



2023 ANNUAL IMPACT REPORT

ACCELERATING SCIENCE, IMPROVING HEALTHCARE FOR ALL



FRONTIERS
CLINICAL & TRANSLATIONAL
SCIENCE INSTITUTE
AT THE UNIVERSITY OF KANSAS



ON THE FRONT COVER are representatives from Frontiers and its partners. Left to right, they are:
Back Row: Steve Leeder, Frontiers Co-Director; Chris Wilson, The University of Kansas Health System; Garold Minns, University of Kansas School of Medicine-Wichita; Robert Simari, University of Kansas Medical Center; Tom Curran, Children’s Mercy Kansas City; Robert White, Kansas City University; Mario Castro, Frontiers Co-Director
Front Row: MaryAnne Jackson, University of Missouri-Kansas City; Donna Buchanan, Saint Luke’s Health System; Frank Blecha, Kansas State University; Ed O’Connor, Kansas City University.



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Join us in our mission to advance science and improve healthcare for all by becoming a member.

frontiersctsi.org/become-a-member



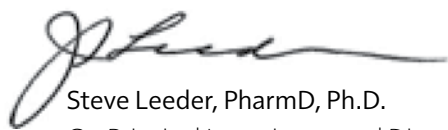
As Co-Directors, we are pleased to present the

Frontiers Clinical and Translational Science Institute report for the 2023 fiscal year.

Here, we highlight the collaborative work of many people across our network of academic institutions, healthcare systems and community and patient advocacy groups. We are fully engaged with our partners in clinical and translational science innovations that improve health and healthcare for all.

We encourage you to learn about our many endeavors and accomplishments, such as funding nearly 300 research projects, building numerous collaborations among scientists, patients and community organizations, training multiple K and T scholars and aiding in the design, implementation and communication of a wide range of research projects since 2011.

In closing, we thank the faculty and staff who lead, support and contribute tireless work and dedication to Frontiers, with the aim of advancing clinical and translational science. We look forward to continuing to develop innovative resources and services to support our clinical and translational workforce and improve the health of our communities.



Steve Leeder, PharmD, Ph.D.
Co-Principal Investigator and Director



Mario Castro, M.D., MPH
Co-Principal Investigator and Director

Watch our
introduction video
bit.ly/frontiersintro



Services and Resources

Frontiers services are organized into five initiatives to support our mission to advance science and improve healthcare for all.

1. Research Design and Analysis

- Genomics
- Informatics
- Statistical Analysis and Planning
- Data Management
- Implementation Science

2. Research Support

- Science Communication
- Regulatory Knowledge and Support
- Drug, Diagnostic and Medical Device Development
- Evaluation and Impact
- Budgeting and Finance



3. Clinical Research Facilities and Resources

- Clinical and Translational Science Units (CTSUs)
- Networking and Recruitment
- Integrating Special Populations
- Healthcare Integration
- Workforce Development

4. Education, Training and Funding

- Early Career Faculty Career Development (KL2 Awards)
- Pre- and Postdoctoral Career Development (TL1 Awards)
- Pilot Awards

5. Community and Collaboration

- Team Science
- Community Engagement

Our services are led by faculty from our partner institutions and are supported by [Navigators](#) serving as primary points of contact.

Frontiers relies on the effort of over [90 faculty and staff](#) to provide our many resources and services.

Frontiers made structural changes to maximize our [shared leadership model](#), including rebranding our logos and website to be more inclusive across our institutional partners.



**Request a
Service Consultation**

bit.ly/3PoU02C

By the Numbers



90+ faculty and staff

providing services and resources for our members



350+
service consultations

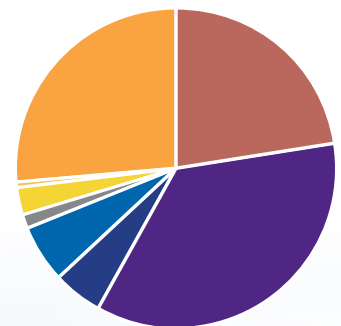
delivered since June 2022

Members by Institution

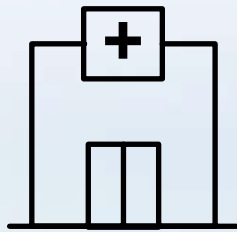
- 208** University of Kansas Medical Center (46%)
- 81** Children's Mercy Kansas City (18%)
- 40** The University of Missouri - Kansas City (9%)
- 27** University of Kansas Medical Center - Wichita (6%)
- 26** The University of Kansas (6%)
- 21** The University of Kansas Health System (5%)
- 16** Kansas City University (3%)
- 10** Other (2%)
- 7** Kansas State University (2%)
- 6** Saint Luke's Health System (1%)
- 5** Community Organizations (1%)
- 4** University of Kansas Medical Center - Salina (1%)
- 2** Private Industry (<1%)

