Continued threats to traditional funding sources will require us to be creative and identify new opportunities to partner with industry and philanthropic sources in the coming years. We are a resilient and resourceful team, and I am confident in our ability to weather this storm and come out stronger.

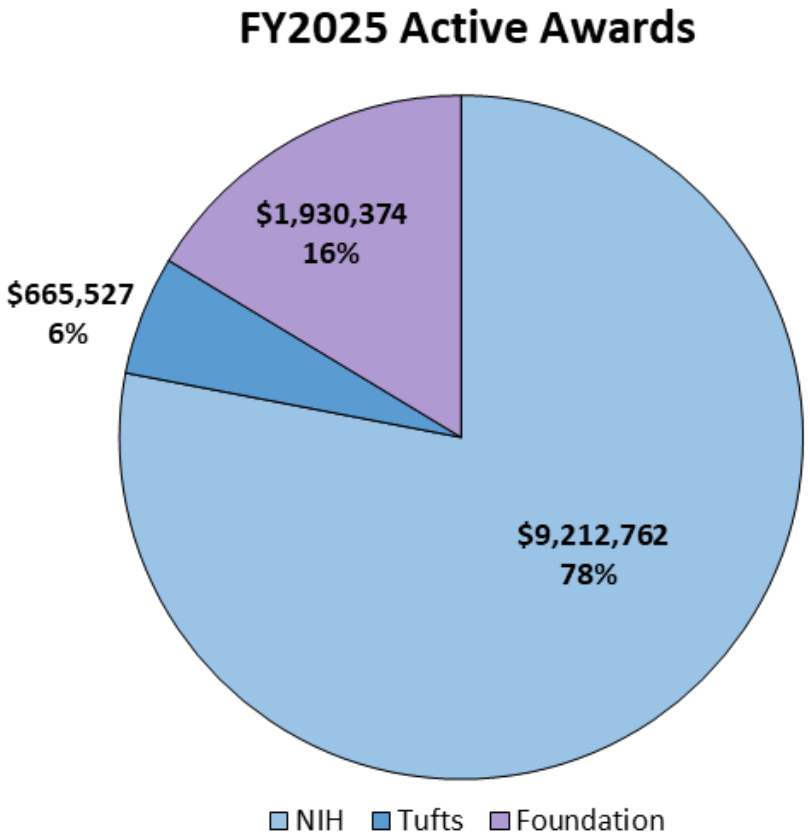
With that tremendous year under our belts, I'm looking forward to 2026 and working with our new Chair of OB/GYN—Dr. Jason Wright—who joins us this year! I'm also very excited for us to support the new strategic plan for biomedical research in TM-TU as a core part of the Women's Health, Nutrition and Sex-Differences Pillar. There is so much positive momentum for our research, and tremendous support from Tufts leadership. The future is bright, indeed.

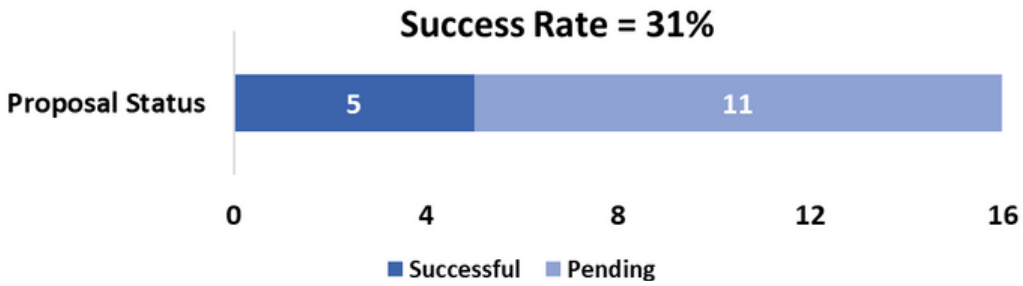
I hope you all enjoy reviewing this eventful year in the following pages. Thank you again to Gautami Kostathane for bringing this report together so beautifully! And my tremendous gratitude to all my fellow WoMB-mates who show up every day to improve the lifelong health of women and babies.

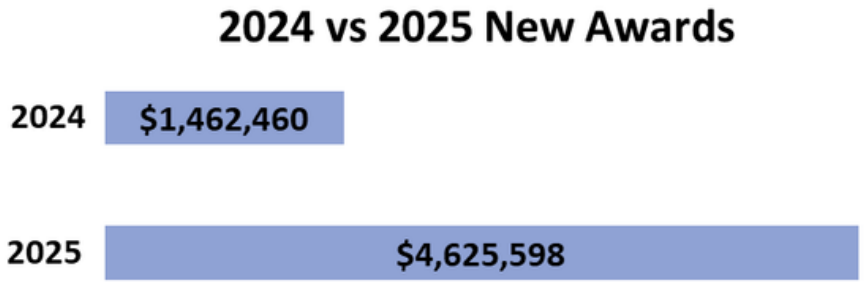
Sincerely,

Perrie O'Tierney-Ginn, PhD
Executive Director, Woman, Mother + Baby Research Institute

FY2025 Research Funding and Awards Overview







In FY25, the Woman, Mother + Baby Research Institute managed 22 active awards totaling $11.8 million across federal, institutional, and foundation sources. The National Institutes of Health (NIH) remained the primary funding source, supporting 78% of total awards ($9.2 million) through mechanisms such as R01, K-series, and consortium sub-awards. Tufts University contributed 6% ($665,527) through programs including BIRCWH, Springboard, and pilot grants, while foundation partners accounted for 16% ($1.93 million).

This diverse portfolio reflects WoMB's success in sustaining competitive federal funding while expanding institutional and philanthropic collaborations to advance women's and newborn health research.

FY2025 New Awards

Funding Source	Total Awarded Amount
NIH	$4,533,360
Tufts University	$92,238
	$4,625,598

Marking the Launch of the Woman, Mother + Baby Research Institute (WoMB)

Our new name—the Woman, Mother + Baby Research Institute—reflects our expanded focus on women's health across the lifespan, while staying true to our roots in intergenerational research. This change began with conversations across departments and grew from a shared commitment to collaboration. WoMB is a reflection of Tufts Medicine's innovative spirit and a reminder that we're stronger together.

Perrie O'Tierney-Ginn, PhD,
Executive Director

Woman, Mother + Baby Research Institute

Tufts Women's Health Summit

"Bridging Collaborations Across the Lifespan"
An Inaugural Summit hosted by WoMB

On June 4, 2025, the Woman, Mother + Baby Research Institute hosted its inaugural Women's Health Summit: Bridging Collaborations Across the Lifespan, bringing together researchers, clinicians, and leaders from across Tufts Medicine and Tufts University to advance women's health through interdisciplinary collaboration.

The day opened with an inspiring keynote address by Dr. Vivian Pinn, MD, a trailblazer in women's health equity, former Associate Dean of Tufts University School of Medicine, and the inaugural Director of the NIH Office of Research on Women's Health. Her remarks set the stage for a day of knowledge-sharing and innovation.

The Summit featured lightning talks by multidisciplinary investigators covering a wide spectrum of topics, including cervical cancer prevention, postpartum depression, biosensor technology, and substance use in pregnancy. Breakout sessions on menopause, nutrition, and engineering innovations encouraged rich dialogue and new partnerships.

Honored guests included Tufts University President Sunil Kumar, Tufts Medicine President & CEO Michael Dandorph, Dean Helen Boucher, and Physician-in-Chief Karen Freund, alongside support from the Office of Communications and Development. With engaging presentations, posters, and networking sessions, the Summit showcased Tufts' leadership in women's health research and strengthened the connections that will drive future collaborations across the lifespan.

