

# Mentoring Young Scientists in Translational Research

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# What is “translational research”?



*transformative research?*

*advancement of applied science?*

*translational science?*

*“from bench to bedside”*



*market research?*

*participative science?*

*translational medicine?*

# What is “translational research”?



...to integrate advancements in biomedical research with clinical trials, taking research from the “bench-to-bedside” ...



# What is “translational research”?



## T1 Translational Research

-the transfer of new understandings of disease mechanisms gained in the laboratory into the development of new methods for diagnosis, therapy, and prevention and their first testing in humans.

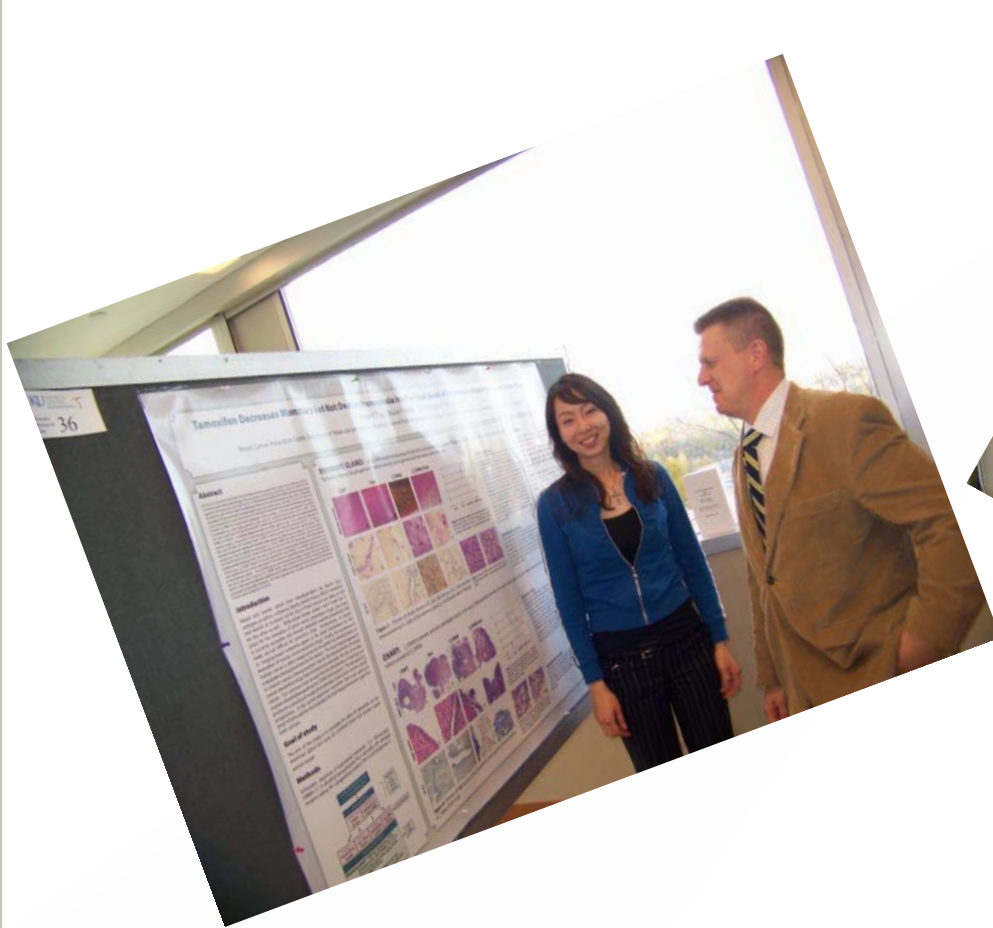


## T2 Translational Research

-the translation of results from clinical studies into everyday clinical practice and health decision making.



# How do we train young scientists in translational research?



# Translational Training Opportunities in Kansas



- INBRE
  - K-INBRE Partnerships for Translational Research Training Core
- T32s
  - Neurological And Rehabilitation Sciences Training Program
- CTSA
  - Frontiers: The Heartland Institute for Clinical and Translational Research
- MD/PhD programs
- Short-term Research Training Programs
- Daily Laboratory training
- Grant Writing skills





# K-INBRE Partnerships for Translational Research Training Core



- provides cross-disciplinary training for **clinical scientists** and for **basic scientists**
- financially supports clinical/basic scientist teams in the initial steps of collaboration
- provides (a) advice on teamwork, (b) information on institutional and Kansas resources, and (c) oversight of team collaboration and successes



- provides opportunities for **resident physicians**, **postdocs** and **students** to engage in translational research

# Neurological And Rehabilitation Sciences Training Program



Provides interdisciplinary training for predoctoral students in translational research related to neurological conditions and rehabilitative treatments.

