NIEHS Clinical Research Program

National Advisory Environmental Health Sciences Council Update

May 2009

Overall Goals of the NIEHS Clinical Research Program

The primary goals of the NIEHS Clinical Research Program are to: 1) translate basic laboratory findings to humans; 2) study interactions between genetic susceptibility (host factors) and environmental factors in the pathogenesis of complex human traits and diseases; and 3) identify populations at increased risk and developing novel preventative and therapeutic strategies to combat human diseases. Our vision is to enable basic researchers and physician-scientists to extend their laboratory findings to humans, to minimize obstacles to translational research, and to offer administrative and scientific support for translational research studies at NIEHS.

The NIEHS Clinical Research Program consists of several distinct but complementary units (Figure 1).

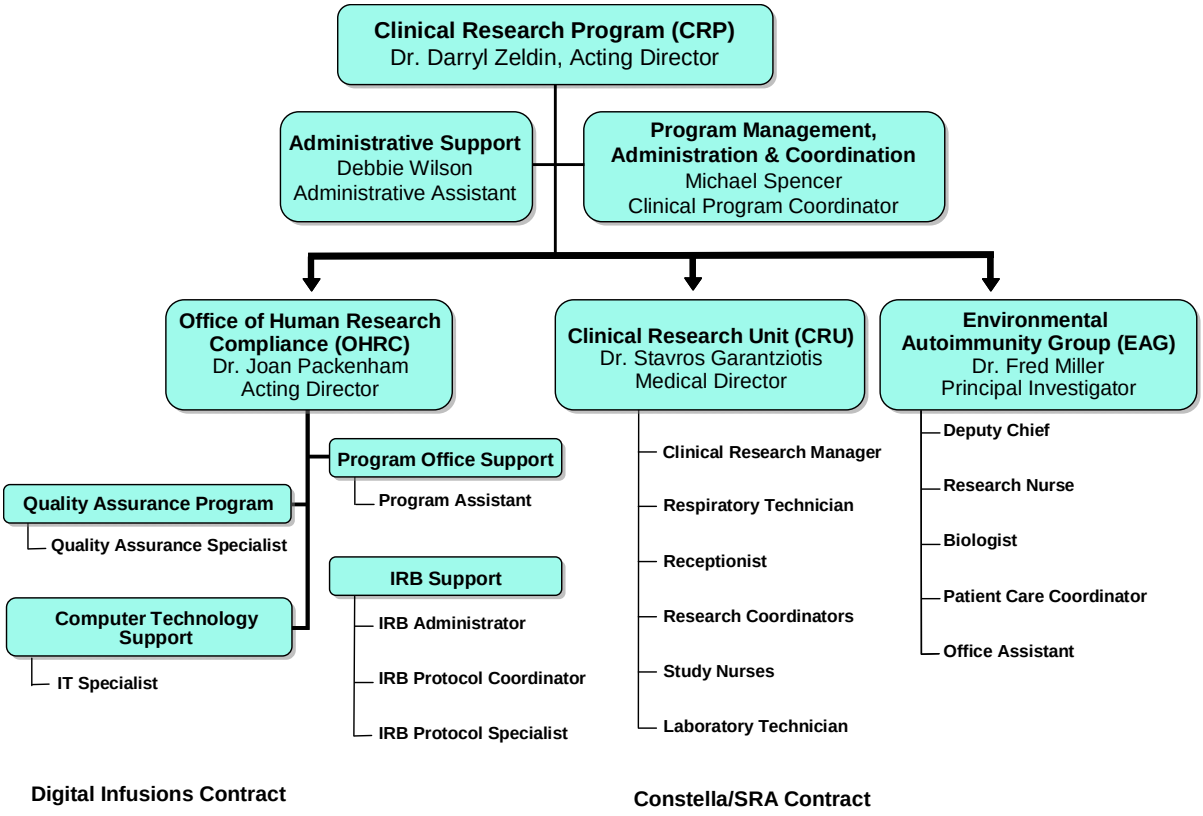

Figure 1. Organizational Chart of the NIEHS Clinical Research program

Importance of Clinical Research to the NIEHS Mission

Clinical research is the logical progression in the process of translating basic scientific discoveries into practical applications that improve human health through disease prevention, development of novel therapeutics and public education. Clinical research

allows basic scientists to translate their findings at the “bench” level to the “bedside” and also provides clinicians with an opportunity to learn more about the basic pathogenic mechanisms of the diseases they study. Translational research has proven to be a powerful process that drives the clinical research engine. However, a strong research infrastructure is necessary for this critical part of the research enterprise.