*The Summit saw strong participation — with over **90 participants** and **75%** of registered attendees joining in person*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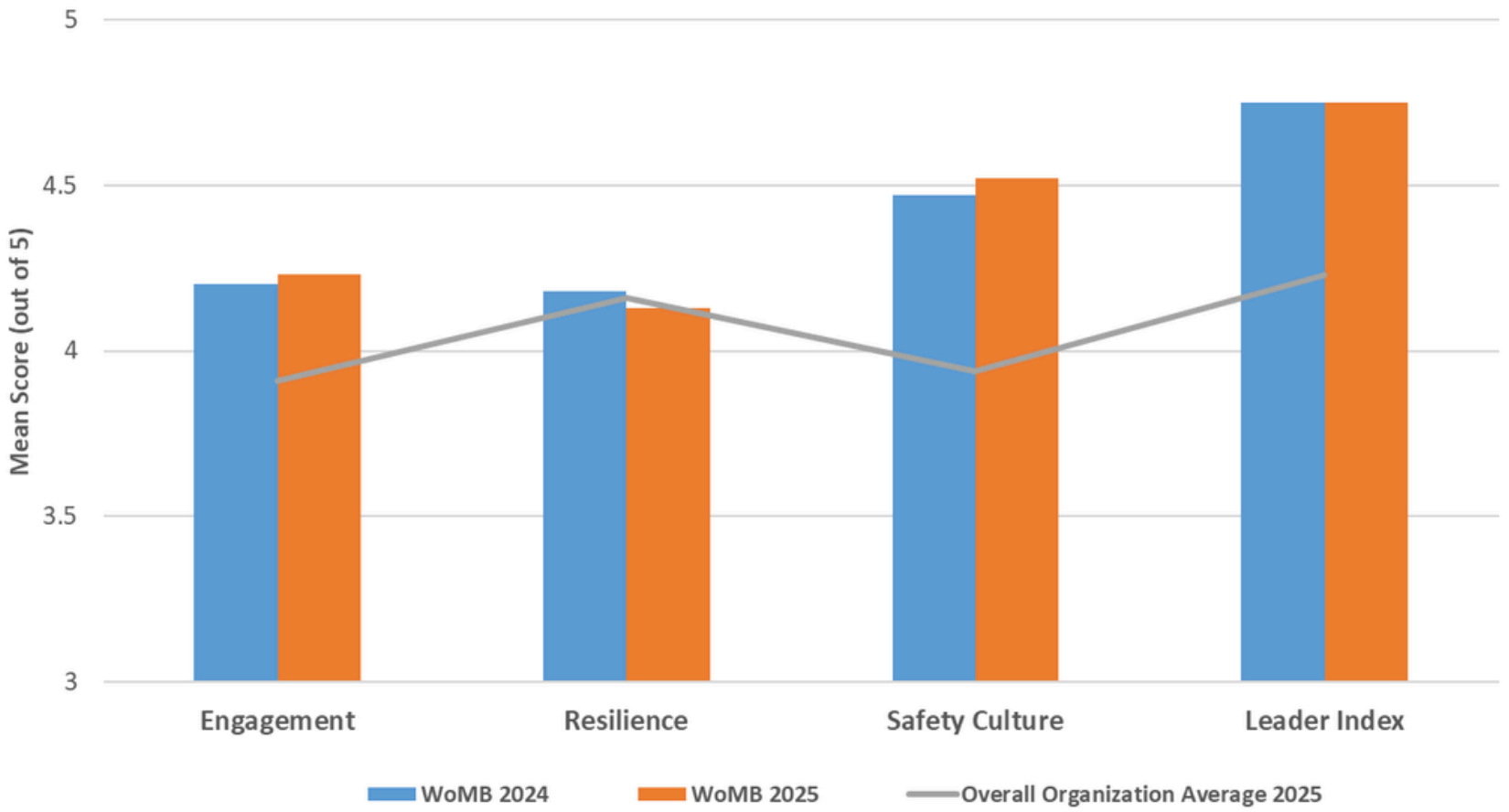
2025 Employee Engagement Survey



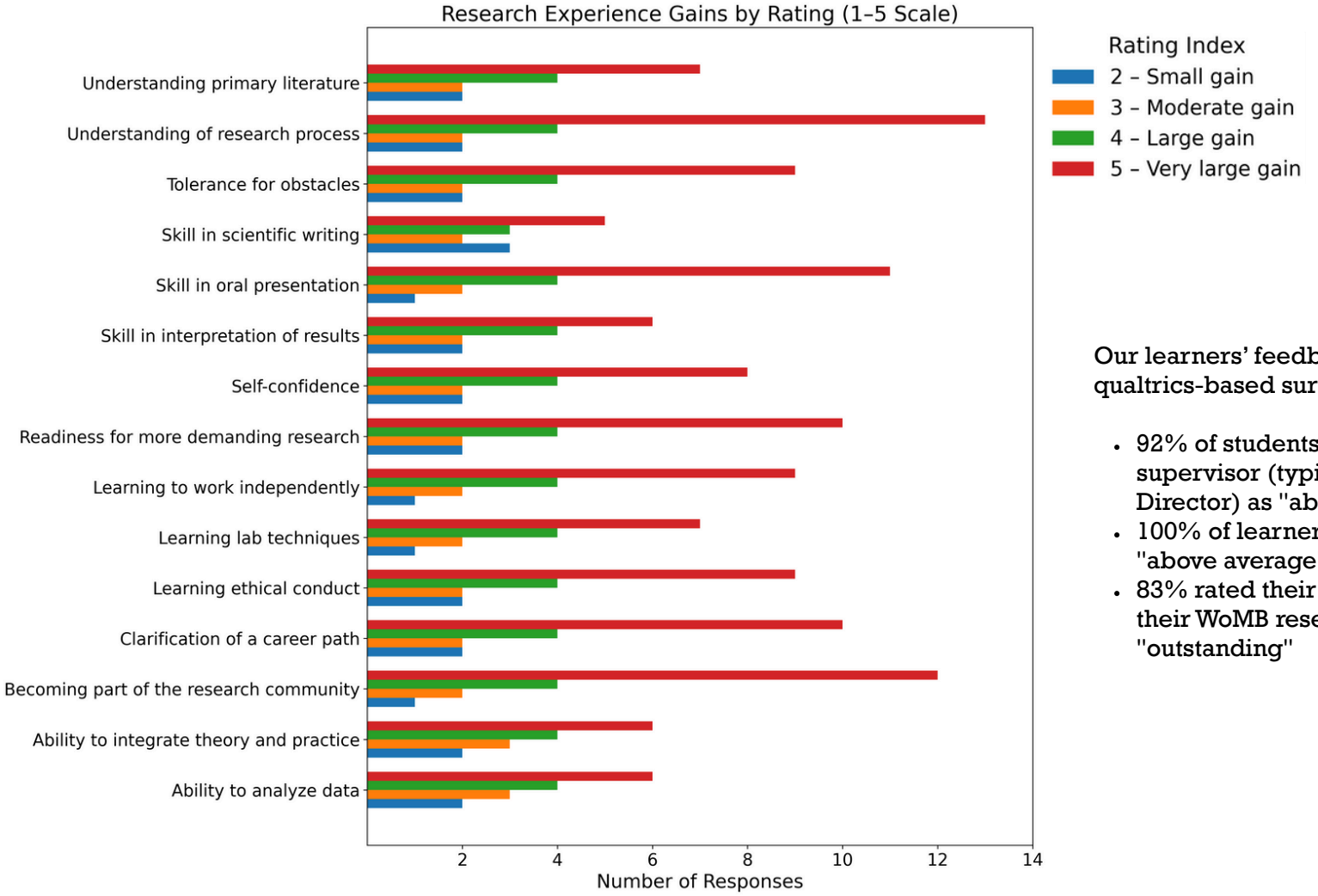
Engagement
Engagement remains a clear strength of the team, reflecting a highly motivated and connected workforce. Strong collaboration and communication contribute to a shared sense of purpose and sustained enthusiasm across the department

Resilience
The team continues to demonstrate steady resilience, maintaining adaptability and a positive mindset while navigating ongoing demands. This stability supports a reliable and supportive work environment.

