



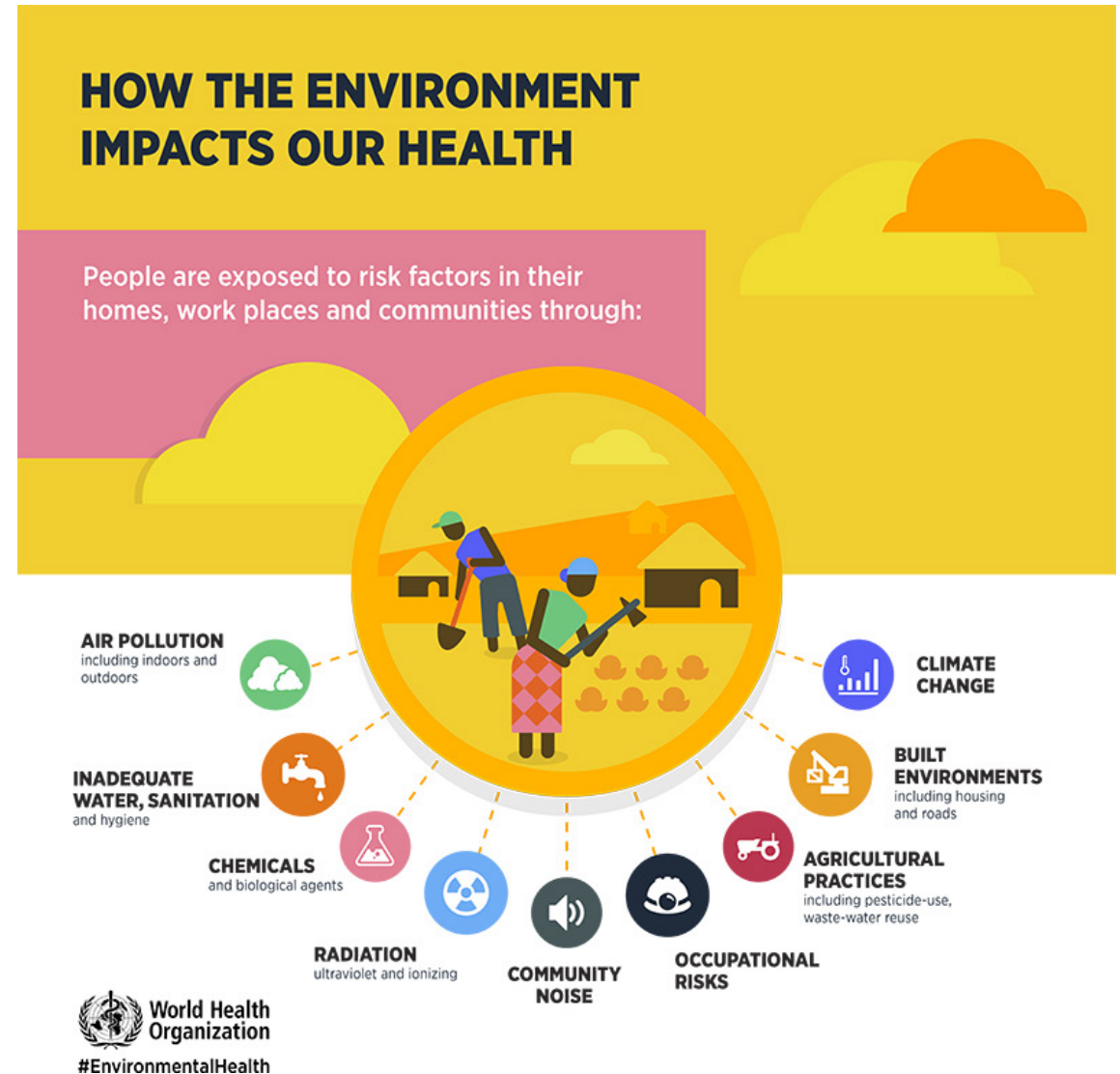
Environmental Health Sciences Certificate Program

My Journey (August 2017 – Present)

Nicole M. Robles-Matos
PGG student

Undergraduate Education & Interest in Environmental Health

- **Undergraduate Studies**
 - University of Puerto Rico, Rio Piedras Campus (UPR-RP)
 - Chemistry
- **Undergraduate Research**
 - UPR-RP: synthesis of natural products
 - Rutgers University: targeted drug delivery and therapeutics
 - UPenn: iron deficiency and epigenetics
- **Graduate studies**
 - Pharmacology
 - Certificate Program in Environmental Health



