CPRIT Investments

1,321 Awards Totaling $2.17 B

- Academic Research
  1077 awards, $1.57 B

- Product Development Research
  35 awards, $380.4 M

- Prevention
  209 awards, $223.1 M

Combined research awards:
1,112 awards, $1.945 B

- Clinical Research (30.5%) $592.8 M
- Translational Research (25.3%) $491.7 M
- Recruitment (26.8%) $522.0 M
- Basic Research (14.3%) $279.1 M
- Research Training (3.1%) $59.9 M

November 2018
CPRIT Investments: $2.17 Billion

Awards to 101 organizations in 27 cities

- 35 Academic Research Institutions
- 36 Community and other Organizations
- 30 Companies

CPRIT investments have built a vibrant life sciences and prevention infrastructure in Texas

November 2018
CPRIT Investments: Paying Dividends Now

| Dramatically heightened research capabilities in areas like immunotherapy and childhood cancer |
| Boosted the national and international reputations of Texas’ higher education institutions including tripling the number of NCI Designated Comprehensive Cancer Centers |
| Provided life-extending results through prevention screenings that detected 17,750 cancers and cancer precursors and enrolled 1,963 patients in 63 Phase 1 and 2 clinical trials |
| Catalyzed the life sciences industry in Texas by bringing companies, expertise, jobs, and over $1.7 billion in non-state investment; Houston ranks among the top 16 leading life sciences clusters in the nation |
**CPRIT: Building a Vibrant Infrastructure**

| **Brought talent, high quality jobs, and additional federal and non-state investment** | Recruited 166 scientists to 18 institutions adding more than 5,000 productive research years in Texas. |
| **Developed the next generation of cancer researchers and increased cancer research workforce diversity** | To date over 800 trainees have been supported through Research Training Awards at 9 institutions |
| **Expanded prevention service delivery** | Largest prevention program in Texas history reduces risk, prevents cancer, disseminates successful CPRIT-funded projects, improves the healthcare system and reduces health care costs |
| **Strengthened the Texas life sciences ecosystem** | Industry has grown by 30 CPRIT-funded companies; including 11 that have relocated and brought new C-level talent. Twenty-two companies connect and collaborate with Texas institutions. |
CPRIT was established to:

1. Attract, Create and Expand Research Capabilities in Higher Education

2. Attract, Create and Expand the Capabilities of Private Entities and Create High-Quality New Jobs

3. Expedite Innovation in Research and Enhance the Potential of Breakthroughs in Prevention and Cures
1. ATTRACT, CREATE AND EXPAND RESEARCH CAPABILITIES IN HIGHER EDUCATION

- **166 stellar researchers** recruited to Texas institutions
- **3 NCI** comprehensive cancer centers – previously only MD Anderson
- **$977 million** in direct follow-on funding to CPRIT academic grantees
- **43 core** facilities to provide access to cutting-edge shared technology

- James Allison
  2018 Nobel Prize in Physiology or Medicine

- Livia Schiavinato Eberlin
  2018 MacArthur Foundation Fellowship “Genius Award”

- Zhijian Chen
  2018 Breakthrough Prize in Life Sciences
Academic Research Grant Recipients

- Baylor College of Medicine
- Baylor Research Institute
- Baylor University
- Houston Methodist
- Rice University
- Scott & White Healthcare
- Texas Engineering Experiment Station
- Texas A&M Health Science Center Research Foundation
- Texas A&M University
- Texas A&M University System Health Science Center
- Texas AgriLife Research
- Texas Southern University
- Texas State University - San Marcos
- Texas Tech University
- Texas Tech University Health Sciences Center
- Texas Tech University Health Sciences Center at El Paso
- The Methodist Hospital Research Institute
- The University of Texas at Arlington
- The University of Texas at Austin
- The University of Texas at Dallas
- The University of Texas at El Paso
- The University of Texas at San Antonio
- The University of Texas Health Science Center at Tyler
- The University of Texas Health Science Center at Houston
- The University of Texas Health Science Center at San Antonio
- The University of Texas M. D. Anderson Cancer Center
- The University of Texas Medical Branch at Galveston
- The University of Texas Southwestern Medical Center
- University of Houston
- University of North Texas
- University of North Texas Health Science Center at Fort Worth