Safety Culture
Safety Culture emerged as a standout area, underscoring a strong foundation of trust, teamwork, and open communication. Team members express confidence in a culture that prioritizes respect, psychological safety, and collaboration.

Leader Index
Leadership effectiveness is a notable strength, with high confidence in leadership's clarity, consistency, and integrity. These results reflect transparent guidance, strong direction, and mutual trust between leadership and staff.

Student Satisfaction Survey Data



Our learners' feedback from FY25 based on a qualtrics-based survey showed that:

- 92% of students rated their day-to-day supervisor (typically a postdoc or Lab Director) as "above average" or "outstanding"
- 100% of learners rated their mentor/PI as "above average" or "outstanding"
- 83% rated their overall experience during their WoMB research internship as "outstanding"

In addition to these stats, we polled students on how they felt they developed in various areas due to their experience in WoMB. The majority (>50%) of learners responded that they had a "very large gain" in knowledge in 11/15 areas (see attached graph of knowledge gain for full details). The top 3 areas for "very large gain" were:
1) Understanding of the research process (4.93 out of 5 pt Likert scale)
2) Becoming part of the research community (4.79)
3) Tolerance for obstacles (4.64). They also ranked "readiness for more demanding research" and "clarification of a career path" very highly (4.57).
This demonstrates that our students have a positive and valuable research experience at WoMB.

Principal Investigator Highlights

Perrie O'Tierney-Ginn, PhD
Executive Director, WoMB,
Associate Professor, OBGYN, TUSM

Dr. O'Tierney-Ginn is a leader in perinatal biology whose research focuses on how maternal metabolic health influences placental function and fetal growth. A key contribution this year showed for the first time that placental expression and circulating levels of specific chromosome 19 microRNAs are linked to changes in maternal insulin sensitivity and neonatal adiposity, and that synthetic microRNA mimics can directly induce insulin resistance at the cellular level, offering new mechanistic insight into metabolic adaptations during pregnancy and the pathophysiology of gestational diabetes.

Michael House, MD
Professor, OBGYN, TUSM

Dr. House integrates biomechanics and bioengineering to advance the understanding and treatment of preterm birth related to cervical insufficiency. His research investigates the structural and mechanical properties of the cervix to uncover how tissue remodeling contributes to premature cervical shortening and preterm delivery. By developing injectable biomaterials and tissue-engineered cervical models, Dr. House's work aims to identify innovative, less invasive alternatives to surgical cerclage. Through a multidisciplinary approach combining clinical expertise and engineering principles, his lab continues to pioneer novel diagnostic and therapeutic strategies to prevent preterm birth and improve maternal-fetal outcomes.

Elizabeth Yen, MD
Associate Director, WoMB
Associate Professor, Pediatrics, TUSM
Director, Newborn Medicine, TUSM

In 2025, Dr. Yen's research advanced the understanding of how maternal opioid exposure affects newborn development, with a focus on sex-specific molecular and neurodevelopmental differences. Her work continues to bridge clinical and translational research, integrating molecular biology, neuroimaging, and perinatal care. A key highlight from this year was a pilot multiplex salivary transcriptomic study, which provided compelling evidence that opioids impact boys and girls differently—using only drops of saliva as a noninvasive biomarker source.

Cervical cancer is almost entirely preventable, yet over 600,000 women are diagnosed each year, half of whom will die from their disease. My goal as a practicing gynecologist and physician-scientist is to decrease overall rates of cervical cancer, and my research has focused on both primary prevention of cervical cancer through HPV vaccination and secondary prevention through screening and management of precancerous lesions.

-Rebecca Perkins

Sebastian Ramos, MD
Assistant Professor, OBGYN, TUSM

Dr. Ramos's research focuses on identifying structural barriers that shape maternal health outcomes and advancing equitable access to obstetric care. His study, Maternal Care Deserts and Risk of Maternal Morbidity in Term Pregnancies, provides one of the first national assessments linking gaps in obstetric care availability to preventable maternal morbidity. By demonstrating that maternal care deserts are measurable drivers of risk—not merely geographic labels—his work offers critical insight for improving maternal health policy and strengthening access to high-quality care for underserved communities.

> *"Our work transforms large-scale data into practical insights that help clinicians and communities close gaps in maternal health, advancing research that leads to measurable and equitable improvements in care."*
>
> *-Sebastian Ramos*

New WoMB PI

Ruggero Spadafora, MD
Assistant Professor, Pediatrics, TUSM

Dr. Spadafora leads translational research focused on how maternal health and intrauterine conditions influence fetal development through placental mechanisms. His laboratory applies genomic and transcriptomic approaches to examine how metabolic and inflammatory pathways in the placenta are altered by maternal obesity and other pregnancy-related morbidities, with recent findings identifying gene expression patterns linking placental lipid metabolism to immune activation. Through the integration of placental explant models and gene expression analysis, Dr. Spadafora's research aims to identify biomarkers and therapeutic targets that can improve maternal and newborn outcomes.

New WoMB PI

Rebecca Perkins, MD, MSc
Professor, OBGYN, TUSM

Dr. Perkins is a national leader in HPV prevention and cervical cancer disparities, with a distinguished record of collaboration with the CDC, NCI, and American Cancer Society. Her research bridges clinical practice and policy, shaping national guidelines that expand equitable access to cervical cancer screening. As Co-Chair of the Enduring Guidelines effort, she helped develop national recommendations for HPV self-collection, a major advance that broadens screening options across the U.S., while also leading innovation in AI-based HPV screening strategies for global and resource-limited settings.

Associate Principal Investigator Highlights

MyDzung Chu, PhD
Assistant Professor, Institute for Clinical Research and Health Policy Studies, TMC

Dr. Chu advances community-engaged environmental health research at the intersection of climate, urban design, and maternal well-being. Through initiatives such as the Asian Mothers and Metals Assessment Study, Cool Down Chinatown, and the Cumulative Impacts Assessment at Reggie Wong Park, she generated actionable data to inform health and climate-resilience strategies in Boston's Chinatown, while also securing new research grants supporting work on prenatal stress, dietary exposures, and environmental health equity.

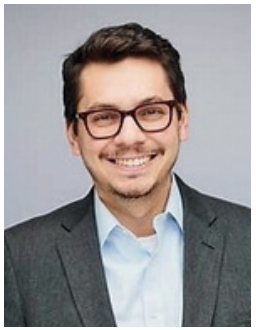
Erika Werner, MD, MS
Professor, OBGYN, TUSM
President, Physicians Organization, Tufts Medicine

Dr. Werner continues to play a leading role in advancing research on maternal health and gestational diabetes. She is a key investigator in the landmark DECIDE trial, the largest U.S.-based study comparing metformin and insulin for the management of gestational diabetes, with the goal of improving maternal and neonatal outcomes. Through her leadership and collaborative, policy-relevant scholarship —including work on reproductive health access and equity—Dr. Werner strengthens WoMB's impact on women's health research, clinical innovation, and health equity.

We investigate the central dopamine deficit hypothesis in metabolic, addictive and neurodegenerative disorders.
-Emmanuel Pothos

Emmanuel Pothos, PhD
Associate Professor, Immunology, TU

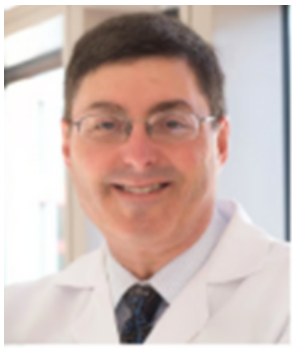
Dr. Pothos's research explores the neurobiological links between metabolic and psychiatric disorders, with a focus on dopamine and insulin signaling in the brain. His recent work, highlighted in Molecular Psychiatry, identified a novel astrocytic mechanism through which neuronal insulin influences mood regulation and reward motivation, advancing understanding of shared pathways underlying metabolic and neuropsychiatric disease.



