



CDU Research Enterprise Strategic Plan (2015 – 2020)

Theme: Expand, enhance and integrate the research mission at CDU.

Strategic Goal: Be a leader in health disparities research by translating scientific discoveries into education, training, clinical care, treatment and community service.

Strategic Objectives:

1. Be a national and international leader in research in Cancer, Cardiometabolic diseases, and strengthen our HIV/AIDS, Mental Health, and Health Services and Policy.
2. Enhance Recruitment and retention of research and staff.
3. Strengthen undergraduate and graduate student research, education and training experience in health disparities across all departments, colleges, and schools.
4. Strengthen Core infrastructure by providing excellent services for the administration and support of all sources of research grants, including federal, foundation, and biotech/industry.

CDU Research Enterprise Overview

Our research enterprise has emerged as a leading player in the national effort to eliminate health disparities. By promoting strategies that create synergy in research teams and between investigators and the community, CDU aims to create novel best practice solutions to transform the health of underserved communities that can be used as innovative models throughout the nation and the world. CDU's specific research areas and resources are elaborated below.

Office of Vice President for Research and Health Affairs | Dr. Jay Vadgama

Under Dr. Vadgama's leadership, the Office of the Vice President for Research and Health Affairs provides support to all research based activities on campus. The OVRHA is here to improve the safety, effectiveness, and to provide the regulatory support needed for every researcher and student. We continue to assist researchers so they can dedicate their time in the fight to eliminate health disparities. Dr. Vadgama currently oversees the following areas to ensure the implementation and success of CDU's Strategic Plan: five (5) research pillars, five (5) research centers, six (6) administrative units, and six (6) committees.

Overall Highlights

- Since 1995, CDU has received 855 distinct awards with funds totaling \$567,430,842 from multiple federal divisions within the Department of Health and Human Services (DHHS). Majority awarded from the NIH at \$340,204,751
- Since 2015, faculty have authored/co-authored 324 papers and submitted over 300 grant proposals.
- Since 2015, faculty, staff and students participated/hosted over 1,200 presentations, workshops, seminars, journal clubs, career development, and other educational research activities.

CDU Active Awards				
Items Reported	#	DC	IDC	Total
NIH Research Funding	21	\$8,578,856	\$3,487,543	\$12,066,399
NIH Endowment Interest Funding	1	\$4,099,598	\$0	\$4,099,598
Extramural Funding (Federal/State/Local)	32	\$7,145,460	\$322,103	\$7,467,563
Subtotal	54	\$19,823,914	\$3,809,646	\$23,633,560
Office of Strategic Advancement	18	\$5,539,657	\$186,021	\$5,725,678
College of Medicine Administration	8	\$5,846,604	\$382,327	\$6,228,931
Subtotal	26	\$11,386,261	\$568,348	\$11,954,609
Total	78	\$31,147,675	\$4,372,994	\$35,520,669

** Dollars Amount represents the current active dollars funded.*

Grant Submissions (2019)				
Items Reported	#	DC	IDC	Total
New Award Submissions (2019)	36	\$18,242,286	\$5,338,933	\$23,581,219
Continuation Award Submissions (2019)	11	\$2,788,440	\$470,074	\$3,258,514

**Dollar Amounts represent the initial year/annual budget year requested.*

Publications (2019)
CDU currently has forty-five (45) publications authored/co-authored in 2019.

RESEARCH CENTERS, INSTITUTES & PILLARS

The various research centers play an important role in the growth and development of medical research with a focus on health disparities at Charles R. Drew University. These center grants are funded for research, education and training, treatment and community partnerships in Cancer, Cardio-Metabolic, HIV/AIDS, Mental Health and Health Service/Policy Research. By promoting strategies that create synergy in research teams and between investigators and the community, CDU creates novel best practice solutions to transform the health of underserved communities that can be used as innovative models throughout the nation and the world.

