

Exposure Assessment, Biomarkers & Environmental Sensing Facility Core

Chris Simpson, Director of Biomarkers & Exposure Assessment
Edmund Seto, Co-Director, Environmental Sensing

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Core Services:

The EABES-FC provides support for environmental health scientists in four core areas:

- Expert consultation regarding sampling plans and measurements of exposure to chemical agents (e.g., volatile organic compounds, metals, particulates)
- Full-service exposure assessment capability including loaning sampling & analysis equipment such as GPS-enabled personal exposure monitors, collection of exposure data, chemical analysis of environmental and biological samples for chemical agents, and interpretation of exposure data
- Development of tissue and biofluid metabolomic profiling as a tool for discovery of biomarkers of exposure and environmentally induced disease
- Development of sensitive and specific quantitative mass spectrometry-based assays for application to biomarkers of exposure

Community Outreach & Engagement Core

Rose James, Director

Marilyn Hair, marhair@uw.edu, 206.685.8244

Core Services:

- Help establish and nurture partnerships between investigators and stakeholder communities
- Assist with the creation and dissemination of educational materials for stakeholders and the general public
- Help organize and host events for scientific and community audiences
- Provide expert consultation and outreach activities that build researchers' capacity for public engagement and ethics related work
- Provide input on relevant sections of grant proposals
- Facilitate career development, focusing on outreach and ethics

Career Development & Mentoring Core

Mike Rosenfeld, Director

Liz Guzy, eguzy@uw.edu, 206.685.5333

The EDGE is committed to nurturing the next generation of ecogenetics researchers by ensuring that the University of Washington recruits, supports, and retains a new generation of high-caliber EHS-focused investigators with a strong interest in gene-environment interactions. Our Career Development and Mentoring Core works to recruit new junior faculty with research and teaching interests compatible with the EDGE mission and provides mentorship to new and current EDGE junior faculty to help them achieve their full potential as scientists, teachers, and communicators.

Pilot Projects

Dave Eaton, Director

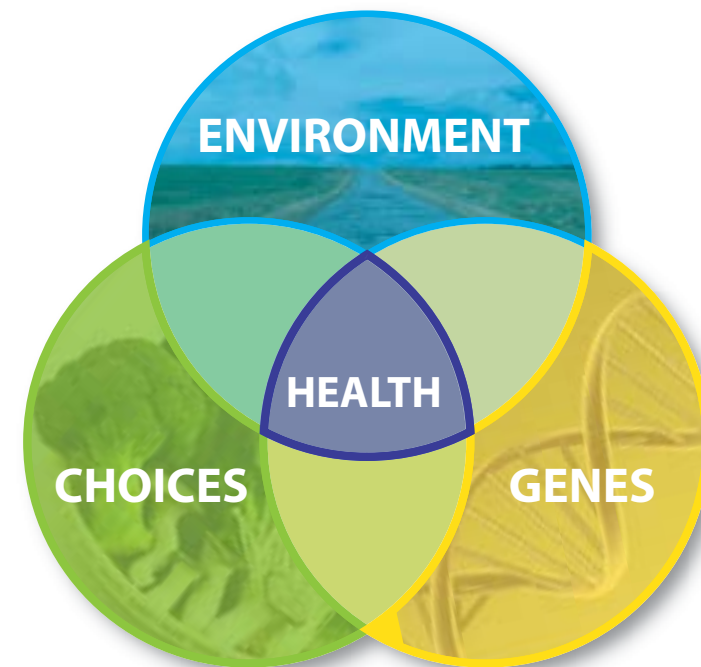
Liz Guzy, eguzy@uw.edu, 206.685.5333

The EDGE provides initial support for investigators to establish novel lines of research relevant to the mission of the NIEHS & EDGE. The program promotes exploration of possible innovative directions representing a significant departure from ongoing funded research for established investigators in environmental health sciences. Investigators from other areas of endeavor are encouraged to apply their expertise to environmental health research. A Request for Proposals is released in December each year and 1-year funding begins in April. Please see the EDGE web site for current information.

