The Center for Urban Responses to Environmental Stressors Announces 2024 Request for Pilot Project Proposals

What is CURES?

The Center for Urban Responses to Environmental Stressors (CURES) is a National Institute of Environmental Health Sciences (NIEHS)-funded P30 Core Center (EHSCC) whose mission is to provide leadership and programs that, in collaboration with the community and environmental policy makers, identify, evaluate, and mitigate environmental health concerns. CURES strives to establish a cleaner and healthier living and working environment in the City of Detroit and other urban areas. A preponderance of our citizens disproportionately suffer the consequences of systemic racism, poverty, and environmental health disparities. CURES applies integrative teamwork, community-engaged research, and the latest technologies to understand how exposure to urban environmental chemical and non-chemical stressors affects human health. CURES seeks smart solutions that will reduce and ultimately eliminate the negative impact of these stressors.

The overall goals of CURES are to 1) strengthen CURES existing partnerships and develop new ones within the Detroit community, and in collaboration with our community partners identify environmental threats common to US urban populations and provide scientifically-based strategies to mitigate them; 2) conduct integrated mechanistic, epidemiological, and community-engaged research that addresses the consequences of urban chemical and non-chemical exposures on human health; 3) build CURES' investigator capabilities by providing facility cores that provide state-of-the-art analytical services as well as pilot funds to explore the feasibility of new areas of study; 4) secure the long term contribution of CURES on the discipline of environmental health sciences (EHS) by mentoring new and established investigators to attain their professional goals and prepare them for EHS leadership; and 5) foster a culture of antiracism, inclusion, and environmental health equity throughout the Center.

What is the purpose of this RFA?

The primary goal of the CURES Pilot Project Program is to develop research capacity and expertise to address research priorities that are informed by our Community Advisory Board (CAB) and that generate results that lead to extramural research funding from NIEHS.

This RFA seeks applications for research projects that address the themes (1) Impact of early life exposures to environmental stressors on health, (2) Impact of the built environment on health, and (3) Mitigation of the adverse effects of the environment on health. These themes are described in more detail on page 3. **We expect to fund up to seven pilot projects this year.**

Time Line

September 25, 26	Informational Meetings by Zoom: Potential applicants are invited to attend one of these meetings to learn more about the CURES Pilot Project Program. Wednesday September 25, 2PM Thursday September 26, 10AM To join either of these meetings via Zoom: https://wayne-edu.zoom.us/j/94225890168?pwd=FPF6n45wXJTSHwevsr4i3LdJlm91cu.1 Meeting ID: 942 2589 0168 Passcode: 007470
October 17	Letters of intent (LOI) due by midnight
November 1	Notification of successful LOIs and invitation to submit proposal
November 25	Full applications due by midnight
December 18	Announcement of awards; funding will begin as soon as possible

Questions and Submission of Information

Submit Letters of Intent (LOI) as a single PDF files as E-mail attachments to:

Dr. Thomas A. Kocarek
Leader, CURES Pilot Project Program
Phone (313) 577-6580
t.kocarek@wayne.edu

Questions

If you have questions about CURES and this RFA, please contact:

Dr. Thomas A. Kocarek
Leader, CURES Pilot Project Program
Phone (313) 577-6580
t.kocarek@wayne.edu

or

Dr. Melissa Runge-Morris
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What is the theme of this RFA?

This RFA seeks applications for research projects focused on understanding or mitigating the adverse effects of environmental stressors on human health. Based on input from the CURES CAB, this RFA particularly encourages applications for pilot projects that address one of the topics described below.

- **Impact of early life exposures to environmental stressors on health:** It is well recognized that exposures to environmental stressors are particularly detrimental during certain life windows of susceptibility, especially during early life (e.g., during pregnancy or childhood). Our CAB voiced concerns about the adverse health effects of early life exposures to environmental chemicals, including the impact of polybrominated biphenyls on reproductive health in urban minority youths and the impact of exposure to such chemicals as lead, pesticides, and household products on diseases such as asthma and cardiovascular disease.
- **Impact of the built environment on health:** The built environment is defined as human-made or modified structures that provide people with living, working, and recreational spaces. It is well recognized that the built environment is a determinant of health and that the urban built environment contains features that can adversely affect health. Our CAB voiced concerns about such issues as proximity to industrial facilities that release pollutants into the environment, deteriorating housing structures that cause lead poisoning or asthmatic attacks, inadequate green space for recreation, inconvenient access to healthy foods, and inadequate public transportation and other structures for mobility.
- **Mitigation of the adverse effects of the environment on health:** It is not sufficient to identify the sources of environmental stress and their adverse health effects. It is also necessary to develop approaches to mitigate these adverse effects. This can take the form of remediation approaches to reduce the levels of contaminants in the environment or intervention approaches that enhance an individual's resilience, which is the ability to cope with difficult, stressful, and traumatic situations while maintaining or restoring normal functioning. Our CAB identified various issues regarding mitigation such as the benefits of a healthy diet on environmentally-induced disease (e.g., does healthy food access improve outcomes in lead-impacted children?), improving recreational opportunities to improve chronic disease, soil remediation for urban gardens, use of climate change-resistant trees to mitigate climate change and air pollution, the pros and cons of use of water filters, and the importance of social interactions and community engagement for resilience.

