

Transdisciplinary initiatives

The **Massachusetts Medical Device Development Center (M2D2)**, is a cross-campus venture led by UML and UMMS faculty that catalyzes and de-risks device development. M2D2 leverages the engineering, business, and clinical strengths of UMMS and UML to provide fee-based services, including business planning, product proto-type development, and clinical pathway assistance.

Startups

110

Investments

\$152 M

Interns

123

The **UMass Center for Microbiome Research (CMR)**, founded in 2014, engages 37 investigators across 21 departments on 3 campuses (UMMS, UMA, UMD), and accelerates our understanding of how microbes influence our health.

Publications

28

Funding

\$8.8 M

Spin-off Company

1

Funding - UMCCTS Pilot Funding Opportunities

Pilot Opportunity (eligible campuses)	Start Date	Funding Source(s)	# Awards Made	Follow-on Funding (# new awards)
PPP (UMMS, others w/campus match)	2007	CTSA grant, UMMS	56	\$45.5M (34)
LSMF (all UMass campuses)	2009	Five UMass campuses	34	\$25M (18)
NHMPP/IND Launch (UMMS, MBL)	2012	CTSA grant, MassBiologics UMMS	18	\$3.4M (7)
Med Device Innovations (UMMS, UML)	2017	UMMS, UML	3	New
Riccio Fund for Neuroscience (UMMS)	2018	CTSA Grant, Private Donor	1	New
Small Conference Grants (all UMass)	2014	UMass Campuses	5	\$2.4M (2)
SPARK Vouchers (all UMass)	2016	CTSA grant, UMMS	4	\$0.1M (1)
UMCCTS-Voyager (UMMS)	2014	Voyager Therapeutics	7	\$2.1M (1)
Pfizer CTI (UMMS)	2014	Pfizer	1	\$0 (0)
Diabetes Innovation Challenge (all UMass)	2016	UMass, Industry, Foundations	6	\$2M (1)
Rays of Hope Breast Cancer Grants (UMMS, Baystate, UMA)	2017	UMMS, Rays of Hope Foundation	4	New

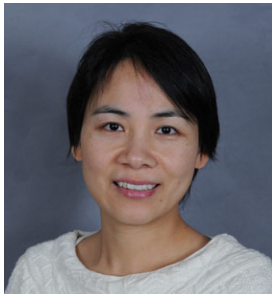
(Highlights for Funding)



Gang Han, PhD, Professor, Pilot Awardee: Dr. Han's research focuses on developing and using nanoparticles and photodynamic therapy to treat certain cancers. A recent article in *Cell* described his work inducing near-infrared image vision in mice. Dr. Han was recently awarded a DoD Idea Award entitled "Photoregulated Immunotherapy" to explore inorganic upconversion nanoparticles towards effective cancer therapy. In addition, he received an NIH Innovative Research in Cancer Nanotechnology R01 award (R01CA232017) to study nanoparticles as immunotherapy for B Cell lymphoma.



John P. Haran, MD: Pilot Awardee. Intestinal microbiome modeling to predict *Clostridium difficile* colonization in elderly hospitalized patients. Dr. Haran is interested in reducing the incidence of *Clostridium difficile* infection and colonization among nursing home residents, community dwelling elders, and hospitalized elders. UMCCTS K Club support helped Dr. Haran successfully apply for K (K23AG057790) and RO3 funding. A UMCCTS Pilot Award supports Dr. Haran's investigation of the Microbiota-Gut-Brain Axis in Alzheimer's Disease, with studies being conducted in nursing homes across central Massachusetts.



Ling Shi, PhD, Assoc. Professor, Department of Nursing, UMass Boston received funding through the Life Sciences Moment Fund (LSMF) to study the effects of soy protein and isoflavone supplementation for improved glucose metabolism and lipid profiles in pregnant women at high risk for gestational diabetes mellitus (GDM). This research informed an R01 application focused on plant based dietary interventions to improve cardiometabolic health. Leveraging lessons learned in team science and mentorship, she is currently serving as PI on an R25 grant (R25HD090723) designed to promote research development of UMass Boston undergraduates from several disciplines.

KL2 Scholars

(Since 2010)

Scholars

16

Publications

415

New Funding

\$73 M



KL2 Scholar: Nancy Byatt, DO, MBA, Assoc Professor. Postpartum depression affects up to one in seven mothers after their child's birth. Only half ever get diagnosed. Improving screening and treatment of mothers for post-partum depression leads to improved outcomes for mothers and their babies. As a KL2 scholar, Nancy Byatt designed and demonstrated a new program for obstetricians to treat perinatal depression. With a grant from the CDC, she was able develop trainings, toolkits, consults & resources available to providers via MA Child Psychiatry Access Project (MCPAP for Moms). The 20th Century Cures Act has allocated \$5M/year (2018-2022) to replicate the program in other states.