The NIEHS Clinical Research Unit (CRU)

The NIEHS Clinical Research Unit (CRU) is a new 14,000 square foot facility on the NIEHS Research Triangle Park, North Carolina campus. The new CRU facility is situated adjacent to the main NIEHS laboratories and allows scientists to conduct studies that involve human sample collection, analysis and functional assessment. The NIEHS CRU is designed to provide infrastructure and staffing support for the NIEHS Clinical Research Program and will also assume a core laboratory function in support of multiple NIEHS investigators. The NIEHS CRU staff will provide support for the development of clinical research protocols including assistance with IRB submissions, provide patient screening, recruitment and enrollment functions for NIEHS clinical studies, provide basic sample collection and processing support, and provide support for specialized clinical procedures. Hence, the mission of the NIEHS CRU is to enable basic researchers and physician-scientists to extend their laboratory findings to humans by both minimizing obstacles to translational research at NIEHS and offering administrative and scientific support for translational research studies.

Historically, the use of local clinical research facilities at Duke University or the University of North Carolina at Chapel Hill, and the use of the NIH Clinical Center (CC) in Bethesda, Maryland by NIEHS scientists have been hampered by multiple logistical, practical and cost issues. The NIEHS CRU addresses the need for close proximity between the clinic and the laboratory, as well as the logistical problems associated with sample handling and storage. The location of the NIEHS CRU is convenient for NIEHS investigators and will foster direct “hands-on” patient contact by NIEHS physician-scientists.

Scientists who will utilize the new NIEHS CRU have proposed a diverse array of research studies in the fields of respiratory medicine, medical genetics, cardiovascular medicine, reproductive health, endocrinology and other medical disciplines. The CRU will accommodate outpatient research only and will offer routine patient evaluation, fluoroscopy, ultrasound imaging and basic sample collection and processing. It will also feature specialized diagnostic and analytical capabilities, such as pulmonary function assessment. The unit also allows for advanced training opportunities for students, postdoctoral research fellows and clinical fellows whose research interests require direct access to clinical samples and patients.

The NIEHS CRU strives to provide on-site research opportunities, to enable and channel off-site research collaborations when on-site research is not feasible, and to enable bidirectional research links to the NIH Clinical Center in Bethesda, Maryland.

Studies to be Supported by the NIEHS CRU

Most of the studies done at the NIEHS CRU will be low risk clinical studies that involve collection of easily accessible human tissue and body fluid samples for *ex vivo* investigations. NIEHS CRU studies will investigate various aspects of the human response to different environmental exposures. In addition, the NIEHS CRU will support the screening and phenotyping of selected individuals from NIEHS epidemiology studies and the Environmental Polymorphism Registry (EPR). Early phase clinical trials (Phase I-II-III) may also be supported.

NIEHS CRU Operational Plan

The operational plan of the CRU emphasizes cost containment and optimal efficiency of the clinical program by prioritizing studies based on the quality of the science and consistency with the NIEHS mission. There is a rigorous peer-review process in place for all NIEHS clinical protocols. Utilization of resources will be tracked to the individual investigator to assure fiscal accountability. Additionally, we have established an External Advisory Group consisting of eight well-respected, clinical/translational investigators, representing various medical institutions and universities throughout the country.

CRU staffing will be modest. In addition to the Medical Director, we have recruited a Clinical Research Manager, a Research Nurse, a Laboratory Technician, and a Receptionist. We have plans to hire a Respiratory Therapist and additional RNs and Study Coordinators, as needed. The initial CRU staff will pilot the research enterprise, develop standard operating procedures and iron out problems. Additional hires will be gradually phased-in over the next 1-2 years using R&D contract mechanisms. The CRU will have the capacity to handle 10-15 outpatient clinical research studies per year. We strive to receive accreditation by the Joint Commission (JCAHO).