Cost of Our Services

In general, EDGE members may take advantage of the services offered by the facility cores without having to incur labor and infrastructure costs related to the project. Occasionally we do have larger projects that require a disproportionate amount of staff time. In these cases the EDGE covers a reasonable portion of the labor costs. If the instrumentation or service is not available through one of our own facility cores, the IEHSFC will help locate a Cost Center that provides the service. EDGE Pilot project funds and mini-grant funding can also be used to cover a portion of the cost of EDGE facility core usage.

Guide to Member Resources & Services



Terry Kavanagh, Director

Website: <http://deohs.washington.edu/edge/>

BLOG: www.ecogenetix.org

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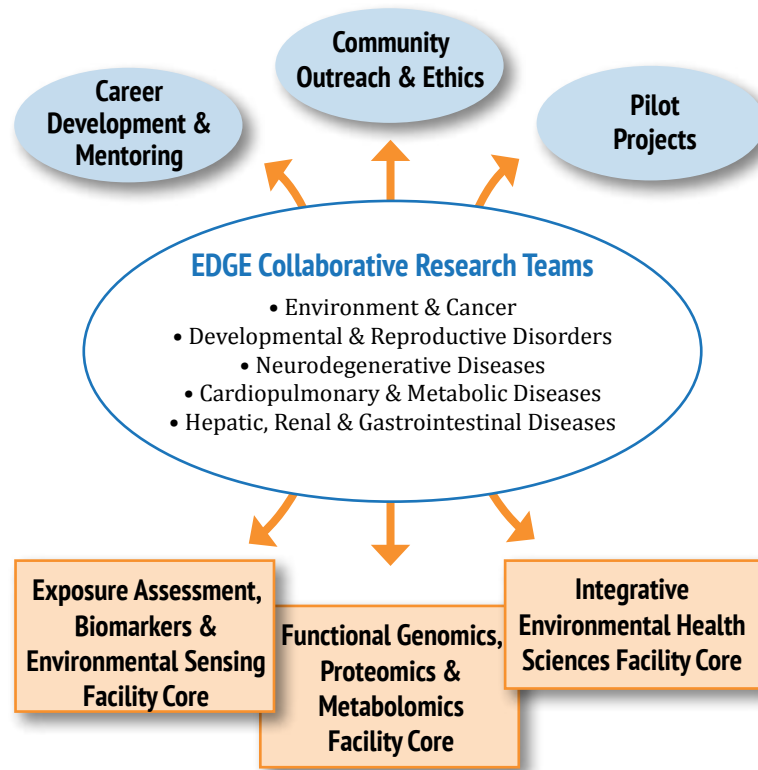


Center for Exposures, Diseases, Genomics & Environment

Contributing to science-based changes in regulatory policy and public health or medical practice that result in a reduction in the burden of environmentally induced diseases.

Mission & Organization

The Center for Exposures, Diseases, Genomics, and Environment (EDGE) is dedicated to contributing to science-based changes in regulatory policy and public health or medical practice that result in a reduction in the burden of environmentally induced diseases. Through discovery of new and important genetic and environmental factors that contribute to the causes of chronic diseases, new approaches to prevention, early diagnosis and effective treatments can be developed that will substantially reduce the social burden and health care costs associated with premature disease and death from environmentally related diseases.



EDGE Membership

The EDGE currently has over 80 affiliated members. Each member is classified either as an **EHS Core Center Investigator** or a **Clinical and Translational Science (CTS) Investigator**. Our membership is dynamic and we welcome new faculty with research interests relevant to any of the five Collaborative Research Teams shown above. A list of current members, member benefits, and criteria for joining the EDGE can be found on our web site at: <http://deohs.washington.edu/edge/members>.

