



CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

Investment, Infrastructure and Opportunities

Texas Healthcare & Bioscience Institute
February 11, 2019



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:

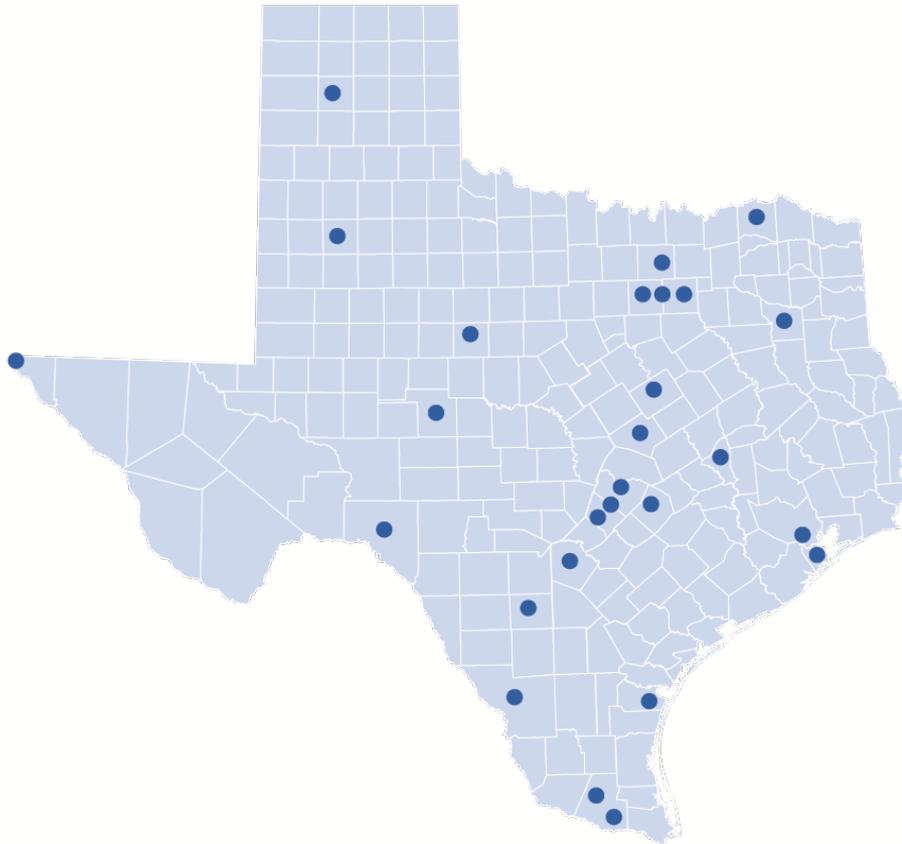
1,112 awards, \$1.945 B

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



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



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.



Real Momentum, Measurable Results



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

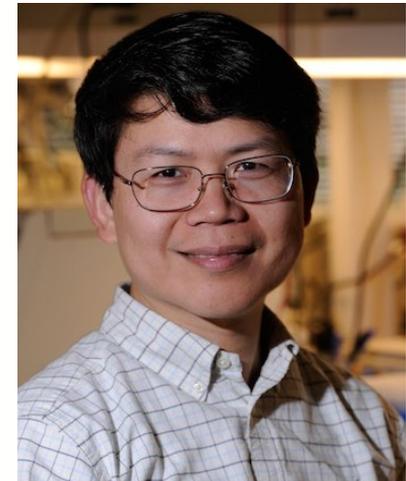
- ❑ **166 stellar researchers** recruited to Texas institutions
- ❑ **3 NCI** comprehensive cancer centers –previously only MD Anderson
- ❑ **\$977 million** in direct follow-on funding to CPRIT academic grantees
- ❑ **43 core** facilities to provide access to cutting-edge shared technology



