CTTP: Cancer Therapeutics Training Program

A new CPRIT-funded training program organized under the auspices of the GCC for Innovative Drug Discovery and Development (IDDD) and its core facilities to support drug discovery and development research in Texas

Goal: To prepare postdoctoral scientists for careers in academic and/or commercial cancer therapeutics R&D
Background

• Needs Assessment Survey of > 200 postdocs participating in GCC-IDDD Programs, faculty labs and core facilities - 61 respondents
• 95% identified significant deficits in the training and resources at their individual institutions as impediments to their current cancer therapeutics research.

Training needs identified included:
1) Fundamentals of drug discovery and development research
2) Introduction to specialized equipment and technologies
3) Increased opportunities for collaboration and networking
4) Participation in programs to support career development
CPRIT Training Grant Leadership Team

**Administrative Staff**
- Vanessa Herrera
  - GCC
- Karen Ethun
  - GCC

**Steering Committee (IDDD)**
- Zhiqiang An (UT Health)
- Scott Gilbertson (U of H)
- Dong Liang (TSU)
- Wenshe Liu (TAMU)
- Suzanne Tomlinson (GCC)
- Stan Watowich (UTMB)
- Damian Young (BCM)
- Cliff Stephan (IBT/TAMU)
- TBN (MDACC)
Guiding Principal: To provide CTTP Trainees with a broad – based introduction to the principles and practical aspects of cancer therapeutics R&D while minimizing disruption of their post-doctoral research activities.

1. Cancer Therapeutics Research Program
2. Instructional Curriculum
3. Career Development Program
1. Cancer Therapeutics Research Program

- Co-mentored research project(s) in cancer therapeutics research and/or development
- Core Lab Rotation (4 - 8 weeks) - Hands-on training in resources and technologies to support Cancer Therapeutics R&D

<table>
<thead>
<tr>
<th>Table I CFSA Drug Discovery and Development Core Laboratories</th>
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<tr>
<td>CFSA Core Facility</td>
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<tr>
<td>Combinatorial Drug Discovery Program</td>
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<tr>
<td>Preclinical Candidate Discovery Core</td>
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<tr>
<td>DNA-encoded chemistry technologies for preclinical leads</td>
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<tr>
<td>Center for Advanced Microscopy and Image Informatics</td>
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<tr>
<td>Center for Comprehensive PK/PD and Formulation</td>
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<tr>
<td>small molecule PK/PD and formulation profiling</td>
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<tr>
<td>High-throughput Flow Cytometry Core</td>
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<td>High-throughput flow cytometry – based library screening</td>
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2. Instructional Curriculum

- **Foundations of Cancer Therapeutics Research - Crash Course**
  - 2 weeks (Aug. 16 - 27)
- **Advanced Courses (Elective) - to audit as needed**
- **IDDD Roundtable Workshops**
  - Monthly (2 hrs) – Workshops on latest advances in therapeutics R&D

<table>
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<tr>
<th>Representative Therapeutics Workshops - 2019 – 2020 (Total =12)</th>
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| **Focus on the End Game: Developing a Valuable Target Product Profile (TPP)**  
Brett Cornwell, Ex. Dir., TAMU Technology Commercialization & Phil Jones, Head, Inst. Applied Cancer Science (IACS) at MD Anderson |
| **High Throughput Screening (HTS): A discussion of HTS resources, applications, and best practices**  
| **Emerging Screening Technologies: DNA-encoded libraries and fragment-based approaches for screening**  
Lisa Marcaurelle, Dir. Chemistry, GlaxoSmithKline & Damian Young, Center for Drug Discovery, Baylor College of Med. |
| **Computational Drug Discovery and Lead Optimization: use of with transformative physics and machine learning-based computational modeling**  
Matt Repasky, VP Life Sciences Products, Schrödinger & Jason Cross, Structural Chemistry Lead, IACS |
| **Therapeutic Antibody Drug Discovery and Development: challenges and opportunities**  
Ross Chambers, VP of Antibody Discovery, Integral Molecular & Zhiqiang An, Dir. Texas Therapeutics Institute |
| **Medicinal Chemistry in Lead Optimization: Targeted protein degradation and glutaminase addition in cancer: development of a GLS1 inhibitor**  
Andy Phillips, Pres. & CEO, C4 Therapeutics & Michael Soth, Institute Group Leader In Medicinal Chem., IACS |
| **Starting a Biotech Company: a discussion of successes and challenges with academics and local entrepreneurs**  
Brittany Barreto, Capital Factory; Bala Raja, Luminostics; Donna Chang, Hope Biosciences; Shautong Song, iCell Kealex; and Magnus Hook, TAMU IBT |
| **Lessons in Biotech Leadership: Challenges of translating therapeutics from an academic setting to industry**  
Peter Hoang, President & CEO, Marker Therapeutics & Gaylen Paulson, As. Dean and Dir. TX Exec. Education, McCombs School of Business, UT Austin |
2. Instructional Curriculum - Core Competencies

- Responsible Conduct of Research Certification (if needed)

- Rigor & Reproducibility Workshop
  - 1 day GCC workshop offered 2x per year

- Diversity, Disparities and Community Engagement Workshop
  - New 1 day workshop offered 2x per year being developed by GCC/TSU/UofH
3. Career Development Program

• IDDD Careers Roundtables (monthly) – Networking sessions

• CTTP trainee meetings (monthly)