Michelle Trivedi, MD, MSCI, Asst Professor; past CRISP scholar and current KL2 Scholar. *"The CRISP award was instrumental in allowing me to transition from clinical faculty to research faculty and spark my career committed to community-engaged research focused on improving management of childhood asthma. With the CRISP funding and mentorship, I developed key pilot data and strong relationships with the Worcester Public School community that supported a successful UMCCTS KL2 proposal, and a recent NIH K23 award submission that has been favorably reviewed. I am so thankful to have had the CRISP program support, which allowed me to pursue my passion for community-engaged childhood asthma research."*

TL1 Trainees

(Since 2015)

Scholars

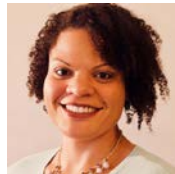
17

Publications

101

New Funding

\$550 K



Sarah Forrester, PhD, Assistant Professor, Division of Epidemiology, PQHS. Dr. Forrester was recruited to UMMS as a TL1 post-doc with Dr. Kiefe as primary mentor and made rapid progress in her research on weathering, a concept introduced to explain worse outcomes in African-Americans attributable to psychosocial factors. Using data from CARDIA, she published a new operationalization of the concept of biological (as opposed to chronological) age and used it to define weathering and related it to adverse health outcomes. She successfully competed to become our first internal K diversity scholar and was just appointed an Assistant Professor.



TL1 post-doctoral. Matthew Alcusky, PharmD, MS was mentored by Drs. Lapane (primary), McManus, and basic science/pre-clinical researcher Dr. Marc Fisher (editor of Stroke, emeritus faculty). "The TL1 program allowed me to advance my expertise in epidemiology and comparative effectiveness research. I completed the PhD in June, published articles using advanced epidemiological methods, and I achieved my goal of being PI (R21AG060529)." Dr. Alcusky is now an Assistant Professor who is part of our Mentors in Training Program.

Community

Scholars

12

Publications

17

New Funding

\$11.1M

Exercise barriers for urban minority women * Social-emotional learning through shared reading * Mass Justice Community Opioid Innovation Network * Next generation digital tools to support learning * School nurse intervention for children with asthma * Substance use and health care access for marginalized communities in Massachusetts * Barriers to health care access for female veterans



Elizabeth Evans, PhD, Assistant Professor, Health Promotion and Policy, UMass Amherst; 2018 CRISP scholar. Dr. Evans has an emerging career in innovative approaches to opioid treatment interventions. Her CRISP experience led to a partnership with UMMS-Baystate investigator Peter Friedmann, MD. The two recently received \$10 million to be part of NIDA's Justice Community Innovation Network (JCOIN) to examine a pilot opioid treatment program for jail detainees in seven Massachusetts counties. Her research aims to better promote health and wellness among vulnerable and underserved populations, particularly for individuals at risk for substance use disorders and mental illness.



Edwin Boudreaux, Professor of Emergency Medicine, UMMS, received a small conference award to leverage the emerging capacity of the UMass campuses and key regional collaborators, including Worcester Polytechnic Institute and Boston University, to catalyze a transdisciplinary team with the skills to apply machine learning approaches to predicting suicide attempts and suicide. The ideas generated by this hack-a-thon led to the development of new suicide screening approaches and clinical decision rules to support universal risk detection and optimize patient care workflow in adults (R01MH112138, R01MH118220).

Health & Societal Benefits

Translational Science Benefits Model

Health & Societal Benefits	Case #1 Gene Therapy Rare Genetic Diseases Sena-Esteves	Case #2 Maternal depression Byatt	Case #3 EMR alerts: evidence-based care Afib patients McManus
Stages of Translational Research	T0-T2	T1 – T3	T1-T4
<i>Clinical and Medical Benefits</i>			
Tools and Products	✓		
Procedures and Guidelines		✓	✓
<i>Community and Public Health Benefits</i>			
Health Activities and Products		✓	✓
Healthcare Characteristics		✓	✓
Health Promotion		✓	
<i>Economic Benefits</i>			
Financial Savings and Benefits			
Commercial Products	✓		✓
<i>Policy and Legislative Benefits</i>			
Advisory Activities		✓	
Policies and Legislation		✓	
<i>Workforce Development</i>			
Training activities	✓	✓	✓