Juan Gnecco, PhD
Assistant Professor, Biomedical Engineering, TU

Dr. Gnecco has advanced innovative research in reproductive biology and endometriosis through cutting-edge approaches in tissue engineering, biomaterials, and advanced microscopy. During the year, he received multiple competitive awards and industry support to develop novel experimental platforms and models aimed at understanding endometrial tissue morphogenesis, neuroinflammation, and the genetic underpinnings of endometriosis. Dr. Gnecco's work strengthens WoMB's leadership in women's health innovation and translational reproductive research.

New Associate PIs of WoMB



Jonathan M. Davis, MD
Vice-Chair, Pediatrics
Professor, Pediatrics, TUSM

In 2025, Dr. Davis led national and international efforts in neonatal drug and device development, advancing research on opioid exposure, pain management, and precision medicine in newborns. His work included multiple clinical trials and translational studies to improve neurodevelopmental outcomes in vulnerable infants, highlighted by a landmark JAMA Pediatrics study demonstrating that antenatal opioid exposure is associated with reduced global and regional brain volumes—the first in a series from the OBOE trial, which he chairs.

Rachana Singh, MD, MS
Professor, Pediatrics, TUSM
Chair, TUSM Faculty Senate

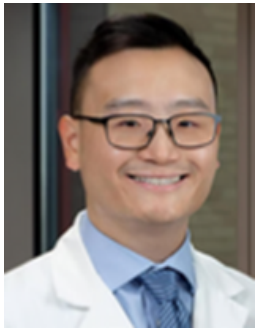
Dr. Singh is a nationally and internationally recognized leader in neonatal-perinatal medicine whose research advances equitable, evidence-based care for vulnerable newborns. A major highlight of her work is a Tufts-led randomized controlled trial evaluating a novel stochastic vibro-tactile therapeutic device for newborns with prenatal opioid exposure, which contributed to an FDA breakthrough device designation and exemplifies successful academic–industry collaboration to improve neonatal care.

Larissa Calancie, PhD
Assistant Professor,
Friedman School of Nutrition
Science and Policy, TU

We are thrilled to welcome Dr. Calancie to WoMB as our newest Associate PI.
Her work focuses on eliminating nutrition-related health disparities by advancing personalized prenatal care and studying how community systems, coalitions, and policies support healthier, more equitable environments across the life course.

Katina Robison, MD
Professor, OBGYN, TUSM

Dr. Robison is a leader in gynecologic oncology with a strong focus on global health, HPV-related disease, and gynecologic cancers. Her work emphasizes quality of life, sexual health, and patient-centered outcomes across diverse clinical and international settings. She has led and contributed to global cervical cancer screening and training initiatives, advancing equitable cancer care worldwide. Dr. Robison serves as Chief of Gynecologic Oncology, strengthening WoMB's impact in women's cancer care and global health equity.



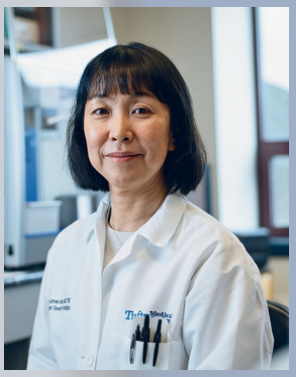
Tsung Mou, MD
Assistant Professor,
OBGYN, TUSM

Dr. Mou's research centers on patient-centered and equitable care in urogynecology, addressing disparities in treatment experiences among diverse and aging populations. His recent Urogynecology publication examined the care experiences of Chinese American women with overactive bladder, identifying personal, interpersonal, and social factors—including ageism—that contribute to unmet needs and care disengagement. This work lays the groundwork for age-responsive, culturally informed interventions to better support older women and advance equity in women's health.

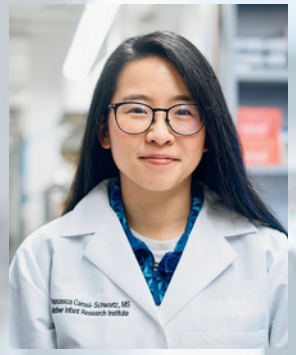
My research sits at the intersection of behavioral science, geriatric health, and implementation design. I develop and test decision support systems that help older adults make informed, values-aligned health choices while building models of care that strengthen patient engagement and sustainability across real-world clinical care settings.

-Tsung Mou

Lab Highlights



Tomoko Kaneko-Tarui, MD PhD
WoMB Lab Director



Francesca Carasi-Schwartz, MS
Research Assistant

Under the leadership of Dr. Tomoko Kaneko-Tarui, and Research Assistant Francesca Carasi-Schwartz, the WoMB lab has consistently provided comprehensive support throughout the year. This support encompasses education, mentorship, and the execution of research activities.

Activities Supported by the WoMB Lab
The WoMB Lab was actively engaged in supporting a range of principal investigators (PIs), associate PIs, collaborators, and students throughout the year, contributing to numerous NIH-funded and other studies, clinical trials, and collaborative initiatives.

The WoMB Lab continues to drive impactful research aimed at advancing maternal and infant health

Key Highlights:

- 5 NIH-Funded Studies – Focused on molecular and clinical investigations related to pregnancy metabolism, neonatal outcomes, and preterm birth prevention.
- 2 Institutionally and Foundation-Funded Studies – Examined parental stress and placental biology, and supported innovative pilot initiatives in women's health.
- 2 Collaborative Pre-Award Studies – Explored metformin's effects and microbiome-related mechanisms in maternal and newborn health.

Clinical Trials
The WoMB Lab contributed to five active clinical trials in 2025, several aligned with NIH-funded research, reinforcing its essential role in maintaining biospecimen and data quality standards across institutional studies.

Biorepository Engagement
From November 2024 to February 2025, the Lab also oversaw the Tufts Medical Center Biorepository, strengthening institutional capacity for high-quality biospecimen management and collaborative clinical research.

Training & Education
In 2025, the WoMB Lab provided hands-on training and mentorship to 16 trainees at various academic levels, including 1 clinical fellow, 2 postdoctoral fellows, 6 medical students, 1 master's student, and 6 undergraduate students. Through structured guidance in laboratory techniques, study design, and data analysis, trainees gained valuable experience in translational research and biospecimen management. The lab's mentorship model continues to strengthen the next generation of researchers dedicated to advancing women's and newborn health.

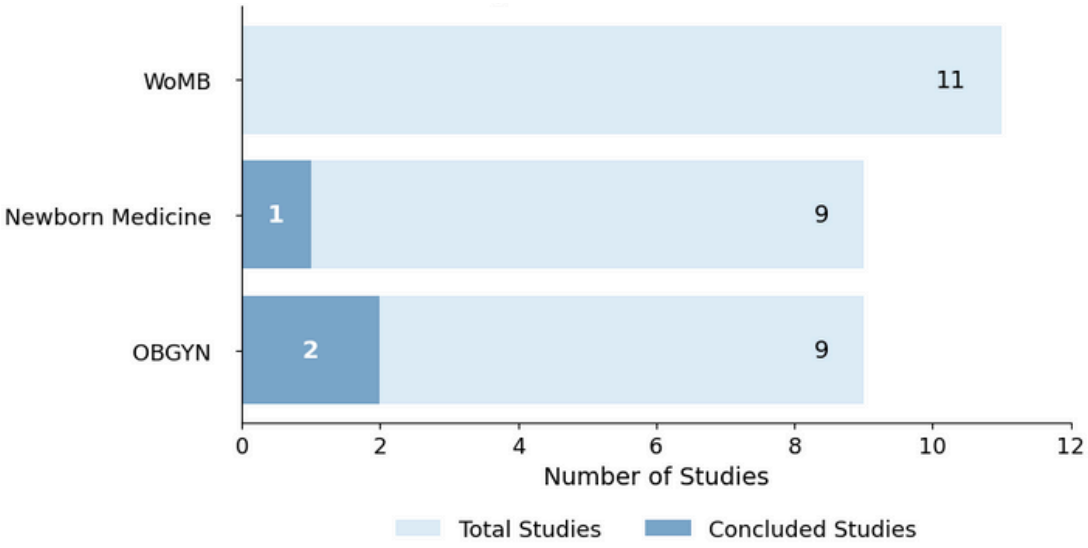
Sample Types Processed: RNA, cDNA, mRNA, miRNA, protein, lipid