- While this RFA encourages applications in the above areas, acceptable projects are not limited to those topics. Applicants must provide a compelling justification for the selected topic, both in terms of the importance of the environmental health problem to Detroit and the likelihood that the project will have a major impact in addressing the problem. Projects aligned with the NIEHS strategic plan (https://www.niehs.nih.gov/about/strategicplan/index.cfm) or for which there is a relevant NIEHS Grant Opportunity (https://www.niehs.nih.gov/funding/grants/announcements/index.cfm) are welcome. For example, the draft of the NIEHS 2025-2029 Strategic Plan includes the following areas of emphasis: (1) exposomics, (2) precision environmental health, (3) mechanistic biology and toxicology, (4) data science and computational biology, (5) environmental health disparities, environmental justice, and health equity, and (6) climate change impacts on

human health. Also, CURES has three Research Interest Groups: Environment and Metabolic Health; Environmental Impact on Reproductive Health and Early Development; and Environmental Health Disparities and Resilience, and projects aligned with these areas of strength are welcome.

- Proposed studies must be research projects with high potential to yield peer-reviewed publications in high-impact journals and high likelihood of being developed into larger, longer-term projects that are supported by extramural (preferably NIEHS) grant funding. An absolute expectation is that pilot project recipients will publish their findings (citing CURES in the publications) and submit research grant applications for extramural funding based on their projects.
- All types of research activity are welcome (e.g., basic mechanistic, epidemiological, social science, community-engaged).
- CURES is committed to performing research relevant to the community. Proposals that include partnerships with community members are always encouraged.
- Projects that involve interdisciplinary collaborations and team science are always encouraged.
- A list of previously funded CURES pilot projects can be found at the following link: http://cures.wayne.edu/research/pilot-projects.php

What are the terms of this RFA?

1. **Number of awards:** CURES plans to fund up to 7 pilot projects.
2. **Funding time and amount:** Each pilot project will be funded for ~1.3 years at up to $60,000 in direct costs. No funds will be allocated for administrative and facility costs (indirect costs). Successful applicants will receive up to $20,000 as soon as they have completed all pre-award requirements (described below). This is expected to occur in November 2024. **This first installment must be expended by April 30, 2025.** On approximately May 1, 2025, upon demonstration of satisfactory progress, the projects will receive the remainder of the award. **Awarded funds must be expended by April 30, 2026. There is no possibility for no-cost extension or "carry-over."**
3. **Eligibility:** Eligible applicants include all current CURES members as well as non-CURES members at Wayne State University and Henry Ford Health who declare their willingness to join CURES and abide by its policies. Each pilot project must have a PI with an appointment that would allow submission of an extramural research grant application as a PI. Additional participants (e.g., MPIs [multiple principal investigators], co-investigators, collaborators, consultants) who will strengthen the project are encouraged and need not hold an appointment that would allow submission of an extramural research grant application as a PI. The Community Engagement Core (CEC) is eligible to apply for pilot project funding to advance CEC aims and pursue new opportunities, for example to support development of applications for CEC-related funding opportunities. A community member may serve as an MPI (together with another investigator who meets the above-described criteria for PI), co- investigator, or collaborator on a project. **A list of current CURES members can be found on the CURES website:** https://cures.wayne.edu/.

- A table of the CURES Community Advisory Board (CAB) members with brief descriptions of their organizations is provided at the end of this RFA. The table also summarizes environmental health concerns that have been expressed by CAB members in surveys.