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



Expanding Capabilities and Expediting Innovation

Centers of Excellence Catalyzed by CPRIT



RICE



Nicolaou Research Accelerator
collaboration with AbbVie

THE UNIVERSITY OF TEXAS

MDAnderson
~~Cancer Center~~

Making Cancer History®



SU2C “Immunology Dream Team” &
Parker Institute Center

Baylor
College of
Medicine



NIH Proteogenomic Translational
Research Centers

UTSouthwestern
Medical Center

Kidney Cancer Program



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

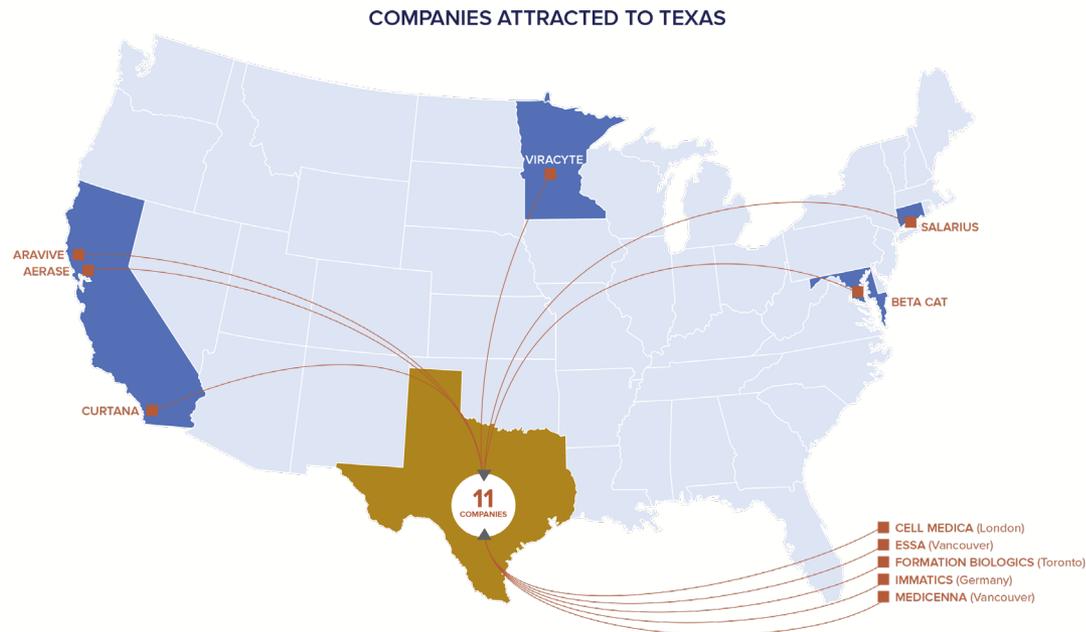
UTSouthwestern
Medical Center
Kidney Cancer Program



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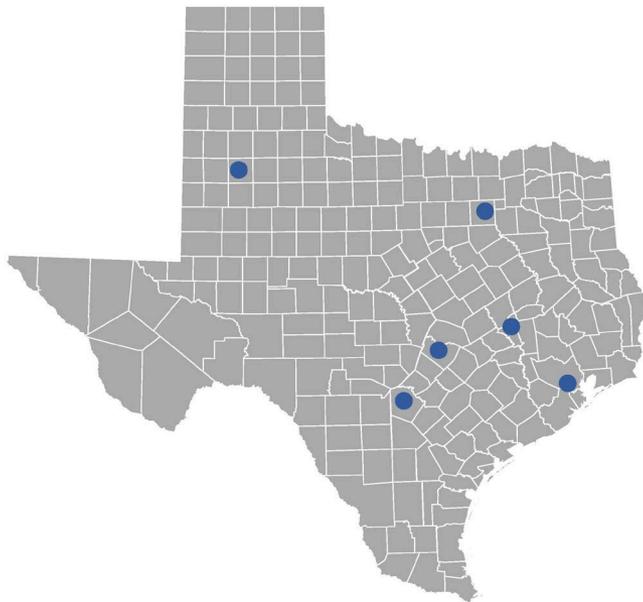
2. ATTRACT, CREATE AND EXPAND THE CAPABILITIES OF PRIVATE ENTITIES AND CREATE HIGH-QUALITY NEW JOBS