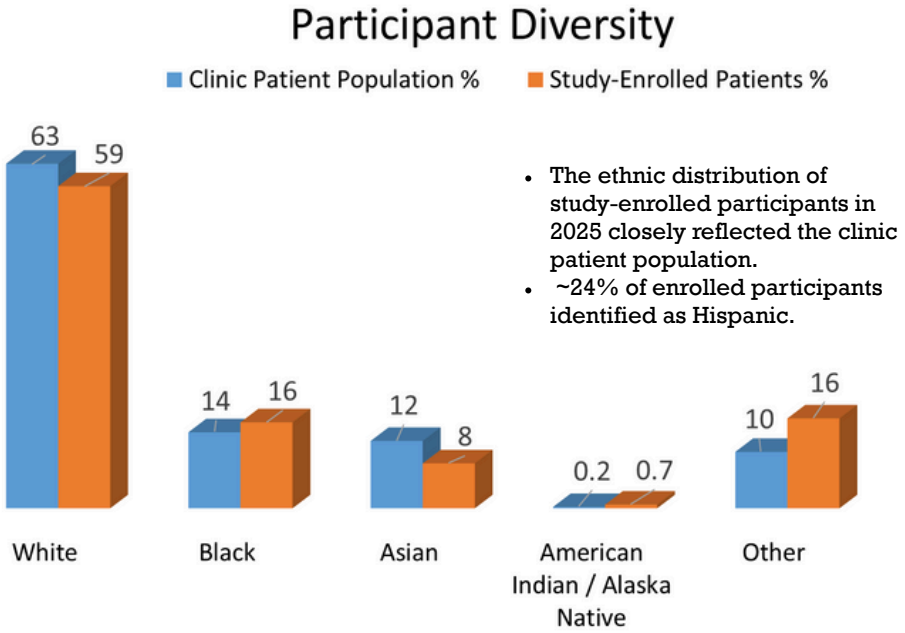
Technologies Supported:

- RNA extraction, cDNA synthesis, RT-qPCR
- Protein extraction, WES capillary western blotting
- ELISA
- NanoString assay preparation and analysis
- Cell culture (cell lines, human primary cells and microfluidic-based systems)
- Radioisotope assays
- Histological sample preparation, staining, and microscopic analysis (IHC, IF, ICC)

Sample Collection
In FY2025, the Lab collected and processed 17 placentas and numerous diverse biological specimens, including peripheral blood, cord blood, feces, umbilical cords, saliva, urine, and isolation of primary trophoblast cells

Clinical and Translational Research

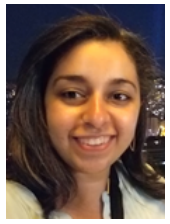




- The ethnic distribution of study-enrolled participants in 2025 closely reflected the clinic patient population.
- ~24% of enrolled participants identified as Hispanic.

Department	Enrolled Patients	Total Target Enrollmenmt	Percentage of Target Enrollment
WoMB	205	290	70.7
OBGYN	162	169	95.8
Newborn Medicine	54	182	29.7

- In 2025, the Clinical and Translational Research team demonstrated strong scholarly productivity and national visibility through contributions to **five** manuscripts and **four** abstracts submitted to national and international conferences, and multiple research presentations, including poster and oral/platform presentations.
- Several abstracts were selected for oral presentations at major regional and national scientific meetings, reflecting the quality, relevance, and impact of the team's clinical and translational research.



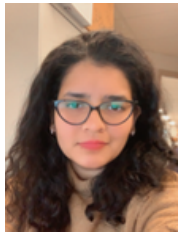
Taysir Mahmoud
Supervisor
Clinical Trials

Kiran Singh
Clinical Research
Coordinator III

Marissa Chow
Clinical Research
Coordinator I

Afshin Azimirad
Clinical Research
Associate I

Juliet Ali-Caccamo
Clinical Research
Coordinator II



Anjana Mordani
Clinical Research
Coordinator II

Devika Lekshmi
Senior Statistician
Associate

WoMB Early Career Researchers

Imad Soukar, PhD
Postdoctoral Fellow

Dr. Imad Soukar is a postdoctoral fellow in the O'Tierney-Ginn Lab at WoMB, where his research focuses on the endocrine functions of placental-derived miRNAs and their effects on maternal metabolic health and fetal development.

Publications:

- Desgagné, V., Lavoie, F., **Soukar, I.**, Hivert, M.-F., Bouchard, L., & **O'Tierney-Ginn, P. F.** (2025). Impact of ambient temperature exposure on miRNA stability in human plasma. RNA Biology, 22(3), 271–282.
- **Soukar, I., Kaneko-Tarui, T.**, Hivert, M.-F., & **O'Tierney-Ginn, P. F.** (2025). 136-OR: Placental-derived microRNAs modulate the insulin response in human skeletal myocytes. Diabetes, 74(Suppl. 1), 136-OR.
- **Soukar, I.**, Fisher, R. J., Bhagavatula, S., Collard, M., Cole, P. A., & Alani, R. M. (2025). The CoREST complex is a therapeutic vulnerability in malignant peripheral nerve sheath tumors. Scientific Reports, 15, Article 10128.
- **Soukar, I.**, Mitra, A., Vo, L., Rofoo, M., Greenberg, M. L., & Pile, L. A. (2025). The histone modification regulator, SIN3, plays a role in the cellular response to changes in glycolytic flux. bioRxiv.
- Majid, S., **Soukar, I.**, White, F., Allard, C., Aguet, F., Ardlie, K. G., Florez, J. C., Edlow, A. G., Jacques, P.-É., Karumanchi, S. A., Bouchard, L., **O'Tierney-Ginn, P. F.**, Powe, C. E., & Hivert, M.-F. (2025). Discovery of placental microRNAs associated with maternal insulin sensitivity during pregnancy. Placenta, 172, 104–113.

Parvathy Krishnan, MD
Assistant Professor, Pediatrics, TUSM

Dr. Parvathy Krishnan, MD, a neonatologist, joined WoMB as part of Dr. Yen's research program, focusing on the impact of maternal cannabis use on infant development.

Publications:

- **Krishnan P, Yen E.** The changing landscape of cannabis use: impact on maternal health and neonatal outcomes. Pediatric Research, June 20, 2025. PMID: 40542098. doi:10.1038/s41390-025-04209-4.
- Sampath HJ, **Krishnan P**, Trinh V, Parton LA. Genetic foundation of prostaglandin metabolism influences patent ductus arteriosus closure in extremely low birth weight infants. Am J Perinatol 2025;42:43-51
- **Krishnan P**, Sampath H, Trinh V, Parton L. Thrombospondin-1 airway expression and thrombospondin 1 gene variants are associated with bronchopulmonary dysplasia in extremely low-birth-weight infants: a pilot study. Children 2025;12:424.

Elisabeth Romero, MD
Neonatology Clinical Fellow

Dr. Elisabeth Romero is a NICU fellow at Tufts Medical Center and will be working on her fellowship project under the mentorship of Dr. Yen. Originally from Long Island, NY, she completed medical school at SUNY Stony Brook and her pediatric residency at UMass Baystate in Springfield, MA, where she discovered her passion for NICU care. She has prior research experience in the newborn microbiome and looks forward to continuing this work during her fellowship.