Researchers who would be interested in developing an application in partnership or collaboration with any of these community organizations are encouraged to contact CURES Community Engagement Program Co-Leader Dr. Carrie Leach (E-mail: carrieleach@wayne.edu) or CURES Community Engagement Coordinator Rochelle Chapman (Phone: 313-577-5045; E-mail: rochellechapman@wayne.edu).

4. **Requirements:**

   1) The proposed research project **must conform to the requirements stated in this RFA.**

   2) The proposed pilot research project **must be of outstanding merit.** There must be high likelihoods that: a) the proposed research project will have a substantial impact in addressing the problem and b) the pilot award will lead to extramural funding (preferably from NIEHS).

   3) While not required, inclusion of a "new investigator" (NI) or "early stage investigator" (ESI) on the application is encouraged, as this will facilitate the career enhancement mission of CURES. An NIH-defined "new investigator" is a researcher who has not yet been PI on a major NIH research grant, such as an R01. An "early stage investigator" is a new investigator who completed his/her/their terminal research degree or medical residency, whichever date is later, within the past ten years. **We anticipate that at least three of the pilot projects to be funded will have a NI or ESI as PI or MPI, with highest consideration given to ESIs.**

   4) Another highly desirable characteristic of an application will be the planned **use of one or both CURES facility cores**: (1) the **Translational Research Support Core (TRSC)** and (2) the **Exposure Signatures Facility Core (ESFC)**. These two facility cores are described in detail later in the RFA. Applicants contemplating using the facility cores should contact the facility core leaders early in the process of developing a project. The TRSC and ESFC have some funds available in the form of vouchers to facilitate access to their services.

What may funds be used for?

Funds **may** be used as follows:

1) To purchase supplies and reagents. Computers costing less than $5,000 and software fees are allowed.
2) For technical support salaries
3) For incentives for community partners and community research participants

Funds **may not** be used as follows:

1) For salary support of faculty
2) To purchase equipment
3) For travel, except local travel (e.g., mileage for staff collecting data, environmental samples). Travel to conferences to present findings is specifically prohibited by the terms of the EHSCC program.

How do I apply?

FIRST STEP: Submit a letter of Intent (LOI) – submit as single PDF file as described on p. 2 of the RFA**.**

- **Download and complete the cover page** (available at https://cures.wayne.edu/research/pilot-projects). This is a fillable PDF file that requests basic information about the project.
- Write no more than two pages that contain the following sections (a third page may be provided that only contains a list of references cited):
  - **Significance:** Briefly introduce the proposed project and clearly explain why it is significant, innovative, and likely to lead to NIEHS research grant funding.
  - **Community Relevance:** In one paragraph, clearly explain why this project addresses an environmental health science problem that is of concern to the Detroit community. This paragraph should be written in plain language understandable by a general, lay audience.
  - **Hypothesis and Specific Aims:** State the project's overarching hypothesis and specific aims.
  - **Research Design:** Briefly explain the approaches to be used to conduct the proposed project.
  - **Timeline:** Provide an estimated timeline for the project that includes any need to obtain regulatory approvals (e.g., animal and/or human subjects) as well as the estimated time to perform the study. This will facilitate assessment of the feasibility of performing the study within the ~1.3-year time frame).
  - **Budget:** Provide an estimated total budget and expected use of the funds.

➢ **All potential applicants are required to consult with leaders of the TRSC and CEC** to discuss the proposed research team, research design, and community partnership opportunities.

Consultation with the TRSC can be achieved by E-mail, telephone, or Zoom conference at the applicant's discretion – contact CURES TRSC Leader Dr. Graham Parker (gparker@med.wayne.edu) to arrange a consultation.

For consultation with CEC, Community Engagement Program Co-Leader Dr. Carrie Leach will host two Zoom conferences on the following dates/times:

Wednesday, October 9 from 1:00-2:00PM
Thursday, October 10 from 12:00-1:00PM

You must register in advance for the meetings @ https://wayne-edu.zoom.us/meeting/register/tJ0sceiorj8iEtBPyewOXMwWsTBKDiI4cx8V

After registering, you will receive a confirmation E-mail containing information about joining for either date.

➢ Information will be provided about collaborating with community partners, grounding research in local circumstances, incorporating strategies for communicating research results, and other matters related to community engagement and community-engaged research. **Potential applicants who plan to use the ESFC are required to consult with the leaders of this Core.** A project that requires the use of services that are made available by the ESFC should use the

ESFC for those services unless a strong justification can be provided for using an alternative source outside of CURES. **All** potential applicants are encouraged to discuss their projects with the ESFC leaders to explore how a proposed project might benefit from those resources, even if potential use of ESFC is not obvious.

