The UCLA Clinical and Translational Science Institute (UCLA CTSI) provides the infrastructure to bring UCLA innovations and resources to bear on the greatest health needs of Los Angeles and the nation. It is a dynamic partnership among UCLA Westwood, Charles Drew University of Medicine and Science, Los Angeles Biomedical Institute at Harbor UCLA Medical Center, the Burns and Allen Research Institute at Cedars-Sinai Medical Center and our Los Angeles community.

The UCLA CTSI is organized into nine program areas through which the CTSI achieves its five main goals: (1) create an academic home for clinical and translational science, (2) build transdisciplinary research teams to accelerate and translate discovery, (3) transform educational and career development programs to promote the next generation of clinician-investigators and translational scientists, (4) build and expand strong bi-directional academic-community partnerships, and (5) serve as a national resource for collaborative research.

a. Accomplishments

Pilot and Collaborative Clinical and Translational Studies Program (Pilot)

- Awarded 113 pilot grants this year with $2.3 million in direct CTSI and $2.45 million in institutional matching support; return of $18 million in new extramural funding on $1.8 million in year 1 pilot awards.
- Partnered with UCLA centers and institutes to offer nine Team Science Awards with $815,000 in CTSI support and $500,000 in institutional support.
- Rapid Response Team, a CTSI unit that provides grant-preparation services using a novel software tool, supported nine extramural applications; eight are pending and one received $3.2 million from the Centers for Medicare and Medicaid Services (Dr. David Reuben, PI).

Clinical and Community Research Resources (CCRR)

- Provided state-of-the-art clinical support for 306 existing research projects and 119 new protocols for a total of 8,137 outpatient visits and 744 inpatient stays across the CTSI.
- Implemented cost-sharing model for CCRR services in proactive response to challenging fiscal climate; provided waiver of cost sharing or reduced rates to support our new investigators.

Research Education, Training and Career Development Program (CTSI-ED)

- Added and deployed to our partners training modules in four new areas: patient-centered outcomes of health care, community characteristics and geographic information systems, implementation science, and cost-effectiveness analysis.
- β-tested Moodle, an online learning management system, with two courses (Biomath 258 & M263), in collaboration with the Biostatistics Program.
- In July, held the first NIH K/Career Development Award Workshop; it was attended by 58 junior investigators, 14 of whom submitted a draft of an extramural grant for pre-review.
- Awarded five new TL1 pre-doctoral fellows from an outstanding pool of 40 PhD applicants in the Department of Health Policy and Management (HPM) at the UCLA School of Public Health (SPH); 15% of the applicants were from minority populations, 33% were male and 67% were female.
- Selected 20 health professional students (medical, dental, nursing) for the TL1 Summer Fellowship from a pool of 27 applicants; 37% of the applicants were from minority populations, 37% were male and 63% were female.
- Identified 25 UCLA SPH-HPM faculty affiliated with the CTSI to serve as mentors and/or dissertation chairs for the TL1 pre-doctoral fellows.
- Awarded our second cohort of three KL2 Scholars from an outstanding pool of 28 applicants; 15 from basic, 18 from clinical and five from health services research. 64% of the applicants were male, 36% were female and 11% were minority.

Community Engagement in Research Program (CERP)

- Funded nine of 23 proposals for community-partnered research in amounts ranging from $18,000–$50,000 each.
• CERP infrastructure was instrumental to obtaining $30.95 million in extramural funding for eight community-engaged research projects.
• Used data collected from five symposia (1,017 attendees), three seminars (109 attendees), two workshops (57 attendees), three health fairs (5,000–25,000 attendees), 31 community partner surveys and 800 faculty surveys to establish a baseline of leading community priorities and investigator research needs from which to quantitatively evaluate progress.
• Partnered with the University of Minnesota CTSI and the Los Angeles County Department of Health Services on two separate RFAs focused on health delivery (see section f below for details).

