

TRAC



Tuberculosis Research
Advancement Center



Texas Biomedical
Research Institute

The Interdisciplinary NexGen TB Research Advancement Center (IN-TRAC)



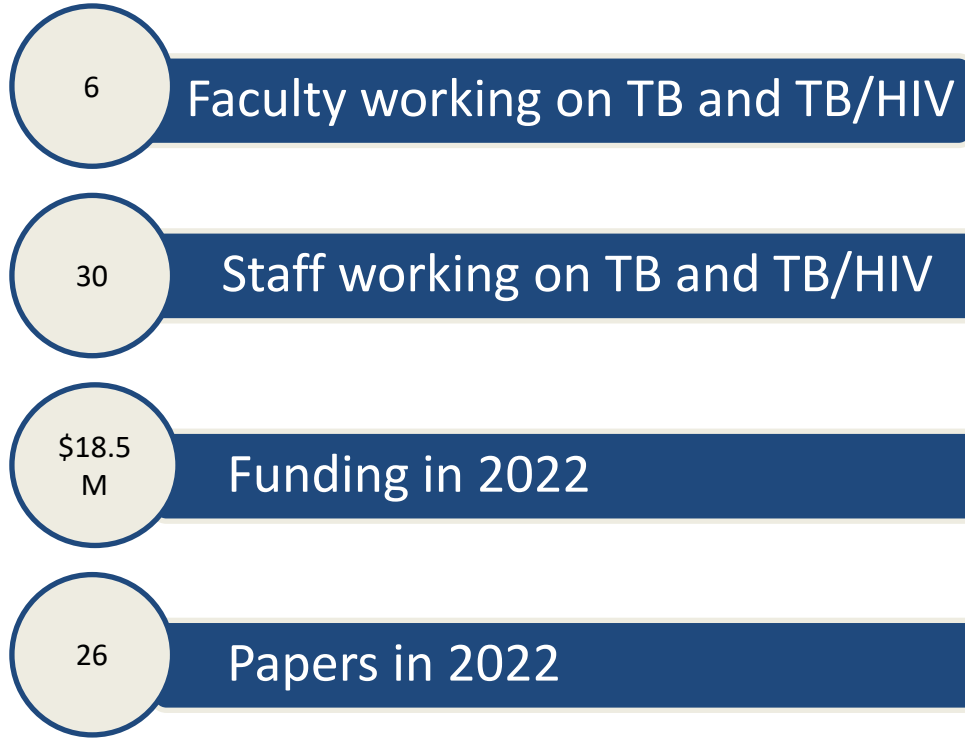
TEXAS BIOMEDICAL
RESEARCH INSTITUTE
HEALTH STARTS WITH SCIENCE

Texas Biomed is a leading research institute pioneering and sharing scientific breakthroughs to protect you, your families and our global community from the threat of infectious diseases

- Independent nonprofit
- 400+ employees
 - 70+ PhD/MD/DVM scientists
 - 30 faculty (22 scientists/8 vets)
 - 20 post-docs/13 graduate students
 - 20 adjuncts/6 emeritus
- 200+ acres
 - 70,000 sq. ft. of lab space
 - BSL3 and BSL4 facilities
- 3 interacting scientific programs/SNPRC
 - 4000+ animals (NHPs/rodents)
 - 200+ research projects



Rich Community of TB Researchers at Texas Biomed



Resources in BSL3

- **Imaging:** PET/CT, IVIS
- **Aerobiology:** rodent/NHP
- **Metabolism:** EPR, Seahorse
- **Cell profiling:** Cytation 5, 10x scRNAseq, cell sorter
- **Animal models:** NHP, mice, hamsters

Overview

IN-TRAC

\$5.8M for 5 years for Texas Biomed to:

- Attract the next generation of diverse researchers to the TB research field.
- Train in multi-disciplinary skills and real-world experience of clinical TB.

Mission:

Develop individuals with a complement of research knowledge that allows a researcher to move with confidence across multiple disciplines combined with an appreciation for the complexities of clinical management of TB, and the skills to communicate effectively, that choose to work on some of the most challenging and relevant translational problems.



