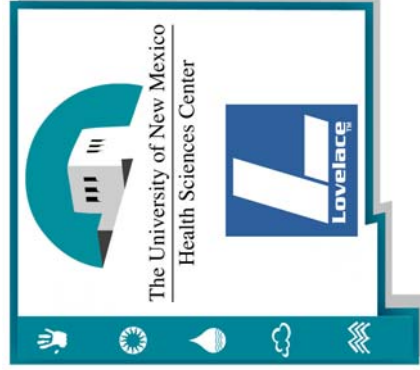


**NM NIEHS Center**  
1 University of New Mexico  
MSC10 5550  
Albuquerque, NM 87131-5271  
505-272-4289  
P30-ES12072-01

(NM photo credits to the New Mexico Dept. of Tourism)

**We're on the web!**  
[hsc.unm.edu/envirohealth/](http://hsc.unm.edu/envirohealth/)



Mailing Address Line 1  
Mailing Address Line 2  
Mailing Address Line 3  
Mailing Address Line 4  
Mailing Address Line 5

*Your environment is your health!*

# NEW MEXICO CENTER FOR ENVIRONMENTAL HEALTH SCIENCES

***Creating research environments***  
A guide to center services.



***April 2004 - March 2005***

AN NIEHS FUNDED CENTER AT THE UNM HEALTH  
SCIENCES CENTER AND LOVELACE RESPIRATORY  
RESEARCH INSTITUTE

## Center Mission and Administration

Welcome to the New Mexico Center for Environmental Health Sciences. Our mission is to address the needs and concerns of southwestern communities relating to environmental health issues and to conduct basic and translational research on regionally-relevant environmental public health issues.

The Administrative Core is designed and functions to coordinate the development of Research and Facility Cores (RCs and FCs), oversee the Pilot Project Program, recruit new investigators into the Center through both the Cores and Pilot Projects, foster interactions between researchers and develop emerging Research and Facility Cores as the center grows and needs of members continue to develop. We place a high priority on recruiting new members and mentoring young and emerging scientists pursuing research in the environmental health sciences. In addition, we strive to coordinate interactions between senior investigators, Internal and External Executive Advisory Committee members, as well to advance partnerships and corroborate community communications.

The Administrative Core provides direction and leadership by enabling the exchange of scientific information through meetings, networking opportunities, and communication development with other Center members, communities and partners. Awareness of the value of the NIEHS Center is promoted through public relations activities directed at the institutional, state, and regional levels. These activities include networking, press releases, annual reporting, mass communications, publications, marketing and budgeting support.

Additionally, the leadership of the Administrative Core focuses on promoting and fostering multidisciplinary research in the environmental health sciences, we actively support educational seminars and an annual symposium, technological developments, new initiatives and promote innovation. For more information regarding opportunities to partner with our Center, please contact me or our center office.

Sincerely,



Scott Burchiel, PhD., Director

## More NM NIEHS Center Services

### Website and Member

**Database** The NM NIEHS Center offers a comprehensive website resource for our extended community as well as Center Members. For communities there is a list of helpful links, training courses, valuable environmental health information and a community calendar to post environmentally related community happenings.



For Center members, our website keeps members up-to-date on current NIEHS events, meetings or environmentally interesting extramural activities. The website informs Center members about other cores, research initiatives, other Centers, and other environmental health topics. Minutes from monthly core meetings are posted and updated regularly. Valuable resources like e-stationary, fax cover sheets, travel packets and funding resources are available. The website has a comprehensive member database which helps members track their Center activities, manage projects, request facility core services and much more. For your online resource in linking member collaborations see: [hsc.unm.edu/envirohealth/](http://hsc.unm.edu/envirohealth/)

**Meetings, Communication and Events:** The Center offers assistance in the coordination of meetings for cores, special events such as seminars and annual symposium. We keep minutes, track all Center activities for future reference and annual NIEHS reporting. We can also assist members in communicating their cores environmental health related activities, marketing core capabilities, and developing collaboration opportunities.

### Budget Set-up, Maintenance, and Account Monitoring:

Our Center has a centralized account system, along with the Department of Internal Medicine and HSC Controllers, the administrative core monitors account activity, regularly reports to Core Leaders the financial status of their accounts, and assists members, coordinating with their affiliated departments, set-ups payroll, tracks expenditures and maintains budgets.

**Contact: Angelic Sandoval, BBA**  
nmniehs@salud.unm.edu  
505-272-4289

## More about NM NIEHS Center

### Our Pilot Project Program

The NM NIEHS Pilot program is designed to attract researchers interested in conducting external environmental health research. Our goal is to encourage innovative projects, build alliances, and promote continuous discoveries.