Center for Translational Technologies (CTT)
• Awarded vouchers worth a total of $1.05 million to 112 CTSI investigators at our four partner institutions through five separate RFAs; vouchers were utilized at more than 75 different cores.
• Held four workshops attended by a total of 200 investigators to educate researchers about translational research and high-interest genomics cores.

Regulatory Knowledge and Support, Industry Relations and Research Ethics Program
• Finalized and deployed instructions, forms for protocol submission, and a review procedure for Reliance-Review IRB; received 12 protocols for reliance review.
• Office of Investigator Services responded to 454 queries for information or services during the first 10 months of 2012.
• Collaborated with the Bioinformatics Program to deploy a novel online service request tracking system in November, 2012.
• Post-approval research oversight personnel performed 50 data-safety-monitoring-plan consultations and 108 quality-assurance reviews.

Biostatistics and Computational Biology Program
• Provided 9,373 consulting hours during the first 10 months of 2012. Data analysis accounted for largest number of hours (4,474), followed by grant-preparation assistance (1,763), data management (1,155), statistical methodology research (855), study design (825), and statistical education (268).
• Assisted 367 unique investigators on 580 projects. Of all collaborators, 6% were medical students or graduate students; 25.1%, residents and fellows; 32.4%, assistant professors and instructors; and 36.4%, associate and full professors.
• Developed a seminar dedicated to preparing statistics sections in grant applications and delivered it to four audiences with a total of 90 attendees.
• Through videoconferencing, made courses in introductory statistics, regression analyses, and clinical trial and observational studies available to Cedars-Sinai and LABiomed.
• In response to demand, added computational biology and bioinformatics consulting with additional funding for 30% FTE of faculty time and 100% FTE of staff time.

Biomedical Informatics Program (BIP)
• Created and launched the Team Science Workflow System (TSWS), an online ticketing system that coordinates and tracks research facilitation efforts and scientific collaborations.
• Increased unique visits to CTSI website by 55% on an annualized basis; 60% of hits were return visits.
• Implemented an i2b2/SHRINE query system and connected it to the CTSA infrastructure of other University of California medical campuses.
• Populated UCLA’s local i2b2 component with patient demographic data, encounter diagnoses and procedure data from the UCLA Health System.
• Collaborated with the CTSI-ED to develop three three-hour informatics workshops for spring 2013.

Evaluation Program
• In collaboration with BIP, deployed the Rockefeller University’s Graduate Tracking Survey System—an online electronic questionnaire that pre-populates the graduate's information on publications, clinical trials, grants, and patents by downloading the information from public databases—for ongoing evaluation of our training programs and tracking our present and former trainees.
• Conducted an organizational effectiveness survey of 733 CTSI personnel with a response rate of 56%.
• Developed evaluation cores for seven proposals yielding three funded, two pending, and two not funded.

b. Challenges Encountered and Addressed
We restructured our Community Engagement in Research Program to focus on high-impact, results-driven projects aimed at improving health in Los Angeles. ■ We transitioned our Bioinformatics Program to new leadership and confirmed development of a shared research data repository as a high priority. ■ We expanded by 50% the offerings in the CTSI Training Program in Translational Science (unfunded K30 program) with a emphasis on health services research. ■ We implemented cost-sharing in our CTRCs while continuing to provide support for junior investigators. ■ To reconcile our budget, we asked our programs to make cuts in years 2 and 3.

c. Integration and Innovation
The geographic (Los Angeles driving distance and traffic) and cultural differences among our partner institutions provide numerous opportunities for integration, which remains one of our highest priorities. In response, we moved forward on several key initiatives to create new and enhance existing opportunities for team science across our partner organizations. We anticipate we will make continued progress in these areas in year 3.

• Los Angeles Data Repository (LADR). We are creating a combined resource of de-identified, structured clinical data (e.g., demographics, coded diagnoses, procedures, laboratory values, medications, problem lists) for the Los Angeles region to enable research that none of the UCLA CTSI partners can do with their own data. We anticipate the following timeline for completion: (1) data model in February 2013, (2) final technical work and requisite approvals by mid-2013, and (3) LADR go live in the fall 2013.

