

Strategic Goals: UMass Center for Clinical and Translational Science

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UMass Memorial Health Care Endowed Chair in Biomedical Research

Professor, Program in Molecular Medicine, Pediatrics and Medicine

Director, UMass Center for Clinical and Translational Science

Vice Provost for Research



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NCATS CTSA Grant Timeline



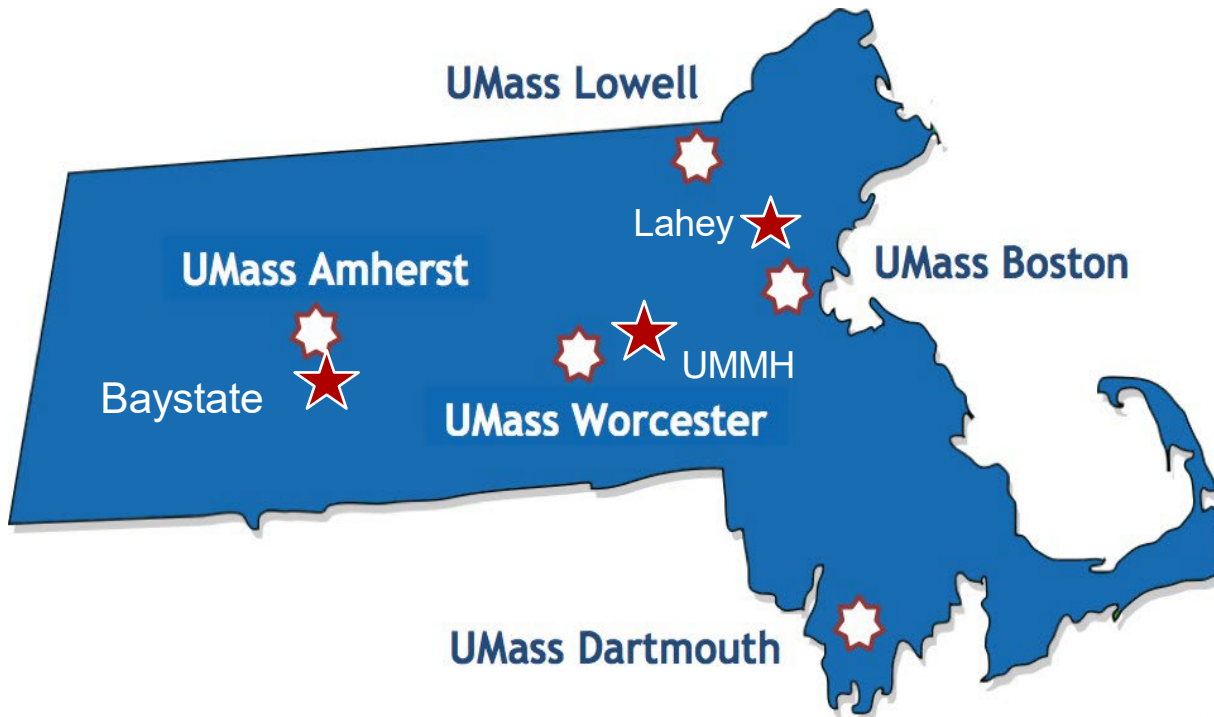
September 18, 2025: Approved by NCATS Council for December 01, 2025 start



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The UMCCTS Ecosystem

Advances learning and discovery to improve care delivery and solve health challenges:



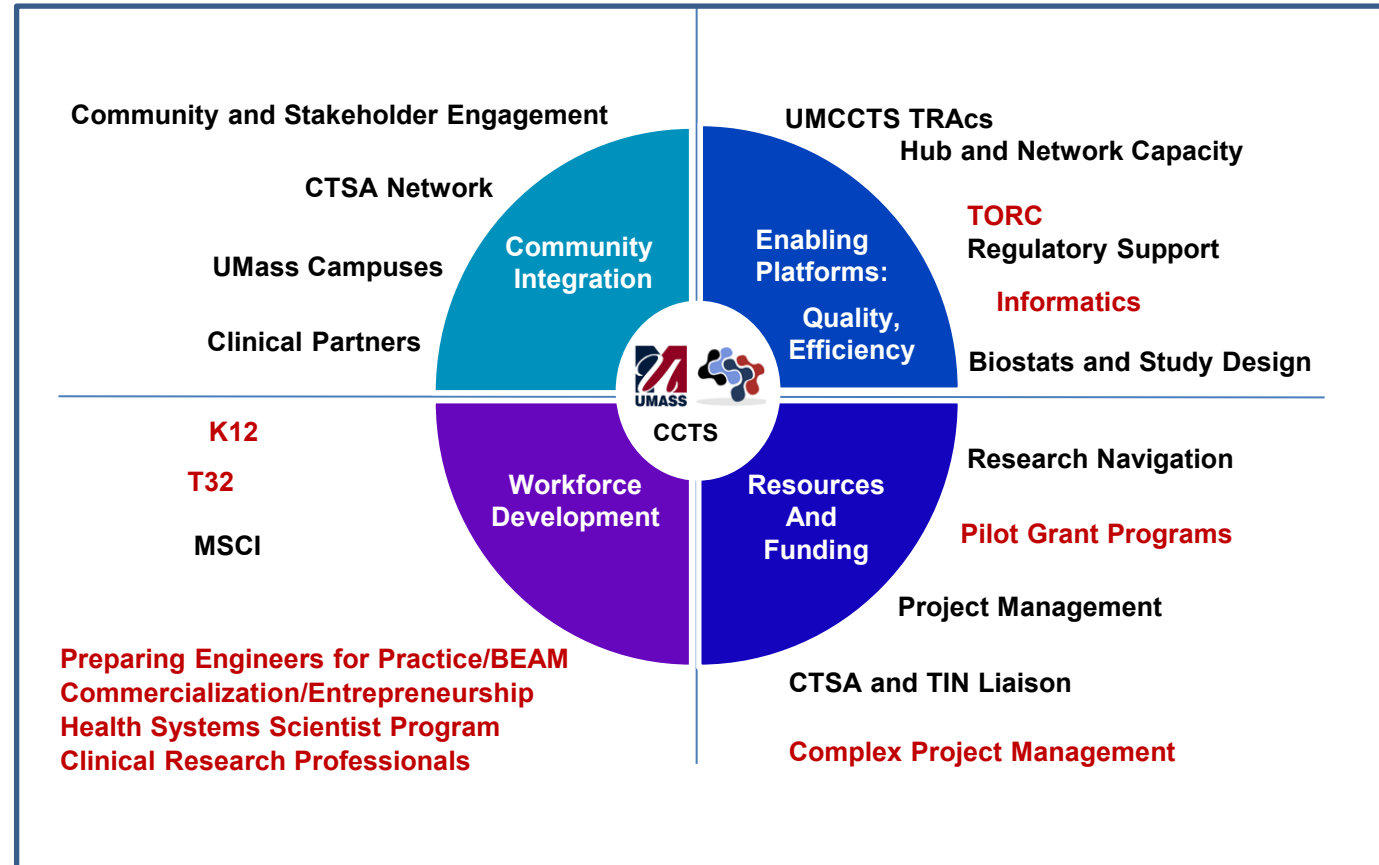
- Capitalize on scientific strengths of 5 UMass campuses + clinical expertise of 3 health system partners
- Catalyze trans-disciplinary collaborations across the translational spectrum
- Educate the next generation of clinical and translational scientists
- Leverage UMCCTS resources (cores, services, funding) to advance careers and garner external funding
 - Pilot awards: \$97M ROI from 207 awards totaling \$9M (40% multi-campus)



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Provide integrated UMCCTS programs and services that advance the innovation, quality, and efficiency of CTR

UMCCTS resources and services are complementary to and synergize with institutional cores and services