Members' Career Stages

- 83** Experienced Investigators (23%)
- 131** New Investigators (36%)
- 19** Postdoctoral Investigators (5%)
- 21** Graduate Student Trainees (6%)
- 5** Resident or Fellows (1%)
- 10** Medical Student Trainees (3%)
- 2** Undergraduate Students (<1%)
- 97** Other (26%)



Throughout the past year, Frontiers has continued to build its network. Here are a few highlights of the accomplishments Frontiers has achieved.



7,900+
participant visits

across all five Clinical Trial Service Units (CTSUs)
during grant year 2023

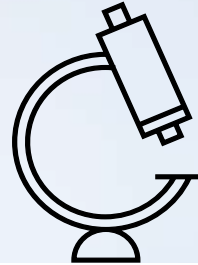


145 events

hosted by Frontiers in grant year 2023

4,000+ attendees

at Frontiers hosted events in grant year 2023



520+
active studies

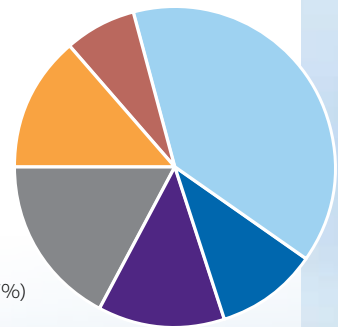
at CTSUs in grant year 2023

539 publications

attributed to Frontiers support since 2011

Members' Research Areas

- 57** Basic Research (14%)
- 30** Pre-Clinical Research (7%)
- 162** Clinical Research (39%)
- 43** Implementation Research (10%)
- 53** Population-Based Research (13%)
- 71** Non-Research Staff and Community Partners (17%)



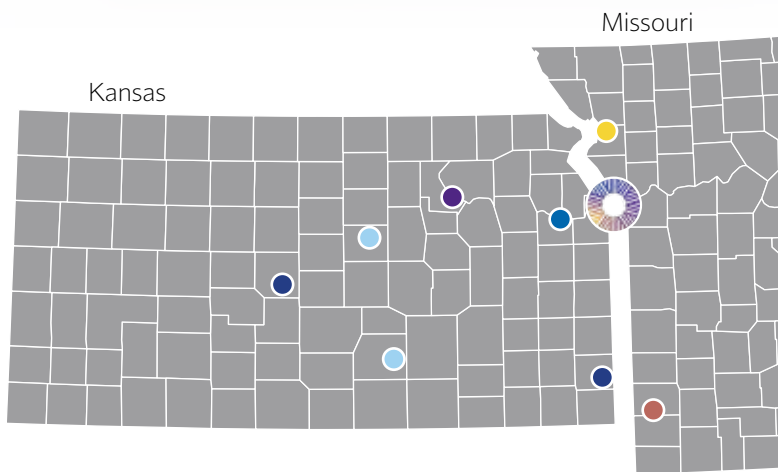
Partners

Regional

We are funded from a **\$27 million grant** from the National Institute of Health's National Center for Advancing Translational Sciences.

Partners contribute **\$10 million in cost-share funds** to the grant.

Our eight academic and healthcare delivery institutions serve the entire state of Kansas and western Missouri.



Geographic Coverage

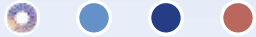
This map represents the territory that the Frontiers program covers in relation to Clinical and Translational Science Award (CTSA) programs in the Northeast (17 CTSA programs).



National Impact

As part of the National Center for Advancing Translational Sciences (NCATS) CTSA program, Frontiers investigators have the opportunity to collaborate with investigators from other CTSA programs. Below are the institutions Frontiers investigators have collaborated with over the past grant year.