- LOIs will be reviewed by a committee consisting of CURES program leaders and Community Advisory Board (CAB) members. Please note the following:
  - **Only projects considered to have high potential to lead to extramural grant funding (preferably from NIEHS) will be selected for submission of a full application.**
  - The CAB member reviewers will be asked specifically to provide their assessment of how well the project addresses an environmental health problem of concern to the local community (see table beginning on page 14 for specific CAB-identified research and health concerns). **No LOI that fails to receive this endorsement from the CAB member reviewers will be selected for submission of a full application.**
  - CURES may suggest collaboration should more than one LOI propose similar goals.

SECOND STEP: Invited investigators submit a full application. Details for preparing full applications will be provided to successful LOI applicants when they are notified of their selection. The format will essentially be that of an NIH R03 application with some additional requirements. Briefly:

a) Cover Page
b) Abstract and Personnel
c) Research Sites
d) Biographical Sketches of Key Personnel
e) Other Support for PI (or MPIs)
f) Available Resources
g) Budget and Justification
h) Specific Aims (1 page)
i) Research Strategy (6 pages)
    a. Significance
    b. Innovation
    c. Approach (Preliminary Data should be incorporated into this section)
j) References Cited
k) Human, Vertebrate Animal, and Hazardous Materials Assurances of Compliance - Investigators using animals, human subjects, or biohazardous materials in their research must obtain protocol approval from the Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), and/or Institutional Biosafety Committee (IBC), as applicable, **before** funds can be spent on activities that require such approval.
l) Plans for submission of research grant applications for extramural funding
    - Applicants are advised to check the Funding Opportunity Announcements (FOAs) on the NIEHS website (www.niehs.nih.gov/funding/grants/announcements/index.cfm) for information about research areas currently being emphasized by NIEHS. Applications that are related to current FOAs will be rated as stronger.
m) Letters of Commitment from all PIs and co-investigators (and any additional community partners who have roles other than MPI or co-investigator).

n) Signatures from the departmental chairs/directors of the PI's academic units. If you are the departmental chair, your Dean or Vice President should sign.

Pre-award responsibilities. Successful applicants will be required to attend a pre-award meeting with the Pilot Project Program Leader and the OVPR Budget Manager, at which awardees will be advised about account establishment and monitoring, the need to expend awarded funds within the specified time periods, and the requirement to acknowledge support received from CURES in any publications or presentations generated under the pilot project award. Necessary IRB, IACUC, and/or IBC approvals must be obtained as soon as practical. It is highly recommended that applications for regulatory approvals be submitted immediately after the pilot project application is made.

Award-time responsibilities

- PIs must cite the CURES Center Grant (P30 ES036084) on all publications that result from the pilot project award.
- PIs agree to meet periodically with CURES program leaders to provide updates on their projects, as requested.
- PIs must provide written updates on their research progress for annual progress reports and meetings with CURES Advisory Committees.
- PIs must present their research findings at one of the CURES Center-wide research meetings.
- Pilot project recipients will also be required to present their results at a CURES Community Engagement Core-sponsored event – either a Community Advisory Board meeting or an Environmental Health Forum.

Post-award responsibilities. Upon completion of a project, PIs will be required to submit a report that contains the following information:

- A list of any publications (e.g., research articles, review articles, abstracts; submitted, in press, or published) or patents that resulted entirely or in part from the pilot project award.
- A list of any grant applications submitted (funded, pending, or non-funded) that resulted from the pilot project award in which the applicant was listed either as PI (or MPI), co-investigator, or other key personnel.
- A description of collaborations that developed as a result of the pilot project award.
- Because of CURES' need to track success of the Pilot Project Program as determined by conversion of pilot projects into extramurally funded projects, recipients will be contacted for updated information about publications and grant applications for several years beyond completion of their award.

Pilot project recipients will be expected to submit applications for extramural funding to continue their projects as soon as is practical. The Career Enhancement and TRSC program leaders will provide support for these applications.

Please adhere to the following formatting requirements when preparing LOIs and applications:

- Font: Use an Arial, Helvetica, Palatino Linotype, or Georgia typeface, a black font color, and a font size of 11 points or larger. (A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.)

- Type density, including characters and spaces, must be no more than 15 characters per inch. Type may be no more than six lines per inch.
- Use standard paper size (8 ½" x 11).
- Use at least one-half inch margins (top, bottom, left, and right) for all pages.

