

CTSC

2023

At a Glance



Director's Message

We are pleased to offer this inaugural year-end update for the UC Davis Clinical and Translational Science Center (CTSC). One of the original 12 centers established across the U.S. in the Clinical and Translational Science Award (CTSA) program, the CTSC is now in its fourth 5-year award period. We have grown over the years, offering research infrastructure support and facilitation to UC Davis researchers and study teams in areas such as data and evaluation support, research education, and career development. This report highlights both the research we help facilitate and the many programs and services we offer to make this happen. Investigators working within the vital area of translational research are moving basic science discoveries and clinical trials more quickly and efficiently into practice. The CTSC exists to support them, thereby fulfilling our own mission to “advance translational science to create a healthier world.”

In this report, we highlight just a few of the many investigators conducting translational research at the UC Davis School of Medicine. Our research community is very large and active, and includes collaborations with schools, colleges, departments, and research centers across the campus, as well as numerous community partners locally, regionally, and nationally.

Together, our researchers and staff are a force for innovation and improvement of translational research practices. This year saw the inaugural Research Administration Fellowship strengthen various collaborative networks between the CTSC and others (e.g., Veterans Association, UC Davis Office of Research, School of Medicine Office of Research, etc.); the Clinical Research Coordinator (CRC) Foundations Training Program expand to include a focused cohort on under-represented local community populations; and the inclusion of artificial intelligence and data equity-focused workshops and trainings to ensure the CTSC is at the forefront of current national conversations in these areas.

Thank you for your interest in our many research advances in the past year. Do not hesitate to reach out for further information about any of the people or projects featured here, or indeed any of our research efforts, services, resources, and tools offered by our faculty and staff at the CTSC. We are here to serve your clinical and translational research needs every day of the year, and look forward to continuing this work in the new year.

A handwritten signature in blue ink that reads "Ted Wun". The signature is fluid and cursive.

Ted Wun, M.D.

Associate Dean for Clinical and Translational Research
Director and Principal Investigator,
UC Davis Clinical and Translational Science Center
Chief of Hematology and Oncology
UC Davis School of Medicine

CTSC IN 2023

BY THE NUMBERS

OUR TEAM

25 Faculty Leads

68 Program Staff

4 PILOT AWARDS

\$200,000

Total funding



TRIAL INNOVATION NETWORK (TIN) STUDIES ACTIVATED

NIH HEAL-BACPAC UCSF REACH - comeBACK and BackHome U15, UCSF
Scott Fishman – UCSF Core Center for Patient-centric Mechanistic Phenotyping in Chronic Low Back Pain (UCSF REACH)

SKOAP, Johns Hopkins
Scott Pritzlaff – A Sequenced-strategy for Improving Outcomes in Patients with Knee Osteoarthritis Pain (SKOAP)

REACT-AF, Northwestern University
Uma Srivatsa – The Rhythm Evaluation for Anticoagulation with Continuous Monitoring of Atrial Fibrillation Trial (REACT-AF)

KL2/CAREER DEVELOPMENT AWARDS

\$1.31M

9 KL2 Scholars
– 7 NCATS KL2
– 2 institutional

8 TL1 Trainees Supported

30 EDUCATION AND TRAINING EVENTS

1,200 Attendees

36 Letters of Support

101 CTSC-supported publications

STUDYPAGES

368 StudyPages users (PIs, coordinators)

1,000 Study Visits Scheduled

60,000 Study-Related Messages Sent/Received

SERVICE REQUESTS

143 Biostatistics

136 Biomedical Informatics

71 Clinical Trials Office

68 CTSC Clinical Research Center

10 Community Engagement

SPOTLIGHTS



Miriam Nuño

Ph.D., CTSC Highly Innovative 2023 Pilot Awardee

Miriam Nuño, Ph.D., is a professor of biostatistics in the Department of Public Health Sciences. She is interested in the application of statistics and applied mathematics to solve public health challenges, reduce health disparities, and improve patient health outcomes. Her expertise lies at the interface of biostatistics, mathematical modeling, epidemiology, and public health.