Evaluating sleep disturbances in adolescents and young adults with intellectual and developmental disabilities



Developing a CTSA Research Network to Support Translational Science Across the Criminal Justice Continuum



Genomics Stakeholder Project



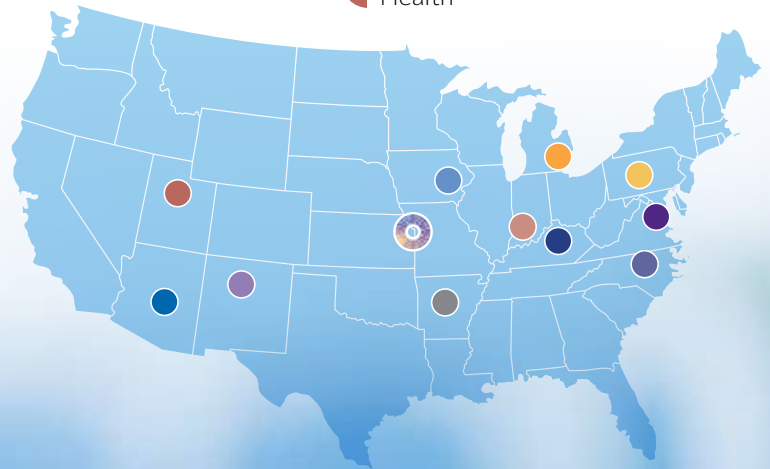
CORES Consortium of Rural States



Developing Stay Conversations



-  Arizona State University
-  Duke University
-  Georgetown University
-  Indiana University
-  Michigan Institute for Clinical and Health Research
-  The Pennsylvania State University
-  University of Arkansas for Medical Sciences
-  University of Iowa
-  University of Kentucky
-  University of New Mexico Health Sciences Center
-  University of Utah Health



Learn why our partners choose to support our mission

bit.ly/frontierspartners

Pilot Programs

Every year, Frontiers offers several types of pilot awards:

Frontiers Pilot Programs

The [Lauren S. Aaronson Frontiers Clinical and Translational Research Pilot Program](#) provides grant funding and other support to grow interdisciplinary, investigator-initiated clinical and translational research across a broad range of scientific disciplines.

The [Institute for Advancing Medical Innovation \(IAMI\) Trailblazer Award](#) provides funding to support four targeted areas of clinical and translational research: Experimental Therapeutic trials, Drug and Medical Device Development, Biomarker Discovery and Validation and Entrepreneurship activities consistent with IAMI's mission.

The [Integrating Special Populations \(ISP\) Pilot Award](#) provides funds to help investigators carry out early-stage research to:

- 1) Improve health outcomes across the lifespan through multidisciplinary, multi-organizational teams that include patients, caregivers, clinicians, scientists and other stakeholders, and
- 2) Improve rare disease health outcomes by leveraging input from all stakeholders in study design.

The [Biostatistics, Epidemiology and Research Design \(BERD\) Trailblazer Award](#) provides grant funding to support statistical, epidemiological and data science investigations toward novel methods development that will improve clinical and translational research (CTR) inferences.

Inter-Institutional Pilot Awards

[CORES Consortium of Rural States](#)

Research projects that involve two or more of the eight CTSA hubs that make up the CORES Research Collaborative:

Frontiers

Dartmouth SYNERGY

The Pennsylvania State University

University of Arkansas
for Medical Sciences

University of Iowa

University of Kentucky

University of New Mexico
Health Sciences Center

University of Utah Health

Since 2011, Frontiers has provided over

\$10 million

to more than

280 research projects

Recent Successes



Jenny Robinson, Ph.D.

Assistant Professor, Mechanical Engineering,
University of Washington

Endowed Chair in Women's Sports Medicine and Lifetime
Fitness, Orthopedics and Sports Medicine

As an assistant professor in the Department of Chemical and Petroleum Engineering at the University of Kansas in Lawrence, Dr. Robinson researched tissue and cell regeneration differences in men and women, with a focus on the knee meniscus.

"For my Pilot research, I studied the sex differences in injury and regeneration and that work actually led me to the University of Washington," she said. "I wanted to study why ACL tears and meniscal tears were happening more in female athletes, which isn't as researched."



Jonathan Wagner, D.O.