I. Center to Eliminate Cancer Health Disparities | Dr. Jay Vadgama

Funded \$9.3 Million for five years (2015 -2020) from the National Cancer Institute (NCI), the Charles R. Drew University (CDU) and the UCLA Jonsson Comprehensive Cancer Center has forged a strong and sustainable partnership to "Eliminate Cancer Health Disparities in minority and underserved populations". Our partnership began in 2003 with support from the NCI to initiate U56 collaboration, followed by a U54 award in 2009 to establish a long-lasting comprehensive partnership. In addition, institutional investment from UCLA-JCCC and CDU has made it possible for a sustainable partnership to accomplish significant goals related to reducing cancer health disparities. Hence, in our renewal application, we propose to continue the momentum and do more to address cancer health disparities in our communities in Los Angeles County, and in particular South Los Angeles.

The overarching goals of the CDU-UCLA Cancer Partnership Program are to significantly increase the number of scientists in cancer research and to enhance the cancer research and infrastructure capacity at Charles Drew University of Medicine and Science that will continue to address significant disparities in cancer among minority populations. Supported and implemented by an Administrative Core, Planning and Evaluation Core, and Research Projects, Research Education Core, Outreach Core, and Shared Resources Core.

The five priorities for the partnership are: Priority 1: Increase the number and quality of cancer research projects at CDU by supporting full and pilot projects and increase the number of cancer researchers at CDU. Priority 2: Enhance research capability of the CDU's Integrated Clinical and Biomarker/ Biorepository Tissue and Data Resources focused on cancer health disparities research, education and outreach among underrepresented populations. Priority 3: Create institutional capacity at CDU for performing cancer-related clinical trials by leveraging the community and existing clinical research facilities and resources. Priority 4: Expose undergraduate and medical students, fellows, and faculty to cancer research and encourage them to pursue or advance their careers in this area and implement a formalized mentorship program whereby junior research investigators are counseled and mentored during their career development. Priority 5: Bring culturally and linguistically appropriate cancer research information to the community and increase community capacity to develop and implement culturally appropriate health prevention strategies through community-partnered participatory research.

Highlights

- Recently awarded over \$500k to ten (10) research/community based projects that supports investigators, staff, and infrastructure at CDU and UCLA for two years (2018 – 2020).
- Engaged a new academic partner into the partnership with American University of Health Sciences (AUHS) to develop collaborative projects, provide career development/training opportunities for junior faculty and students, and significantly grow CDU's Drug Discovery & Precision Medicine Program.
- Expanded our outreach network to several Latino/Hispanic Community Based Organizations and Faith Based Organizations that are becoming strong members of our Latino Community Academic Council.
- The Center's Latino Community Academic Council (LCAC) held its 1st Annual Latino Community Conference entitled, "Annual Latino Community Conference on Cancer Prevention, Education, and Care".
- Since 2009, the Cancer Center Partnership supported faculty have authored/co-authored over 300 publications and has hosted/supported over 50 outreach events that reached over 6700 individuals.

II. Accelerating Excellence in Translational Science (AXIS) Center | Dr. Jay Vadgama

Funded \$20 million for five years (2015 – 2020) by the National Institute of Minority Health Disparities (NIMHD), AXIS is the integrated "home" for clinical and translational research. AXIS houses experienced leadership as well as a myriad of clinical, translational, community-partnered activities, well matched by the education, training, and technology resources and excellent research core services. In the first five years (2010-2015) AXIS has laid the foundation at CDU to establish itself as the central hub of translational research. In the current funding period AXIS continues building on this progress and further develop its

focus as the main research infrastructure program that will promote multi- and interdisciplinary collaborations between CDU investigators and community partners targeting health disparities.

The vision of the University Research Enterprise is to be a leading player in the national effort to eliminate health disparities, specifically through AXIS in three areas of focus which disproportionately affect Service Planning Area 6: Cancer, Cardiometabolic Disease (CMD), and HIV/AIDS. AXIS has three programmatic goals that align with the vision of the University's Research Enterprise: "Goal 1: To enhance the infrastructure capacity in translational research in the areas of Cancer, Cardiometabolic, and HIV/AIDS. Although other areas of research at CDU will also be served, the focus will be to create expertise and research success in these three areas. This aim will also ensure that CDU continues to provide national leadership in reducing health disparities by increasing the quality and quantity of researchers from minority and underserved populations conducting disparities research. "Goal 2: To integrate basic, clinical, and community-partnered translational research by fostering collaboration among disciplines, departments and schools at CDU, and collaboration with community leaders and investigators across other research institutions." "Goal 3: To facilitate professional development and best practices in mentored clinical and translational research training on minority health and health disparities."