As a recent recipient of the CTSC Highly Innovative Award for 2023, she spearheaded a project titled Mental Health and Well-Being Effects of Wildfire Smoke: A Translational Research Framework for Action. This initiative sought to integrate non-traditional and well-established data sources and rigorous methodology to provide actionable insights into the mental health impacts of wildfire smoke in California. The funded proposal aimed to: 1) Identify clusters of individuals at high risk of experiencing wildfire effects and poor mental health outcomes using a spatiotemporal clustering analysis that integrates wildfire occurrence, mental health conditions, and health risk factors captured in California's Health Interview Survey (CHIS) database during 2017 and 2018; 2) Identify digital signals of anxiety and depression, before, during, and after California's most severe wildfires California (2017, 2018) using Twitter and Reddit data; and 3) Provide comprehensive and actionable information on mental health and well-being challenges during California's wildfire seasons to empower individuals with self-protective measures and support effective public health interventions.

Dr. Nuño and the team are thrilled to announce the forthcoming submission of their manuscript, titled "Wildfires and Social Media Discourse: Exploring Mental Health and Emotional Well-Being Through Twitter," to Frontiers. The study delves into the analysis of Twitter data during the Tubbs fire period, employing a multifaceted approach that includes sentiment analysis, Linguistic Inquiry Word Count (LIWC), and topic modeling. This study sought to identify and understand the range of emotions expressed by individuals impacted by events related to wildfires.



Na'amah Razon

M.D., Ph.D., 2023 CTSC KL2 Scholar

Na'amah Razon is an assistant professor in the Department of Family and Community Medicine. Her KL2 project "EnROUTE: Evaluating the Role of Transportation on Hemodialysis Access and Health Disparities" has had a robust community advisory board that has been a central component of the project since the Fall of 2022. This group of patients and community members, most are either on dialysis or have been on dialysis, have helped inform research design, recruitment materials, interview guides, and data analysis. They have also helped center the project's priorities on patients' priorities.

Beyond her KL2 project, Dr. Razon has achieved great professional recognition. Recently, Dr. Razon was invited to be a keynote speaker in the National Kidney Foundation's 55th Annual Bay Area Medical Symposium <https://www.kidney.org/events/program-event/55th-annual-medical-symposium>, has had three papers published focused on transportation and health, and submitted a K23 to National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) in the October cycle to extend her work on kidney health and transportation.

“The Studypages platform is a necessary resource to make recruitment work.”

Lindsay Bowman, Ph.D.

Assistant Professor, Center for Mind and Brain
Brain and Social Cognition Lab
Department of Psychology
UC Davis School of Medicine

Valerie Porter

B.S., Graduate Student, CTSC TL1 Scholar

Valerie Porter, a fourth-year Ph.D. candidate in biomedical engineering, specializes in leveraging machine learning for enhancing image processing pipelines in MRI and PET neuroimaging. Her research focuses on developing a single automated whole brain segmentation framework that is generalizable across different animal and neurological disease models by employing machine learning techniques. Her aim is to advance both pre-clinical and clinical imaging methodologies to improve the diagnosis and treatment of individuals afflicted by neurological diseases.

Recently, she participated in the World Molecular Imaging Conference (WMIC) in Prague, presenting a case study talk for a machine learning workshop and an oral presentation on her work with the 3D U-Net neural network, earning a \$350 travel award. Additionally, she showcased her research on automated whole brain segmentation for rodents at a poster presentation during the conference. She also attended the Fall CTSC Program meeting in Washington, DC, presenting a poster on her work titled “Fully Automated Whole Brain Segmentation of T2-weighted MRI Brain Scans Across Multiple Species Using the U-Net Neural Network” that focuses on developing a comprehensive whole brain delineation framework for both rats and mice.” She has also submitted her first, first-author manuscript for publication in the Journal of Neuroscience methods based on the work presented above, titled “Fully automated whole brain segmentation from rat MRI scans with a convolutional neural network”.