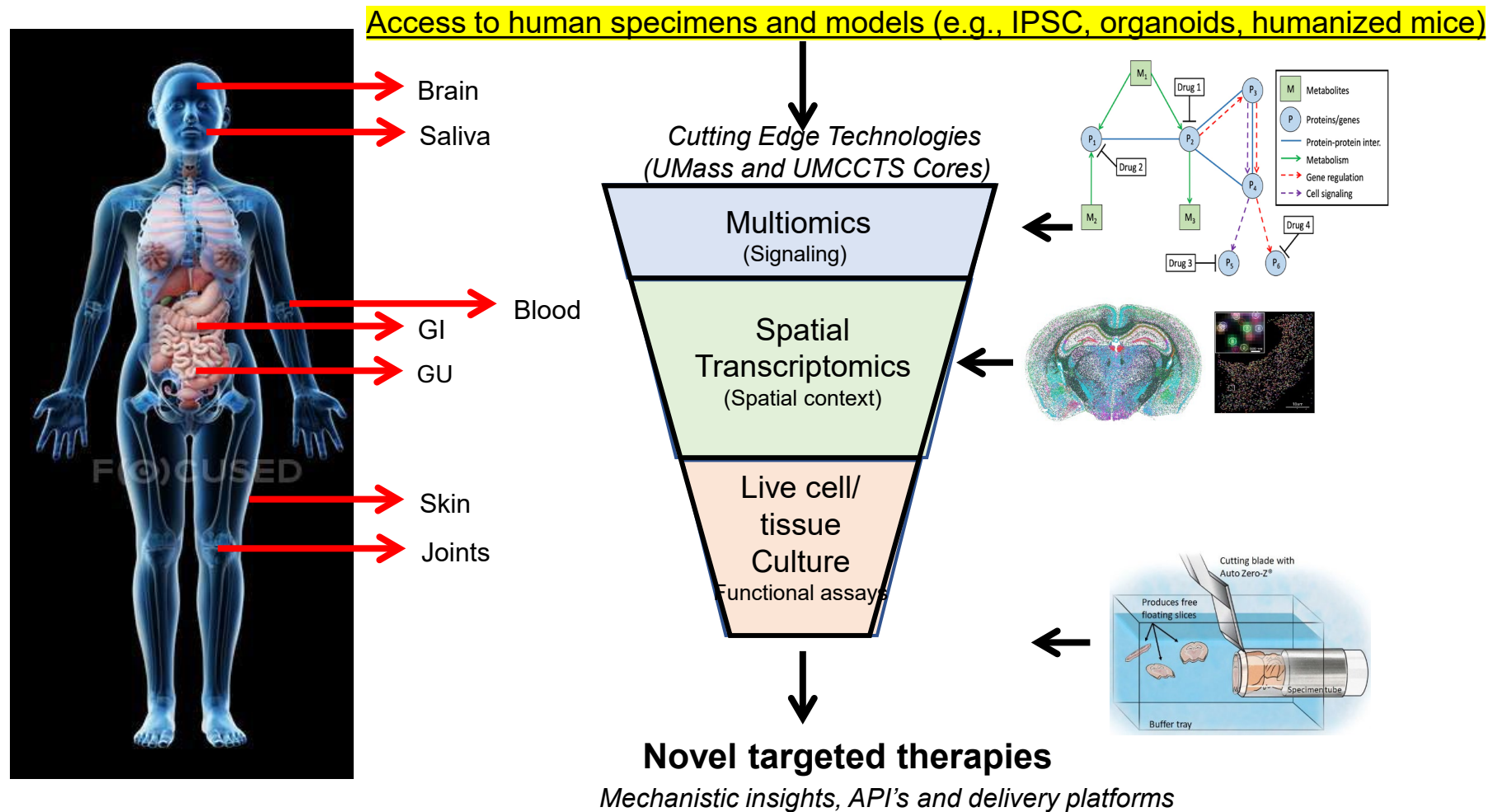


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Translational Outreach Research Center TORC)

TRANSLATIONAL BARRIERS:

- ✓ Gaps between discoveries and clinical understanding
- ✓ Limitation of animal models for finding disease-relevant targets
- ✓ Difficulty in accessing high quality, annotated human samples and tissues
- ✓ Inefficient and ineffective human study design
- ✓ Drug development requires expertise and resources beyond those available in typical research group



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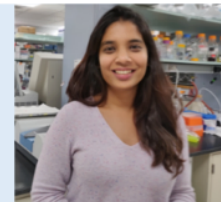
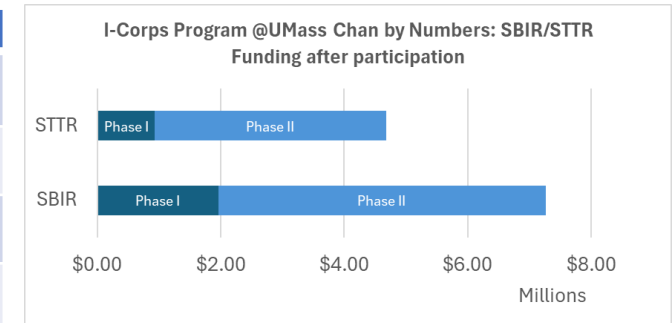
John Harris, MD, PhD, Director
Nuria Martinez, PhD, Assoc Dir
Kingsley Essien, PhD, Instructor
Laura Lajoie, Coordinator

Workforce Development: Biomedical Innovation and Clinical Translation

I-Corps @ UMCCTS

- Bridging Engineering and Medicine (with UMass Amherst)
- Medical School Pathway Program: "Entrepreneurship, Biomedical Innovation, and Design"
- BRIDGE-UMCCTS Innovation Fellows Program
- I-Corps @ UMCCTS

Numbers to date	
Number of Teams	46
Number of Startups	13
Number of STTR awards	7
Number of SBIR awards	11



Sneha Shah, PhD
Assistant Professor
UMass Chan Medical School
2024 Cohort

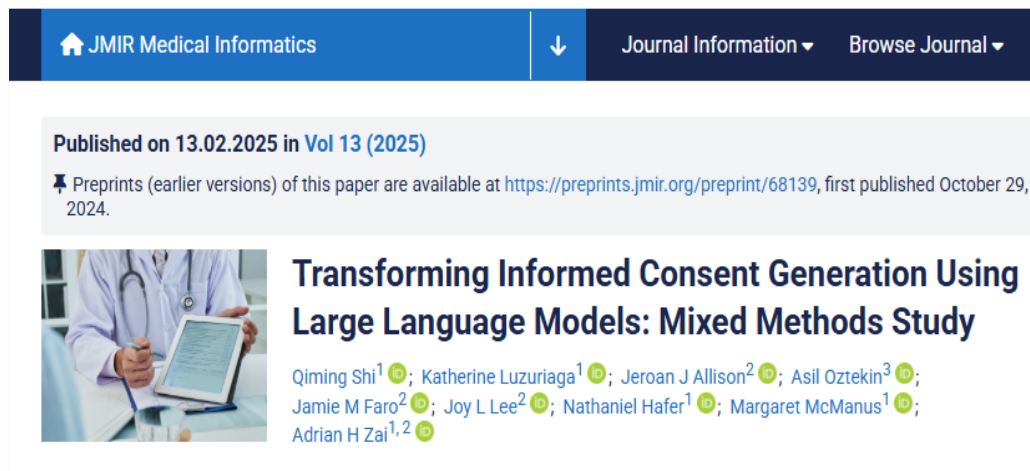
As a lab-based research scientist, the idea of transitioning into entrepreneurship initially felt daunting. My work had led to a potential new therapeutic for a rare disease, and a patent had been filed—but was I truly ready to step beyond the familiar world of basic science research? The I-Corps program gave me a clear introduction to the fundamentals of building a business model. Through the customer discovery process, we gained a much broader understanding of the market. I valued the post-course opportunities, including grant-focused sessions like the Department of Defense (DoD) and NIH SBIR/STTR Proposal Preparation Workshops.