CURES Facility Cores and Community Engagement Core

1. Translational Research Support Core (TRSC)

https://cures.wayne.edu/trsc

Leader:
Graham Parker, PhD
Assistant Professor, Pediatrics
IBio Building, 6135 Woodward Avenue
Phone: 313-577-2707; E-mail: gparker@med.wayne.edu

The *overarching goal* of the CURES Translational Research Support Core (TRSC) is to facilitate translational research findings along the spectrum from basic and/or clinical research to the applied or public health arenas of Detroit and beyond. First and foremost, the TRSC consults, supports and enhances the efforts of CURES members from bench scientists to community engagement to advance our multidirectional appreciation, investigation and mitigation of the environmental health issues that burden the people of Detroit. This we will achieve by facilitating resource access and promoting Environmental Health Science team science directed toward CEC-identified, community-voiced environmental concerns. The TRSC connects CURES members with physical and virtual resources. We work with the Administrative Core and its Career Enhancement Program, the Community Engagement Core (CEC), the Pilot Project Program, the Exposure Signatures Facility Core and CURES Research Interest Groups to leverage the institutional resources of Wayne State University, Henry Ford Health, Michigan State University and the Karmanos Cancer Institute.

The TRSC investigator-focused discovery and candidate exploration supports development and interpretation of environmental risk frameworks. The TRSC helps optimize implementation and engagement to support research to improve early detection, prevention, and/or mitigation strategies for environmental-related disorders. The TRSC facilitate translational research findings between Environmental Health Scientists and the Detroit public by consulting, supporting and enhancing the efforts of CURES to accomplish three specific aims:

Aim 1: To Coordinate and Facilitate Resource Access. The TRSC consults with CURES members to identify educational and training opportunities on: 1) translational study design; 2) data science and biostatistics; 3) data access, analysis and visualization for audiences including investigators and community stakeholders; 4) Facilitate curated resource access to achieve CURES translational research.

Aim 2: To Facilitate Team Science. The TRSC will facilitate team science by: 1) developing new and stronger collaborative partnerships; 2) facilitating mechanisms that support effective team performance; 3) providing feedback that quantifies the impact of team science, and 4) working with the CEC to ensure acknowledgement and integration of the goals and values of community partners who are central to team science.

Aim 3: To Promote Translational Research. The TRSC will: 1) consult with researchers from across the research spectrum to identify educational opportunities to better understand the public health impact of their work; 2) support publication and presentation of results using accessible language in multi-media channels; 3) provide training, consultation and educational materials developed under the translational research framework to enhance the research portfolio and career enhancement of our researchers at all levels; 4) enable translation of results into lay language to enhance dissemination to community stakeholders as well as local and state government via the CEC.

2. Exposure Signatures Facility Core (ESFC)

http://cures.wayne.edu/esfc.php

Vouchers: Funds are available to CURES Pilot Project awardees for analytical services and resource use in the Wayne State University Core Facilities described here. Each voucher provides up to $2,500 for use in any of the six Core Facilities that comprise the ESFC. Contact the Director of the Core Facility that you intend to request a voucher for to obtain the application, which is a single page in length.

Leaders:

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Phone: 313-577-6536; E-mail: pmstemmer@wayne.edu

Judy Westrick, PhD
Director, Lumigen Instrument Center
A. Paul Schaap Chemistry Building, Room 225
judy.westrick@wayne.edu

"Exposure Signatures" include direct measurement of toxicants as well as the quantifiable responses of a biological system to an environmental stressor. The ESFC partners with established Core Facilities to provide essential analytical services for Center Investigators. These partners are: (1) The Genome Science Core, (2) The Proteomics Core, (3) The Lumigen Instrument Center, (4) The Microscopy, Imaging & Cytometry Resources (*MICR*) Flow Cytometry Lab, (5) The Pharmacology and Metabolomics Core, and (6) The Lipidomics Core. Support is available to develop novel analytical procedures and to utilize Core Services by Center investigators.

