UMass Center for Clinical and Translational Science: Past, Present and Future

Katherine Luzuriaga
University of Massachusetts Medical School

May 20th, 8:30 AM
UMass Center for Clinical and Translational Science
Past, Present and Future

Katherine Luzuriaga, MD
Director, UMass Center for Clinical and Translational Science
Vice Provost, Clinical and Translational Research
UMass Memorial Health Care Chair in Biomedical Research
Professor, Program in Molecular Medicine, Pediatrics, and Medicine
Disclosure

I have no actual or potential conflict of interest in relation to this program/presentation.
Thank you!

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<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tr>
<td>Vanni Bucci, PhD</td>
<td>UMass Dartmouth</td>
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<tr>
<td>Bonnie Goddard</td>
<td>UMass Medical School</td>
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<td>Wanda DePasquale</td>
<td>UMass Medical School</td>
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<td>Jean A. Frazier, MD</td>
<td>UMass Medical School</td>
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<td>Nate Hafer, PhD</td>
<td>UMass Medical School</td>
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<td>Catarina Kiefe, MD, PhD</td>
<td>UMass Medical School</td>
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<td>Margaret Koziel, MD</td>
<td>UMass Medical School</td>
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<tr>
<td>Jill A. Macoska, PhD</td>
<td>UMass Boston</td>
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<td>Stephen McCarthy, PhD</td>
<td>UMass Lowell</td>
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<td>Beth McCormick, PhD</td>
<td>UMass Medical School</td>
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<td>David McManus, MD</td>
<td>UMass Medical School</td>
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<td>Peter Reinhart, PhD</td>
<td>UMass Amherst</td>
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The Future of Cardiovascular Epidemiology: Current Trends?

Vasan S. Ramachandran, MD
Principal Investigator, Framingham Heart Study
Director, Echocardiography/Vascular Laboratory
Chief, Preventive Medicine and Epidemiology,
Department of Medicine
Professor of Medicine and Epidemiology
Boston University School of Medicine
A Short History of the UMCCTS

2006: UMass Center for Clinical and Translational Science organized

2008: NIH Development Grant

2010: Funded as one of 62 NIH centers nationwide
       $20M / 5 years; CTR infrastructure
       (cores, services, pilot funding)

2015: Renewed funding ($17.3M / 4 years)
Breakthrough Discoveries

Innovative Approaches / Product Pipelines

Mechanistic Understanding of Disease

Transformative Interventions (Patient)

Population Health / Community Impact

Cutting-edge Technologies
The Health System as a Learning Lab

UMass Memorial Health Care

Collaborative Support for Health System as Learning Lab for:
- Research
- Improvement (Quality, Efficiency, Cost)
- Clinical & Translational Science
- Education
- Health systems strengthening and Public Health

Achieved through collaboration on:
- Data warehouse (integrates clinical/research data)
- Clinical trial management system
- Policies and procedures (governance, access, security)
Community Engagement and Research

Mission: **Build capacity for community-engaged research**

Builds on our strengths in community engaged research:

- **Community-engaged Research Network models**
  - Urban and rural
- **Five campus-based community-engaged research mentorship and training**
  - Community Research Scientist Program (CRISP)

www.umassmed.edu/ccts/community
**MISSION:** To increase engagement of special populations in translational research through tailored, culturally responsive strategies.

Special populations are those under-represented in translational research because of age (i.e., pediatrics, geriatrics), race/ethnicity, low socioeconomic status, geographic location (rural or urban), or being Lesbian, Gay, Bisexual, or Transgender (LGBT).

Three service areas:

1. **Special Population Consultation:** provides support to researchers on how to improve recruitment and retention strategies as part of their research design.
2. **Cultural Competency Training:** engages community members in training research staff on implementing culturally appropriate approaches during the informed consent process.
3. **Community and Patient Participation:** hosts research-focused events in the community to strengthen local capacity to respond to critical research needs and participate in research at UMMS.

http://www.umassmed.edu/ccts/sprc/about-us
A partnership between community members, the patients being cared for by the health professionals of UMassMemorial Health Care, and the research community at the University of Massachusetts Medical School. People can learn more about research, donate blood samples to the Biorepository, enroll in the Clinical Research Volunteer Database, and participate in clinical research studies.