EDGE Resources & Services

Functional Genomics, Proteomics & Metabolomics Facility Core

Terrance Kavanagh, Director (Interim)
Yvonne Lin, Co-Director, Metabolomics

Theo Bammler, tbammler@uw.edu, 206.616.7378

Core Services:

- Global transcriptome and miRNA profiling using microarrays
- Global transcriptome profiling using massively parallel sequencing (RNA-seq)
- Targeted mRNA, microRNA, and lincRNA gene expression profiling (low and medium throughput)
- Single nucleotide polymorphism (SNP) analysis using microarrays
- Targeted genotyping of single nucleotide polymorphisms (SNPs)
- Targeted genotyping of SNPs in Drug Metabolism Enzymes and Transporter genes (DMET)
- Targeted genotyping of SNPs for ancestry characterization
- Methylation profiling using targeted enrichment, bisulfite conversion, and massively parallel sequencing
- Targeted DNA methylation profiling
- Genome-wide copy number variation survey using microarrays
- Targeted copy number variation analysis
- *In situ* hybridization using QuantiGene ViewRNA Assays for mRNA and microRNA
- Support preparation and review of manuscripts and grant proposals
- **Basic proteomic services include:**
 - Consultation on experimental design, including sample preparation
 - Assistance with finding collaborators to perform discovery proteomics
 - Assistance with getting experiments addressed at UW Proteomics Centers
 - Typical mass spec runs
 - Investigations on post-translational modifications
 - Mass spec based peptide quantifications (e.g. SIM and MRM methods)
 - Consultation on data analysis
 - Consultation on protein validation by ELISA, Luminex (fluorescent bead- or magnetic bead-based), or TaqMan assays
 - Perform protein validation by ELISA, Luminex (fluorescent bead- or magnetic bead-based), or TaqMan assays
 - Facilitating metabolomics analysis

Integrative Environmental Health Sciences Facility Core

Joel Kaufman, Director
Catherine Karr, Director, Clinical & Translational Services Unit
Kathleen Kerr, Director, Bioinformatics & Biostatistics Unit
Ed Kelly, Director, Microphysiological Modeling of Toxicant Response Unit

Theo Bammler, tbammler@uw.edu, 206.616.7378

Bioinformatics & Biostatistics Services:

- Comprehensive support and analysis of mRNA and microRNA expression array data and miRNA target prediction
- Comprehensive support and analysis of biological networks and pathways using numerous packages including: weighted correlation network analysis (WGCNA), gene ontology (GO) analysis, Ingenuity Pathway Analysis (IPA), and gene-set enrichment analysis (GSEA).
- Assistance in the analysis of methylation profiling data derived from targeted enrichment, bisulfite conversion, and massively parallel sequencing
- Advanced analysis of proteomics data
- Advanced analysis of metabolomics data
- Support for integration of different types of OMICs data
- Facilitate analysis of RNA-seq and ChIP-seq data generated by massively parallel sequencing
- General statistical consultation & data analysis
- Support preparation & review of manuscripts, grant proposals

Clinical & Translational Services:

- Two-way facilitation of interaction between basic scientists and clinical/translational/population-based scientists, to enable innovative approaches that span disciplines.
- A dedicated core facility space for clinical testing, physiological testing, and collection and storage of human samples.
- Assistance with IRB issues, identification of staffing solutions for human subjects research, subject recruitment/screening and retention, laboratory assay coordination and organization and application of toxicokinetic approaches.
- Help developing repositories of samples from well-characterized populations with specific environmental exposures.

Microphysiological Modeling of Toxicant Response Unit (MMTRU):

The MMTRU provides EDGE investigators access to novel 3D microphysiological system (MPS) models ("organs on a chip") that utilize human and rodent liver and kidney cells to investigate toxicological responses for candidate xenobiotics. It works with EDGE investigators to develop new MPS models for other human and rodent tissues to explore organ-specific toxicity relevant to the mission of the EDGE (e.g. CNS, germ cells, placenta, respiratory, immune system, cardiomyocytes, induced pluripotent stem cells, etc.).