

CLINICAL RESEARCH

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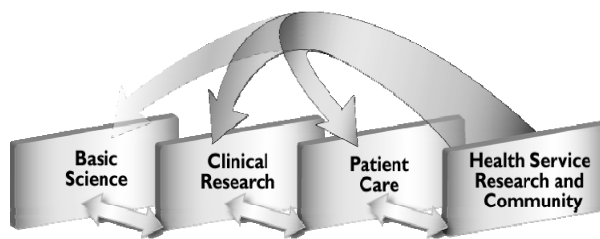
Definitions

- **Clinical Research** covers all studies of diseases and trials of treatments that take place in human subjects
- **Translational Research** describes the steps between a fundamental discovery and its application in clinical medicine. For example:

Testing a new anti-cancer drug in humans for the first time

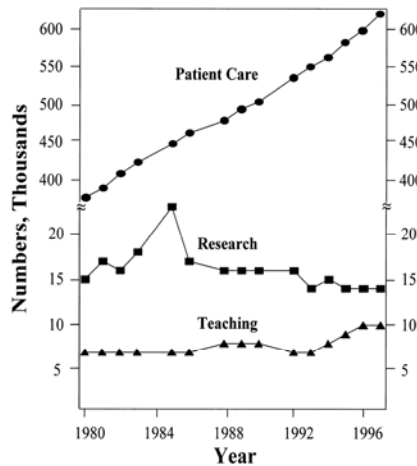
Identifying best practices in the diagnosis, prevention or management of a disease and enhancing their adoption by the community

Text from the NIH RFA for Institutional Clinical and Translational Science Award



Signaling Pathways in Medical Research

There is a decline in the numbers of clinical investigators in the U.S.



U.S. physicians by major professional activity. Numbers of physicians are shown by major professional activity. Patient care includes office-based practice and hospital-based practice. In addition to full-time staff, the data also reflect the primary activity of residents and clinical fellows. Data provided by the Department of Physician Data Services, Division of Surveys and Data Resources, American Medical Association [Zemlo *et al.* (FASEB J 2000;14:221-230)].

NIH Director's Panel General Findings

- **Rigorous training program are lacking**
- **Medical schools curriculum are devoid of instructions in clinical research**
- **Clinical researchers must be trained in order to compete effectively for research grants**

NIH Panel 1996

Clinical Research Current Opportunities for Training

- Training grants (NRSA) for clinical research
 - T32 and F32 with clinical focus
 - require formal training (courses)
- Career awards (K23) for clinical research
- Distinguished Clinical Scientist Awards (K24)
- Institutional training for clinical research (K30)
- Clinical pharmacology program (K12) (2002)
- Undergraduate medical program for clinical research

NIH Panel 96

UCLA Graduate Training in Translational Investigation



UCLA Medical Center

The UCLA K30 integrates clinical research training in four GCRC programs.



Harbor-UCLA



Cedars-Sinai



Martin Luther King/Drew

UCLA Graduate Training in Translational Investigation

- **This is a two-year program**
- **Participants can complete enough credits to qualify for a new Master's Program in Clinical Research.**
- **Or they can obtain a Certificate in Clinical Research.**
- **Participation in K30 programs is looked very favorably by K23 Study Sections**

UCLA GTPTI - Year 1 Program

- **GCRC summer course, "The Essentials of Clinical Investigation: Developing a Research Proposal"**
- **A year-long course on Communication of Science, with Visiting Faculty from the editorial staffs of Nature and Science**
- **An ethics program**
- **A module on clinical research and ethnic minorities**
- **A nine-month course on Research Design and Methodology**

Key Topics of Year 1 Core Course I

- Components of Study Design.
- Type of Measurement Error for Outcome and Variables.
- Hypothesis testing: Idea, Conceptual Basis.
- Phase I Studies.
- Phase II Studies.
- Concepts in Survival Analysis.
- Phase II Studies.
- Repeated Measurements in Phase II.
- Identification of Prognostic Factors.
- Multiple Regression.
- Logistic Regression.
- Ethical Issues.
- IRB Roles.
- Eligibility.
- Randomization.
- Designs.
- Data Collection.
- Interim Analysis.