Pediatric Cardiologist and Clinical Pharmacologist,
Children's Mercy Kansas City

Dr. Wagner's Pilot Award work has enabled him to further his research through new projects, like being recently awarded a \$150,000 grant from an NICHD P30 parent award Maternal and Pediatric Precision in Therapeutics (MPRINT) Opportunity Pool funding. Dr. Wagner's project is a pilot study "IMProving DRug dosing and Outcomes for single VEEntricle patients with Fontan Associated Liver Disease," or the **IMPROVE-FALD**. The primary goal in this project is to address the effect of FALD, specifically liver congestion and fibrosis as measured on magnetic resonance imaging (MRI) 4-dimensional flow and elastography, on drug

disposition in single ventricle congenital heart disease. The study will develop a drug pharmacokinetic evaluation as an end-organ phenotypic biomarker to establish the liver congestion and fibrosis thresholds where intrinsic hepatic function begins to decline. Collectively, the **IMPROVE FALD** study will serve as a guide to refine not only current cardiovascular drug dosing strategies, but also dosing for other drugs that may be used in those with Fontan circulation that have comparable drug disposition pathways.

Frontiers Pilot Programs

Lauren S. Aaronson Pilot Award Recipients 2022-2023



**Leonidas Bantis,
Ph.D.**

University of Kansas
Medical Center

Project: Discovery and statistical
assessment of the accuracy
of continuous markers in
trichotomous settings



**Kimberly Randell,
M.D., MSc**

Children's Mercy Kansas City

Project: Exploring Implementation
and Sustainability of Youth
Research Advisory Boards within
Clinical and Translational
Science Institutes



**Ana Cohen,
Ph.D., FACMG**

Children's Mercy Kansas City

Project: Expanding Genomic
Testing to Underserved
Pediatric Populations



Robin Shook, Ph.D.

Children's Mercy Kansas City

Project: Translating Clinical
Care to Public Health Practice:
A Targeted Approach Using
Electronic Health Records to
Inform Community Health in a
Pediatric Health System



**Caleb Grote,
M.D., Ph.D.**

Children's Mercy Kansas City

Project: Hip Dysplasia
Biomarkers and Biologic
Mechanisms



**Heather Wilkins,
Ph.D.**

University of Kansas
Medical Center

Project: Mitochondrial Health
Index for Alzheimer's Disease

Integrating Special Populations Award 2022-2023



Elin Grundberg, Ph.D.

Children's Mercy Kansas City Center for Perinatal Research Biorepository

Project: Perinatal Research Biorepository

Institute for Advancing Medical Innovations Investigator Awards

2022-2023



**Shyam
Sathyamoorthi,
M.D., Ph.D.**

The University of Kansas

Project: Syntheses and
Biological Evaluation of
Underexplored Antibiotics
and Analogues



Jingxin Wang, Ph.D.

The University of Kansas

Project: Down-regulation of
Interferon Signaling
by Splicing Modulators

CORES Consortium of Rural States

2022-2023



Megha Ramaswamy, Ph.D., MPH

University of Washington School of Public Health

Project: Developing a CTSA Research Network to Support Translational Science
Across the Criminal Justice Continuum

While at the University of Kansas Medical Center, Dr. Ramaswamy was awarded a pilot
through a collaboration with University of Arkansas for Medical Sciences, Frontiers and
University of Kentucky Center for Clinical and Translational Science.

Inter-Institutional Pilot Awards

An ethically sound and culturally tailored research agenda is critical to advancing public health efforts among populations involved in the criminal legal system and communities that are disproportionately burdened by health disparities as related to mass incarceration (e.g., racial, sexual and gender minority populations, low socioeconomic and rural populations and populations with behavioral health needs).



Learn more about Dr. Ramaswamy's
Inter-Institutional Pilot Project:
bit.ly/3Rs0lr4

Early Career Faculty Development Program (KL2 Award)

2022-2023

The KL2 Mentored Career Development Award is specifically designed to foster the development of early career faculty interested in conducting groundbreaking clinical and translational research. Frontiers is committed to attracting and welcoming diverse, early-stage researchers to its institutions.



Dana Bakula, Ph.D.

Children's Mercy Kansas City

Project: Parent Acceptance and Commitment Therapy for Parents of children with pediatric feeding disorder pilot study



Amanda Emerson, Ph.D.

University of Kansas Medical Center

Project: Characterizing Aging related health and Mapping Health Services with Women who have Criminal Legal System Involvement (CHARMS): Phase 1



Stephani Stancil, Ph.D.

Children's Mercy Kansas City

Project: Development of a Pharmacodynamic Biomarker of Opioid Antagonism in Adolescents with Eating Disorders

Stancil recently moved to a K23 award.



Anna Wallisch, Ph.D.