An evaluation and objective assessment of CRU performance, as well as a cost-benefit analysis, will take place after 3-4 years of operation.

Integration of the NIEHS CRU with the NIH Clinical Center

We have sought to integrate the NIEHS CRU with the NIH Clinical Center to ensure patient safety and quality of care, and to avoid duplication of efforts. Some examples of this integration include use of the NIH Clinical Center laboratory instead of a commercial lab, use of the NIH Clinical Center transcription and patient recruitment services, purchase of medical and pharmaceutical supplies through the NIH Clinical Center vendor, utilization of Radiologists at the NIH Clinical Center for interpretation of images obtained in the NIEHS CRU, and use of the NIH Clinical Research Information System (CRIS) for patient tracking. All of these services are being provided to NIEHS at little or no cost by the NIH Clinical Center
.

NIEHS CRU Accomplishments

Several major goals have been accomplished to date. The NIEHS CRU building was completed in early 2009. Medical equipment was procured and installed. Initial staff has been hired. Standard operating procedures have been developed, with the ultimate goal of achieving JCAHO accreditation within 2 years. A rigorous scientific and resource utilization review process has been developed and implemented. A framework for seamless coordination between the NIEHS CRU and the NIEHS Office of Human Research Compliance (OHRC) has been put in place to facilitate research protocol development, IRB approval and study implementation.

NIEHS CRU Challenges

Perhaps the greatest challenge we face is that the NIEHS CRU is a "stand-alone" clinical facility and is not in close proximity to a major medical center. This challenge has been mitigated by the fact that only low risk studies will be conducted in the CRU. Moreover, the CRU has developed and rehearsed emergency procedures to enhance patient safety. Another challenge of the NIEHS CRU is the need to integrate into the existing clinical research enterprise at NIH, which is geographically and operationally remote. This challenge will be lessened by utilizing remote access opportunities with the NIH Clinical Center while still maintaining operational independence. Lastly, NIEHS conducts a wide range of basic research studies, but has a limited number of clinicians. In order to address this, the NIEHS CRU will strive to foster outside collaborations where needed, and focus on areas of excellence rather than breadth.

NIEHS CRU Opportunities

The opportunities provided by the NIEHS CRU are abundant. Because the facility is unencumbered by pre-existing molds, it has the freedom to customize processes according to the needs of NIEHS investigators. Together with OHRC, the NIEHS CRU will develop a user-friendly "protocol navigation" process that will serve as a model for other ICs. We hope to serve as a model for interactions with other government agencies (e.g. EPA) and NIEHS-funded extramural investigators through the CTSA program. In addition, the CRU will become a satellite recruitment center for investigators on the NIH campus in Bethesda.

NIEHS Office of Human Research Compliance (OHRC)

Overview of the NIEHS OHRC

Human research subject protection must be at the core of any clinical research enterprise. Institutional Review Boards (IRBs) help to implement this goal, but are not sufficient to ensure the best regulatory compliance and human subject protection. The NIEHS OHRC was established in 2008 to monitor and improve the systems that protect individuals who participate in clinical research and to ensure compliance with

institutional, local, state, and federal laws and regulations. The OHRC will ensure that researchers employ the highest ethical standards in the conduct of human research, will give guidance to ensure sound research design and scientific integrity, and will provide education and monitoring for clinical research projects.

Mission and Vision of the NIEHS OHRC

The mission of the NIEHS OHRC is to manage a comprehensive Human Research Protection Program (HRRP) at NIEHS. Maintaining a comprehensive HRPP requires that the NIEHS OHRC consistently improves the system that protects the rights, welfare and well being of individuals who participate in clinical research. In order to fulfill this mission, it is important that the following six key elements are maintained:

- Compliance with local, state and federal laws and regulations;
- Compliance with NIEHS and NIH policies and regulations;
- Retention of the highest ethical standards for human research;
- Guidance to ensure sound research design, scientific integrity, and confirmation that the research contributes to generalizable scientific/clinical knowledge and is worth exposing subjects to risk;
- High quality education and training of individuals at all levels within the clinical research program;
- Continual quality assurance/quality improvement monitoring for all clinical research performed by NIEHS investigators.