Key Topics of Year 1 Core Course II

- Sample Size.
- Stratification.
- Accrual Strategies.
- Retention Strategies.
- Quality of Life Endpoint
- Data Collection.
- Data Management.
- Types of observational studies.
- Cohort Studies.
- Case- Control Studies.
- Sample size determination.
- Negative Studies.
- Measurement Error.
- Multivariate Analysis.
- Economics in Clinical Trials.
- Meta-Analysis.
- Compliance, Intent-to-treat, Subgroup Analysis.
- Regulatory Issues in Clinical Investigation
- Clinical Research in International Settings

UCLA GTPTI - Year 2 Program

Seminars on Key Topics in Translational Investigation:

- **Research funding.**
- **Research in human genetics, bringing developments from the human genome project to clinical research.**
- **Health services research.**
- **Clinical pharmacology and pharmacogenetics.**
- **Using behavior as a research endpoint: Translational research in cognitively and disturbed subjects.**
- **Brain mapping for Translational investigators.**
- **Research in women's health.**
- **Bioinformatics.**

UCLA GTPTI - Year 2 Program



Summary of selected Year 2 modules

Human Genetics Module

- **Module Coordinator:** Aarno Palotie M.D., Ph.D.
- **Module Faculty:** Leena Peltonen, Uptal Banerjee, Rita Cantor, Daniel Cohn, Julie Korenberg, Ken Lange, Aldons Lusic, York Marahrens, Linda McCabe, Stanley Nelson, Lisa Schimmenti, and Janet Sinsheimer.
- **Human genetics is one of the most rapidly evolving areas of medicine and will have an effect on most clinical disciplines. This module will highlight some of the key areas of modern genetics and its relation to clinical research.**
- **Week 1: Introduction to the field of modern genetics of human diseases** (Leena Peltonen, M.D., Ph.D.).
- **Week 2: Identification and characterization of gene defects in monogenic diseases** (Lisa Schimmenti, M.D.).
- **Week 3: Identification of predisposing genes in complex traits** (Aarno Palotie, M.D., Ph.D.).
- **Week 4: Basic strategies in gene therapy** (James Economou, M.D.).

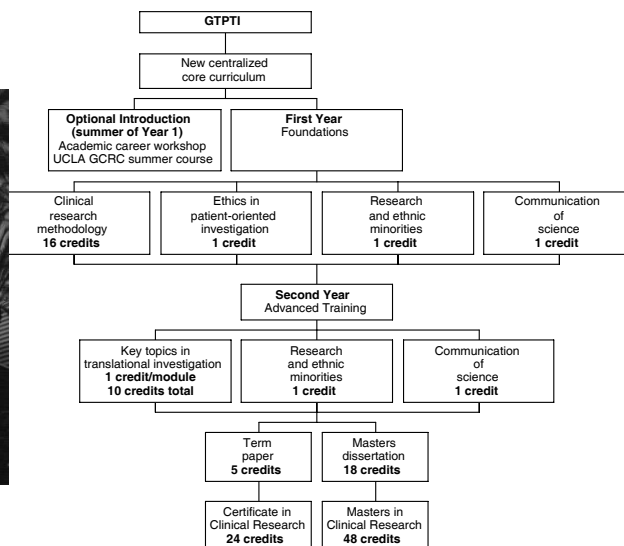
Brain Mapping for Translational Investigators

- **Module Coordinator:** John Mazziotta, M.D., Ph.D.
- **Module Faculty:** John Mazziotta, Mark Cohen, Susan Bookheimer, Roger Woods, Arthur Toga, Jeff Alger, Pablo Villablanca, Mirella Dapretto, Marco Iacoboni, and Nancy Sicotte.
- **This course will provide examples of many of the currently available Brain Mapping techniques as well as examples for their use. These techniques will include magnetic resonance imaging (structural, functional, spectroscopic, diffusion and perfusion approaches), positron emission tomography, optical intrinsic signal imaging for use in the operating room, CT angiography and the integration of these techniques. Presentations will be descriptive, qualitative and nonmathematical. A laboratory where course participants can perform an actual brain mapping experiment will also be provided.**
- **Week 1: Overview & experimental design** (John Mazziotta, M.D., Ph.D.)
- **Week 2: Basic MRI techniques** (M. Cohen, Ph.D.) - **Week 3: Functional MRI** (S. Bookheimer, Ph.D.)
- **Week 4: PET** (Roger Woods, M.D.) - **Week 5: Optical imaging** (Arthur Toga, Ph.D.)
- **Week 6: Advanced MRI techniques** (Jeff Alger, Ph.D.)
- **Week 7: CT angiography** (Pablo Villablanca, M.D.)
- **Week 8: Class experiment** (Mirella Dapretto, Ph.D., Nancy Sicotte, M.D.)