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Rachael Sirianni, PhD
Nate Hafer, PhD

Transforming Informed Consent Generation Using Large Language Models



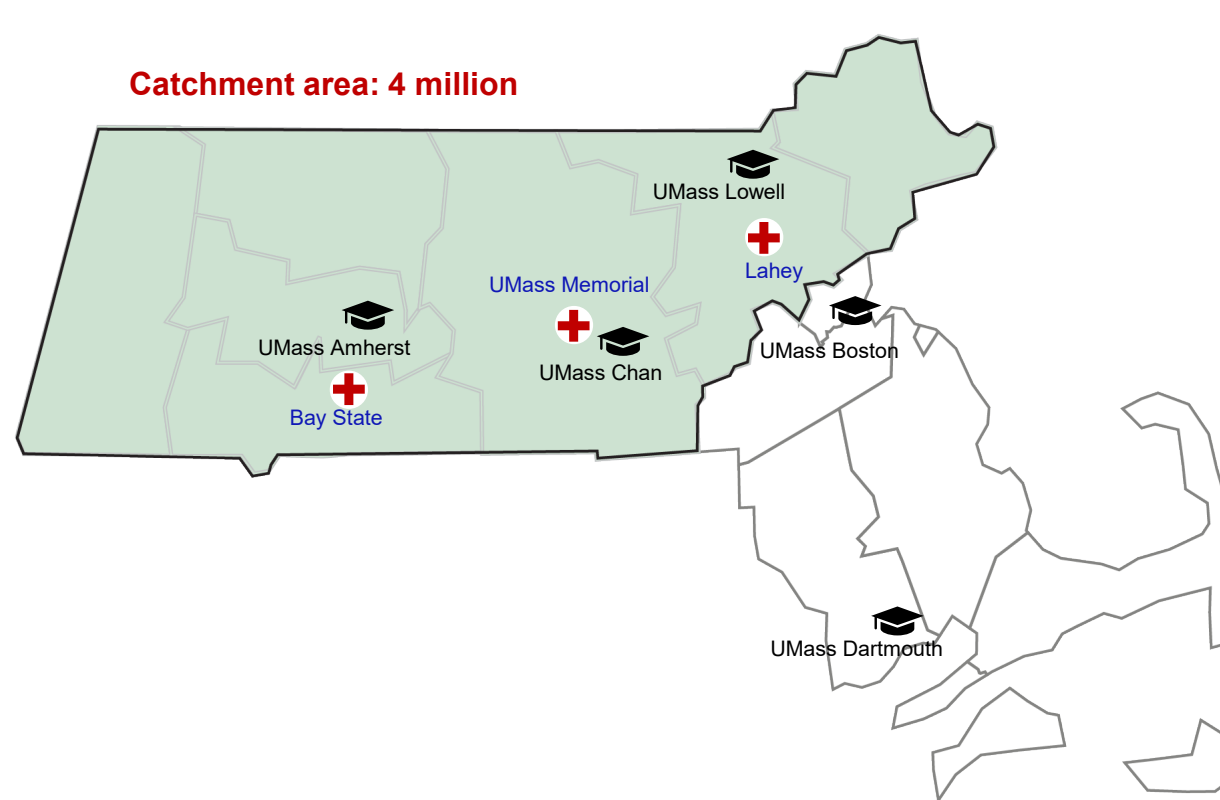
ICFs are long and complex: In a review of over 5,200 ICFs, 91% were above the recommended 8th grade level (average = 10.9 grade); many exceeded the recommended 10 pages

Time to Generation: Up to **90% reduction in effort** reported

Quality of ICFs:

- Comparable accuracy and completeness to human-generated forms
- Improved readability (7.95 vs 8.38 grade level)
- Significantly higher comprehensibility (90.6% vs 67.2%)