November 2018
Expanding Capabilities and Expediting Innovation

Centers of Excellence Catalyzed by CPRIT

- Nicolaou Research Accelerator collaboration with AbbVie
- SU2C “Immunology Dream Team” & Parker Institute Center
- NIH Proteogenomic Translational Research Centers
- NCI Kidney Cancer SPORE
Creating a Cancer Fighting Ecosystem

James Brugarolas, MD, PhD

• Director of the Kidney Cancer Program and Brugarolas Labs

• Recipient of 6 CPRIT Academic Research grants exceeding $5.5 million

• CPRIT seeded an NCI Specialized Program of Research Excellence (SPORE) award of $11 million, one of two in the nation for kidney cancer

• Patient survival rates double national benchmarks for stage IV patients

• Only program to develop a new drug for kidney cancer going from gene discovery to clinical trials

• Developing a promising first in class treatment for kidney cancer with Peloton Therapeutics
2. ATTRACT, CREATE AND EXPAND THE CAPABILITIES OF PRIVATE ENTITIES AND CREATE HIGH-QUALITY NEW JOBS

- **30 biotech** companies started or expanded, including 11 brought to Texas
- CPRIT awards increase VC biotech investment in Texas by **11 percent**
- **$1.75 B** (>4 to 1) direct follow-on funding to CPRIT companies
- **$1.38 B** in 2018 total expenditures
- **$58 million** annual state and local tax collections
- **Over 10,100** permanent jobs created in 2018
Creating a Cancer Fighting Ecosystem

Location of CPRIT funded companies
Texas Company-Academic Institution Collaborations

January 2019
Additional Money Invested In Companies After CPRIT Award

$380.4 M
CPRIT Company Awards

$1.75 B
Additional Non-state Funding

December 2018
CPRIT Companies On the Stock Exchange

- 12 CPRIT PD Awardees have become publicly traded companies after receipt of award

Aeglea Biotherapeutics *acquired Caliber Biotherapeutics
Aravive Biologics *acquired Visualase
Apollo Endosurgery
Bellicum Pharmaceuticals *acquired Rules Based Medicine
iBio *acquired Caliber Biotherapeutics
Medtronic *acquired Visualase
Medicenna Therapeutics, Inc.
Myriad *acquired Rules Based Medicine
Nexon
Salarius Pharmaceuticals
Synlogic *merged with Mirna
3. EXPEDITE INNOVATION IN RESEARCH AND ENHANCE THE POTENTIAL OF BREAKTHROUGHS IN PREVENTION AND CURES

- 109 clinical studies with 13,418 patients
- 14,250 cancer precursors and 3,492 cancers detected
- Nationally recognized teams and centers in immunotherapy and childhood cancers
- Over 4,200 published or pending findings & 246 patent applications

> 5 Million services provided
2.5 M Education and training of public and professionals

2.5 M Clinical services:
- Breast, cervical, colorectal screenings & diagnostics
- Hepatitis B & C screening
- HPV & Hepatitis B vaccinations
- Tobacco cessation counseling and treatment
- Genetic testing
- Survivor programs and services

COUNTIES OF RESIDENCE OF PEOPLE SERVED BY CPRIT PREVENTION PROJECTS

November 2018
Bringing Cures to the Patient

CPRIT focuses on the basic and translational stages of cancer research.

Drug Discovery Preclinical Clinical Trials FDA Review Mfg. Clinic

<table>
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<tr>
<th>Phase</th>
<th>Timeframe</th>
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<td>I</td>
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<td>0.5-2 Years</td>
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<tr>
<td>IV</td>
<td>Ongoing/Indefinite</td>
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Research Stages
- Basic Research
- Translational Research

Drug Development Pipeline
- 5K-10K Compounds
- 250 Preclinical
- 5 Clinical Trials
- 1 FDA Approved Drug

Funding Sources
- Largely Public Funded (e.g. NIH, DoD)
- Largely Industry & For Profit Funded
- Public & Private (Underfunded)

“Valley of Death”