The primary goals of NIEHS OHRC are to provide professional advice, leadership and management for the NIEHS HRPP. The NIEHS OHRC provides ethical and regulatory oversight of research that involves human subjects by:

- Constantly improving human research protections by employing the highest ethical standards for human research and by adhering to the ethical principles outlined within the Belmont report (Respect for Persons, Beneficence and Justice);
- Assuring regulatory compliance;
- Improving the quality of research by employing the highest standards of quality;
- Improving risk management;
- Improving education and training for all involved in clinical research and making sure all are informed and educated about new regulations, guidance and policy;
- Working collaboratively with the clinical PIs;
- Improving consistency;
- Increasing efficiency;
- Increasing communication to the public in an effort to build public trust.

Key Components of the NIEHS OHRC

The OHRC provides professional advice and leadership to NIEHS through an integrated approach (Appendix 1). This approach includes the following:

- Maintaining compliance within the NIEHS Clinical Research Program and providing clarification and guidance in interpreting 45CFR46 and, when

appropriate, 21CFR50 & 56 (the Federal Regulations for the protection of human subjects);

- Monitoring and analyzing new legislation, policies, program initiatives, regulations and requirements and implementing the new guidance within the NIEHS HRPP; Analyzing current NIEHS policies, standards and guidelines; and determining which policies need to be revised based upon updated policies and procedures from DHHS and NIH;
- Working with NIH Office of Human Subjects Research (OHSR) as appropriate to formulate policies and procedures consistent with the regulations as well as implementing those policies and procedures within the OHRC Program at NIEHS;
- Providing guidance to PIs during protocol development;
- Managing the administration of the pre-IRB review process.
- Managing the daily administration of the NIEHS IRB;
- Establishing educational and training programs with the goal of creating a culture of respect for and awareness of the rights and welfare of human research participants at NIEHS and its affiliated sites;
- Establishing a Quality Assurance and Improvement Program which includes monitoring the quality of human research protections;
- Implementing and maintaining electronic resources and management systems for the NIEHS OHRC;
- Giving guidance and serving as the NIEHS central point of contact during the AAHRPP accreditation process; after accreditation has been achieved, the NIEHS OHRC will develop guidelines and internal processes to maintain accreditation.

The Pre-IRB and IRB Review Process

NIEHS has developed a comprehensive pre-IRB review process for clinical research protocols. This process allows for a thorough review of all NIEHS clinical protocols and provides assurance of sound scientific design, and the highest standards of quality. The steps within the pre-IRB review process are as follows:

- Preliminary Proposal Review. The Principal Investigator (PI) must first present their proposal to the Clinical Advisory Committee (CAC). This committee is comprised of physician-scientists, basic scientists, epidemiologists, biostatisticians, and IRB representatives. This committee is designed to provide feedback to the PI concerning his/her protocol at any early stage. By receiving feedback early, the PI can minimize the number of revision cycles that typically take place when feedback is received piecemeal through sequential reviews.
- PI develops protocol based upon the recommendations made by the Clinical Advisory Committee. As the protocol is being developed, the PI meets with and obtains input from the Protocol Development Team which consists of CRU Clinical Staff and OHRC Staff.
- Resource Reviews: If NIEHS CRU resources, NIH Clinical Center resources or clinical support contract resources are needed in order to conduct the research,

the PI must submit information to the respective committees that control the desired resource. The committees are as follows: NIEHS Clinical Research Unit (CRU) Utilization Review Committee; NIH Clinical Center (CC) Utilization Review Committee, and the Clinical Support Contract Resource Review Committee.