1. *Genomic Services* – A full range of genome, transcriptome and epigenome analysis services are available to CURES Investigators through the Genome Science Core at WSU (https://genomesciencescore.wayne.edu/). The 10X Genomics instruments for single cell RNA sequencing (scRNA-seq) and single-cell Assay for Transposase Accessible Chromatin with high-throughput sequencing (scATAC-seq) have been purchased and are being used for CURES projects. The purchases were in response to a CURES facility core usage survey that polled Center members' current and anticipated research needs. The 10X Genomics instruments take exposure science technology to the single cell level. They use alternatives to traditional flow cytometry, utilizing microfluidics to separate single cells from test specimens to prepare libraries for RNA-seq or other types of genomic analyses. For example, mixed populations of cells from a single tissue can be analyzed at the single cell level with high resolution. This enables the detection of dramatic variations in gene expression that occur because of toxicant exposure. In 2019, we purchased and installed a NovaSeq6000 DNA sequencing instrument that can sequence over 5 trillion bases (~10 human genomes at 100X coverage) per run. The purchase of these state-of-the-art instruments, which are needed based on anticipated demands for genome sequencing and

single-cell sequencing, makes the Genomic Core capabilities one of best in the country.

2. *Proteomics including Protein Adducts* – Proteomic analyses are available through the Proteomics Core at WSU (https://research.wayne.edu/proteomics). A full range of mass spectrometry-based standard proteomic services are supported. In addition, the ESFC uses advanced proteomics technologies to identify and quantify protein adducts that occur as a consequence of environmental toxicant exposure. CURES researchers have detected adducts on serum albumin and hemoglobin; the two most abundant proteins in blood that act as buffers for reactive chemical intermediates. Analysis of adducts on albumin and hemoglobin can provide information on environmental exposures occurring as long as 60 to 90 days prior to sample collection.

3. *Metals, Trace Element and Small Molecule Analysis* – The ESFC partners with the WSU Lumigen Instrument Center (https://research.wayne.edu/cores-facilities/lumigen) for elemental and small molecule analysis. New instrumentation includes state-of-the-art GC-MS/MS and LC-MS/MS systems for small molecule analysis. The new system is being used to develop analytical methods for phenolic chemicals such as bisphenol A, octyl- and nonylphenols that are widespread environmental toxicants. These analytical platforms are being used by CURES members to develop reproducible analytical methods for environmental exposure analysis. Volatile organic chemicals (VOCs) can also be analyzed and are among a wide range of environmental small molecules, including solvents, fuel components and chemical intermediates of interest to Center investigators.

4. *Immunophenotyping Services and Instrumentation* – The ESFC partners with Dr. Jessica Back, Associate Director of the Microscopy, Imaging and Cytometry Resource to provide CURES investigators with access to technologies and services include imaging cytometry (Amnis ImageStreamX Mark II), analytical flow cytometry (BD LSRII SORP, BD FACS Canto II), and cell sorting (Sony SY3200, two Sony SH800s). The newest technology that was added is an imaging flow system that provides subcellular localization of fluorescently tagged cellular components.

5. *Metabolomic Analysis* – The ESFC partners with Dr. Jing Li, director of the Pharmacology and Metabolomics Core to provide CURES investigators with this analytical resource. The small molecule products of life are the metabolome and contain information about how well the body is working. Toxicant dependent changes in any of the machinery are expected to be reflected in the metabolic profile and to be observable through metabolomic analysis. LC-MS/MS based targeted metabolomics that measures predefined groups of metabolites involved in central metabolic pathways including carbohydrate, protein, and lipid metabolism are available.

6. *Lipidomic Analysis* – The ESFC partners with Dr. Krishna Rao Maddipati, director of the WSU lipidomics Core to provide CURES investigators with this analytical resource. Lipids play a central role in inflammation and related biochemical processes that contribute to diseases that are a direct result of environmental stressors. Because few studies have defined the effects of toxicant exposures on lipid profiles, lipidomic analysis is an untapped resource for advancing our understanding of the metabolic effects of environmental exposures.). Protocols are in place for analysis of nearly all classes of lipids including fatty acyl lipids, glycerophospholipids, glycerolipids, sphingolipids and sterol lipids. Using heavy isotope-labeled Internal Standards for each lipid class we analyze the lipids with excellent sensitivity.

3. Community Engagement Core (CEC)

http://cures.wayne.edu/community-engagement.php

Leaders:

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Coordinator:

Rochelle Chapman
CURES Community Engagement Coordinator
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CURES Community Advisory Board Organizations, Research Priorities, and Environmental Concerns

Updated: September 2024

The environmental health concerns that have been expressed by our Community Advisory Board members are provided below. Researchers who would be interested in developing an application addressing any of these concerns in coordination with a Community Advisory Board member should contact CURES Community Engagement Co-Leader Carrie Leach (carrieleach@wayne.edu).