• Institutional Review Board Reliance-Review. The Reliance-Review process allows the IRB of one institution to rely on another institution’s IRB for review and continuing human research oversight. Twelve cross-institutional protocols have used this process to date and we anticipate at least a 50% increase in applications in year 3. Los Angeles Biomedical Institute at Harbor UCLA Medical Center received accreditation from Association for the Accreditation of Human Research Protection Programs in December 2012.

• Virtual Home/Communication. We updated our Virtual Home to improve its usefulness as a communication tool. Our online service/help request function went live in November and our calendar/events function went live in December 2012. A twice-monthly, opt-in newsletter initiated in 2012 now reaches 600 subscribers and has an above-average 40% open and 20% click-through rate. To increase awareness of CTSI, we have planned a series of town halls at our partner institutions; the first was held at Cedars-Sinai Medical Center in November 2012.

• K/Career Development Award Workshops. We initiated rotating, inter-institutional, all-day workshops for junior faculty and postdocs interested in apply for NIH K awards. Half-day sessions cover mechanics of the application process, and pre-reviews by senior faculty of grants to be submitted by attendees, respectively. Our first workshop was held in July 2012 at UCLA and a second will be held in January 2013 at Los Angeles Biomedical Institute-Harbor UCLA Medical Center.

• UCLA Incubator for Biomedical Startups. UCLA is renovating 800,000 square feet within its existing Center for Health Sciences building to provide incubator space for start-up companies formed by faculty innovators. The facility, which is being financed with $400 million from an $850-million University of California taxable bond issue, will support technology transfer across the CTSI. Future plans call for renovating an additional 2 million square feet of space.

d. Future Direction of the UCLA CTSI
Status of the program in meeting milestones and timelines
The programs have met or are expected to meet the majority of their timelines for year 2. (Please see the program-area progress reports elsewhere in this document for more details.)
Our External Advisory Board reviewed our progress during a face-to-face meeting in Los Angeles in June 2012. In response to its thoughtful recommendations, we have initiated a number of improvements (below). We plan to continue this process in 2013.

- Dr. Daniel Castro, chair of Family Medicine at Harbor-UCLA Medical Center, has joined the leadership of our Community Engagement in Research Program. In addition, four of our nine community-based research projects have substantial representation from the Latino community.
- Through targeted core services workshops, we substantially increased the percentage of successful voucher applications from departments and schools outside of the David Geffen School of Medicine clinical departments to 56% (UCLA-Westwood round 2) from 16% (UCLA-Westwood round 1).
- With institutional funds, we initiated a summer training program in translational science specifically for dental students, whose academic year differs from that of our medical students.
- With our Internal Advisory Board, we have initiated a strategic plan to (1) further enhance the governance of the CTSI and (2) more clearly define the goals and evaluation metrics for each program as well as in the CTSI as a whole. We expect to complete this process in early 2013.
- We eliminated our membership structure to increase accessibility of our research infrastructure.
- We initiated a partnership with the Los Angeles County Department of Health Services (see section f).

Milestones proposed for the coming year
The majority of year 3 milestones for program areas are unchanged. An exception is that responsibility for industry alliances has moved from the Regulatory Program to the Office of the Institute. Our public-private partnership effort is led by Associate Director John S. Adams, MD.

e. Institutional Commitment
The institutional commitments from our 2010 submission of $73.25 million to the UCLA CTSI from the four partner institutions remain intact. This commitment includes team-based research staff and faculty support, a research data repository commitment, and commitments for faculty recruitment, a clinical trials management implementation system, clinical research, bio-banking, research imaging and informatics infrastructure. Based on our year 1 figure of $44.5 million, we anticipate far exceeding our originally planned institutional commitment. In addition, our partner institutions provided space commitments with $202.2 million.