• Career/skills building workshops at trainee institutions (elective)

• Research presentations at local and national conferences

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<th>IDDD Annual Conferences 2015-2020 (Total =6)</th>
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<tr>
<td><strong>Recent Advances in the Development of Combinatorial Therapies for Cancer</strong></td>
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<tr>
<td>Peter Davies and Clifford Stephan, Institute of Biosciences and Technology - Texas A&amp;M Health Science Center (IBT/TAMU)</td>
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<td><strong>Fragment-Based Drug Discovery</strong></td>
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<tr>
<td>Philip Jones, MD Anderson; Damian Young, Baylor College of Medicine (BCM); and Kevin Dalby, UT Austin</td>
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<tr>
<td><strong>Imaging-based Single Cell Analytics: Applications for Cancer Cell Biology and Therapeutics</strong></td>
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<tr>
<td>Michael Mancini, BCM; David Andrews, University of Toronto; Peter Davies, IBT/TAMU, Fabio Stossi, BCM</td>
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<tr>
<td><strong>Innovations in Drug Discovery and Development</strong></td>
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<tr>
<td>Philip Jones, MD Anderson; Suzanne Tomlinson, GCC; Stan Watowich, UTMB</td>
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CTTP Trainees

- For Year 1, goal is to enroll up to 12 Postdoctoral trainees

- Eligibility:
  - Must be enrolled in a GCC member institution (Texas A&M/IBT, Rice Univ, MD Anderson Cancer Center, Univ of Houston, UTMB, UT-Health; Baylor College of Medicine) or one of the CTTP partner institutions (Texas A&M Univ, Texas Southern Univ)
  
  - Must have completed their doctoral degree and be engaged in post-doctoral training (1\textsuperscript{st}, 2\textsuperscript{nd} or 3\textsuperscript{rd} year of training)
  
  - May be US Citizens, Permanent Resident or a Foreign National with a current visa that allows for postdoctoral training
  
  - Must be engaged in some aspect of cancer therapeutics research and/or development
CPRIT CTTP Fellowship Awards

- CPRIT CTTP Training Grant Award provides funding for up to 8 post-doctoral fellowships per year (4 in year 1; 8 in years 2-5)
- CPRIT Fellowship Awards are limited to CTTP Trainees working with faculty in the 4 CTTP “Partner” Institutions
  - Texas A&M Univ and Texas A&M/IBT
  - Texas Southern Univ
  - Baylor College of Medicine
  - UT Health – Houston
- CPRIT Fellowship Awards provide NRSA-level postdoctoral fellowship salary support for 1 year and are renewable for a 2nd year based on research progress and adherence to CTTP requirements
Application Timeline

How to Apply

Information and training application form will be posted on GCC CTTP website

Call for applications  June 10
Letter of Intent due  June 20
Applications due  July 8
Selection of CTTP Trainees announced  July 14
Applicants for CPRIT Fellowships notified about interview  July 14
Interviews for CPRIT fellowships  July 23
Selection of CPRIT fellows announced  July 25

CTTP Start Date  August 1
PART 1 – all CTTP Trainee Applicants will provide:
- Project Description
- Mentoring Plan
- Career Goals
- CV, Resume (Trainee and Mentor(s))
- List of Publications (Trainee and Mentor(s))
- Recommendation letters from primary mentor and co-mentor

PART 2 - Additional information for CPRIT CTTP Fellowship Award Applicants
- 2 additional recommendation letters
- For non-US citizens, documentation of work visa status

Application review
- CTTP Steering Committee will review CTTP Trainee and Fellowship Applications
  - Up to 12 CTTP Trainees will be selected from applications
  - Qualified CTTP Trainees applying for Fellowship awards will be selected for interview
  - For Year 1 up to 4 qualified Fellowship applicants will be selected for CPRIT CTTP Fellowship Awards
Questions?

Leadership Team

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Suzanne Tomlinson
Wenshe Liu
Zhiqiang An

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Application Questions:

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<th>Year 1</th>
<th>Year 2</th>
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<tr>
<td><strong>Year Round Activities</strong></td>
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<tr>
<td>Mentored Research Project (Full time)</td>
<td>CTTP careers Roundtable; “Post-doc” Only Meeting</td>
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<td>(Monthly) IDDD Therapeutics Workshop;</td>
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<td><strong>Summer 1</strong></td>
<td><strong>Summer 2</strong></td>
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<tr>
<td>Fundamentals of Cancer Therapeutics (2 weeks)</td>
<td>Rigor and Reproducibility Workshop (1 day)</td>
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<td>Research Conference 1 (2 day)</td>
<td>Research Conference 2 (2 day)</td>
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<td><strong>Semester 1</strong></td>
<td><strong>Semester 3</strong></td>
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<tr>
<td>Elective Graduate Course 1 (3hrs/week, 3 months)</td>
<td>Elective Graduate Course 2 (3hrs/week, 3 months)</td>
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<tr>
<td>Skill Building Workshop 1 (2 day)</td>
<td>Diversity Workshop (1 day)</td>
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<td><strong>Semester 2</strong></td>
<td><strong>Semester 4</strong></td>
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<td>Rotation / Internship 1 (1/2 time, 4-8 weeks)</td>
<td>Rotation / Internship 2 (1/2 time, 4-8 weeks)</td>
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<tr>
<td></td>
<td>Skill Building Workshop / Grants 101</td>
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