Organization	Description	Health & Environmental Issues and Concerns
Asthma & Allergy Foundation of America, MI Chapter	The AAFA is a nonprofit and the leading patient organization for people with asthma and allergies. The Michigan Chapter serves all Michigan residents of all ages affected by asthma and allergies. They provide resources for healthcare professionals, caregivers and childcare providers, and communities to make them better for those with allergies and asthma.	• Pervasive feeling of helplessness among people who live in areas where the environment is toxic and causing or exacerbating chronic diseases like asthma • Lack of attention to health first when policy is drafted and passed • How our government sets regulations and how well they are enforced
CLEARCorps Detroit	CLEARCorps/Detroit works to prevent lead poisoning and create healthy homes for children and families through programs, education and outreach, and policy work. Their four main programs are centered around asthma triggers, lead hazards in homes, outdated refrigerator replacement, and furnace tuning/repair/replacement.	• Lead poisoning impact on pregnant women and babies, children, and long term impact on adults • Indoor/outdoor asthma triggers
Crockett Midtown High School of Science & Medicine	CMHS educates and empowers every student in every community, every day, to build a stronger Detroit. CMHS is committed to college success by providing a college preparatory curriculum allowing students to explore college courses, work at internships, and engage in community service projects.	• Post-Covid effects on the community, children, etc.
Denby Neighborhood Alliance	Denby Neighborhood Alliance is a grassroots project championed by Denby High School and community interest partners with a common goal. To rehabilitate and revitalize the community in and outside of Denby High School by implementing initiatives and programs that promote the economic, social, and cultural development of the community.	• Air pollution

Detroit Food Policy Council	The DFPC is an education, advocacy and policy organization led by Detroiters committed to creating a sustainable, local food system that promotes food security, food justice and food sovereignty in the city of Detroit.	• Health & food system equity • Food waste / Composting • Pesticide exposure through food • Benefits of organic food on individual health and the environment
Detroit Health Department	The Detroit Health Department's mission is to improve the health and quality of life of Detroiters through innovative public health policy, programs and partnerships. They provide a variety of programs and services, to include WIC, immunizations, food safety and restaurant inspection, public health initiatives, and Detroit Animal Care and Control.	• Healthy food access • Food policy challenges / opportunities; Nutrition • Asthma • SOx/NOx/PM emissions • Lead and water • Mobility (walkability, bikeability, reliable public transportation) • Green workforce development • Environmental stressors and violence prevention / mental health • Improving recreational opportunities to improve chronic disease
Detroiters Working for Environmental Justice	DWEJ is a nonprofit organization whose mission is to create clean, healthy and thriving communities in Michigan by tackling environmental problems close to home. Their programs are centered around policy, education and workforce development.	• Asthma • Lead exposure and poisoning • Cardiovascular disease • Environmental impact on health including threats in the home to health, overall health in context and environment • Policy activation opportunities related to above health concerns
Ecology Center	The Ecology Center was organized to develop innovative solutions for healthy people and a healthy planet. They educate consumers and families, push corporations to use clean energy, make safe products and provide healthy food, and work with policymakers to establish laws that protect communities and the environment.	• Health effects of poor air quality and pollutants • Environmental contamination in water due to US Ecology [hazardous waste processing facility] • Soil remediation for kitchen / vegetable gardens • Air pollution in Southwest Detroit and downriver • Rising rates of elevated blood lead levels in various zip codes in Detroit / Wayne County. Research needed on what is contributing: Demolition? Further deterioration of housing stock? and/or what is the impact of additional testing.