#### Applications accepted annually in January for award April

For further information on the application process, guidelines and opportunities for funding assistance, please contact:

**Steve Belinsky, PhD**, Deputy Director, LRRI, 505-348-9465, [sbelinsk@lrri.org](mailto:sbelinsk@lrri.org)

### New to NM NIEHS!

#### Ethical, Legal & Social Implications Group (ELSI)

Ethics inquiry entails both elegant theoretical work and everyday, experience-bound, practical work. It requires both richly informed conceptual analysis and real world empirical hypothesis testing. Our aim is to build on and enrich theory through empirical inquiry. Clinical ethics is the branch of biomedical ethics that seeks to improve health care by refining clinical decisions, creating innovative educational approaches, pursuing empirical study, and shaping public policy richly informed by clinical experience and science. Our team's research and educational efforts are a shared expertise in clinical medicine, psychiatry, nursing, public health, psychology, sociology, scientific methodology, data analyses, bioethics, and philosophy.

As a group, we place tremendous importance on helping to prepare health care professionals in their efforts to acquire the knowledge and skills they need to address the next generation of ethical challenges in research and the care of others. In fulfillment of the bioethics principle of "Respect for Persons", we wish to understand the different and shared views held by people who are served by the medical profession (that means pretty much everyone!). We welcome your interest and collaboration.

**Contact: Teddy Warner, PhD**  
[TWarner@salud.unm.edu](mailto:TWarner@salud.unm.edu)  
505-272-5574

## Community Outreach and Education Program

The NM Center for Environmental Health Sciences supports a Community Outreach and Education Program (COEP) that provides educational resources on environmental health topics to our communities. COEP programs are developed in response to concerns in our community, as well as to facilitate interactions regarding environmental health issues through collaborative efforts with NM NIEHS Research and Facility cores, state and local agencies.



COEP provides a series of basic trainings in environmental health geared towards increasing community ability to address their own concerns. The COEP works with other Center members and state agencies to develop integrated health and environmental health data systems, which identify gaps in current data, and develop strategies to address any gaps. Working together we hope to create and enhance a more comprehensive response to community concerns, and become a resource for communities and policy makers by providing them with necessary information to make informed decisions.

The COEP staff is a multi-disciplinary team with strong, active working relationships with various federal, state and local agencies, Pueblos and tribal community groups throughout New Mexico. These partners serve as our advisors to shape the direction of the program. We also offer K-12 educational outreach to students and teachers throughout NM to promote environmental health awareness at school-age levels as well as education on environmental sciences.

A series of train-the-trainer presentations currently available through COEP include:

- Basic Risk Assessment
- A Boy and His Rash (Community Pesticide Exposure)
- Search for Wellness (An Introduction to Epidemiology)
- A Fair Trade (Occupational Exposure)

Community specific trainings on topics including air quality and asthma, illegal dumping, health risks of uranium exposures, and wildfire exposures and reproductive cancers are also available (with various availability in Spanish).

For more information about COEP, trainings, outreach, or to get involved, contact us at :  
[coep@salud.unm.edu](mailto:coep@salud.unm.edu) or 505-272-4087

## FC-1 Environmental Assessment and Exposures

Facility Core 1 (FC1) is operated through the Lovelace Respiratory Research Institute. We provide a range of field, laboratory and consulting capabilities to help solve environmental exposure and industrial hygiene problems related to air, water, and soil.



FC1 functions under the UNM/LRRI NIEHS Center grant to provide discounted services to Center members with the goal of encouraging relational interdisciplinary environmental research, including environmental assessment & exposures. NM NIEHS Center members can work with this facility

core to develop methods for quantifying environmental exposures suitable for use in large, population-based studies.

### KEY CAPABILITIES:

- Sample collection and analysis of environmental contaminants in air, water, and soil. Including individual gaseous/particle bound organic/ inorganic compounds and metals.
- Characterization of airborne aerosol properties.
- Analysis of biomarkers.
- State-of-the-art inhalation facilities for animal exposures to vapors, powders, allergens, UV light and combustion mixtures.
- Inhalation technology to characterize asthmatic airway hyper responsiveness and other immune endpoints in rats and mice.
- Air/liquid cell exposure systems for real-time exposure of cells to gases and/or particles.

**Contact: Jacob McDonald, PhD, Core leader**

**[jcmcdonal@lrri.org](mailto:jcmcdonal@lrri.org)**

**505-348-9455**

**<http://www.lrri.org/kc/key.html>**

**FC-1 Facilities and Equipment:** Whole-body rodent exposure chambers Complex mixture (diesel exhaust, cigarette smoke, wood smoke) generation Cultex in vitro cell exposure system , several mass spectrometers and other analytical instruments. Microwave assisted extraction device Personal and stationary-site air sampling equipment BUXCO whole body plethysmograph and restrained pulmonary function box for pulmonary function challenges, and a Solar Simulator

## Research Cores

Our common goal is scientific inquiry, both the physical and social environment relating to the causes of environmental health disparities. In addition, forming partnerships with community populations, and other scientists that are interested in reducing these disparities to improve our health.