Achievements:

- She was selected to attend the 54th Annual Fellows' Seminar on Neonatal-Perinatal Medicine in Clearwater Beach, FL from November 3-6, 2025

New Early Career Researcher

Emily Sitner-Medvedovsky, MD
Neonatology Clinical Fellow

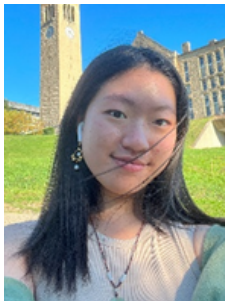
WoMB welcomed Dr. Emily Sitner-Medvedovsky to the department. She joins us as a Neonatal-Perinatal Clinical Fellow in the Spadafora Lab. Born and raised in Brooklyn, NY, Dr. Sitner-Medvedovsky completed her medical school training at St. George's University and her pediatric residency at New York Presbyterian Brooklyn Methodist Hospital.

WoMB Student Researchers

Nika Renshaw
Joining Dr. Yen's team as she transitions from Tufts undergraduate studies to Tufts University School of Medicine (TUSM), Nika is researching how social determinants of health influence growth in opioid-exposed infants. A recent Boston Marathon finisher from New Hampshire, she brings strong scientific focus and energetic dedication to the WoMB research community.

Taylor Escudero
A rising senior at Tufts majoring in Biology and Community Health, Taylor works in the O'Tierney-Ginn Lab, contributing to research in maternal medicine and molecular biology. She is a 2025 Summer Scholars Grant awardee, bringing clinical experience and a strong interest in OB/GYN, pediatrics, and emergency medicine to the WoMB team.

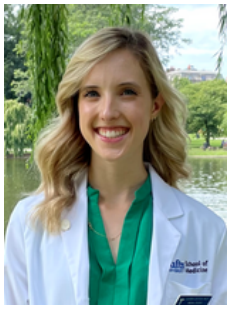
Ana Sofia Leonard
A third-year medical student at TUSM, Ana is advancing research on neonatal abstinence syndrome and feeding behavior, focusing on brain MRI analysis. Her work in the Yen Lab enhances WoMB's understanding of neonatal health challenges.



Grace Zhang
A Cornell graduate in the Yen Lab, Grace studied chemistry and investigated the effects of prenatal opioid exposure on maternal BMI and infant growth. Her research aligns with WoMB's commitment to understanding the impact of substance exposure during pregnancy.

Nandita Meharwal
A first-year Tufts student majoring in Biochemistry and Economics, Nandita joined the Yen Lab in Summer 2025 to study how maternal opioid use affects infant developmental outcomes. She contributed strong enthusiasm for neonatal research—along with her love of baking and music—to the team.

Samantha Manasso
A junior at Tufts majoring in Community Health, Samantha joined the O'Tierney-Ginn Lab as a student researcher, bringing enthusiasm for maternal–child health and interdisciplinary learning. Originally from Atlanta, she enjoys soccer, running, reading, and exploring new coffee and matcha spots—now also an avid cyclist after relearning at age 15



Lauren Estess
A third-year MD/MPH student at TUSM, Lauren joined the Yen Lab as a student researcher, bringing her background in biological sciences and community-based EMT work. Her interests span neonatology, substance use, reproductive health, and health equity, and she brings broad clinical insight alongside a passion for food, travel, and the arts.

William Lin
Before joining TUSM, Liam conducted his Master's in Biomedical Science thesis project in the Yen Lab, studying feeding dysregulation in opioid-exposed preterm babies. Outside the lab, he enjoys weightlifting and cooking, inspired by his family's restaurant.

2025 Talks and Presentations

Dr. O'Tierney-Ginn was honored to be the keynote speaker at the Midlands Society for Physiological Sciences meeting hosted by the University of Nebraska, Lincoln (Oct 10-11th)

Dr. Sebastian Ramos awarded with the Best Research Award for Diversity and Disparities in Health Outcomes by the Society for Maternal-Fetal Medicine, Colorado, (Jan 27- Feb 1)

Dr. Perrie O'Tierney-Ginn, Dr. Jill Maron, Dr. Elizabeth Yen at the Perinatal Research Society meeting, Colorado Springs, (Sept 12-14)

Members of the Yen Lab delivered outstanding oral presentations at the 2025 Eastern Society for Pediatric Research (ESPR) Meeting in Philadelphia (Mar 14–16).

Dr. Perrie O'Tierney-Ginn

- Impact of maternal-placental crosstalk on fetal fat accrual: lessons from the term placenta, University of Cambridge, Loke Centre for Trophoblast Research Annual Meeting, Cambridge, UK, 2025
- How maternal-placental crosstalk drives fetal growth and development Center for Reproductive Health Sciences (CRepHS) Seminar. Washington University, St. Louis, MO, March 2025
- The placenta-heart connection: impact of the maternal metabolic milieu Midlands Society for Physiological Sciences Keynote Lecture. University of Nebraska-Lincoln, Lincoln, NE, October 2025
- Beyond BMI - how the maternal metabolic milieu impacts pregnancy outcomes. Maternal Health & Nutrition Event, Tufts Food and Nutrition Innovation Institute and Mama Glow, June 2025

Dr. Elizabeth Yen

- Sex-specific Impact of Maternal Opioid Use on Offspring Feeding Regulation and Development, Perinatal Society of Australia and New Zealand Congress, Brisbane, March 2025
- The Molecular Impact of Maternal Opioid Use on Offspring Feeding Regulation and Development, NIDA Division of Neuroscience and Behavior Science Friday Seminar, July 2025, virtual
- Research Evolution: From NOWS to Future, Tufts Clinical and Translational Science Graduate Program Summer Faculty Seminar Series, July 2025

Dr. Michael House

- The Cervix and Preterm Birth: Biology, Biomechanics, and Novel Therapeutics, Reproductive Scientist Development Program Retreat, Santa Fe, September 2025
- Bioengineering and Digital Twins to Novel Devices: Opportunities to Improve Treatment of Cervix-Related Preterm Birth, Society for Maternal-Fetal Medicine President's Workshop, Denver CO, January 2025

Dr. Sebastian Ramos

- Black Maternal Morbidity and its Association with Systemic Racism, Society for Maternal-Fetal Medicine Annual Meeting, Denver, CO, January 2025
- Systemic Racism's Role in Infant Mortality Disparity at the County Level, Allegheny County Fetal Infant Mortality Review Committee Meeting, April 2025

Dr. Ruggero Spadafora

- Coding and Non-Coding Transcriptome in the Placenta of Mothers Affected by Obesity, Pediatric Academic Societies, Hawaii, April 2025
- 2025-2026 APS SPR Journeys & Frontiers in Pediatric Research Program

Dr. Erika Werner

- Black Maternal Morbidity and its Association with Systemic Racism, Society for Maternal-Fetal Medicine Annual Meeting, Denver, CO, January 2025

Dr. Rebecca Perkins

- HPV-AVE Strategy for Cervical Cancer Prevention in Low-Resource Settings, CCAE through the American Cancer Society (virtual), July 2025
- HPV Self-Collection, North Carolina Breast and Cervical Cancer Control Program (virtual), September 2025
- Research Presentation on Cervical Cancer, Tufts Board of Trustees, Burlington, MA, September 2025
- Research Presentation on Cervical Cancer, Tufts Women's Health Summit: Bridging Collaborations Across the Lifespan, Boston, MA, June 2025
- HPV Self-Collection Guidelines, Neighbor Health (formerly East Boston Neighborhood Health Center), East Boston, MA, March 2025
- HPV Self-Collection Guidelines, ASCCP Webinar, June 2025

Dr. Rachana Singh

- Global Burden of Neonatal Anemia, Workshop, Annual Meeting of the Global Newborn Society, Uppsala University, Uppsala, Sweden, November 2025
- Environmental Toxin Exposures in Neonates: A Global Health Issue, Plenary Talk, Annual Meeting of the Global Newborn Society, Uppsala University, Uppsala, Sweden, November 2025
- Clinical Trials in Pediatrics, Workshop, Annual Meeting of the Global Newborn Society, Uppsala University, Uppsala, Sweden, November 2025