- ❑ **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

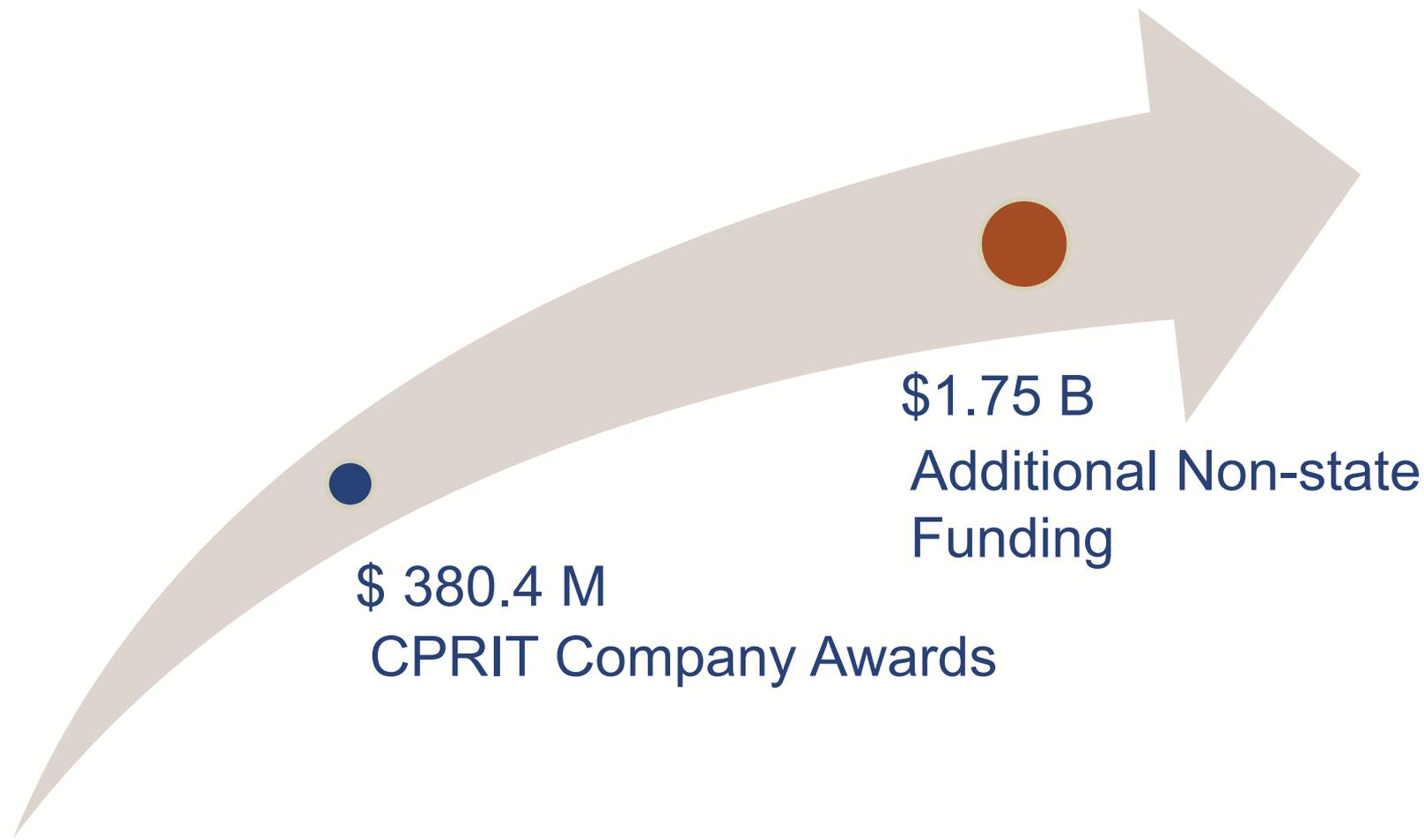
Location of CPRIT funded companies



Texas Company-Academic Institution Collaborations



Additional Money Invested In Companies After CPRIT Award