UMCCTS Clinical Partners



Total beds:
~1,986



Annual ER visits:
260K



Annual outpatient visits:
2.1M

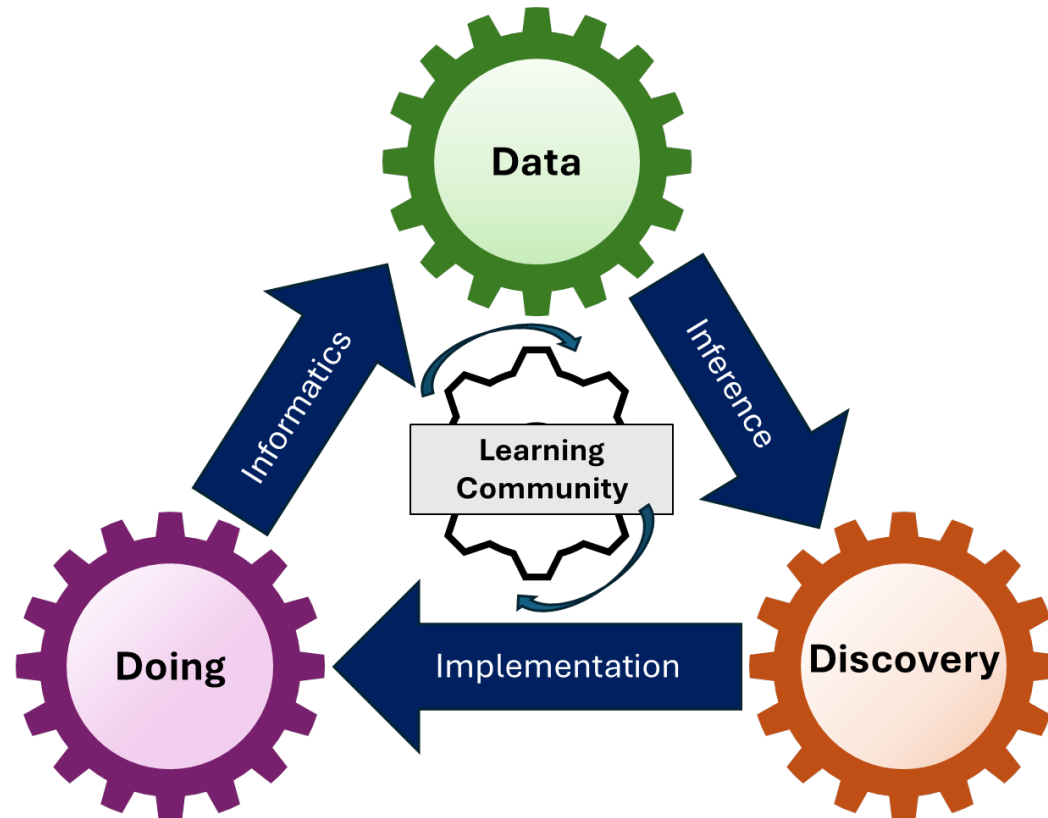


Annual admissions:
104K



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Build a Learning Health System Framework



Workforce Development:

- Health Systems Science Scholars
 - Lahey and UMMH K12 Scholars
 - Faculty and staff
- EXCEL-UP

Collaborative Funding:

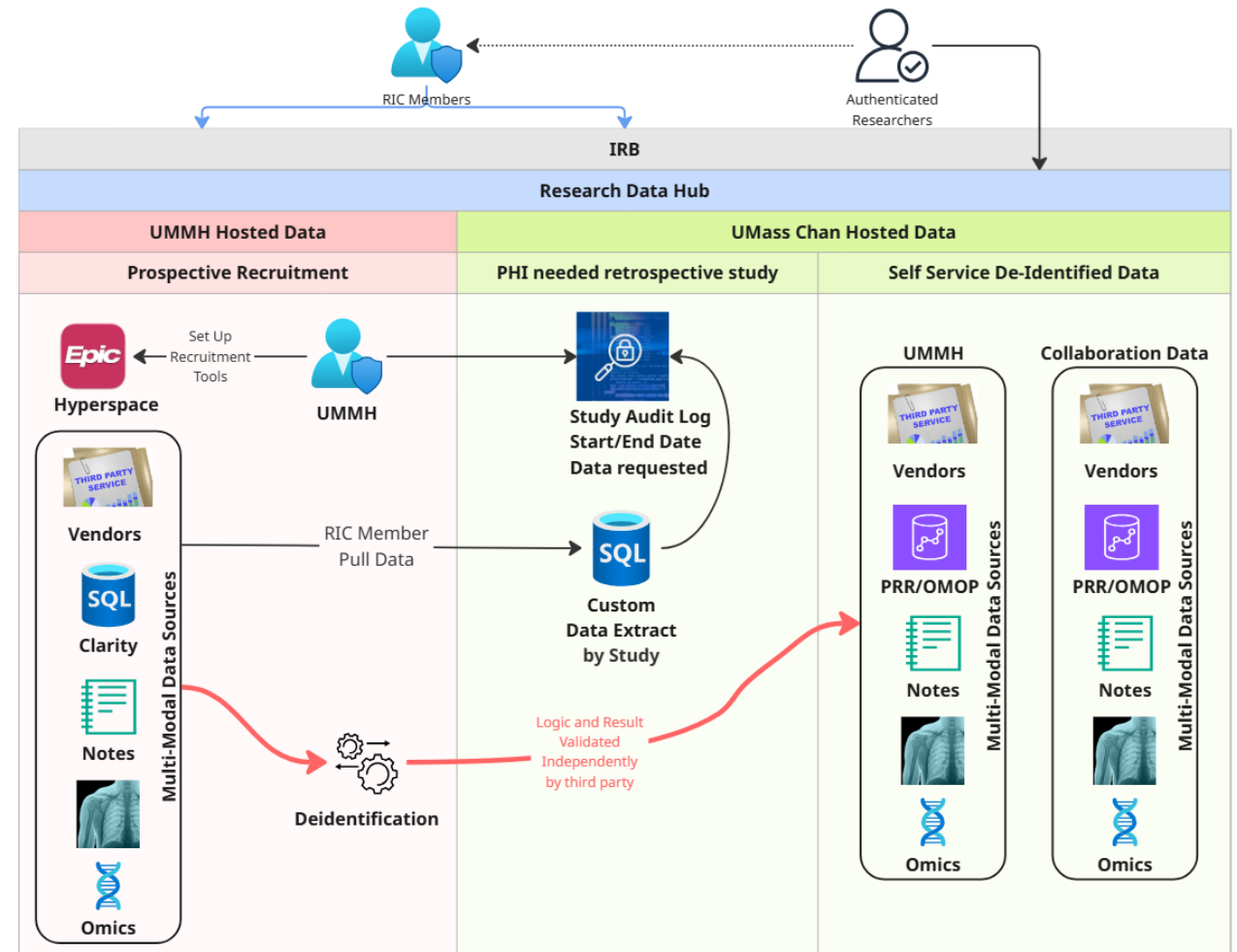
- PACE Award (UMass Memorial Medical Group; \$200K/2 years)
- UMass Practice-Based Research Network (ARC) Pilot Awards (\$50K; with Family Medicine, Medicine, and PQHS)
- UMass-Lahey Pilots