Great Lakes Environmental Law Center	The Great Lakes Environmental Law Center is a Detroit-based nonprofit that offers community education, policy support, and various legal services to address environmental, resource, and energy issues affecting communities in and around Detroit, all over Michigan, and throughout the Great Lakes region.	• Currently, health-based standards for criteria air pollutants are set on a pollutant-by-pollutant basis even though they often cause similar health effects. I'd be interested in research analyzing whether cumulative exposure to 2 or more criteria air pollutants increase health risks in the general population, and in vulnerable subpopulations. • Analyze the relationship between asthma attacks and criteria for air pollutant concentrations measures in Detroit.
Greening of Detroit	The Greening of Detroit's focus is to enhance the quality of life for Detroiters by repurposing the land to create beautiful and productive green spaces. They involve Detroiters in the process through community engagement, education and jobs.	• Climate change: because of a legacy of past industrial uses, current pollution releases and lead contamination, water, air, and soil qualities in Detroit are poor. Climate change models suggest the problems will likely grow. • More research around native tree species and other green infrastructure that are most resilient to climate change. • How trees mitigate climate change and air pollution.
Hope Village Revitalization	Hope Village Revitalization is a community-controlled organization committed to improving the quality of life in the Hope Village neighborhood. Their goals are rooted in the goals and objectives of the Hope Village community. They envision a sustainable, equitable, healthy neighborhood with a high quality of life for all, where neighbors have access to fresh and local food, and affordable, quality housing with energy solutions that reduce utility costs and build resilience against climate change.	• Urban water pollution • Air pollution from industry
Kids' Health Connection	A nonprofit organization that works with physicians, Medicaid Health Plans, parents and other community agencies committed to improving the healthcare outcome of Wayne County and Detroit's children. They provide health education to families, help doctors improve the quality of their care, and act as a voice for issues affecting children's health.	• Poor housing impact including lead poisoning, asthma (via mold, roaches, dust), emotional distress secondary to rats and mice • Obesity • Unsafe neighborhoods • Impact of PBB contamination on urban minoritized population (Is the earlier menarche in Black girls due to PBB contamination that made it into commodities handed out in foods resource programs in the past?)

Matrix Human Services	Matrix advocates for and serves the most vulnerable in the metropolitan Detroit community and empowers individuals and families to enhance the quality of their lives and achieve self-sufficiency. Their larger programs include their network of head start facilities and comprehensive community center on the east side of Detroit.	• Asthma – biggest growing issue among our Early and Head Start children; old/young people, long-term effects • Lead effects on old/young people, long-term effects • Recreation – lack of green space for children to exercise and play in city areas
Michigan Environmental Council	The MI Environmental Council is a coalition of more than 70 organizations created to lead Michigan's environmental movement in achieving positive change. through the political process. MEC combines deep environmental policy expertise with close connections to key state and federal decision makers. They promote public policies to ensure Michigan families will enjoy clear waters, clean beaches, beautiful landscapes and healthy communities for years to come.	• Health impact of climate change • How to evaluate environmental justice • Cumulative impacts in environmental permitting – e.g., how could DEQ have added in other area emission sources when OK'ing steel plant's permit to increase emissions instead of approval in isolation? • Does healthy food access improve outcomes in lead impacted kids? By what mechanism? • Lead's impact on older adults • Drinking water. Is our water safe? What are we exposed to in our drinking water, including by-products of disinfectants and what are the risks? Do filters help or do they expose us to increased chances of bacteria?
Office of State Senator Stephanie Chang	Stephanie Chang (D) serves Michigan Senate District 1, representing parts of Detroit, Ecorse, Gibraltar, Grosse Ile Township, River Rouge, Riverview, Trenton, Woodhaven, Wyandotte, and Brownstown Township.	• Local stressors and conditions
Office of US Senator Debbie Stabenow	Debbie Stabenow (D) is a US Senator representing the State of Michigan.	• Statewide
Southwest Detroit Environmental Vision	SDEV is a nonprofit organization dedicated to improving the environment and strengthening the economy of Southwest Detroit. They work with residents, community organizations, government agencies, schools, businesses and industry to combat environmental issues, including indoor/outdoor air quality, blight, illegal dumping, and incompatible land use.	• Air quality/cumulative impacts in SW Detroit • Environmental justice • Make available local impacts, more data, perhaps on one website where media and community can easily access

Transformation Life Center	Transitions Life Center is a non-profit organization whose sole purpose is to provide a safe, caring, and enriching community for adults with intellectual and developmental disabilities.	• Pollution and risk to Detroit youth; impact of common household products
Urban Development Corp	The mission of UDC is to improve the quality of life and bring about positive life-style changing experiences of low-to- moderate income families who live in urban communities. In carrying out our mission, UDC serves as a catalyst in the revitalization of communities through the development of activities and programs which promote safe, drug-free, healthy, clean, beautiful, and enjoyable environments.	• Use of vacant lots by Detroit residents for urban farming which may unknowingly be contaminated with heavy metals and VOC's • Potential health effects associated with the use of recreational marijuana. • Environmental justice • Health effects associated with urban blight • Industrial air pollution and its link to respiratory diseases
Village of Oakman Manor	The Village of Oakman Manor is a senior living community in north-central Detroit. They are a part of the Presbyterian Villages of Michigan network.	• Environmental influence on violence • Neighborhood and built environment • Social and community context; economic stability