- Biostatistical and Scientific Review: All research must undergo in depth *ad hoc* biostatistical and scientific review. The extent of the review is determined by the complexity of the study and the risk to human subjects.
- Human Research Protection Review: After the protocol has passed scientific and biostatistical review, the protocol is then forwarded to the IRB for human research protections review.

Currently, NIEHS has 55 active clinical protocols (Appendix 2). Forty-seven protocols are NIEHS reviewed and eight protocols are reviewed outside of NIEHS (4 at NIAID, 4 at NIDDK). Nineteen of the 55 protocols are reviewed by the full board and 28 protocols undergo expedited review. The total number of active Epidemiology Branch protocols is 35 whereas the total number of active Non-Epidemiology Branch protocols is 20.

Currently, the NIEHS has 14 IRB Members. There are nine affiliated members and 5 non-affiliated or community members. The members are listed in Appendix 3 with their various areas of expertise.

NIEHS Human Research Protection Training

The NIEHS OHRC has developed a comprehensive education and training program for all individuals involved in clinical research at NIEHS.

Required Training Courses:

- OHSR Computer-based Training – PIs and IRB members
- NIH Clinical Center's Clinical Training Course – PIs

Other Training:

- Ethical and Regulatory Aspects of Clinical Research – PIs and IRB members
- IRB Retreat – PIs and IRB Members
- OHRC Retreat – OHRC Staff
- NIH Town Hall Meetings – All staff
- Ethics Seminars – All staff
- One-on-One Education & Training Sessions – PIs
- PRIM&R annual meeting – IRB members and OHRC Staff
- PRIM&R IRB101 & IRB201 – IRB members and OHRC Staff
- IPAC Retreat – OHRC Staff

NIEHS QA/QI Program

The NIEHS OHRC has implemented a Quality Assurance/Quality Improvement program to monitor the conduct of clinical research at NIEHS. The mission of the QA/QI program is to provide routine monitoring of clinical research studies, assure that the rights and welfare of human research participants are

appropriately protected, improve the conduct of clinical research, and ensure that clinical studies are being monitored by an objective body.

The QA/QI program is comprised of five components:

- Monitoring of the NIEHS IRB for compliance with NIEHS HRPP policies and procedures
- Routine Monitoring of clinical research study conduct
- For-cause auditing to investigate allegations of non-compliance with HRPP requirements
- Due-diligence (directed) auditing to assess clinical research conduct for new investigators or to investigate concerns in clinical research conduct (Good Clinical Practices) identified by the IRB or other staff involved in the conduct of the clinical research.
- Education and Training: Finding from any of the above monitoring or audits will be the basis for additional supportive education and training.

NIEHS OHRC Website and Protocol Management System

The NIEHS OHRC has developed an interactive website (http://sharepoint.niehs.nih.gov/ohrc/default.aspx) that contains relevant information for PIs, IRB members and OHRC staff. Reference Guides and electronic forms have been developed for each phase of the review process. The NIEHS OHRC is currently in the process of implementing an electronic protocol tracking and management system.

The NIEHS Environmental Autoimmunity Group

The mission of the Environmental Autoimmunity Group is to understand the mechanisms for the development of autoimmune diseases so as to extend healthy life and reduce the burdens of illness and disability. The group conducts a broad program of clinical and basic investigation in the areas of adult and pediatric autoimmune diseases. The group uses multidisciplinary approaches to understand the roles of genetic and environmental risk factors for these diseases. Group members currently focus on investigations in Systemic Rheumatic Diseases which include Rheumatoid Arthritis, Systemic Lupus Erythematosus, Systemic Sclerosis (Scleroderma) and the Idiopathic Inflammatory Myopathies (Dermatomyositis, Polymyositis, Inclusion Body Myositis and related Myositis Syndromes). These diseases are heterogeneous groups of disorders defined by chronic inflammation, as prototypic autoimmune diseases. Studies include epidemiologic surveys, molecular genetic studies and clinical investigations in disease pathogenesis, as well as the development of clinical tools for assessment of innovative therapies.