The University of Kansas

Project: Investigating the Challenging Eating Behaviors of Children with Autism at mealtime

Predoctoral and Postdoctoral Training Program (TL1 Award)

2022-2023

Our TL1 training program offers intensive mentored research experiences, preparing trainees for careers in clinical and translational research. Alongside research funding support, participants benefit from tuition remission, stipends and travel assistance for conferences. Medical and doctoral students in our TL1 program take a gap year, typically after their second or third year, diving into lab work on a specific research project with their mentor while completing the 33-credit-hour Master of Science in Clinical Research (MS-CR) degree. This comprehensive degree covers core subjects like epidemiology, biostatistics and grant writing, with electives rounding out the curriculum. The MS-CR degree at the University of Kansas provides clinical scholars with essential training in patient-oriented research methodologies, spanning disease mechanisms, interventions, clinical trials, technological advancements and research translations into clinical practice.

Predoctoral Program

The predoctoral track is a one-year award specifically designed to stimulate interest in clinical research careers for M.D., D.O., DNP, PharmD, DPT, DDS, DVM and clinical Ph.D. students within the final two years of their clinical doctoral degree. This dual-degree training track designed to foster active learning and clinical and translational science career development.



Sarah Johnson

The University of Kansas

Project: An mHealth Functionality Focused Body Image Intervention for Latine Women



Jada Ohene Agyei

University of Missouri-Kansas City

Project: Identifying Social Determinants of Health and their Implications to Self Efficacy in Weight Loss for Pre-operative Radical Prostatectomy Patients

Postdoctoral Program

The TL1 postdoctoral award provides one or two years of protected time for recent graduates of doctoral programs, clinical fellowships or residencies. This award provides trainees with the additional skills, mentoring and research experience needed to launch a career in translational research.



Stacey Aaron, Ph.D.

University of Kansas Medical Center

Project: Cross-sectional Effects of Statins on Cerebrovascular Function in Aging Adults at Risk for Alzheimer's Disease: Data from a Phase II Multisite Clinical Trial



Brian Helsel, Ph.D.

University of Kansas Medical Center

Project: Estimating Walking Intensity in Adults with Down Syndrome Using a Portable Accelerometer

Trainee Highlights

82

Frontiers Trainees and Scholars since 2011

34

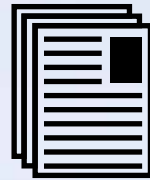
Predoctoral Scholars (TL1)

17

Postdoctoral Scholars (TL1)

31

Early Career Scholars (KL2)



776+

total publications from all K & T Program Scholars since 2011



96%

of Frontiers Scholars (K & T program) have secured independent funding since the conclusion of their training



Our previous trainees have gone on to other institutions around the nation, including:

University of Washington

University of Nevada-Las Vegas

University of Kentucky

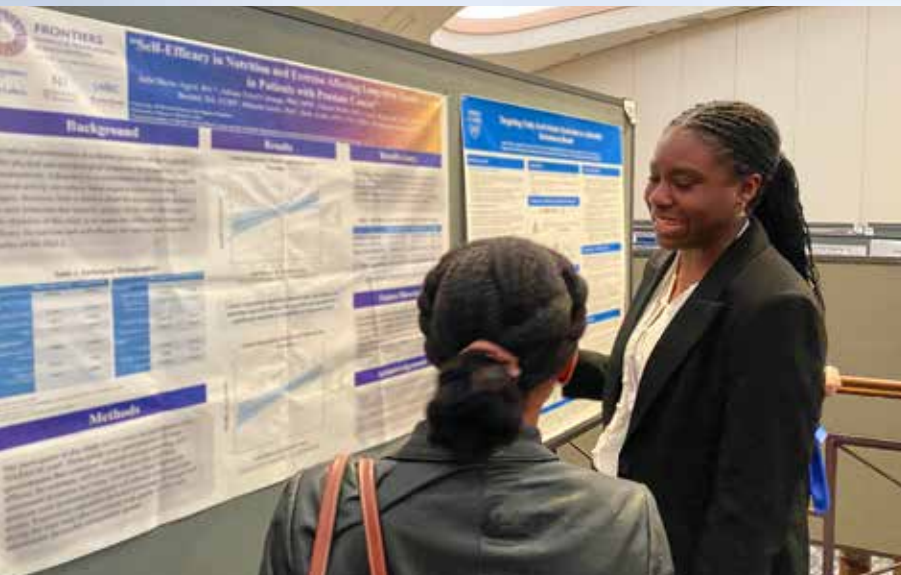
University of Chicago

University of Colorado-Boulder

Children's Hospital of Philadelphia

Loyola Medicine

as well as private clinical practice and private industry



Top Poster winner ACTS 2023

Jada Ohene Agyei, TL1 Trainee from the University of Missouri-Kansas City, was awarded Top Poster at the Association of Clinical and Translational Sciences 2023 conference.