AI: IICT protocols

Platform for Learning Health System @ UMass Chan

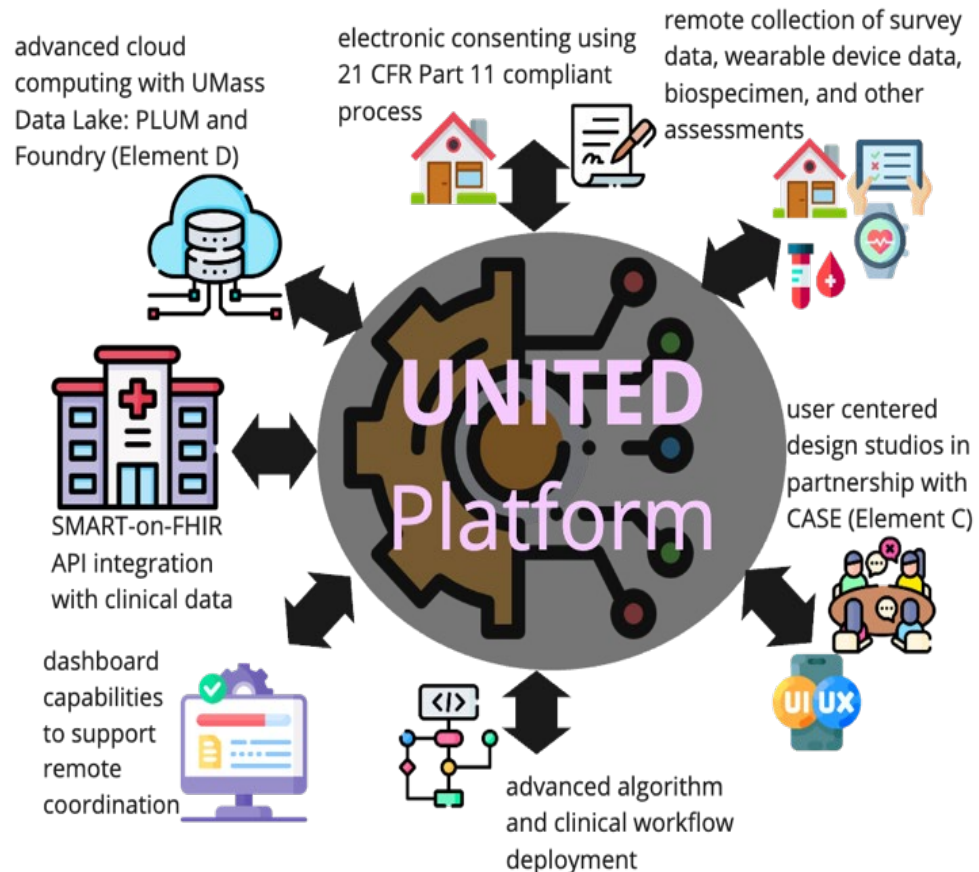
Integrates data from multiple sources to enable research at scale:

- **Prospective recruitment**
 - UMMH/RIC set up study and recruitment tools in EHR
 - Third-party data can plug in if approved
- **PHI-required retrospective**
 - RIC creates custom extracts with full audit.
 - Researchers analyze in PLUM WorkSpaces
- **De-identified data**
 - UMMH de-identifies data into the PRR at UMass Chan
 - Authenticated researchers self-serve de-identified datasets



Adrian Zai, MD, PhD

Unified Network for Integrated Trials and Evaluations using Decentralized Methods (UNITED)



GOALS:

- Advance the translational science of decentralized trials
- Extend the framework of Learning Health Systems to home and community settings

INTEGRATION: RIC, TORC, Biorepository

IMPACT:

- Advance clinical research participation
- Enhance collaboration and discovery
- Speed implementation and dissemination

Advance AI in Research and Health Care

The Massachusetts AI Assurance for Healthcare (MITRE; MA HealthTech)