CPRIT Companies On the Stock Exchange

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



*acquired Caliber Biotherapeutics



*acquired Visualase



*acquired Rules Based Medicine



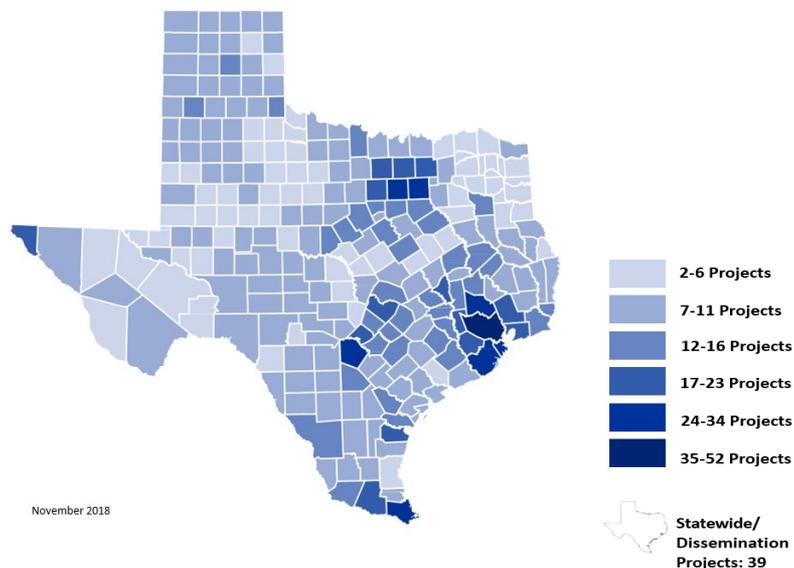
*merged with Mirna