To reach these goals, the AXIS Center supports 8 Cores that will offer services, resources, and training for all research conducted at CDU: 1. Administrative Core, 2. Collaborations and Partnerships, and Community Core, 3. Professional Development and Pilots Core, 4. Evaluation Core, 5. Biomedical Informatics Core, 6. Research Design and Biostatistics Core, 7. Clinical Research Resources and Facilities Core, 8. Technology and Laboratory Core.

Highlights

- The Center currently directly supports over 83 individuals at CDU via salary support, supplies, and more notably through our pilot projects and core voucher services.
- Pilot Program funded five (5) Pilot Projects up to \$70,000 direct cost, per project, for 2018-2019.
- Voucher Program supported five (5) investigators up to \$10,000 each to obtain access to laboratories and core facilities at CDU or UCLA for 2018 – 2019.
- Awarded supplements to promote diversity in health related research. Supported five (5) Postdoctoral fellows in Cancer and Cardiometabolic research since 2016.
- In addition, the center provides a large amount of infrastructure support. Since 2016, the Center has provided more than \$1.4 million in equipment available to all CDU investigators and students.
- Acquired Illumina NextSeq500 that delivers the power of high-throughput sequencing with the speed, simplicity and affordability of a benchtop next-generation sequencing (NGS) system.

III. **Clinical Research Education and Career Development (CRECD) | Dr. Mohsen Bazargan**

CRECD is a training grant (R25) funded by the National Institute on Minority Health and Health Disparities. The goal of the program is to provide training and mentoring in health disparities and community-partnered research (CPPR) to minority scholars and junior faculty at CDU, who have shown great academic promise but still need advanced skills, close mentorship, and other support to become successful, independent scientists.

IV. **Urban Health Institute (UHI) | Dr. David Carlisle**

The central mission of the Urban Health Institute (UHI) is to continue to build research capacity and support research activities that maximize CDU's efforts to substantially improve the health status of underserved communities. The UHI continues to support and enhance key initiatives in training and development; funding and support; and research resources and services.

V. **Diversity-Promoting Institution Drug Abuse Research Program (DIDARP) | Dr. Theodore Friedman**

The Diversity-Promoting Institution Drug Abuse Research Program (DIDARP) is funded by the National Institute of Drug Abuse (NIDA). Theodore C. Friedman, MD, PhD is the program director. The theme of DIDARP is "Metabolic Effects of Nicotine: It Matters." Our training theme is "Research Teams of the Future". The overarching goal of the research, training and education programs of this DIDARP is to enhance CDU's capacity to conduct substance abuse research with a primary focus on the metabolic effects of nicotine.

VI. **Center for Biomedical Informatics | Dr. Omolola Ogunyemi**

The Center for Biomedical Informatics at Charles R. Drew University of Medicine and Science (CDU) was founded in 2007 as the academic home for researchers active in this important scientific and professional field and to bolster the University's research, educational and service capacity in this broad domain. The Center for Biomedical Informatics realizes this vision through its active research programs, educational

offering, and service to: CDU, institutions providing healthcare in the local community and the CTSI. With a focus on clinical informatics, the Center has significant expertise in telehealth, machine learning, computerized clinical decision support, implementation and evaluation of health information technologies using sociotechnical analysis, electronic health record systems, registries and health information technology standards.