https://www.umassmedresearchvolunteer.org
Mission: Facilitate excellence in human research by

- Safeguarding and promoting the health and welfare of human research participants
Multi-Campus Transdisciplinary Programs

- Center for Microbiome Research
- Medicine to Models
- Chemical Screening Initiative
- Avatar Mice
- Center for mHealth
Welcome to
the Office of Innovation & Business Development
UMass Medical School

- We are the “Welcome Lobby” for all external and internal parties interested in partnering interactions.
- We catalyze and enable all types of mutually beneficial relationships between our campus and the world—and resolve any issues that may get in the way.
- If you don’t find the information you need on this website or if you have any questions, please contact us right away.

www.umassmed.edu/ibd
Small Molecule Screening Facility (SMSF)

SMSF helps identify novel biomolecules for various biological processes using biochemical, cell based and *in vivo* approaches.

Established in 2003 and rebooted in 2014 with joint funding from UMCCTS and the Institute for Applied Life Sciences, the SMSF is a joint core between UMMS and UMass Amherst.

- 58,000 pharmacological small molecules collection occupying novel chemical space
- UMass Plant Cell Culture Collection (Monsanto; 1417 phytochemicals)
- In house medicinal chemistry, cheminformatics and molecular modeling expertise for hit to lead progression

Dr. Paul Thompson
Core Director, Professor BMP

Dr. Sergey Savinov
Co-Director, Professor at UMass Amherst
Structure Activity Relationship (SAR): Moving the Goal Posts

Raj Kalkeri, PhD
Project Leader, In Vitro Antiviral Drug Development, Department of Infectious Disease Research, Southern Research Institute
Pharma experience includes Vertex Pharmaceuticals

Raj is a project leader in the Infectious Disease Drug Development Division, Southern Research Institute, Frederick, MD, where he currently focuses on the evaluation of small molecule drugs, development of in vitro and in vivo models for the treatment of viral infections. He is responsible for several government and commercial contracts for evaluation of antiviral activity of small molecules and biological entities. He has 16 years of experience in the industry and is published in peer-reviewed journals.

Thursday, June 16, 2016
Albert Sherman Center
Multi-Purpose Room WEST (1st floor)
University of Massachusetts Medical School

4:00-5:00 pm LECTURE and CASE STUDY

Lecture and Case Study: This lecture will discuss why the FDA requires animal models for most therapeutic indications and what we hope to learn from animal studies that we can’t learn from in vitro experiments in a test tube. The speaker will discuss the limitations of animal models and ethical considerations in the use of animals, from zebra fish to non-human primates. The speaker will also describe the development of an animal model for drug discovery, how it was used and what was learned.

5:00-5:30 pm NETWORKING

Register Now!
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<th>OPPORTUNITIES</th>
<th>ELIGIBILITY</th>
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<tr>
<td><strong>Students</strong></td>
<td>Postdocs</td>
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<tr>
<td>&quot;K-Club&quot; - Research Career and Writing Group</td>
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<td>&quot;R-Club&quot; - Basic Elements and Process for a Successful Grant Application</td>
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<tr>
<td>Mentored Career Development (KL2) Training Program</td>
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<td>Pre- and Post-doctoral Fellowship (TL1) Training Program</td>
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<td>Community Research Innovative Scholars Program (CRISP)</td>
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<td>Master of Science in Clinical Investigation Program</td>
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<td>MD/PhD (MSTP) Program</td>
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<td>Clinical/Translational Research Pathway Program</td>
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<td>Millennium PhD Program</td>
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<td>Clinical and Population Health Research PhD Program</td>
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<td>Master in Public Health Program</td>
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http://www.umassmed.edu/ccts/education
Mentored Career Development (KL2) Training Program

Program Leaders

John F. Keaney, Jr., MD

Jeroan Allison, MD, MSc

http://www.umassmed.edu/ccts/education/KL2-training-program/
Mentored Career Development (KL2) Awardees 2016