“As a CTSC TL1 scholar, the program’s dual emphasis on translational science and effective science communication has been pivotal in my professional growth. Delving into translational science has provided me with invaluable insights into navigating the complexities of translating my machine learning algorithm to clinical settings. Moreover, the program’s emphasis on science communication has significantly enhanced my ability to articulate the significance and practical implications of my work to diverse audiences within the healthcare system. This comprehensive approach has honed my understanding of the intricate process of translating cutting-edge research to real-world healthcare applications and how to anticipate and address challenges that arise during translation.” – Valerie Porter, Graduate Student

“Our MPIs are in unanimous agreement that the quality of work, patience, responsiveness, and especially anticipation of what was needed and helping us solve problems before they occurred was exceptional.”

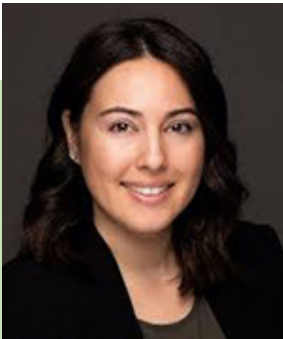
Moon S. Chen, Jr., Ph.D., M.P.H.

Professor, Division of Hematology and Oncology
Department of Internal Medicine
Senior Advisor to the Director, UC Davis Comprehensive Cancer Center for Community Outreach and Engagement and Population Science

PROGRAM HIGHLIGHTS

Research Administration Fellowship:

The CTSC Research Administration Fellowship (RAF) Program, started in November 2022, marks its first full year in existence. The RAF Fellow, Desiree Sigala, has completed five rotations, ranging from 8-10 weeks, gaining valuable experience working within various offices at the CTSC, School of Medicine Office of Research, and the VA. Dr. Sigala is currently wrapping up her 6th rotation, which is a joint rotation between the CTSC Translational Research Education and Development (TRED) Office and School of Medicine Office of Research. Dr. Sigala has implemented a range of projects and has built a stronger cohesion among units at UC Davis Health and beyond. These projects include launching the Data Loofah, a data cleaning software tool developed by the CTSC Biostats team, initiating a 5-year evaluation of the Betty Irene Moore School of Nursing Family Caregiving Institute, and helping to create various data intake surveys and databases for the CTSC and VA. Each rotation includes onboarding, developing and executing a project, and holding a post-rotation debrief session with all relevant stakeholders. Feedback from rotational sites and from fellow indicate positive and mutually beneficial experiences. Building upon the success of the RAF Program, the CTSC is pleased to continue the fellowship in the upcoming year.



“In transitioning my career from academic research to research administration, the CTSC Research Administration Fellowship has provided me with the opportunity and support to actively develop new skills in leadership and project management through hands-on experience, mentorship, and close collaborations with leaders in the field, while building community and expanding my professional network.” – Desiree Sigala, Ph.D.

“I had the pleasure of working closely with the Clinical Trials Office, and I must say, they are absolutely outstanding. Their efficiency and professionalism are truly remarkable. What sets this team apart is their commitment to close-loop communication. It’s evident that they have invested significant time and effort into preparing themselves to assist and guide new investigators, making it incredibly easy to kickstart our research careers. I recommend the CTO without reservation; they are an absolute asset to any research endeavor.”

Yin Allison Liu, M.D., Ph.D
Associate Professor of Neuro-Ophthalmology
Departments of Ophthalmology & Vision Science, Neurology, and Neurological Surgery
UC Davis School of Medicine

Artificial Intelligence in Translational Research

In May of 2023, the CTSC (Clinical and Translational Science Center) held a workshop with aims to strengthen and enhance our understanding of ethical frameworks for Artificial Intelligence (AI) in translational research with the overall goal of elevating health and data equity for our patients and in our research. The Ethics in Artificial Intelligence workshop was funded by a supplemental grant called Research Data Ethics Maturity Model (README) Project. The README project leveraged the central position of the UC Davis Clinical and Translational Science Center as a university-wide resource supporting all forms of health science research. README extended the core CTSC mission by engaging broad health data science-oriented research at UC Davis through the lens of ethical frameworks and design expertise. The project was tasked with developing both a local environmental understanding of the current paths to ethical data science research, identifying gaps and resources, and providing a generalizable maturity framework for similar translational science ecosystems. This well attended interdisciplinary event brought together students, faculty, staff, health researchers, AI experts and governance teams to discuss ways in which AI is used in biomedical research and medicine at UC Davis; build community at UC Davis among students, faculty, governance, and members of the translational research community interested in ethical AI; synthesize key elements of an ethical evaluation framework for AI; and generate potential models for use at UC Davis Health based on key elements identified through a large group facilitated workshop.