VII. Clinical and Translational Sciences Institute in partnership with UCLA (CTSI) | Dr. Robert Jenders

UCLA Clinical and Translational Science Institute is a dynamic partnership of four institutions: Cedars-Sinai Medical Center, Charles R. Drew University of Medicine and Science, Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, and the UCLA-Westwood Medical Center. Its mission is to bring UCLA innovations to bear on the greatest health needs of Los Angeles and the nation. UCLA CTSI is organized into nine program areas that support a wide range of research. CTSI investigators tackle pressing challenges in addiction, cancer, disease prevention, heart disease, HIV, mental health, patient safety, stroke, and women's health. UCLA CTSI supports this work by providing seed grants, training, and access to specialized expertise or resources in form of statisticians, computer databases, clinical tests, gene sequencers and other sophisticated, high-tech equipment, and study volunteers.

VIII. Drew Center for AIDS Research and Education (Drew CARES) | Dr. Nina Harawa

Drew CARES researchers fight the HIV/AIDS epidemic by studying the behavioral and clinical aspects of HIV/AIDS prevention and treatment. Our research strengthens the work of scientific collaborators and community partners, as well as improve the quality of services we offer and provide rich opportunities for students to become involved in all aspects of the research process.

Drew CARES provides an excellent environment for researchers to work together with communities of color to make significant strides in reducing health disparities. Drew CARES researchers hold a wide range of graduate degrees spanning biological and medical sciences, behavioral and social sciences, and public health. Researchers' skills are honed by ongoing professional development activities, including seminars, journal clubs, and opportunities to share and receive expert feedback on works in progress.

STUDENT RESEARCH TRAINING OPPORTUNITIES

Every student that enters a CDU lab is given the opportunity to work side by side with our researchers to enhance their own education and prepare for careers in all areas. At CDU, our research is designed to encourage and attract the most research-oriented students that will take what they learn today to create a better tomorrow.

Since 1999 CDU has engaged over 800 students, at all levels in research. Those students have published over 120 peer-reviewed papers, participated in 554 scientific presentations, and have received more than \$260,000 in scholarships. Our programs are created to ensure that each student acquires the knowledge, skills, and attitudes to become a proficient researcher.

Research Training Program	Student Level	# Students Trained
STEP UP	High School	23
Summer Research Academy	High School	8
Project STRIDE I	High School	63
Project STRIDE II	Undergraduate	2
Diversity Promoting Institution Drug Abuse Research	Undergraduate	38
CTSI TL 1 Summer Fellowship for Health Professional	Graduate	12
CTSI Training Programs in Translational Sciences	Graduate	1
Division of Cancer Research and Training Cancer Center to Eliminate Cancer Health Disparities	All Levels	244
Student Opportunities to Advance Research Program	All Levels	40
Master in Biomedical Sciences Program	Graduate	42
Medical Student Research Training Program (MSRTP)	Medical	366
Total		839
<i>*Numbers are cumulative from the time each program began, since 1999.</i>		

I. Undergraduate Cancer Research Training Program (UCRTP) | Dr. Jay Vadgama

Sponsored by the CDU/UCLA Cancer Center, the UCRTP is an 8-12-week research program designed for outstanding undergraduate students who are interested in pursuing a career in biomedical sciences. An individualized program is developed for each participant and paired with a faculty principal investigator and/or associate at either a CDU or UCLA laboratory. Since 2009, 138 students have been accepted and a significant number of applicants are from disadvantaged areas throughout California and the US. Overall

67% of the applicants are female and 33% are male. Of students accepted into the program, more than 50% are female, 80% are African-American and Hispanic.

II. **Diversity-Promoting Institution Drug Abuse Research Program (DIDARP)** | Dr. Theodore Friedman

DIDARP's education program is a year-round training that provides opportunity for 10 students to work on drug abuse research projects and in various labs at CDU. The program has 4 primary mentors, who trained 70 students (undergraduates, as well as high school, post-bacc, medical, and graduate students). The students are recruited nationwide and receive a stipend. The goals of the DIDARP are to foster interest in substance abuse research among under-represented students and trainees by providing meaningful educational and research experiences; to increase the number of high quality drug addiction research projects related to the metabolic effects of nicotine and to continue to enhance the research infrastructure at CDU to support substance abuse research

III. **Urban Health Institute: Student Research Core:** (Lead: Drs. David Carlisle/Keosha Partlow)

SOAR is designed for team-based CDU student research in 5 key research areas: Cancer, Cardio-metabolic, HIV/AIDS, Mental Health, and Health Policy. Focusing on addressing health disparities to achieve health equity, the program is an interdisciplinary research training opportunity that is open to currently enrolled CDU students in COM, COSH and SON. Since the program inception in summer 2016, SOAR has funded 34 CDU students. SOAR encourages the formation of collaborative teams to conduct integrated, translational, cross disciplinary and inter-professional research.