**Environmental Lung Disease (RC-2)** Our mission is to understand the basic and clinical aspects of how environmental exposure to toxins affect the development of asthma, chronic obstructive lung disease, and lung cancer. As well as to foster both basic and translational research interactions to understand mechanisms underlying both neoplastic and non-neoplastic lung disease. Our core members comprise a highly diverse yet complimentary group of investigators working in key areas of lung biology. The scope of research in this core uses in vitro and in vivo systems involving cell lines, organ cultures, tissue, and biological specimens from well-characterized, cohort populations. As well as how these diseases are exacerbated by exposures.

Further research inquiry contact: **Yohannes Tesfaigzi, PhD**, Co-Leader [ytesfaig@lrri.org](mailto:ytesfaig@lrri.org) 505-348-9495 or **Janet Oliver, PhD**, Co-Leader, [JOliver@salud.unm.edu](mailto:JOliver@salud.unm.edu), 505-272-4364.

**Population Health: Behavioral/Social and Epidemiological Research (RC-3)** Our goal is to conduct etiologic and intervention research to reduce disparities in environmental exposures and health outcomes among diverse populations of New Mexico. Researchers study environmental determinants of health from the genetic to the population level. Our work also examines social and behavioral factors that increase risk or provide protection from disease among populations exposed to environmental toxicants. We hope to link human health researchers with bench scientists in other research cores to develop multi-disciplinary research initiatives and interventions that address key public health needs of the state and its diverse communities.

Further research inquiry contact: **Nina Wallerstein, Dr. PH**, Co-Leader, [nwall@unm.edu](mailto:nwall@unm.edu), 505-272-4173 or **Lorraine Halinka Malcoe, PhD, MPH**, Co-Leader, [Lhmalcoe@salud.unm.edu](mailto:Lhmalcoe@salud.unm.edu) 272-9471.

## Research Cores



Recent evidence raises concerns that members of many communities may suffer adverse health effects from environmental exposures. There has been great interest in recent years in studying genetic susceptibility factors that lead to increased risk of environmental diseases. However,

there has been little work on the influence of socio-economic status (SES) and behavioral issues that influence environmental disease. Emerging research indicates that SES and behavioral issues may play as important a role in disease triggering as genetic factors. The theme of this NIEHS Center is "Environmental Disease and Health Promotion in Susceptible Southwestern Populations."

### Environmental Disease and Toxicology Research Core (RC-1)

It is widely believed that many non-infectious disease states such as asthma, diabetes, and especially cancers, are environmentally induced or triggered. We integrate the research interests of its members to generate an interdisciplinary approach to investigate molecular mechanisms of environmentally-induced diseases.

The major goals of RC1 are to: A) foster expanded research collaborations between individual investigators in the Core and members of other Cores; B) Develop new interdisciplinary environmental health-related research projects and expand extramural funding by Core members; C) Develop new faculty and encourage their participation in environmental health-related research ; D) Expand and develop new population-based and environmental-based research projects focusing on regional underserved populations; and E) Expand the Toxicology Graduate Program.

RC-1 members research interests are organized into three subcores:

1) Biochemical and Neurotoxicology, co-led by **Andrea Allan, PhD** [aallan@salud.unm.edu](mailto:aallan@salud.unm.edu), 505-272-8811 2) Cardiovascular/Renal Toxicology and Disease, by **Mary Walker, PhD**, [mwalker@salud.unm.edu](mailto:mwalker@salud.unm.edu), 505-272-0580 and; 3) Environmental Cancer and Oxidative Stress, by **Laurie Hudson PhD**, 505-272-2482, [lhudson@salud.unm.edu](mailto:lhudson@salud.unm.edu) and **Ke Jian (Jim) Liu PhD**, 505-272-9546, [kliu@salud.unm.edu](mailto:kliu@salud.unm.edu).

For further information about RC1, research inquiry and activities please contact: **Craig Marcus, PhD** - Associate Director and Core Leader, [cmarcus@unm.edu](mailto:cmarcus@unm.edu), 505-272-3848.

## FC-2 Bio-Technology/ Genetic Polymorphism Analysis



Facility Core 2 (FC2) offers Biotechnology/Genetic polymorphisms. This core will help facilitate genomics-based research specifically through microarray-based assays of gene expression. Our goal is to assist NIEHS cores in the functions for genomics and proteomics, and help them develop innovative capabilities.