f. Collaborations with Institutions or Organizations outside the CTSI
The five University of California medical campuses with CTSA, in collaboration with the UC Office of the President, have formed a collaboration to enhance translational research. UC Biomedical Research Acceleration, Integration, and Development (UC BRAID) has made progress in many areas, including:

- Development and Implementation of the UC Research Exchange (UC ReX). With funding from UCOP, UC ReX is building the first clinical query system capable of exchanging patient-level data as well as aggregates (counts and descriptive statistics) across the UC Medical Centers and the 12+M lives in their collective care systems. Initially these data will be used for research but may become a primary source for quality improvement efforts.
- Engage UC. With $2-million in supplemental funding from NCATS, Engage UC will develop an ethical, efficient and sustainable system for obtaining, processing and sharing biospecimens and data across the five medical campuses and their outpatient facilities.
- University of California Center for Accelerated Innovation (UC CAI). The UCLA CTSI led a $21.8-million UC BRAID submission to NHLBI for a UC-wide CAI to speed the transition of academic inventions to commercial products for patient benefit.

The UCLA CTSI partnered with the University of Minnesota CTSI on a cross-institutional, team science RFA for community-engaged research. Proposals focused on health disparities and health system change and teams included at least one investigator from each CTSI. We received eight proposals and will announce up to three awards of at least $50,000 each on December 20, 2012.

We will issue in January 2013 an RFA with the Los Angeles Department of Health Services (DHS) for projects to increase delivery of high-quality services without increasing costs. We expect to fund 2–3 projects of $30,000 each in March 2013.
National CTSA participation
UCLA CTSI leaders are active participants in the national CTSA. All attend telephonic and face-to-face meetings of their respective committees. The participation of our program leaders is presented in individual program-area reports elsewhere in this document. Participation of the Office of the Institute is presented here.

- CTSI Executive Director Steven Dubinett, MD is CTSA co-contact liaison to National Cancer Institute, a CTSA Consortium Steering Committee member, and participates in CTSA PI-only teleconferences
- Dr. Adams, associate director, is a member of the national Public-Private Partnership KFC and the Executive Planning Committee for Creation of NIAMS-CTSA Centers of Translational Science; co-author of the CTSA Consortium-American Society for Bone & Mineral Research Team Science Award Program, and invited speaker to Institute of Medicine (IOM) CTSA program review in December 2012.
- CTSI Administrative Director Anne Skinner participates in the Administration KFC.
- Denise Gellene, director of academic support programs, participates in the Communications KFC and leads the CKFC Dissemination Workgroup.
- Jessica Byrne, administrative analyst, participates in the Communications KFC.

g. Significant Clinical or Translational Science Advances
More than 220 articles citing the UCLA CTSI have been published. Here we highlight selected articles in journals with an impact factor of 30 or more to illustrate how the UCLA CTSI advanced science in year 2.

   This study highlights the complex nature of bone mineral density variation and may contribute to the identification of future drug targets for the treatment of osteoporosis.

   This meta-analysis of genome-wide association scans showed considerable overlap between genetic susceptibility for irritable bowel syndrome (IBD) and responses to mycobacterial infection.

   The study shows that the mammalian gut contains a rich fungal community that interacts with the immune system through a receptor implicated in colitis. A deeper understanding of these mechanisms may lead to better therapies for IBD.

   Pulmonary artery enlargement, as detected by CT scan, was associated with severe exacerbations of COPD. This study could help identify patients at greatest risk for accelerated loss of lung function.

   Detecting obstructive coronary disease with CT angiography and noninvasive fractional flow reserve in stable patients with suspected or known coronary artery disease was associated with improved diagnostic accuracy.

   This study indicates that the Alzheimer's disease process begins more than 20 years before the clinical onset of dementia. Treatment and prevention trials can incorporate these pathophysiological changes to gauge the likelihood of future clinical success.