Training Opportunities

Mock Study Sections

Twice a year, Frontiers holds a Mock Study Section (MSS). The MSS simulates an NIH study section, reviewing K and R grants submitted by faculty from our partner institutions. Participants receive valuable feedback from in their fields; not only increasing probability of funding, but also fostering collaboration and resource sharing.



Mock Study Section

Team Science Training Workshop

In May of 2023, our Team Science group brought in expert and External Advisory Board member, Jeni Cross, Ph.D. to lead our group in Team Science Training. In attendance were 19 participants from our partner institutions.

High School Summer Training in Academic Research: STAR 2.0 Program

The STAR 2.0 Program provides a hands on, high quality research experience during the summer academic break for high school students and educators. During the program, participants get the chance to:

- Work with a Children’s Mercy Kansas City faculty on an original research project.
- Develop a research publication for submission to a peer reviewed journal.
- Learn about clinical and translational research methodology, writing, statistics, medical ethics and career development.
- Network and learn with other students/educators.

This summer, our Informatics team hosted five interns. Our program manager also taught a scientific writing course for all trainees.



STAR 2.0 Program

Event Highlights



Grant Renewal Celebration

Grant Renewal Celebration

Hosted at the World War 1 Museum and Memorial, the renewal celebration featured speakers from all partner institutions, networking opportunities and tours of the Museum and Memorial.

View event highlights:

bit.ly/2023grantrenewal



Research Symposium

Research Symposium

Frontiers hosted a hybrid Research Symposium on Communicating Science in the Community to approximately 160 investigators, community members and research staff. Speakers from across the country presented best practices on research to communities. The Symposium also included oral presentations and poster sessions featuring Pilot Awardees, Early Career Faculty and Predoctoral and Postdoctoral trainees in the TL1 program.

View event highlights:

bit.ly/2023researchday



Research and Discovery Grand Rounds

Topics this year included:

- Mentorship
- Team Science
- Community Engagement
- Patient Reported Outcomes
- Pilot Funding Opportunities
- Scientific Workforce Diversity

View past seminars:

bit.ly/RDGRlist





Accomplishments

Clinical and Translational Science Units Expansion

We added KUMC Swope to our Clinical Trial Service Units this year. This new site provides 1,000 sq. ft. of clinical space, including an additional exam room, two flex rooms and infusions space. It also adds administrative staff. Located in a predominately Black community, this site expands Frontiers’ researchers access to research services and education to Kansas Citians that have been underrepresented and historically excluded in clinical research.



Patient at the new CTSU at KUMC Swope

Institute for Advancing Medical Innovation

The Institute for Advancing Medical Innovation recently collaborated with a pharmaceutical company (CicloMed LLC) to work on drug development for cancer treatment. Their studies investigated a drug’s safety and dosage in bladder cancer patients. Based on positive results from these trials, additional funding has been applied for to continue studying the drug’s effect in additional patients with bladder cancer.



Frontiers Clinical Trial Finder App

Clinical Trial Finder Application

The University of Kansas Medical Center Data Science team has developed an app that allows patients and their physicians to easily browse through active trials within the Frontiers network by retrieving trial information from the clinical trial management system. Currently Clinical Trial Finder accesses cancer, pulmonary critical care and neuromuscular trials.

Genomics 10x Symposium

Our Genomics core hosted a symposium in December 2022 to expand access and awareness of advanced genomics technologies among the broader translational research community. The symposium featured 10x Genomics, an industry leader in single cell and spatial sequencing. Presentations were also delivered by investigators at Children’s Mercy Kansas City, KUMC and UMKC. Over 68 attendees participated in the event.

Improved Survey Accessibility

Informatics has developed and implemented two user-friendly tools:

MyCap

A mobile-friendly integration of RedCap (Research and Data Capture Process) forms. MyCap allows study participants to answer surveys from their phones, facilitating efficient data collection for both researchers and participants.