IV. **STRIDE & STRIDE II Program** | Dolores Fleming

Project STRIDE is an eight to ten week high school clinical research program for underrepresented juniors from local high schools. The students are matched with a mentor in their area of interest. They work a forty hour week and receive a stipend for their participation. The students receive leadership training, learn how to conduct a job interview; learn how to dress appropriately; have writing skills workshops; learn how to write a personal statement; have SAT preparation training conducted by a professional; and take field trips when appropriate. STRIDE II is an undergraduate students program where STRIDE students can continue their research training from high school through college.

V. **Medical Students Research Training Program (MSRTP)** | Dr. Shahrzad M. Bazargan

The overall goal is to engage medical students in systematic acquisition, organization, analysis, and interpretation of information to develop new knowledge, attitude, and skills essential for becoming excellent physicians, providing excellent medical care, and becoming leaders in their fields. The program is a required course in the medical school curriculum. Medical students in their 4th year are required to develop a hypothesis driven research project with approved by mentors topic, methods and implementation plan. Upon completion of the project the students present their findings at a Colloquium and scientific meeting.

VI. **CDU Master's in Biomedical Sciences Program (MBSP)** | Dr. Monica Ferrini

CDU's MBS program is a one-year degree program designed to give students a solid command of biomedicine, medical informatics, and translational science, as well as to ensure that they are well versed in the challenges posed by domestic and international health disparities. Through hands-on experience, students gain the skills and habits of mind required to excel at biomedical research.

VII. **CTSI TL1 Summer Fellowship for Health Professional Students** | Dr. Robert Jenders

The TL1 Summer Fellowship Program sponsored by the Clinical and Translational Science Institute provides each trainee with early exposure to the practice of interdisciplinary, community-partnered translational or health services research in urban underserved communities.

VIII. **CTSI Training Program in Translational Science (TPTS Tracks 1&2)** | Dr. Robert Jenders

CTSI offers a Training Program in Translational Science as seminar participation (Track 1) and has a formal structured certificate program (Track 2).

CDU COMMUNITY RESEARCH

Community partnered (and based) research is a key activity in many of the Centers, Programs, and Grants at CDU. The following information provides highlights of Community partnered programs from CDU Centers.

Community Engagement is a crucial part of CDU's translational research activities, and a unique program called the "Community Faculty" was implemented to increase research capacity through the collaborative integration of local expertise. The community faculty are made up of local organizers and leaders who are well tuned to the issues faced by their communities. Community Faculty members receive a faculty appointment at the university and are responsible for advancing a research agenda. They are not traditional academics, yet they possess an expertise crucial to the mission and success of the university. They also act as intermediaries between academic researchers and community members. Often, it is up to them to communicate a research project to their community in lay language, and allay participant fears regarding the conduct of research. The community faculty secure a stake in the research enterprise for the community.

The University has a number of strong partnerships and collaborations with community organizations and successfully engages surrounding communities in participatory-driven research. This work includes over 100 ongoing partnerships including programs to communicate research-based information to increase public awareness of health issues; efforts to improve the transfer of evidence-based knowledge to community-based healthcare providers; supporting, enhancing and actively engaging in ongoing and new community-based participatory research efforts, with a range of partners, including the South Central Family Health Center, the Nickerson Gardens Housing Project and the Oasis HIV Clinic, among others. Several of the Research Centers, including the CDU/UCLA Cancer Center Partnership, AXIS and CTSI have dedicated Cores/Units for community partnered research and activities