Appendix 1. Components of the NIEHS Office of Human Research

Appendix 2: NIEHS Active IRB Protocols

09-E-N115	**Title:** Study of DDT and Loss of Clinically-Recognized Pregnancies in South Africa **PI:** Longnecker, Matthew (NIEHS/EB) **IRB:** NIEHS
09-E-N099	**Title:** Anonymous Sample Collection in Children for Collection, Processing and Laboratory Assay Evaluation **PI:** Rogan, Walter (NIEHS/EB) **IRB:** NIEHS
09-E-N036	**Title:** Study of ALS in the Farming Environment (SAFE) **PI:** Kamel, Freya (NIEHS/EB) **IRB:** NIEHS
09-E-N015	**Title:** Temporal Variability of Prenatal Exposure to Organophosphate Pesticides and Bisphenol A in the MoBa Cohort **PI:** Longnecker, Matthew (NIEHS/EB) **IRB:** NIEHS
09-E-N001	**Title:** Molecular Markers of Human Sperm Function **PI:** Williams, Carmen (NIEHS/CR) **IRB:** NIEHS
08-E-N159	**Title:** Role of Oxidant Susceptibility Genes in Severity of Neonatal Diseases Associated with Hyperoxic Injury **PI:** Kleeberger, Steven (NIEHS/PP) **IRB:** NIEHS
08-E-N136	**Title:** Genetic and Environmental Influences on Adult Asthma in the Agricultural Health Study: Lung Health in the Agricultural Health Study **PI:** Hoppin, Jane (NIEHS/EB) **IRB:** NIEHS
08-E-N068	**Title:** The Two Sister Study **PI:** Weinberg, Clarice (NIEHS/BB) **IRB:** NIEHS
07-E-N185	**Title:** Genes, Environment, and Age-Related Macular Degeneration (GENARM) **PI:** Kamel, Freya (NIEHS/EB) **IRB:** NIEHS
07-E-N112	**Title:** PCOS Twin Study - Environmental Factors in the Development of Polycystic Ovary Syndrome, Phase 2 **PI:** Chulada, Patricia (NIEHS/EP) **IRB:** NIEHS

07-E-N109	**Title:** Oral Bacteria and History of Allergic Disease in Children: A Pilot Study **PI:** Sever, Michelle (NIEHS/LRB) **IRB:** NIAID
07-E-N069	**Title:** Veterans with Amyotrophic Lateral Sclerosis (ALS) and Lead Exposure (VALE) **PI:** Kamel, Freya (NIEHS/EB) **IRB:** NIEHS
07-E-N068	**Title:** Head-Off Environmental Asthma in Louisiana (HEAL) Study **PI:** Martin, William (NIEHS/CR) **IRB:** NIEHS
07-E-N034	**Title:** Neurological Outcomes Among Pesticide Applicators **PI:** Hoppin, Jane (NIEHS/EB) **IRB:** NIEHS
07-E-0023	**Title:** Innate Immunity Signal Transduction in Human Leukocytes **PI:** Fessler, Michael (NIEHS/CR) **IRB:** NIEHS
07-E-0012	**Title:** Rituximab in the Treatment of Refractory Adult and Juvenile Dermatomyositis (DM) and Adult Polymyositis (PM) **PI:** Miller, Frederick (NIEHS/EA) **IRB:** NIDDK
06-E-N247	**Title:** Confirmation of Self-Reported Incident ALS Cases in the AARP-Diet and Health (AARP-DH) Cohort **PI:** Chen, Honglei (NIEHS/EB) **IRB:** NIEHS
06-E-N185	**Title:** The Growth and Puberty Study: Agricultural Exposures and Puberty Onset in the Agricultural Health Study **PI:** Sandler, Dale (NIEHS/EB) **IRB:** NIEHS
06-E-N098	**Title:** Anonymous Sample Collection for Quality Control of Biological and Environmental Specimens and Assay Development and Testing **PI:** Sandler, Dale (NIEHS/EB) **IRB:** NIEHS
06-E-N093	**Title:** The Parkinson's Genes and Environment (PAGE) Study **PI:** Chen, Honglei (NIEHS/EB) **IRB:** NIEHS