Geomarker

A self-service portal that allows researchers to record patients’ addresses, an important social determinant of health, in a secure, private manner.

Community Engagement

JUNTOS

JUNTOS (Spanish for “together”) is a center focused on building community-academic partnerships to improve the health of Latinos. From a sustained base of authentic relationships in Latino communities, JUNTOS advances health through alliances in research, service and education in a culturally relevant way.

3,300

people reached



42

vaccination clinics in
low vaccine rate communities

550

Covid-19 tests administered

1,200+

Covid-19 vaccines delivered



Multidisciplinary Advocates and Research Group (MARG)

The Multidisciplinary Advocates and Research Group (MARG) is a mix of community engaged researchers and community member advocates working to foster community engagement in projects. In monthly meetings, the MARG discusses best practices and provides advice to investigators and their community partners. The MARG also meets in person after hours for networking events to connect community and investigators across disciplines.



Innovations in Quality Forum

Innovations in Quality Forums (IQ Forums)

Initiated in 2017 as the Kansas City Quality and Value Innovation Consortium (KC QVIC), their work began with discussions among healthcare leaders that resulted in active, multi-stakeholder collaborations focused on addressing challenges impacting the effectiveness, cost and equity of healthcare for the region. Since then, there have been 50+ Innovations in Quality Forums that have provided the regional healthcare community a place to exchange ideas focused on improving the quality and value

of healthcare for Kansas City to over 3,000 attendees. Topics have included the role of data in the evolution of healthcare, addressing holes in society’s safety nets, maternal health and mortality, caregiving trends, burdens and breakthroughs, long haul covid and rural health models and innovations.

These collaborations, and the quality improvement projects that they launched, grew at a pace that required investment in infrastructure. Recognizing the value of these efforts and their need for robust infrastructure, the University of Missouri System leadership awarded the KC QVIC “institute” status under the University of Missouri – Kansas City, thus creating the Healthcare Institute for Innovations in Quality in 2021.

Increasing Workforce Diversity

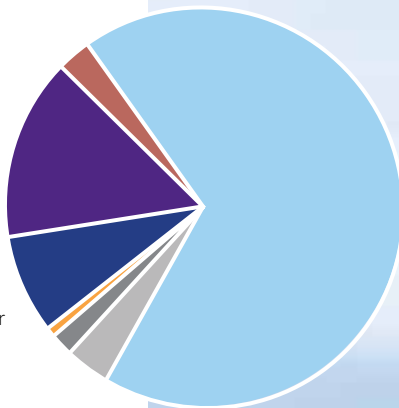
Diverse workplaces create more innovative and effective interventions for our entire population. Frontiers advocates and facilitates the recruitment, retention and overall success of a diverse workforce across all partner institutions. Building an inclusive environment where diversity is valued as an essential asset for generating knowledge that most benefits the diverse populations that we serve, like the efforts made through JUNTOS, is a key facet of Frontiers work.

25%
of our trainees and
13.8%

of members are from racial or ethnic backgrounds that are underrepresented in medicine and research, compared to the national average of 13% of medical school faculty in medicine and STEM according to the American Association of Medical Colleges.

Racial and Ethnic Makeup of Frontiers Membership

- 11** American Indian or Alaska Native (2%)
- 58** Asian (15%)
- 32** Black or African American (8%)
- 2** Native Hawaiian or Other Pacific Islander (<1%)
- 264** White (68%)
- 7** Different Identity (2%)
- 14** Prefer not to say (3%)



5.2%
of members identify as
Hispanic/Latino

64%
of our trainees and
60.1%
of our members
identify as
female



6.6%
of our members identify as
part of the LGBTQ+ community

1 in 5
of our trainees come from
disadvantaged socioeconomic backgrounds
as defined by NIH

20.3%
of members come from a
NIH disadvantaged background

4.7%
of our members identify as having a
physical or mental impairment as defined by the ADA



Become a Frontiers Member!

Open to all clinical and translational investigators and staff members at our partner institutions. Membership is free and entitles you access to all the resources, funding and events that Frontiers has to offer.

frontiersctsi.org/become-a-member



Already a Member?

Request a service consultation.

bit.ly/3PoU02C

Cite Our Grant

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FRONTIERS

CLINICAL & TRANSLATIONAL
SCIENCE INSTITUTE

AT THE UNIVERSITY OF KANSAS



**Accelerating Science,
Improving Healthcare for All**

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