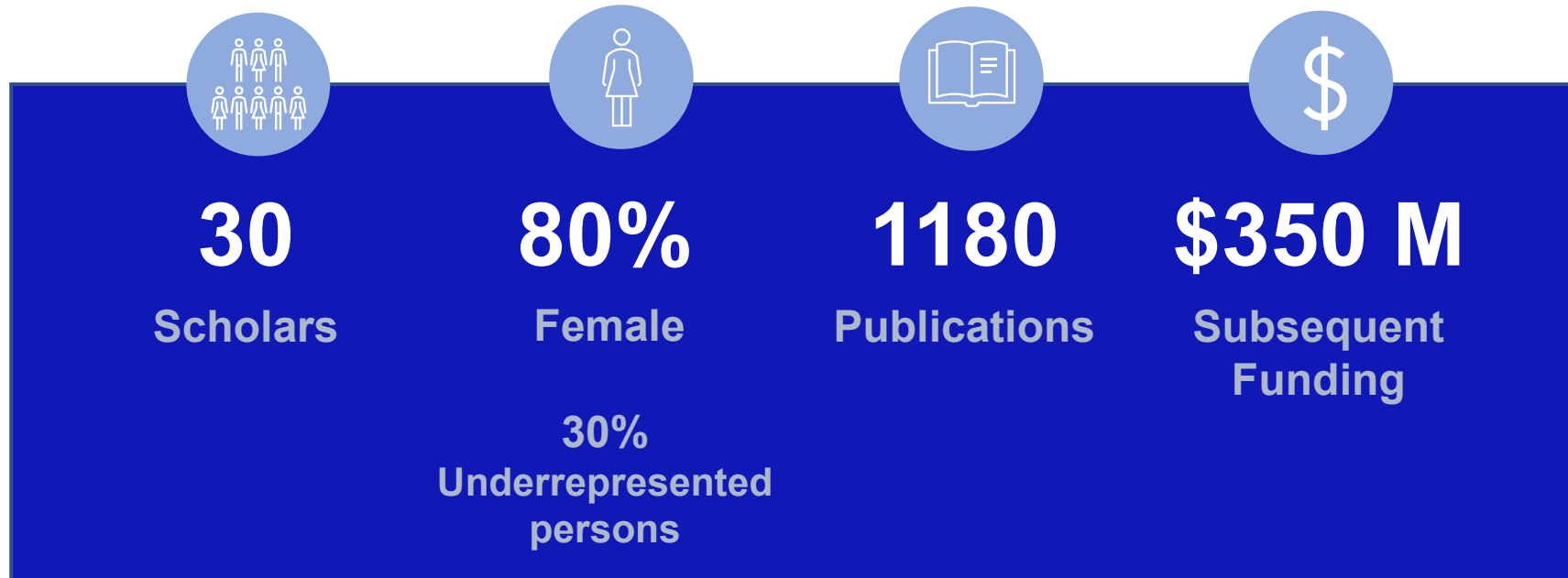
CTSA Principles for AI Translation in Healthcare (PATH) Workgroup:

- Co-chaired by Dr. Zai with Stanford & OHSU colleagues
- Operationalize CHAI principles (fairness, transparency, accountability)
- Governance frameworks, ethical deployment, and multi-institutional collaboration

SAFE-AI (UG3/H3 submitted with OHSU, Duke, Minnesota; October, 2025)

- Federated framework to validate and govern AI models across CTSA sites
- Shared catalog of validated models to accelerate safe and trustworthy AI adoption

KL2 Scholars (2007-present)



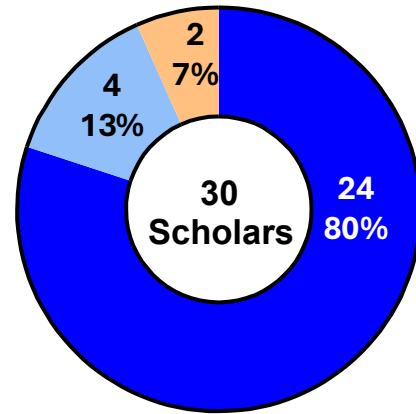
Catarina Kiefe, MD, PhD
Beth McCormick, PhD
Milagros Rosal, PhD
Peter Lindenauer, MD



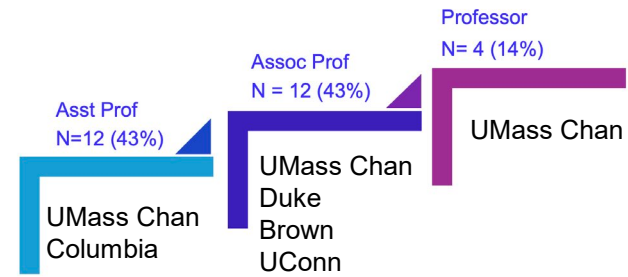
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KL2 Scholars

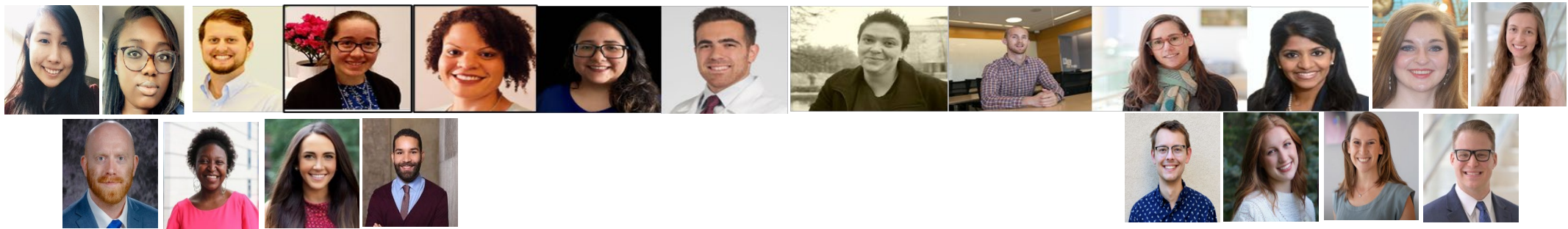
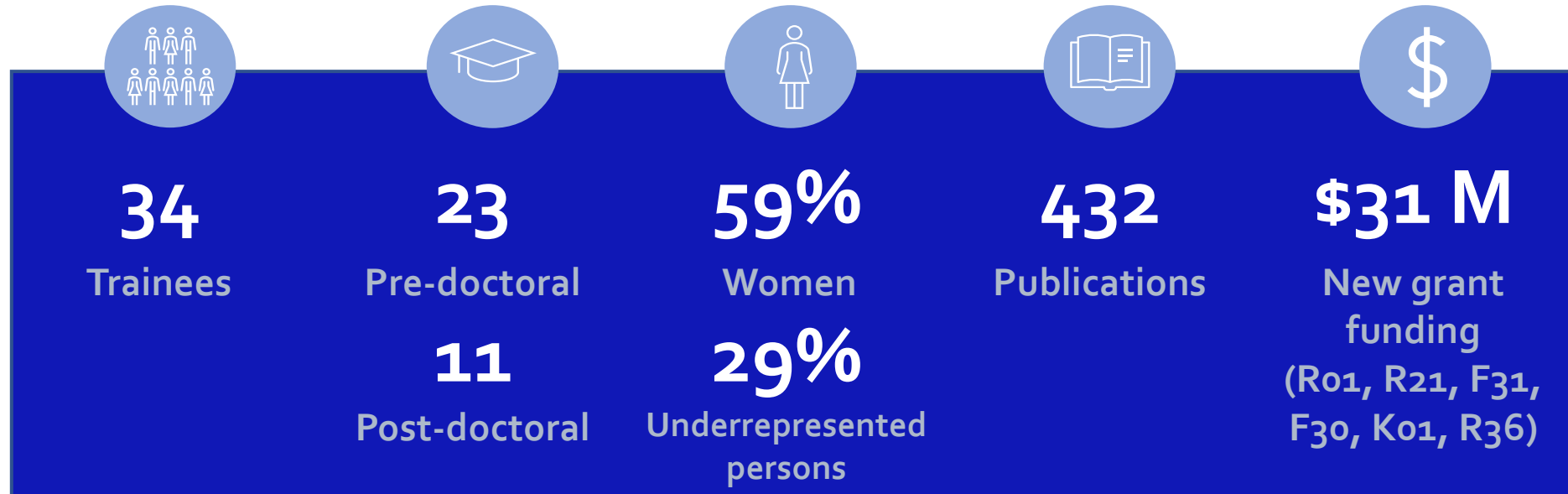
Current Institution