Course Work in Pharmacology & Certificate Program in EHS

• Pharmacology Course Work

- Fundamentals of Pharmacology
- Cell Biology and Biochemistry
- Biological Data Analysis
- Topics in Molecular Medicine
- PGG Journal Club
- Regulation of the Genome
- Medical Pharmacology
- Human Physiology

• Certificate Program in EHS Course Work

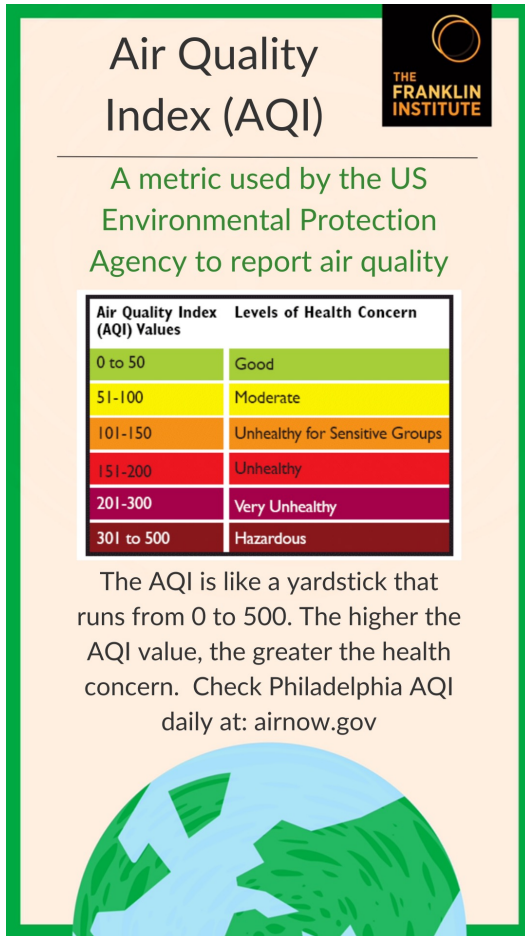
- Cell Biology and Biochemistry
- Biological Data Analysis
- Molecular Toxicology
- Introduction to Epidemiological Research Methods
- Statistical Methods and Data Analysis
- Environmental and Occupational Health
- Community-based rotation

Community-based Rotation

- ◆ **Environmental Justice: Lead Exposure in the Latinx/Hispanic Community of South Philadelphia**
- ◆ **Objectives**
 - Investigate the current knowledge and beliefs about lead poisoning among Latino/Hispanic communities established in South Philadelphia (primarily Mexican origin)
 - Identify and develop culturally appropriate education strategies to include Latino/Hispanic communities in lead prevention programs
- ◆ **Strategies**
 - Collaboration with *Puentes de Salud* (stakeholder)
 - CEET Community Engagement Core Director Dr. Marilyn Howarth
 - Culturally appropriate messages about lead poisoning prevention through radio interview (Philatinos) and short video

2022 Earth Day: CEET and The Franklin Institute (TFI)

Used TFI's social media platforms to increase awareness, accessibility, and inclusivity of local community action about climate change and environmental health.




Air Quality Index (AQI)

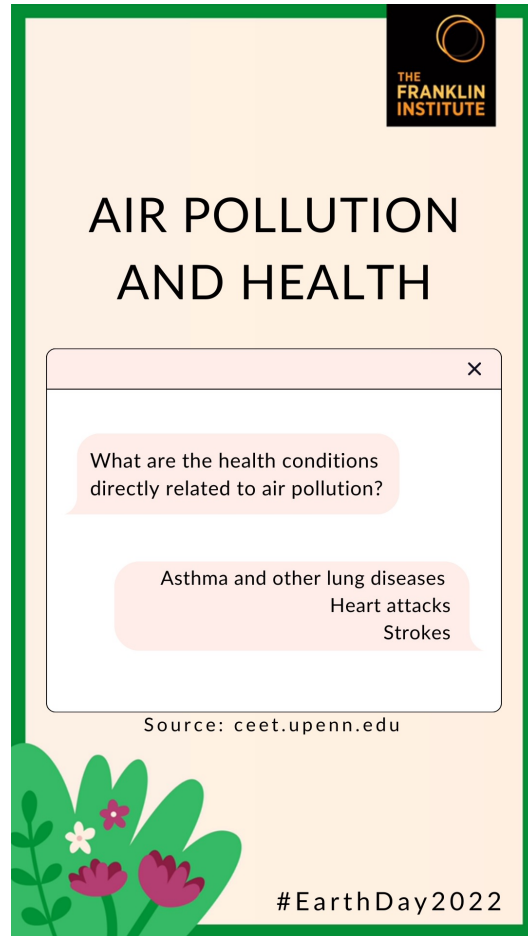
A metric used by the US Environmental Protection Agency to report air quality