Dr. Tsung Mou

- Chinese American women's overactive bladder care experience: a qualitative study. American Urogynecologic Society scientific meeting, Vancouver, BC, Canada, October 2025
- Disparities in patient portal use among urogynecology patients, American Urogynecologic Society scientific meeting, Vancouver, BC, Canada, October 2025
- Care experience disparities in benign gynecology: systematic review and critique of literature, Society of Gynecologic Surgeons annual meeting. Palm Springs, CA, March 2025

Dr. Jonathan Davis

- An update on BPD, An update on NAS, Neonatal drug and device development: Challenges and Opportunities. Southeast Association of Neonatologists, Marco Island, FL, May 2025

List of Publications

Dr. Perrie O'Tierney-Ginn

- Majid S, **Soukar I,** White F, Allard C, Aguet F, Ardlie KG, Florez JC, Edlow AG, Jacques PÉ, Karumanchi SA, Bouchard L, **O'Tierney-Ginn PF**, Powe CE, Hivert MF Discovery of placental microRNAs associated with maternal insulin sensitivity during pregnancy. .Placenta. 2025 Dec;172:104-113. Epub 2025 Oct 29.PMID: 41177129
- Desgagné V, Lavoie F, **Soukar I**, Hivert MF, Bouchard L, **O'Tierney-Ginn PF**. Impact of ambient temperature exposure on miRNA stability in human plasma. Biotechniques. 2025 Jul-Aug;77(7-8):271-282. Epub 2025 Sep 8.PMID: 40916661
- Jo S, Chung G, Youn YJ, Hunt C, Hill A, Beetch M, Akhaphong B, Morgan EA, **O'Tierney-Ginn PF**, Wernimont SA, Alejandro EU. Placental mitochondrial calcium uniporter modulates offspring susceptibility to metabolic dysfunction..Mol Metab. 2025 Oct; 100:102236. Epub 2025 Aug 21.PMID: 40848970
- Ng SW, Ng AC, Ng MC, Ng SK, Arcuri F, Genega EM, Watkins JC, Roberts DJ, **House MD**, **O'Tierney-Ginn PF**, Jacobsen DP, Staff AC, Norwitz ER. Preeclampsia is Associated with Altered Expression of Ferroptosis Biomarkers in Placental but not Maternal Vasculature..Reprod Sci. 2025 Sep;32(9):3074-3085. Epub 2025 Aug 6.PMID: 40770602
- Claiborne A, Jevtovic F, Biagioni EM, Wisseman B, Roenker B, Kern K, Steen D, Rossa L, Ollmann C, Mcdonald S, Strom C, Newton E, Devente J, Mouro S, Collier D, Kelley GA, Maples J, **O'Tierney-Ginn P**, Broskey NT, Houmard JA, May LE. The influence of prenatal exercise modes on resting maternal blood lactate..Physiol Rep. 2025 Jul;13(13):e70444.PMID: 40624833
- Claiborne A, Jevtovic F, Biagioni EM, Wisseman B, Steen D, Kern K, Roenker B, Rossa L, Ollmann C, Devente J, **O'Tierney-Ginn PF**, Kaneko-Tarui T, Kelley GA, Houmard JA, Broskey NT, May LE. Prenatal exercise regulates influence of parental body mass index on birth outcomes. .Early Hum Dev. 2025 Sep;208:106313.Epub 2025 Jun 24.PMID: 40578298
- Vilme H, Zhang FF, **O'Tierney-Ginn P**, Sun CH, Anyanwu OA, Fahmi R, Folta SC. Gaining stakeholder perspectives to shape a produce prescription program to improve maternal and birth outcomes: a qualitative study.Front Public Health. 2025 Jan 15;12:1462908. eCollection 2024.PMID: 39882113
- Alvarado-Flores F, Chu T, Catalano P, Sadovsky Y, **O'Tierney-Ginn P**. The expression of chromosome 19 miRNA cluster members during insulin sensitivity changes in pregnancy. Placenta. 2025 Mar 6;161:23-30. Epub 2025 Jan 18.PMID: 39847922

Dr. Emmanuel Pathos

- Huang Q, Lee HH, Volpe B, Zhang Q, Xue C, Liu BC, Abuhasan HR, Li L, Yang JS, Egholm J, Gutierrez-Vazquez C, Li A, Lee A, Tang S, Wong CW, Liu T, Huang Y, Ramos RL, El Ouaamari A, Quintana FJ, Lowell BB, Kahn CR, **Pothos EN**, Cai W. Deletion of murine astrocytic vesicular nucleotide transporter increases anxiety and depressive-like behavior and attenuates motivation for reward. Molecular Psychiatry 30:506–520, 2025.

Dr. MyDzung Chu

- **MyDzung Chu**, M. K. Kim, T. M. James-Todd, L. Chie, and **E. F. Werner** on their recent publication in the Journal of Racial and Ethnic Health Disparities, "Racial/Ethnic and Nativity Disparities in Gestational Diabetes Mellitus, United States 2018–2021.

Dr. Michael House

- Ng SW, Ng AC, Ng MC, Ng SK, Arcuri F, Genega EM, Watkins JC, Roberts DJ, **House MD**, **O'Tierney-Ginn PF**, Jacobsen DP, Staff AC, Norwitz ER. Preeclampsia is Associated with Altered Expression of Ferroptosis Biomarkers in Placental but not Maternal Vasculature..Reprod Sci. 2025 Sep;32(9):3074-3085. Epub 2025 Aug 6.PMID: 40770602
- Mustafa HJ, Sheikh J, Berghella V, Grobman WA, Shamshirsaz AA, Gordijn SJ, **House MD** Ganzevoort W, Roman A, Khalil A. Prevention of Preterm Birth in Twin Pregnancy: International Delphi Consensus; Preterm Birth in Twins Working Group. Ultrasound in Obstetrics & Gynecology. 2025 Jun;65(6):712–722. doi: 10.1002/uog.29220. Epub 2025 Apr 18. PMID: 40248955.
- Vagios S, Bormann CL, Souter I, **House MD**, Dimitriadis I.Risk of Hypertensive Disorders of Pregnancy in Electively Induced or Expectantly Managed Full-Term IVF Pregnancies. Reproductive Biomedicine Online. 2025 Jan;50(1):104408. Epub 2024 Aug 16. PMID: 39579616

Dr. Elizabeth Yen

Preprints (not yet peer-reviewed):

- **Kaneko-Tarui T, Carasi-Schwartz F, Singh K**, Gildawie KR, Vassoler FM, Byrnes EM, **Yen E**. A pilot multiplex salivary transcriptomic analysis to understand the sex-specific effects of maternal opioid use in offspring. Res Sq [Preprint]. 2025 Sep 24:rs.3.rs-7418166. PMID: 41041561. PMCID: PMC12486083.
- **Yen E**, De Asis-Cruz J, Rasmussen J. MRI-based structural development of the human newborn hypothalamus. bioRxiv 2025, posted June 21. doi:10.1101/2025.06.20.660741.