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

COUNTIES OF RESIDENCE OF PEOPLE SERVED BY CPRIT PREVENTION PROJECTS



> 5 Million services provided

2.5 M Education and training of public and professionals

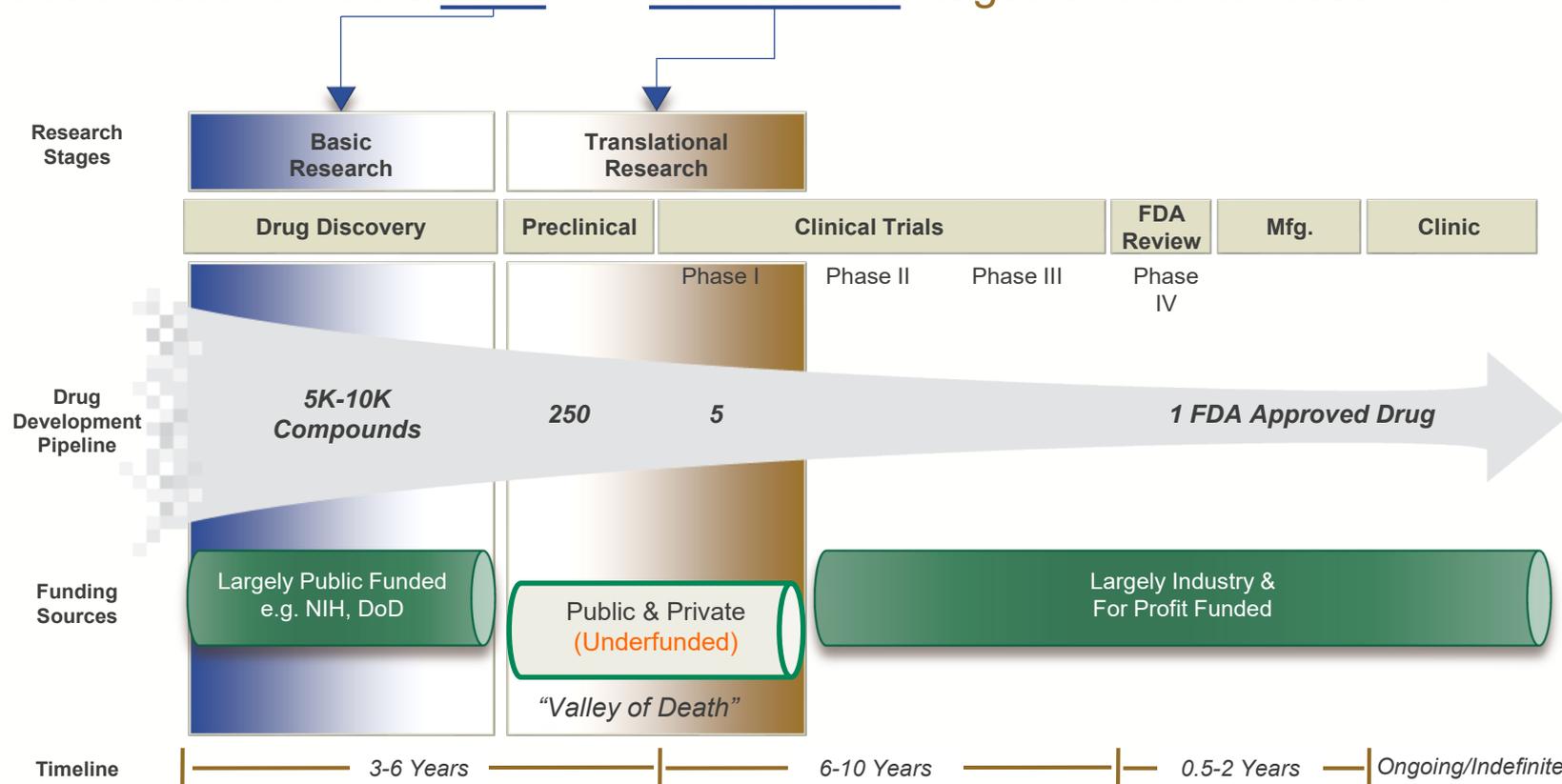
2.5 M Clinical services:

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



Bringing Cures to the Patient

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



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



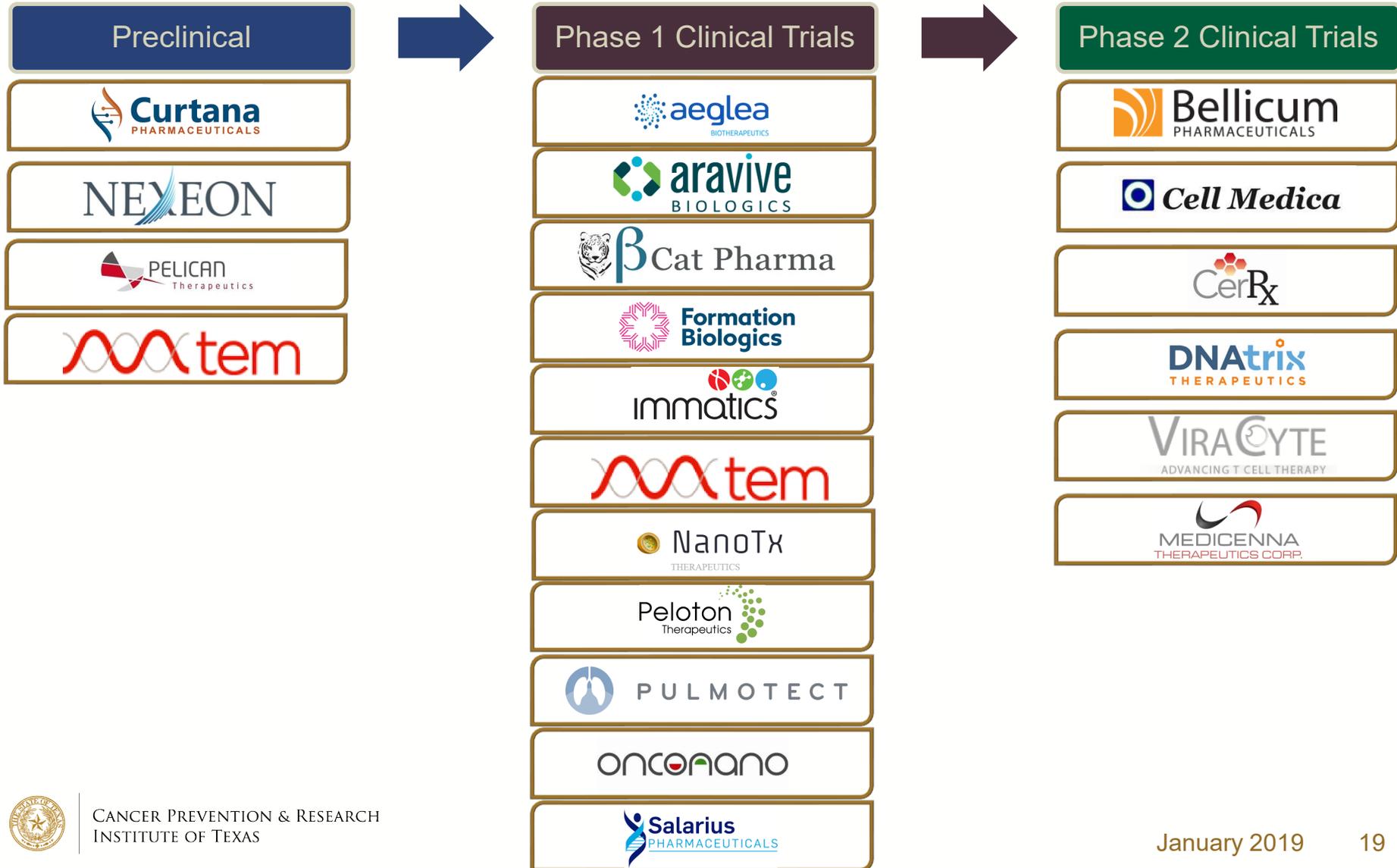
Observational

25 studies

6,724 patients



Companies in Active Clinical Trials



Providing Life Extending Results



“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



Providing Life Extending Results

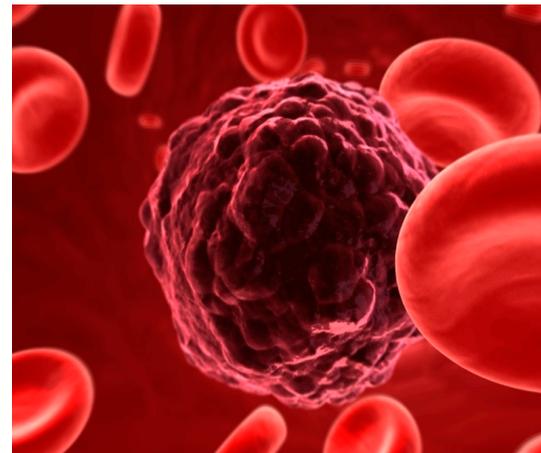
Screening Outcomes as of August 2018

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

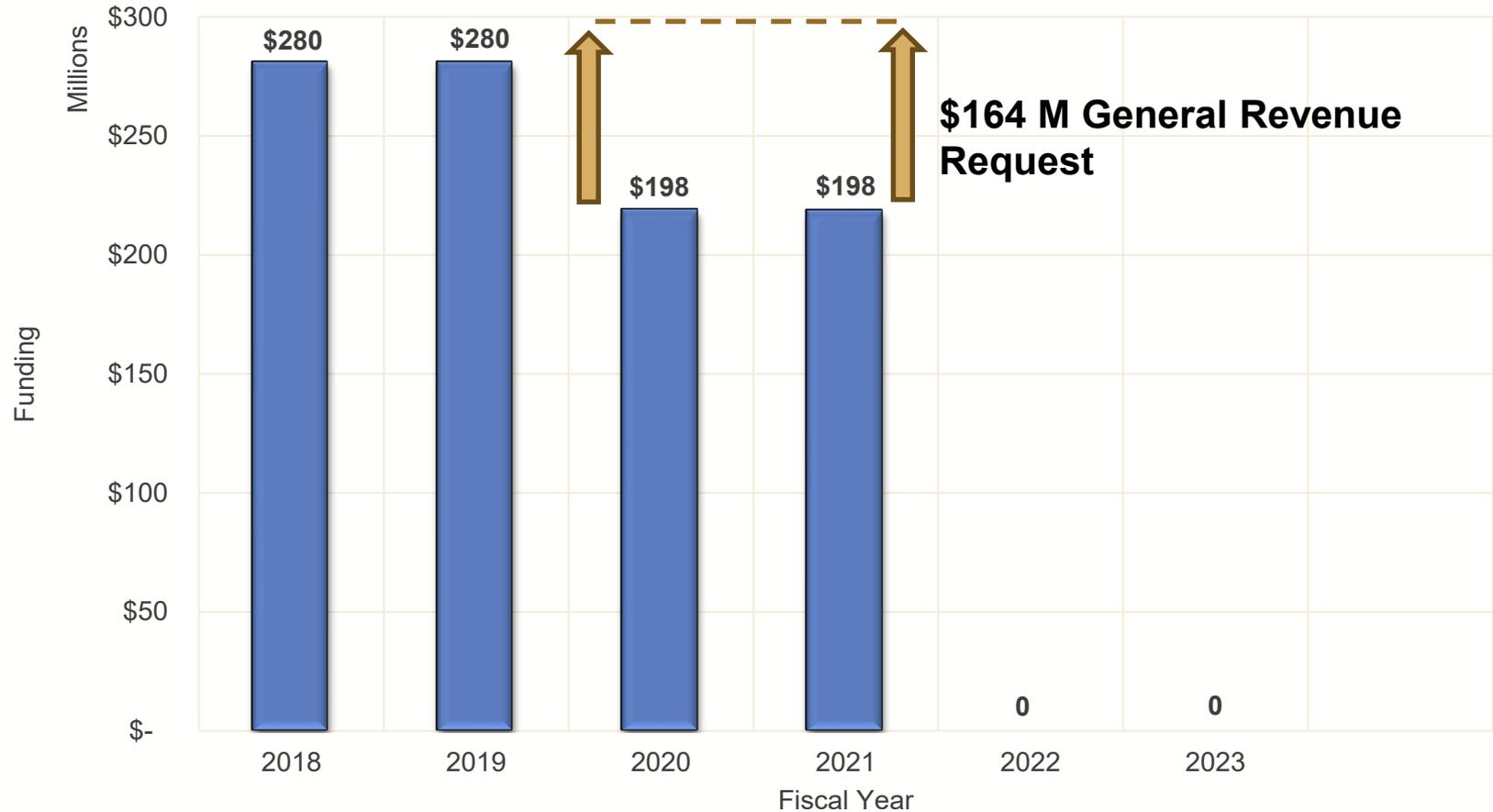
Source: The Perryman Group, November 2018



THE PATH FORWARD: NEW OPPORTUNITIES



Projected Grant Funds Available



CPRIT General Obligation Bond Scenarios

Scenario	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
1. 2019 November Bond Election								
Research & Prevention Grants (1)	280	198	198	280	280	280	280	280
2. 2021 November Bond Election								
Research & Prevention Grants (1)(2)(3)	280	198	198	0	280	280	280	280
3. 2023 November Bond Election								
Research & Prevention Grants (1)(2)(3)	280	198	198	0	0	0	280	280
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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