Air Quality Index (AQI) Values	Levels of Health Concern
0 to 50	Good
51-100	Moderate
101-150	Unhealthy for Sensitive Groups
151-200	Unhealthy
201-300	Very Unhealthy
301 to 500	Hazardous

The AQI is like a yardstick that runs from 0 to 500. The higher the AQI value, the greater the health concern. Check Philadelphia AQI daily at: airnow.gov



CEET, Dr. Marilyn Howarth




AIR POLLUTION AND HEALTH

What are the health conditions directly related to air pollution?

- Asthma and other lung diseases
- Heart attacks
- Strokes

Source: ceet.upenn.edu



#EarthDay2022

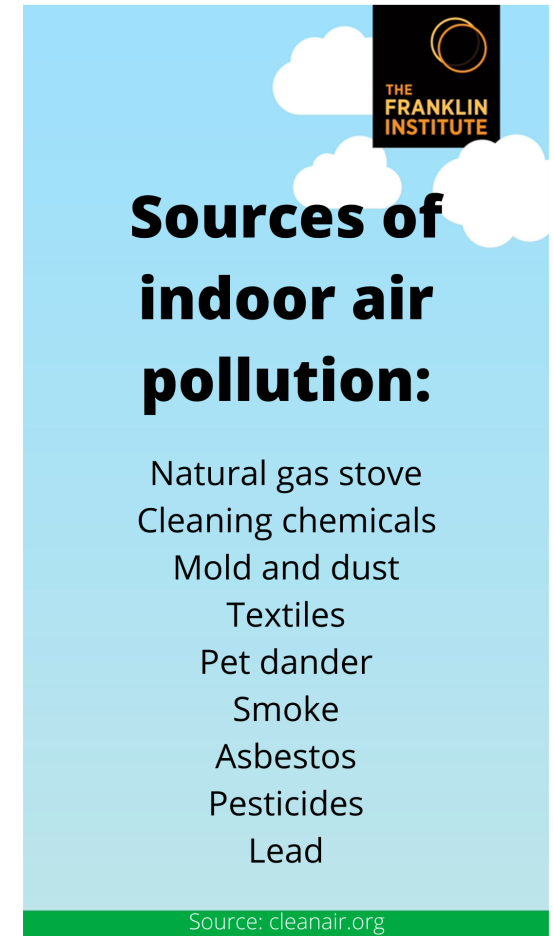


5 benefits of urban greening

- Combats air pollution
- Creates habitat for local wildlife
- Soaks up rainwater
- Improves mental health
- Reduces urban crime



Penn Horticultural Society



Sources of indoor air pollution:

- Natural gas stove
- Cleaning chemicals
- Mold and dust
- Textiles
- Pet dander
- Smoke
- Asbestos
- Pesticides
- Lead

Source: cleanair.org

Clean Air Council

Air Quality Index



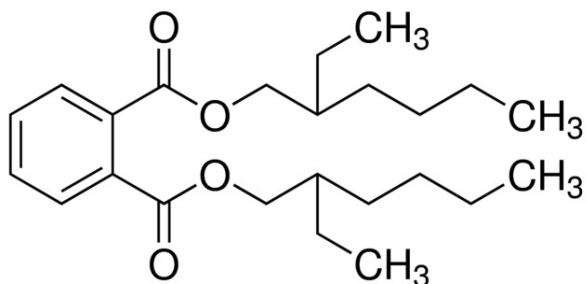
T32 Training Grant in Environmental Health Sciences

- **T32 in Environmental Health Sciences**
 - Supported my thesis research for 3 years
 - T32 Research Talks
 - CEET Seminar Series
 - CEET Annual Symposium
 - Financial support to attend and present at National Conferences (Society of Toxicology)
 - Grant to cover research expenses

Thesis Research Topic

Investigating the influence of periconceptual exposure to DEHP on DNA methylation and hepatotoxicity by dissecting developmental windows of susceptibility and sex-specific effects