Timeline
- 3-6 Years
- 6-10 Years
- 0.5-2 Years
- Ongoing/Indefinite

Average R&D cost for approved drug: $2 Billion

General timeframe to approved drug: 10-15 years
Providing Life Extending Results

CPRIT clinical studies

Interventional
84 studies
6,694 patients

Observational
25 studies
6,724 patients
Companies in Active Clinical Trials

Preclinical
- Curtana Pharmaceuticals
- Nexcelon
- Pelican Therapeutics
- tem

Phase 1 Clinical Trials
- aeglea bioteraftics
- Aravive Biologics
- Cat Pharma
- Formation Biologics
- immatics
- tem
- NanoTx Therapeutics
- Peloton Therapeutics
- Pulmotect
- Onconano
- Salarius Pharmaceuticals

Phase 2 Clinical Trials
- Bellicum Pharmaceuticals
- Cell Medica
- CerRx
- DNAtrix Therapeutics
- ViracYTE Advancing T cell Therapy
- Medicenna Therapeutics Corp.
“Immatics Initiates Second Phase I Clinical Trial of its Unique ACTengine® Platform in Patients with Advanced Solid Cancers”
– August 2018

“Regulatory approval to start our second clinical study in our ACTengine®-based cell therapy program is a significant step for Immatics…We are very excited to combine these capabilities in a trial led by the world-class investigators from MD Anderson Cancer Center in order to develop exciting new treatment options for cancer patients.”

- Dr. Stephen Eck, CMO of Immatics US
Providing Life Extending Results

5 Million Prevention Services

2.5 M Education & Training for public and professionals

2.5 M Clinical services:
- Breast, cervical, colorectal cancer screenings & diagnostics
- Hepatitis B & C screening
- HPV & Hepatitis B vaccinations
- Tobacco cessation counseling and treatment
- Genetic testing
- Survivor programs and services

November 2018
Providing Life Extending Results

Screening Outcomes as of August 2018

1,214,979 screenings/diagnostics

355,689 people never before screened

14,250 Precursors detected

3,492 cancers detected
2018 Annual Economic Benefits

Annual employment due to CPRIT
> 10,100 jobs

State & Local Tax Receipts
$58 Million

Total Expenditures
$1.38 Billion

Personal Income
$499 Million

Retail Sales
$190 Million

Gross Product
$720 Million

Overall effects of CPRIT extend beyond the initial stimulus & business activity throughout the supply chain

Source: The Perryman Group, November 2018
THE PATH FORWARD: NEW OPPORTUNITIES
Projected Grant Funds Available

Fiscal Year

2018 2019 2020 2021 2022 2023

Millions

$-$ 0 0

Funding

$164 M General Revenue Request

$280 $280 $198 $198

$300 $250 $200 $150 $100 $50 $-

$100

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS
# CPRIT General Obligation Bond Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>FY 2019</th>
<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
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<th>FY 2024</th>
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Conservative assumptions:
1. No 2020-21 general revenue exceptional item funding; new bonds appropriated for first time in FY 2022
2. Contingency Bond Appropriations in 2nd year of biennium following election
3. RFAs can’t be issued in even year following election due to applicant preparation time & peer review

New Grants Funding Gap
Why 2019?

If we wait until 2021:

- 96,000 Texans won’t have access to life saving prevention services.
- Momentum will be lost in making Texas a “Third Coast” for biotechnology and biomedical research.
- $720 million per year lost in direct gross product
- Over 10,100 permanent high-quality jobs lost.
Opportunities

- Capitalize on CPRIT’s investments in improving outcomes in childhood cancer - Texas can be the world leader in childhood cancer research.
- Create and expand research and treatment capabilities at universities in all regions of the state.
- Expand clinical trial options to more people by reducing institutional and patient barriers to trials.
- Increase Collaborative Action Programs (CAPs) that target Texas-centric needs in cancer research and prevention. Our new liver cancer CAP is addressing liver cancer, which Texas ranks first among states in incidence rate.
Opportunities

- Expand coalitions and networks delivering cancer prevention services by providing supportive infrastructure.
- Take advantage of the pipeline of novel cancer discoveries at Texas universities by supporting transition of early stage development of Texas-based companies.
- Double the number of NCI Comprehensive Cancer Centers and elevate Texas institutions’ standing in prominent national reviews such as the *US News and World Report*’s rankings through increased research capacity, access to innovative technology, and recruitment of the next generation of scientific leaders.
- Co-invest with established bio-tech venture capital firms in promising Texas-based companies, sharing the risks and rewards equally.
Questions?

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