### KEY CAPABILITIES

- Protein Analysis  
Provides conventional and novel techniques for studies of protein assembly and expression (Cytometry and Spectroscopy), and protein identification and modification (Protein Separation and Mass Spectroscopy)
- Genomics  
Provides a full service microarray capability enabling analysis of both Affymetrix GeneChips and customized arrays
- Genetic Susceptibility  
Provides instrumentation and technologies for automated DNA sequencing, PCR-based gene scan and polymorphism assays, oligonucleotide synthesis and real-time PCR analysis
- Summary of Services and Equipment:
  - Gene Array
  - Proteomics
  - Flow Cytometry
  - Fluorescence Spectrophotometry

**Contact: Larry Sklar, PhD, Core Leader**  
[lisklar@salud.unm.edu](mailto:lisklar@salud.unm.edu)  
505-272-6882

**Co-Leaders: Scott Ness, PhD and Charlotte Mobarak, PhD**

**FC-2 Facilities and Equipment:** Affymetrix GeneChip System, ABI 3100, ABI 377, ABI 374, ABI 7000, ABI 7900HT, IPGphor, Bio-Rad Criterion electrophoresis, Criterion Dodeca Cell, Hoefer™ DALT, Bio-Rad GS-800 and Versidoc with CCD camera, Micromass Cap Electrophoresis, MALDI Voyager Elite, Cyphergen SELDI, Mo Flo (10 parameter) High Speed Cell Sorter, and Micromass Q-TOF2 mass spectrometer with three inlets: HP series 1100 HPLC, Shimadzu 10VO or Waters Capillary HPLC.

**Want the NM NIEHS Center to help pay your FC2 bill?**

Co-pay is available for approved NM NIEHS center members, please inquire with core leader for details! (some restrictions apply)

## FC–3 Bio-computing and Bioinformatics

Facility Core 3: Offers computational and computing support for genomics and, proteomics, and structural analysis of compounds in assessing the effects of toxic chemicals on cell physiology, structure and function.



Our core provides state-of-the-art capabilities in the analysis of microchip gene arrays, 2D gel electrophoresis and computational structural analysis. In addition, we offer the ability to integrate access to such a wide variety of data capabilities to critically organize, archive, analyze and visualize into meaningful information, involving many facets of statistical analysis.

### KEY CAPABILITIES

- GeneSpring training and analysis data backup and restoration, database design, networking, software application support, software development, & algorithm development. MAAT consulting group offers weekly walk-in consultations.
- System networking, networking collaborations including access to Sandia National Laboratories, Albuquerque High Performance Computing Center & the National Center of Genome Research.
- Proprietary centralized gene expression data management & analysis systems.
- National supercomputing facility located on UNM's main campus operates several large supercomputers, including the 64 processor VistaAzul hypercluster (IBM SP3/Linux supercluster), the 128 processor RoadRunner supercluster, & the 512 processor LosLobos machine, one of the largest open Linux clusters in the world.
- Structure activity relationships with state of the art capabilities for bioinformatics data mining, linear and non-linear modeling relating to computed structural chemical descriptors with bioactivity data and contextual search on on-line and proprietary databases.

**Contact: Tudor Oprea, PhD, MD, Core Leader**  
**TOprea@salud.unm.edu**  
**505-272-3694**  
**<http://biocomp.health.unm.edu/>**

## FC–4 Biostatistics

To enhance the research program in environmental health, our core provides leadership and technical support in the areas of study design, data management and data analysis. The core provides expertise throughout a study, from the study design, through coordination of studies, to the final data analysis and report.



Our core also has capabilities in Geographical Information Systems (**GIS**). This resource can be used to conduct spatial data analyses that integrate environmental monitoring data, visualize public health data, evaluate the role of socioeconomic status on public health, and perform multilevel modeling of determinants of public health.

### KEY CAPABILITIES

- **Study design** : Assistance with the design of research studies, including epidemiological, biomedical and clinical research projects.
- **Data management** : Development of data collection instruments and data entry screens including data checking and monitoring during studies.
- **Statistical analysis** : Capabilities in data analysis include expertise in the following statistical areas:
  - Survey Methods
  - Bayesian statistics
  - Biostatistics, including statistical methods in epidemiology
  - Categorical data analysis
  - Computational statistics
  - Data mining
  - Experimental design
  - Linear models
  - Methods for analyzing correlated data
  - Quantitative genetics
  - Spatial data analysis
  - Survival analysis

**Contact: Christine Stidley, PhD, Core Leader**  
**cstidley@salud.unm.edu**  
**505-272-8704**