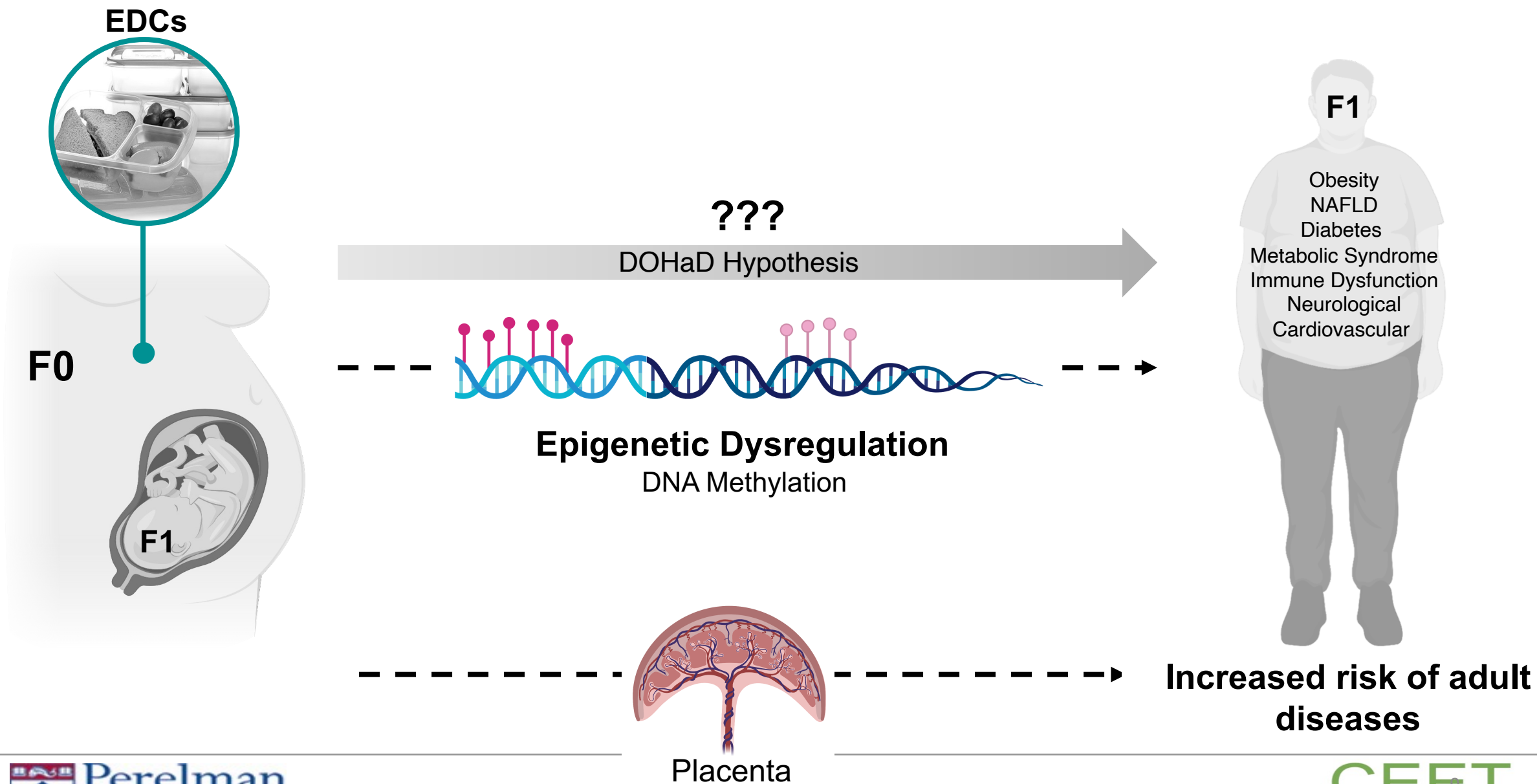
DEHP



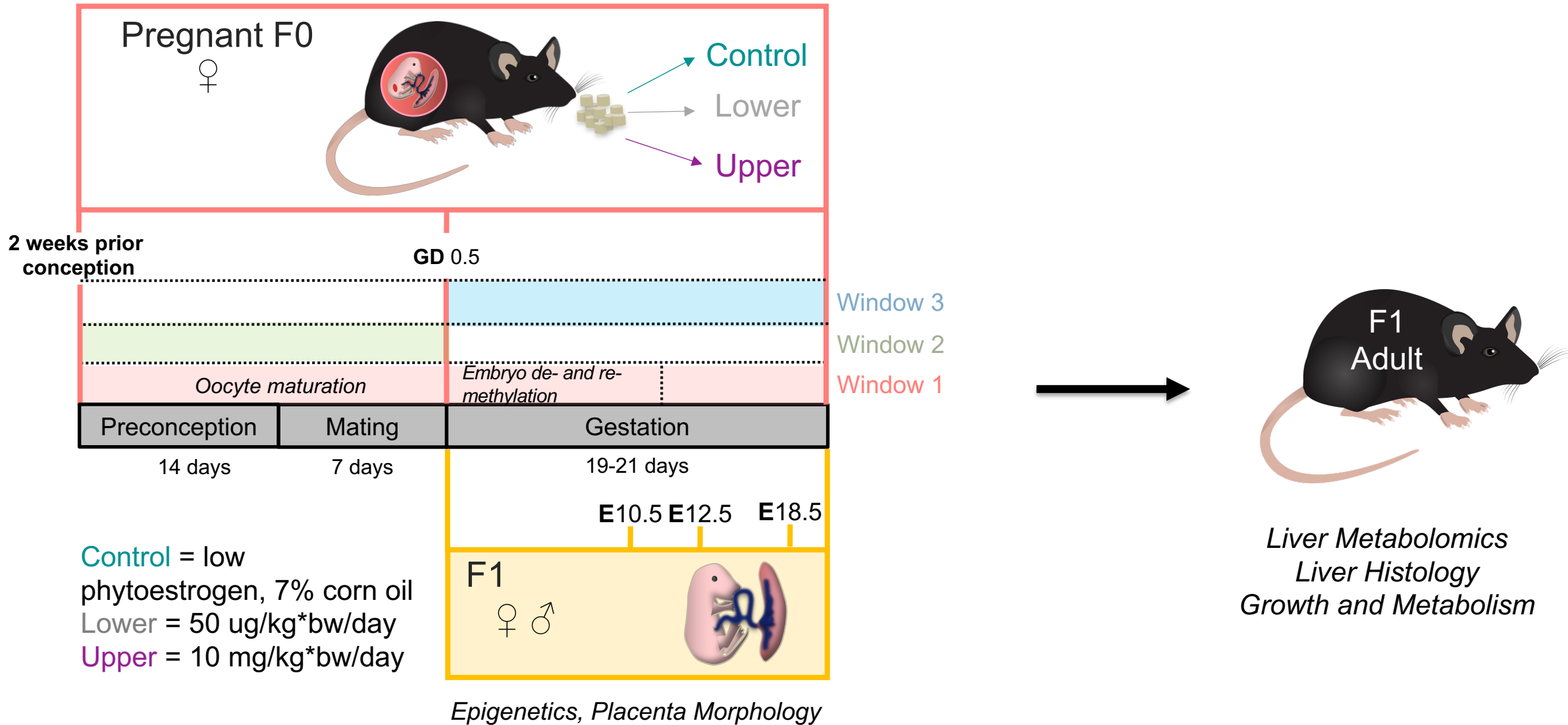
- Di-(2ethylhexyl-phthalate)
- Synthetic industrial chemical
- Ubiquitous in our environment
- Endocrine Disrupting Chemical



Theses Research Topic



Thesis Research Topic



Career Trajectory

◆ Papers Published or Planned

- Bansal, A., **Robles-Matos, N.**, Wang, P.Z., Condon, D.E. Joshi A., and Pinney, S.E. In utero bisphenol A exposure is linked with sex specific changes in the transcriptome. *J. Clinical Endocrinol. & Metabolism* (2019)
- **Robles-Matos, N.**, et al. Environmental Exposure to Endocrine Disrupting Chemicals Influences Genomic Imprinting, Growth, and Metabolism. *Genes* (2021)

◆ Target Thesis Defense Date: March 2023

◆ What will I do when I graduate?

- Presidential Management Fellowship
- Government Agencies (NIEHS, EPA, etc.)
- Environmental Justice and Science Communication

◆ How has my training prepared me for my career goals?

- Networking through CEET events and alumni
- Public Health classes
- Community outreach (CEET, SACNAS, LAGAPSA, PARS, SEA Philly)

The Benefits of Environmental Health

It's not only important to strive for optimal environmental health. It's also beneficial, both for individuals and for their surrounding communities. Some of the benefits are:



Cleaner air quality



Cleaner water



Reduced hazardous waste



Increased access to healthy foods



Safer outdoor environments for adults and children



Improved population health



Improved health equity