Both **scientists** and **clinicians** to collaborate in the interdisciplinary training of students.

## Highlights:

- required **basic science** and **clinical mentor**
- coursework: Introduction to Clinical Research
- clinical rotations - five ½ days shadowing
- Translational Discovery Forums



# The Clinical and Translational Science Awards (CTSA)

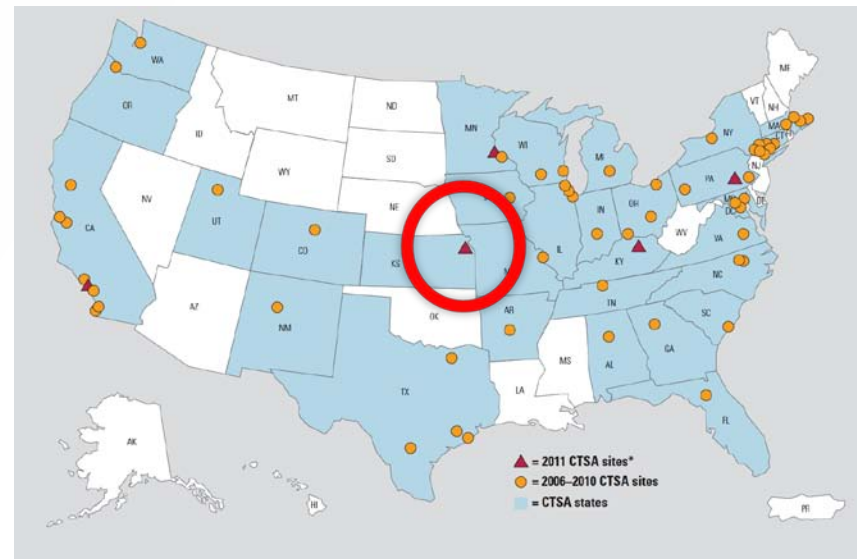


## Clinical and Translational Science Awards ([www.ncrr.nih.gov/ctsa](http://www.ncrr.nih.gov/ctsa))

- Supports a national consortium of medical research institutions that are transforming the way biomedical research is conducted.

### Goals:

- accelerate the translation of laboratory discoveries into treatments for patients
- engage communities in clinical research efforts
- **train a new generation** of clinical and translational researchers.





# Frontiers: The Heartland Institute for Clinical and Translational Research

## Clinical and Translational Research Education Center (CTREC)

Five training programs:

- Pre-doctoral trainees: (CTREC-T32).
- Junior faculty: (CTREC-KL2).
- Postdoctoral fellows and junior faculty: Curriculum Program (CTREC-CP).
- Predoctoral students: Summer Research Training Program (CTREC-SP).
- Training Program for Research Support Personnel (CTREC-RSP).

<http://www.kumc.edu/frontiers/researcher-resources/clinical-and-translational-research-education-center-ctrec.html>



# MD/PhD Programs



Goal: To prepare highly qualified and motivated students for careers as **physician scientists** in academic medicine and biomedical research.

## Issues:

- PhD component mentored by a PhD
- Loss of contact with the clinics
- Inadequate classes introducing translational research



# Short-term Research Training Programs



- Undergraduate Research Programs (K-INBRE)
- Summer Research Training Programs (Medical Students)
- CTSA and T32 summer programs



## Issues:

- places students in basic science laboratories
- no required clinical or translational components
- considerable oversight necessary
- funds may be required to support the student



# Daily Laboratory Training

Review clinical papers?

Attend clinical meetings?

Lab visits by lay public or patient groups?

Is your research model relevant to disease?

Active in disease-related charities?



# Grant Writing Skills



Educating students (and faculty) to write NIH grants that are translational...

- Significance section
- Appropriate models
- Translational potential
  - new treatment strategies?
  - new pharmacological tools?
  - new biomarkers or predictors



# Future Challenges



- How do we educate mentors in translational research?
- How do we get clinicians and basic scientists to “talk” to each other?
- How do we integrate this approach at the undergraduate level?



# When do we start training them?