“A ton of thanks for making this complex multi-site effort so seamless!”

Shin-Ping Tu, M.D., M.P.H.
Chief of General Internal Medicine
Chief, Division of General Internal Medicine,
Geriatrics and Bioethics
Professor, Department of Internal Medicine
UC Davis School of Medicine

Clinical Research Coordinator Foundations Training Program:

The CTSC's Clinical Trials Office (CTO) "Join the Team," a comprehensive CRC training program, is the first of its kind to not only address the CRC workforce shortage but approach it through the lens of increasing diversity and equity in biomedical research through the several iterations of this program that have successfully completed and graduated cohorts into the CRC workforce. Increasing the pool of diverse staff who reflect the communities they serve can help address unconscious/implicit bias. This is particularly important to build trust among groups, support more representative research, and thus improve generalizable outcomes. The CRC Foundations Training Program garnered national recognition with a prestigious award from the Society for Clinical Research Sites. This program stood out among others due to its unique aspects including shadowing opportunities, didactic learning, interactive workshops, and student stipends, becoming a blueprint for other academic health centers and private sites.

HOW WE CAN HELP



BIOMEDICAL INFORMATICS Delivers resources to advance data-driven solutions, precision medicine, population health and technology-enabled approaches to clinical and translational research.



BIOREPOSITORIES CORE RESOURCE Supports the advancement of the UC Davis research community's success in biospecimen-related research by providing education, outreach and training to faculty, staff and students.



BIOSTATISTICS, EPIDEMIOLOGY, AND RESEARCH DESIGN Strengthens research plans through the development of protocols, statistical plans, data safety monitoring plans and data analysis.



CLINICAL RESEARCH CENTER (CCRC) Provides clinical expertise for biomedical research studies. The research center is well-staffed with experienced clinical research nurses and research coordinators and is well-equipped and conveniently located on the UC Davis Health campus.



CLINICAL RESEARCH ETHICS Helps support ethically complex aspects of biomedical research throughout the life of research projects to ensure a commitment to safety and a high degree of research ethics at the institutional level.



CLINICAL TRIAL MANAGEMENT SYSTEM OPERATIONS OFFICE (CTMS Ops) Provides support and services to researchers and teams conducting clinical trials at UC Davis using OnCore, a platform that streamlines the management of clinical trial operations.



CLINICAL TRIALS OFFICE (CTO) Provides expertise, guidance, and hands-on support for UC Davis clinical trial investigators. The group provides education and training, clinical research coordinators for hire, monitoring and quality assurance, budgets and billing, and help with FDA submissions.



COMMUNITY ENGAGEMENT Connects health researchers with the community by providing education and training; community review board guidance; academic-community partnership formation, and health disparities resources.



HEALTH EQUITY RESOURCES AND OUTREACH (HERO) Curates and disseminates tools and resources, offers consultations and trainings, and organizes events designed to facilitate effective dialogue and collaboration between researchers and the public.



TRANSLATIONAL RESEARCH EDUCATION AND DEVELOPMENT (TRED) Hosts a wealth of opportunities in workforce training and education for early career faculty and pre- and post-doctoral personnel involved in clinical and translational research.



TRANSLATIONAL RESOURCES AND PILOT PROGRAM Supports collaborative scientific endeavors by facilitating access to robust research paradigms, technologies, resources, and tools, and fostering partnerships that enhance team science.



Clinical and Translational Science Center

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More to Come in 2024...



*Advancing translational science
to create a healthier world.*