TX Biomed IN-TRAC Cores

Administrative Core (AC)

Central hub of IN-TRAC management and oversight

Development Core (DC)

Career development programming and courses

Biosafety & Biocontainment Core (BBC)

Biosafety & biocontainment curriculum including theoretical and hands-on training

Research Imaging Core (RIC)

Theoretical and hands-on training from single cell to whole body imaging in mice and NHPs

Animal Model Core (AMC)

Hands-on animal handling and experimental procedures, and regulatory requirements

Clinical Research & Patient Care Core (CRPCC)

TB patient care and clinical research



Enrollment and curriculum

- An agreement is developed with supervisors to commitment to their trainee participation.
- Assign participant to each Core for one quarter, and each Core experience will last no more than 3 months.
- **Personalized to each participant's current expertise and synergized with current research projects.**
- Establish externships for participants as needed.

Year	1				2				3			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4
Onboarding	■											
Mentor assignment/IDP	■											
Intern/externship scheduling	■				■				■			
Establishing an independent lab	1 meeting each month for a year; recurring as needed											
Responsible conduct of research	1 meeting each month for a year; recurring as needed											
Business development	1 meeting each month for a year; recurring as needed											
Communications	1 meeting each month for a year; recurring as needed											
Grant writing course		■	■			■	■			■	■	
Pilot grant submissions				■				■				■
Internships	1-4 per year, depending on participant											
Externships	1-4 per year, depending on participant											



Externships

On-site training

- Crash course introduction to TB
- Immunology of *M.tb* infection
- Cell biology of *M.tb* infection
- M.tb* cell envelope physiology and biochemical analyses
- Interpreting rodent or NHP tissue pathology
- NHP models of TB/HIV and neonatal TB models
- Multi-parameter flow cytometry and cell sorting
- Confocal microscopy and HALO software



On site or remote 1-2 week externships

- Dr. Basaraba** (Colorado State University): Guinea pig model of TB
- Dr. Tobin** (Duke): Zebrafish model of TB
- Dr. Subbian** (Rutgers): Rabbit models of TB
- Dr. Yotebieng** (Albert Einstein): epidemiological studies of TB
- Dr. Jackson** (Colorado State University): Genetic manipulation of *M.tb*
- Dr. Clarke** (UT San Antonio): MRI imaging
- Dr. Zhao** (UT Houston): Stats analysis of populations, informatics
- Dr. Barreiro** (U. Chicago): genomic technologies, analytic platforms

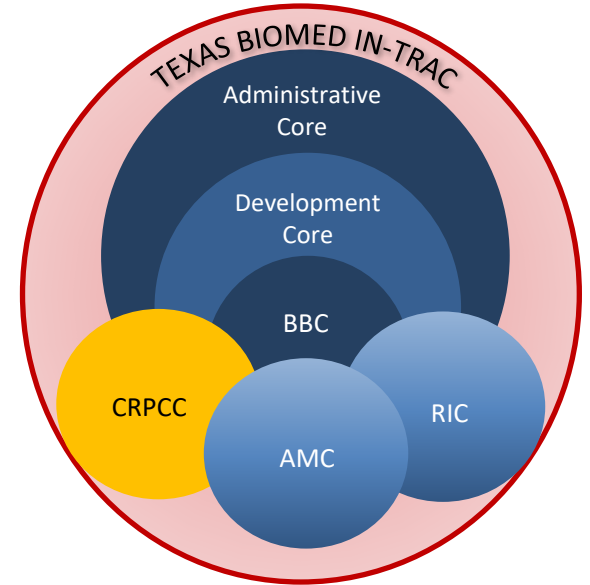


Clinical Research & Patient Care Core (CRPCC)

(Restrepo/Armitige/Seaworth/Schlesinger)

TB inpatient and outpatient care at the only free-standing TB hospital in the US (TCID) and an active public health clinic (SACC)

A **clinical research experience** at the US-Mexico border, to learn about TB studies in under-served and under-resourced communities



A program of continuous learning

Establishing an independent lab class
Manuscript writing classes
Mentoring Program
Grant writing courses (Pilot research grants)
Responsible conduct of research



Measurements for effective training

IN-TRAC monthly meetings

Seminar series

Communications 101

Business Development 101