Published (peer-reviewed papers):

- **Krishnan P, Yen E.** The Changing Landscape of Cannabis Use: Impact on Maternal Health and Neonatal Outcomes. Pediatric Research, June 20, 2025. PMID: 40542098. doi:10.1038/s41390-025-04209-4
- Cano-Guerra C, Short MI, **Yen E**. The impact of opt-in versus opt-out consent process for the use of donor human milk on feeding practices and growth pattern in preterm infants. American Journal of Perinatology, accepted June 2, 2025. PMID: 40456284
- Goldstein GP, **Yen E, Davis JM**. Pregnancy lifestyle interventions and child health: lessons learned from the GeliS trial. Pediatric Research, March 27, 2025. Epub ahead of print.
- **Carasi-Schwartz F, Singh K, Kaneko-Tarui T**, Short MI, Cordova M, **Yen E**. Molecular evidence of the sex-specific effects of prenatal opioid exposure. Journal of Perinatology, March 24, 2025. PMID: 40128447. PMCID: PMC12107500 (available April 1, 2026)
- Gildawie KR, Budge KE, Vassoler FM, **Yen E**, Byrnes E. Differential effects of prenatal buprenorphine and methadone on postnatal growth and gene expression in the nucleus accumbens. Developmental Psychobiology, 2025;67:e70015. PMID: 39648276. PMCID: PMC11709121 (available January 1, 2026)

Dr. Sebastian Ramos

- **Ramos SZ**, McNamara IF, Alonso-Bermudez B, Has P, Werner EF, Siegel MB, Wagner SM. Maternal Care Deserts and Risk of Maternal Morbidity in Term Pregnancies. American Journal of Obstetrics & Gynecology MFM. 2025 Oct 22:101821
- **Lekshmi D**, Nader S, Roberts-Barry J., Lind LEB, Charles AS, **Werner EF, & Ramos SZ** (2025). Perinatal Outcomes Among Patients Using OB Teleflex, A Hybrid Prenatal Telemedicine Program. Journal of Obstetrics and Gynaecology Canada, 102911

Dr. Jonathan M. Davis

- Jackson SS, Carvero JP, Sun L, **Davis JM.** The use of real-world data to generate real-world evidence to accelerate neonatal drug development. J Neurosurg Anesthesiol. 2025;37:110–113
- Newman JE, Dhawan M, Clarke L, Owen S, Beirsdorfer T, Parlberg L, Merhar S, DeMauro SB, Lorch S, Wilson-Costello D, Ambalavanan N, Peralta-Carcelen M, Walsh M, Poindexter B, **Davis JM**, Limperopoulos C, Mack N, Bann CM. Lessons learned in virtual launch of an antenatal opioid exposure study during the COVID-19 pandemic. Nursing Research. 2025; doi:10.1097/NNR.0000000000000807
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- Ghaloul-Gonzalez L, Parker L, **Davis JM**, Vockley J. Genomic sequencing: A necessity for equity of care in the era of personalized medicine. Pediatr Res. 2025; doi:10.1038/s41390-025-03869-6
- Newman JE, Clarke L, Athimuthu P, Dhawan M, Owen S, Beiersdorfer T, Parlberg LM, Bangdiwala A, McMillan T, DeMauro SB, Lorch S, Peralta-Carcelen M, Wilson-Costello D, Ambalavanan N, Merhar S, Poindexter B, Limperopoulos C, **Davis JM,** Walsh M, Bann CM. Assessment of a digital tool to supplement consent for a prospective longitudinal cohort study of infants with antenatal opioid exposure. JMIR Form Res. 2025;9:e59954
- Wu Y, Merhar SL, Bann CM, Newman JE, Kapse K, Cruz JD, Mack N, DeMauro SB, Ambalavanan N, **Davis JM**, et al. Antenatal opioid exposure is associated with reduced global and regional brain volumes in newborns. JAMA Pediatrics. 2025; e250277
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- **Davis JM**, Jansson LM, Jones HE. Prenatal opioid exposure: Have we lost an opportunity to improve the outcomes of mothers and their infants? Clin Ther. 2025;47:536–537
- Kingsmore S, **Davis JM.** The diagnosis and treatment of rare genetic disorders in neonates, infants, and children: The time is now. Pediatr Res. 2025;97:1253–1254.
- Kilpatrick R, Greenberg R, Boyce D, Davis JM. Large language models and clinical calculations: To err is human and machines are not exempt. Pediatr Res. 2025; doi:10.1038/s41390-025-04166-y
- Chityat I, Brady-Mine A, **Davis J**, Edelman E, Anthony BW, Zhang X, Krbec B. Multimodal non-contact sensing of respiration and movement in neonates. Engineering in Medicine and Biology. In press
- **Singh R**, Konsin J, Trinquart L, Koethe B, Morrill D, Cordova M, Rhein L, Bibi S, Fey J, Anderson A, **Davis JM.** Efficacy of a stochastic vibro-tactile stimulation mattress in opioid-exposed newborns at risk of Neonatal Opioid Withdrawal Syndrome: A randomized clinical trial. J Perinatol. In press
- Bibi S, **Singh R**, Breeze JL, Nelson J, Kraft WK, **Davis JM**. Clinical and demographic predictors of the need for pharmacotherapy in neonatal abstinence syndrome. Front Pediatr. 2025;13:1527276
- Kuzniewicz M, Sun LS, Lahri A, Jackson S, **Davis JM**. Cumulative exposure to opioids and benzodiazepines in extremely preterm neonates. J Perinatol. In press
- Grace Lin CWG, Bateman BT, Straub L, Hernández-Díaz S, Vine SM, Jones HE, Connery HS, **Davis JM**, et al. Buprenorphine and methadone discontinuation during pregnancy and the postpartum period: A nationwide cohort study. Am J Psychiatry. 2025; doi:10.1176/appi.ajp.20241127
- Baxter L, van der Vaart M, Cobo MM, Gunawan P, Allegaert K, **Davis JM**, et al. Is noxious stimulus-evoked electroencephalography response a reliable, valid, and interpretable outcome measure to assess analgesic efficacy in neonates? A systematic review and individual participant data meta-analysis protocol. BMC Syst Rev. 2025; doi:10.1186/s13643-025-02890-4
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Dr. Tsung Mou

- **Mou T**, Gillingham A, Geynisman-Tan J, Brown O, Lewicky-Gaupp C, Mueller MG, Kenton K, Collins S. Minimally Invasive Burch Colposuspension to Reduce De Novo Stress Incontinence: The MICRO Randomized Trial. Southern Med J. 2025 Sep;118(9):622-627
- **Mou T**, Su G, Wong JB, Collins S, Kenton K, Paasche-Orlow M. Chinese American women's overactive bladder care experience: a qualitative study. Urogynecology. 2025
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Dr. Ruggero Spadafora

- Placental gene signatures associated with high neonatal adiposity: role for immune cell activation" UNDER REVIEW-Journal of Endocrinology
- **Spadafora R**, Zhang J, Nirmala N, Li X, **O'Tierney-Ginn P**. Placental mRNA and miRNA dynamics associated with lipid metabolism pathways in pregnancies affected by obesity. Frontiers in Endocrinology (Obesity). In submission. Research Topic: Early Prevention of Childhood Obesity: Identifying Risks and Implementing Effective Interventions.

Dr. Erika Werner

- **Ramos SZ** and **E. F. Werner** co-authored an article published in the American Journal of Obstetrics & Gynecology MFM (In Press, October 22, 2025), titled "Maternal Care Deserts and Risk of Maternal Morbidity in Term Pregnancies
- **MyDzung Chu**, M. K. Kim, T. M. James-Todd, L. Chie, and **E. F. Werner** on their recent publication in the Journal of Racial and Ethnic Health Disparities, "Racial/Ethnic and Nativity Disparities in Gestational Diabetes Mellitus, United States 2018–2021."

Dr. Rebecca B. Perkins

- Wentzensen N, Massad LS, Clarke MA, Garcia F, Smith R, Murphy J, Guido R, Reyes A, Phillips S, Berman N, Quinlan J, Lind E, **Perkins RB**; Enduring Consensus Cervical Cancer Screening and Management Guidelines Committee. Self-Collected Vaginal Specimens for HPV Testing: Recommendations From the Enduring Consensus Cervical Cancer Screening and Management Guidelines Committee. J Low Genit Tract Dis. 2025 Apr 1;29(2):144–152. doi: 10.1097/LGT.0000000000000885. Epub 2025 Feb 21. PMID: 39982254
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Dr. Rachana Singh

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Dr. Katina Robison

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