06-E-N045	**Title:** Measurement of Cytogenetic Endpoints in Lymphocytes of Children Diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD) and Treated with Methylphenidate or Adderall **PI:** Witt, Kristine (NIEHS/T) **IRB:** NIEHS
05-E-N202	**Title:** Anonymous Sample Collection for Laboratory Assay Development and Testing (Longnecker) **PI:** Longnecker, Matthew (NIEHS/EB) **IRB:** NIEHS
05-E-N200	**Title:** Studies of the Natural History and Pathogenesis of Autoimmune/Connective Tissue Diseases **PI:** Miller, Frederick (NIEHS/EA) **IRB:** NIDDK
05-E-N166	**Title:** Dust Mite Allergen Reduction Study **PI:** Zeldin, Darryl (NIEHS/CR) **IRB:** NIAID
05-E-N159	**Title:** Anonymous Sample Collection for Laboratory Assay Development and Testing (London) **PI:** London, Stephanie (NIEHS/EB) **IRB:** NIEHS
05-E-N109	**Title:** Predictive and Protective Factors in the Cause of Diabetes: A Study in Twins **PI:** Blackshear, Perry (NIEHS/CI) **IRB:** NIEHS
05-E-N087	**Title:** Hormonal Changes in Early Pregnancy: Pilot Study to Evaluate Stored Urine Specimens **PI:** Baird, Donna (NIEHS/EB) **IRB:** NIEHS
04-E-N265	**Title:** Cockroach Allergen Reduction by Extermination Alone in Low-Income, Urban Homes-A Randomized Control Trial **PI:** Zeldin, Darryl (NIEHS/CR) **IRB:** NIAID
04-E-N169	**Title:** Inhibition of Fried Meat-Induced DNA Damage: A Dietary Intervention Study **PI:** Taylor, Jack (NIEHS/EB) **IRB:** NIEHS
04-E-N053	**Title:** Environmental Polymorphism Registry (EPR) **PI:** Chulada, Patricia (NIEHS/EP) **IRB:** NIEHS

03-E-N287	**Title:** Study of Estrogen Activity & Development (SEAD) - SEAD 1 Sonography **PI:** Rogan, Walter (NIEHS/EB) **IRB:** NIEHS
03-E-N210	**Title:** Exposure to Neurotoxins As Risk Factors For ALS: Measurement of Genes, Proteins, Neurotoxicants, and Other Factors Potentially Associated With ALS **PI:** Kamel, Freya (NIEHS/EB) **IRB:** NIEHS
03-E-N184	**Title:** Study of Estrogen Activity & Development (SEAD) SEAD2: Physical Exam and Ballard Markers; SEAD 3: Biochemistry **PI:** Rogan, Walter (NIEHS/EB) **IRB:** NIEHS
03-E-N045	**Title:** Organochlorine Exposure in Relation to Timing of Natural Menopause **PI:** Baird, Donna (NIEHS/EB) **IRB:** NIEHS
03-E-N044	**Title:** Dietary and Genetic Factors in Asthma & Chronic Bronchitis in a Cohort of Chinese Singaporeans **PI:** London, Stephanie (NIEHS/EB) **IRB:** NIEHS
03-E-0099	**Title:** Pathogenic Studies In Families With Twins Or Siblings Discordant For Systemic Rheumatic Disorders **PI:** Miller, Frederick (NIEHS/EA) **IRB:** NIDDK
02-E-N319	**Title:** Venous or Arterial Ligation and Intraoperative Dissemination (VALID) of Cancer Cells: A Randomized Clinical Trial For Patients With Resectable Non-Small Cell Lung Cancer **PI:** Taylor, Jack (NIEHS/EB) **IRB:** NIEHS
02-E-N271	**Title:** The Sister Study: Environmental and Genetic Risk Factors for Breast Cancer **PI:** Sandler, Dale (NIEHS/EB) **IRB:** NIEHS
02-E-N206	**Title:** The Norwegian Mother and Child Study - Environmental Specimen Collection **PI:** Longnecker, Matthew (NIEHS/EB) **IRB:** NIEHS