Health Service Research Module

- **HEALTH SERVICES RESEARCH**
- **Module Coordinator:** Martin F. Shapiro.
- **Module Faculty:** Ronald Hays, Katherine Kahn, Susan Ettner, and Martin Shapiro.
- An extensive training program, supported by the Robert Wood Johnson Foundation, NRSA awards and VA ambulatory fellowships, currently exists in this area at UCLA. The clinical researchers who become interested could then participate in this much more extensive curriculum.
- **Week 1:** A comprehensive approach to the measurement of health outcomes (Ronald Hays, Ph.D.).
- **Week 2:** The science of measuring the quality of the processes of medical care (Katherine Kahn, M.D.).
- **Week 3:** An introduction to the assessment of costs and cost-effectiveness of care (Susan Ettner, Ph.D.).
- **Week 4:** Access to care and other determinants of processes and outcomes of care (Martin Shapiro, M.D.).

UCLA K30 Summary of Curriculum



UCLA K30 Program
Graduate Training Program in Translational Investigation



Director: Barbara Levey, M.D.
Professor of Medicine
blevey@mednet.ucla.edu

Co-P.I.: Robert Elashoff, Ph.D.
Professor of Biomathematics

Program Coordinator:
Jennifer McGovern
K30@ucla.edu
Phone: 310-825-6312

**UCLA Mentored Clinical
Pharmacology Research Scholars
Program (K12)**

- **The UCLA Mentored Clinical Pharmacology Research Scholars Program (K12) is a new, highly structured mentored clinical scholar program in patient-oriented research that is broad, interdisciplinary and focused on the area of clinical pharmacology and experimental therapeutics.**
- **The K12 initiative was created by the NIH to foster the development of patient-oriented investigators. The award can provide each participant with over \$700,000 over five years for salary support and career development.**

**UCLA Mentored Clinical
Pharmacology Research Scholars
Program (K12)**

Principal Investigator:

Barbara Levey, M.D.

blevey@mednet.ucla.edu

Program Coordinator:

Jennifer McGovern

k12@mednet.ucla.edu

310-825-6312

**For more information, please visit the K12 Program website at:
www.clinicalpharmacology.ucla.edu**

Clinical Research Training at UCLA

UCLA GCRC

Director: Isidro B. Salusky, M.D.

GCRC SUMMER COURSE

Director: Isidro B. Salusky, M.D.

K30 GRADUATE PROGRAM - MASTER'S IN CLINICAL RESEARCH

Director: Barbara Levey, M.D.

K12 PROGRAM – MENTORED CLINICAL PHARMACOLOGY

Director: Barbara Levey, M.D.

OFFICE OF CLINICAL TRIALS

Director: Vickki Jenkins, MS

UCLA Office of Clinical Trials

- **Established in September 1998 by Dean's Office**
- **Primary focus: industry sponsored clinical trials**
- **Services:**
 - Study placement**
 - Prestudy services - budget preparation, IRB support, submissions to OCGA, etc.**
 - Pool of study coordinators**
- **Costs covered by study budget**
- **Vikki Jenkins, x65705, vjenkins@mednet.ucla.edu**

Office of Clinical Trials Support for K23 Recipients

- **Quarterly meetings**
- **GCRC and biostatistics core**
- **Office of Contracts and Grants, IRB**
- **Networking**
- **Resources available at UCLA**
- **Support for IRB submissions, etc**

Characteristics of a Typical GCRC

- **Miniresearch hospital**
- **Operated independently by the Medical School**
- **Funded by a renewable, competitive grant from NIH**
- **The facility is self-contained with its own research beds, administration, nursing, laboratory, metabolic kitchen and computerized data analysis facility**
- **To meritorious research it provides free room, board, nursing care, laboratory & data analysis support**