Stephanie P. Carreiro, MD
Assistant Professor
Department of Emergency Medicine, UMMS

iSense: Wearable Biosensors to Evaluate the Evolution of Opioid Tolerance

Mara Meyer Epstein, ScD
Assistant Professor
Department of Medicine, UMMS

Population-based Research on Monoclonal Gammopathy of Undetermined Significance (MGUS)
UMCCTS
Clinical Research Scholars
2007-present

with

34 Unique Mentors

creating

24 Different Collaborations OVER
13 Unique Institutional Affiliations

generating

$35.5 million in Grant Funding to Date

30 Successful Grant Applications

250+ Peer-Reviewed Journal Articles

Spring 2016
Pre- and Post-Doctoral Fellowship Training Program

Program Leaders

Silvia Corvera, MD

Kate Lapane, PhD

http://www.umassmed.edu/ccts/education/t-training-program/
<table>
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<tr>
<th>Pre-Doctoral Awardees</th>
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<tr>
<td><strong>Alec Gramann, MD</strong></td>
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<tr>
<td>Evaluating anti-GDF6 Treatment as Potential Therapy for Advanced Melanoma and Breast Cancer</td>
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<tr>
<td><strong>Apurv Soni, MD</strong></td>
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<tr>
<td>Understanding Predictors and Trends of Maternal and Child-Health in India at an Individual, Community, and Population Level: Challenges and Opportunities for Improvement</td>
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<td><strong>Jacob Hunnicutt, MPH</strong></td>
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<td>Building the Evidence Base to Improve Pain Management in Nursing Home Residents with Cancer</td>
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<tr>
<td><strong>Matthew Alcusky, PharmD, MS</strong></td>
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<td>Neglected by the Evidence: Pharmacoepidemiologic Research in Older Adults with Cardiovascular Disease</td>
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<tr>
<td><strong>Vijaya Daniel, MD, MPH</strong></td>
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<td>Microbial Determinants of Gastrointestinal Perforation Incidence and Outcomes</td>
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<tr>
<td><strong>Jonathan Green, MD</strong></td>
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<td>Implementation and Utilization of Mobile Technology in Adolescent Bariatric Surgery Patients</td>
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Team Science Webinar Series

Transdisciplinary, Translational Team Science: What is the Optimal Role for Nurse Scientists?

Laura L. Hayman, PhD, MSN, FAAN
Associate Vice Provost for Research and Graduate Studies
Professor of Nursing
University of Massachusetts Boston
Adjunct Professor of Medicine, Division of Preventive and Behavioral Medicine
University of Massachusetts Medical School

Wednesday, May 11, 2016
10:00 – 11:00 am
Webinar

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<tr>
<th>Date</th>
<th>Speaker(s)</th>
<th>Title</th>
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<tr>
<td>January 26, 2016</td>
<td>Sherry Pagoto, PhD and Ed Boudreaux, PhD</td>
<td>Team Science in mHealth Research</td>
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<td>February 22, 2016</td>
<td>Robert Milner, PhD</td>
<td>Myths and Realities of Mentoring</td>
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<td>March 24, 2016</td>
<td>Nancy J. Cooke, PhD</td>
<td>Enhancing the Effectiveness of Team Science</td>
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<td>April 28, 2016</td>
<td>Beth McCormick, PhD joined by Doyle Ward, PhD and Jeff Blanchard, PhD</td>
<td>The Center for Microbiome Research and Our Approach to Team Science</td>
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<tr>
<td>Time</td>
<td>Session</td>
<td>Moderators</td>
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| 10:00-11:10 | **1. Biomechanical Gait Analysis for Improving Clinical Outcomes:** Applications for Orthopedics, Geriatrics and Community Based Research  
Moderators: Katherine Boyer, PhD and Patricia Franklin, MD |                                                                            |
|        | **2. Innovations for Vulnerable Populations in Massachusetts**  
Moderator: Melissa Clark, PhD |                                                                            |
|        | **3. Interdisciplinary Mobile Health and Sensing Research**  
Moderators: David D. McManus, MD, ScM and Deepak Ganesan, PhD |                                                                            |
| 11:15-12:25 | **4. Advancing Translational Research at the UMass Amherst Center for Personalized Health Monitoring**  
Moderator: Patty Freedson, PhD |                                                                            |
|        | **5. Shark Tank-UMass Spin-out Life Sciences Start-ups**  
Moderator: Stephen McCarthy, PhD |                                                                            |
|        | **6. The Challenge of Maintaining Our Physician-Scientist Workforce**  
Moderator: Heena Santry, MD, MS |                                                                            |
New Website!

Research @ UMMS

www.umassmed.edu/research-home