02-E-N075	**Title:** Postpartum Uterine Regression **PI:** Baird, Donna (NIEHS/EB) **IRB:** NIEHS
02-E-N004	**Title:** Environmental Polymorphism Study (EPS) **PI:** Chulada, Patricia (NIEHS/EP) **IRB:** NIEHS
01-E-N209	**Title:** Fibroid Growth Study **PI:** Peddada, Shyamal (NIEHS/BB) **IRB:** NIEHS
01-E-N177	**Title:** Effect of the Antiandrogen DDE on Anthropometric Measures at Birth **PI:** Longnecker, Matthew (NIEHS/EB) **IRB:** NIEHS
01-E-N111	**Title:** Farming and Movement Evaluation (FAME) Study **PI:** Kamel, Freya (NIEHS/EB) **IRB:** NIEHS
01-E-N047	**Title:** Environmental Factors in the Development of Polycystic Ovary Syndrome **PI:** Chulada, Patricia (NIEHS/EP) **IRB:** NIEHS
94-E-0165	**Title:** Studies in the Natural History and Pathogenesis of Childhood-Onset and Adult-Onset Idiopathic Inflammatory Myopathies **PI:** Rider, Lisa (NIEHS/EA) **IRB:** NIDDK
OH98-E-N054	**Title:** A Cohort Study of Smoking Prevention and Health Promotion for Middle School Students in Wuhan, China **PI:** London, Stephanie (NIEHS/EB) **IRB:** NIEHS
OH95-E-N048	**Title:** Risk Factors for Uterine Fibroids: A Case Control Study and Follow-up Amendment to Study Disease Progression **PI:** Baird, Donna (NIEHS/EB) **IRB:** NIEHS
OH99-E-N043	**Title:** Anonymous Sample Collection for Laboratory Assay Development and Testing (Taylor) **PI:** Taylor, Jack (NIEHS/EB) **IRB:** NIEHS

OH99-E-N040	**Title:** Fluorescence Bronchoscopy and Molecular Characterization of Abnormal Bronchial Lesions: Novel Approaches for Early Detection of Lung Cancer in High Risk Patients **PI:** Taylor, Jack (NIEHS/EB) **IRB:** NIEHS
OH94-E-N037	**Title:** Treatment of Lead-Exposed Children (TLC) Trial **PI:** Rogan, Walter (NIEHS/EB) **IRB:** NIEHS
OH98-E-N033	**Title:** National Survey of Lead Hazards and Allergens in Housing **PI:** Zeldin, Darryl (NIEHS/CR) **IRB:** NIAID
OH99-E-N028	**Title:** Genetic Susceptibility to Childhood Respiratory Illness in Mexico City **PI:** London, Stephanie (NIEHS/EB) **IRB:** NIEHS
OH99-E-N006	**Title:** Pesticide Exposure and Health Status in NC African American Male Farmers and Farm Workers **PI:** Sandler, Dale (NIEHS/EB) **IRB:** NIEHS
OH96-E-N006	**Title:** Svangerskap, Arv, Og Miljo (Pregnancy, Heredity and Environment) **PI:** Taylor, Jack (NIEHS/EB) **IRB:** NIEHS

Appendix 3: Current NIEHS IRB Members

NIH Affiliated Members

David Resnick, J.D. Ph.D.
Bioethicist, IRB Chair

Joan Packenham, Ph.D.
Pathologist, IRB Vice-Chair

Donna Baird, Ph.D.
Epidemiologist

Jack Bishop, Ph.D.
Geneticist

Michael Fessler, M.D.
Pulmonologist

Jane Hoppin, Sc.D.
Epidemiologist

Alicia Moore, M.S.
Biologist

Carmen Williams, M.D.
OB/GYN & Repro Endocrinologist

Non-Affiliated Members

Betty Blackman, BS
Community Member

Sandy Lange
Community Member

Terry Noah, M.D.
Pediatric Pulmonologist

Rey Ramirez, BA
Community Member

Michael Roberts, DDS
Pediatric Dentist

Craig Lee, Pharm.D., Ph.D.
Clinical Pharmacologist