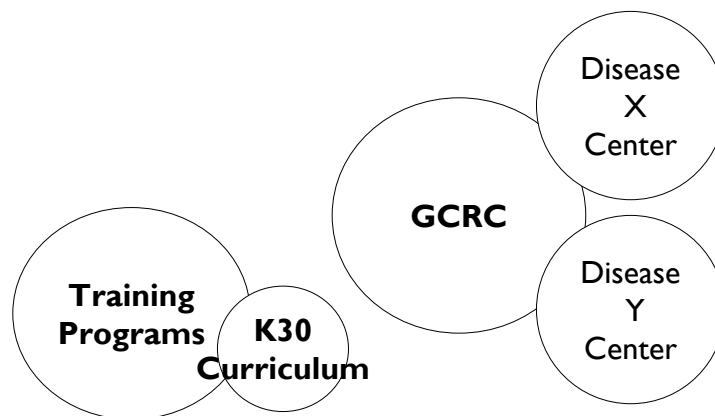
Goals of the General Clinical Research Center (GCRC) Programs

- **To make available to medical scientists the resources to conduct clinical research**
- **To provide an optimum setting for controlled clinical investigation**
- **To encourage collaboration between basic and clinical scientists**
- **To serve as an environment for training**

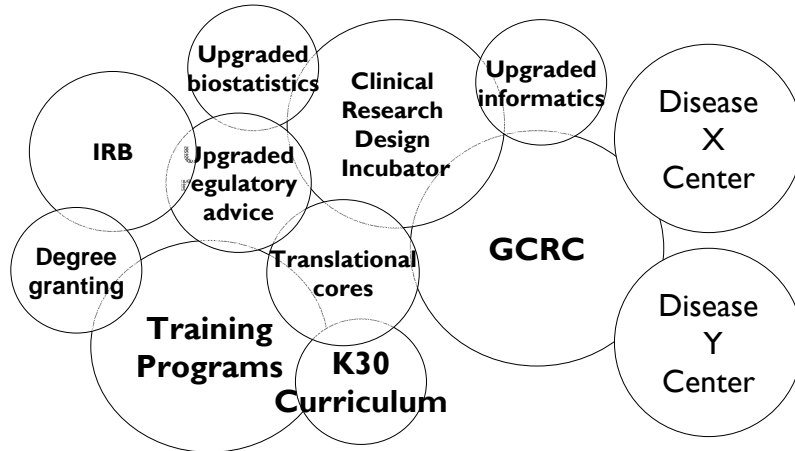
UCLA GCRC

- **11 beds for inpatient and outpatient studies located in the 2 nd floor (east) at CHS**
- **Both for adult and pediatric patients**
- **Core bone laboratory: bone and mineral metabolism**
- **Brain Imaging Core**
- **Biostatistical support**
- **Nutritional support**

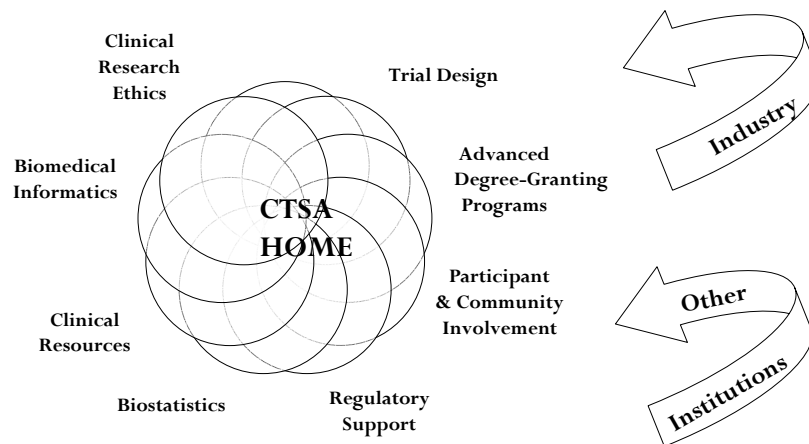
Where Are We Starting From?



Missing Pieces to Form a Home of Clinical and Translational Sciences



A Home for Clinical and Translational Science



Content from the NIH RFA for Institutional Clinical and Translational Science Award

MENTOR

- **Experience**
- **Availability**
- **Interest to work**
- **Adequate resources: grant support**
- **The choice of one or two senior scientists is the single most important decision**

IRB Mission Statement

- **The UCLA IRBs are impaneled to protect the rights and welfare of human subjects and support the University's research mission**
- **University policy requires that researchers respect and protect rights and welfare of individuals recruited for, or participating in, research conducted by or under the auspices of UCLA**

**Office for Protection of
Research Subjects**

Human Research

and

Institutional Review Boards (IRB)

(310) 825-5344

www.oprs.ucla.edu