



## Pacific Northwest bioMedical Innovation Co-laboratory (PMedIC):

An OHSU/PNNL Collaboration



# PMedIC SPRING 2023 NEWSLETTER

## PMedIC Scientific Impact

Since 2018, PMedIC has been dedicated to improving human health and disease treatment through collaborations that integrate cutting-edge research and education with clinical practice. Building on the growth and scientific contributions that PMedIC has become known for, the fiscal year 2023 (FY23) has already had multiple funded collaborations, publications, and partnerships that were made possible by the partnership. From top-papers to external funding and its primary focus on developing the future science, technology, engineering and mathematics (STEM) workforce through research internship opportunities, PMedIC is continuing to play a critical role in gaining a mechanistic understanding of diseases and developing innovative therapies.

## PMedIC Intern Highlight

“My internship at PNNL helped me explore different career options outside of academia and I learned how to build collaborations outside of networks that I belong to! I had such a good experience being mentored at PNNL that helped me explore spaces where bioinformatics was growing.”



**Justine Nguyen**, graduate student at the Oregon Health & Science University.

## Top 2022 Paper of the Year | National Institute of Environmental Health Sciences

Out of nearly 3,300 publications by National Institute of Environmental Health Sciences (NIEHS) researchers and grantees in 2022, the NIEHS leaders selected only 32 papers as “Paper of the Year.” Congratulations to the PMedIC team of researchers who worked on the project titled: “COVID-19 Virus Hijacks Lipid Metabolism in the Body To Cause Disease,” and had their paper recognized as Paper of the Year.

**Learn more about the study in this news release from PNNL.**

Citation: Farley, S. E., J. E. Kyle, H. C. Leier, L. M. Bramer, J. B. Weinstein, T. A. Bates, J.-Y. Lee, T. O. Metz, C. Schultz, and F. G. Tafesse. 2022. “A Global Lipid Map Reveals Host Dependency Factors Conserved across SARS-CoV-2 Variants.” *Nature Communications* 13 (1). <https://doi.org/10.1038/s41467-022-31097-7>.

### World Health Day is April 7

World Health Day is celebrated annually to bring awareness to specific health concerns that affect people worldwide. This year, the World Health Organization’s (WHO’s) campaign, “Health for All,” takes time to reflect on the 75th anniversary of WHO and provides an opportunity to look back at public health successes that have supported improved quality of life, and to envision how we can work together to tackle the health challenges of today and the future. [Learn more here.](#)

# OHSU Innovation Grant

## Congratulations to the grant recipients

The OHSU PMedIC Innovation Grant was offered for a second year, to support joint collaborative pilot projects between OHSU and PNNL researchers, as part of the formal partnership called PMedIC. This year two awards of \$50K each were funded.



**ALINA MALOYAN**  
OHSU



**THOMAS METZ**  
PNNL

### “Metabolism of Myeloid Cells in the Offspring of Obese Mothers”

OHSU researcher [Alina Maloyan](#), PhD and PNNL Senior Scientist [Thomas Metz](#), PhD will work in collaboration to study the metabolism of myeloid cells in the offspring of obese mothers to detect metabolic changes in myeloid cells caused by intrauterine exposure to maternal obesity. We know that three out of ten women in the US are obese prior to becoming pregnant. We also know that children born to obese women are programmed to become obese and develop metabolic diseases in adult life despite their own lifestyle choices. This means that the worldwide epidemic of obesity and metabolic diseases is not only a result of sedentary lifestyle or poor diet but is also a consequence of a developmental program that is switched on by the intrauterine environment in obese women. This major public health issue motivates us to do this project.



**JAMIE LO**  
OHSU



**BRIAN SCOTCOLINE**  
OHSU



**CHAEVIEN CLENDINEN**  
PNNL

**ADAM CROSLAN AND LINDSEY SHOREY-KENDRICK | OHSU**

### “Determining the Metabolome of Amniotic Fluid Across Gestation”

OHSU researchers, [Brian Scottoline](#), MD, PhD, [Jamie Lo](#), MD, [Adam Crosland](#), MD, MPH, [Lyndsey Shorey-Kendrick](#), PhD, will investigate how the metabolome of amniotic fluid changes during gestation in collaboration with [Chaevien Clendinen](#), PhD, an analytical chemist at PNNL. This pilot study is a necessary first step before using these data as a reference for larger collaborative grants to determine the impact of adverse maternal exposures on amniotic fluid composition and fetal development/outcomes, and to identify underlying mechanisms and pathways involved. The in-utero environment is comprised of the placenta and amniotic fluid. However, there has been little research performed on amniotic fluid. If successful, this study will result in knowledge gained regarding normal amniotic fluid composition that can be used with current and future non-human primate models of an adverse maternal in utero environment to interrogate the impact of environmental perturbations on amniotic fluid composition.

## Collaborations for Accelerating Scientific Discoveries

### Laboratory Directed Research and Development FY23

**[Thomas Metz](#) (PNNL) and [Lisa Vrooman](#) (OHSU)**

Proteomic and Metabolomic Analyses of Oviductal Fluid from Reproductive Age Rhesus Macaques (*Macaca mulatta*)

**[Michael Huesemann](#) (PNNL) and [Fikadu Tafesse](#) (OHSU)**

Measuring Antiviral Activity in PNNL Algal Extract Fractions Using OHSU Lung Epithelial Cell SARS-CoV-2 Assay

**[Joshua Adkins](#) (PNNL) and [Isabella Ruach](#) (OHSU)**

The Roles of Caspase-1 and -8 in the Mechanism of Inflammasome Induced Cell Extrusion

**[Ernesto Nakayasu](#) (PNNL) and [Martha Neuringer](#) (OHSU)**

Mechanisms of the Protective Effects of Dietary Omega-3 Fatty Acids and Carotenoids in Age-Related Macular Degeneration: Lipidomics Analyses in a Nonhuman Primate Model

**[John Melchior](#) (PNNL) and [Tammy Martin](#) (OHSU)**

Identification of HLA-A29 Peptides Bound to the MHC-Class I Groove in Birdshot Uveitis Patient Leukocytes

**[Stephen Callister](#) (PNNL) and [Lisa Karstens](#) (OHSU)**

Tools for Multi-Omic Investigation of the Bladder Microbiome

### Exploratory Research Seed (ERS) Grants FY23

**[Joseph Quinn](#) (OHSU) and [John Melchior](#) (PNNL)**

The Effect of Choline Supplementation upon Lipid Profile in an APOE4/E4 Human Subject

**[Jacob Raber](#) (OHSU) and [John Melchior](#) (PNNL)**

Development of a Method for Characterization of apoE-Containing and apoE-Free Cerebrospinal Fluid Fractions as a Function of APOE Genotype

**[Amir-Farzin Azarbal](#) (OHSU) and [Ying Zhu](#) (PNNL)**

Spatial Proteomics and Aortic Aneurysm

**[Sue Aicher](#) (OHSU) and [Paul Piehowski](#) (PNNL)**

Multi-Omics on Tear Fluid Samplst

## Additional Project Pilots

**Name:** [Heather McCoy](#) (PNNL), [Jon Jacobs](#) (PNNL), [Timothy Nice](#) (OHSU)

**Project:** Proteome Analysis of Irritable Bowel Disease

**Funder:** Rainin Foundation

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