Current Academic Position



TL1 Trainees



Kate Lapane, PhD
Brian Lewis, PhD

EXCEL-UP: Excellence in Clinical research Education and Leadership – Undergraduate Program



Career pathway program: Addresses need for expert CRP workforce

Interns complete 10-week, full-time paid internship, involving:

- 40 hours training in Human Subjects protection, CRC job functions,
- 320+ hours mentored research with clinical research teams
- Weekly panel discussions with invited speakers
- STRIDE 2-part culturally aware informed consent training
- Observing an IRB meeting and attending monthly CRPG meetings
- Individual presentations at culmination day event



Three-year pilot:

34 interns representing all 4
undergraduate UMass campuses

76% female

59% from URiM backgrounds



"The CCTS internship played a pivotal role in my career choice, steering me towards a position in clinical research nursing. The program provided diverse learning experiences and opportunities that were previously inaccessible. It introduced me to the collaborative nature of clinical research and illuminated the various roles nurses can undertake in this field."

Connor Coe, RN, 2023 Summer Intern
2024 UMB Dean's Award for Nursing
NICU Nurse, UMass Memorial Medical Center



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Thank you!

Questions?



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BEAM: Bridging Engineering and Medicine

Engineering Capstone (Senior Design) (10 teams / 2 yrs)

- Student teams at sister campuses develop prototype solutions over their two-semester course
- Expansion of “Preparing Engineers for Professional Practice” (PEPP, led by Nate Hafer)
- Chan faculty define the design problem and provide feedback to the design teams regarding the medical context and the device solution needs

Independent Study (research for course credit) (30 student experiences / 2 yrs)

- Individual students at UMass Amherst conduct 9 hrs/week of on-site work at UMass Chan to earn 3 tech elective credits
- Facilitated by inter-campus shuttle
- Very high student demand limited only by the logistics of matching
- Undergraduate credit; Honor’s theses; Master’s theses

Summer Internship (5 paid + 7 unpaid / 2 yrs)

- 10 weeks, 40 hrs per week on-site work with structured didactics
- Focus on professional development and communication skills



Lily has been conducting research at UMass Chan through the BEAM program since Spring 2024.

- Research for Course Credit (MD mentor)
 - Summer internship (MD mentor)
 - 2-semester Honor's Thesis (PhD mentor)
 - Pursuit of a Master's degree (PhD mentor)
 - Considering pursuit of a doctorate at UMass Chan
- Her work is the focus of a burgeoning, multi-site clinical collaboration as well as an R01 in preparation*

~ Lily Bigelow~

UMass Amherst student and 2024– 2025 BEAM

Participant

Pilot Funding Programs



Dhimiter Bello, ScD, MSc

Professor

Assoc Dean for Research and Graduate Studies

Zuckerberg College of Health Sciences

UMass Lowell



Nate Hafer, PhD

Associate Professor, PMM

UMCCTS Director of Operations

UMCCTS Pilot Awards:

- Small conference grants
- SPARK Awards (\$10K, rolling)
- Pilot Project Grants (\$50K/1 yr)

Collaborative Awards:

- PACE Award (UMass Memorial Medical Group; \$200K/2 years)
- UMass Practice-Based Research Network Pilot Awards (\$50K; with Family Medicine, Medicine, and PQHS)
- *New: UMass-Lahey Pilots*

Pilot Project Awards

Awards

Departments



207



43



\$9.1 M



\$96.8 M

**Total Dollar
Amount**

**Follow-on
Funding
10.6x ROI**



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40% of awards are multi-campus