MD Anderson: Advancing Science, Discovery and Therapeutics in Cancer Care

Peter WT Pisters, M.D., President | @ppisters

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Making Cancer History®

Our mission

To eliminate cancer in Texas, the nation and the world through outstanding programs that integrate **patient care**, **research** and **prevention**, and through **education** for undergraduate and graduate students, trainees, professionals, employees and the public.

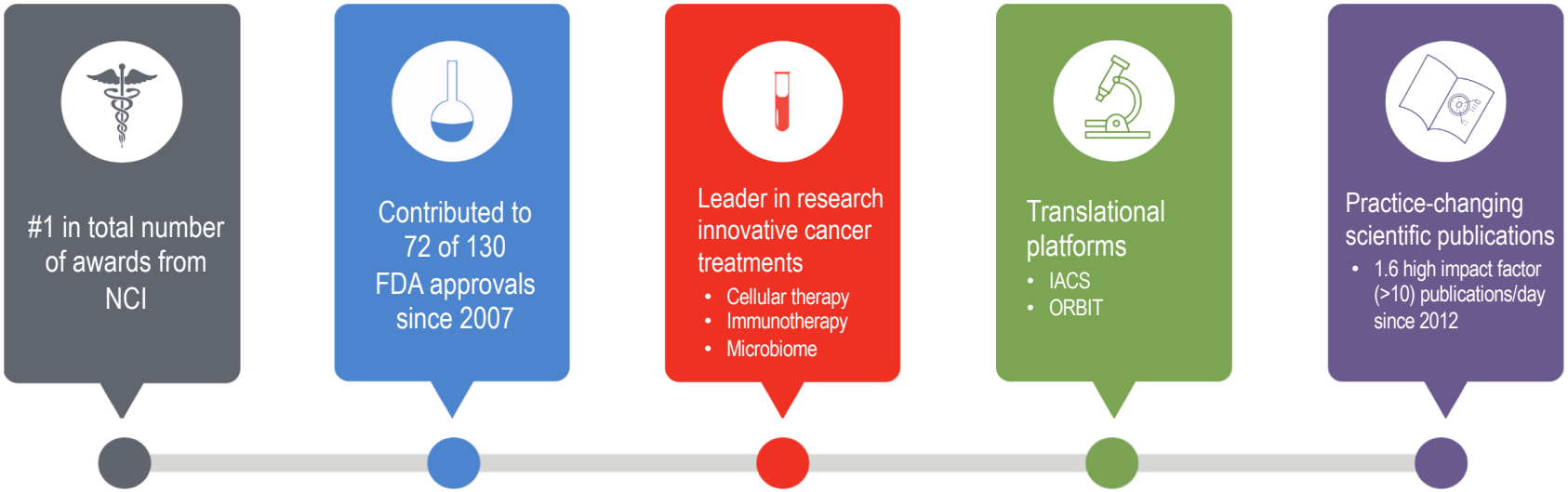
MD Anderson is

#1

in cancer care

+ $5.9 billion annual revenue
+ $902 million research investment
+ 22,000 employees, 1,750+ faculty
+ 141,600 established patients, 45,000 new patients
+ ~ 1,250 clinical trials, 10,000+ patients/year

Contributions to advancing science, discovery and therapeutics in cancer care

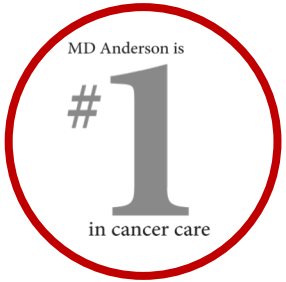


Institutional strengths

Talented faculty and staff

Outstanding leadership

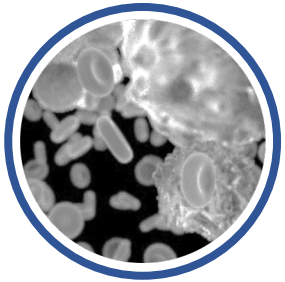
2M sq. ft. research space



Our No. 1 Status

National donor base (~3B)

Industry alliances



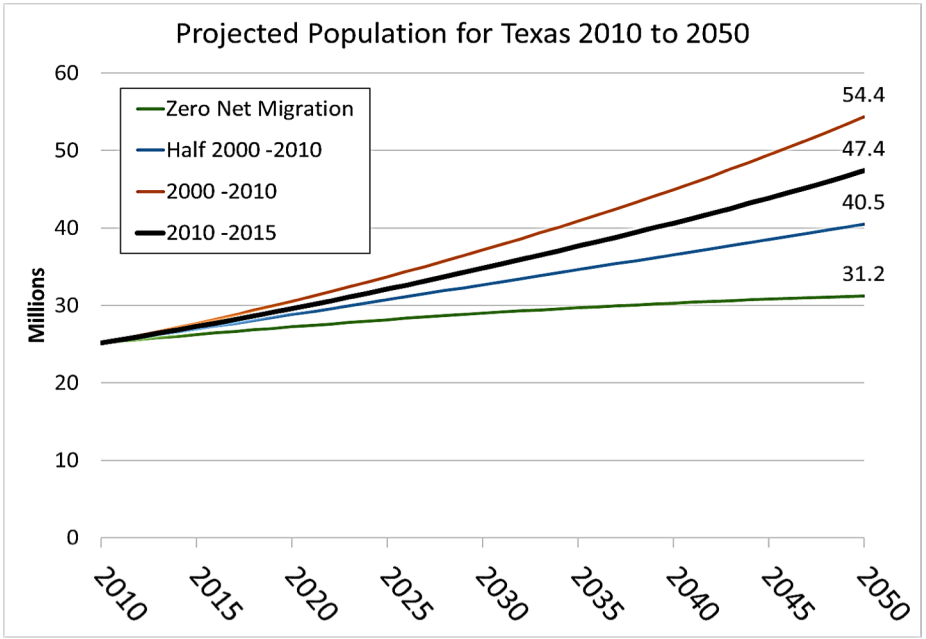
Cancer Moon Shots Program®

Texas is an exceptional home for MD Anderson

Population Growth

Economic strength

Investments



Texas population estimated to **double** by 2050:

54.4 million Texans

Source: Texas State Demographic Projections

Texas is an exceptional home for MD Anderson

Population Growth

Economic Strength

Investments

+ $1.9 trillion economy (2nd largest in the nation)
+ Growing Life Sciences and Energy industries
+ Cost of doing business: 10% below national average
+ GDP growth of 4.7% (2nd Quarter, 2019)
+ Texas' job growth outpaced U.S. job growth in 2019 - 2.0% vs. 1.4%
+ Record low unemployment rate: 3.4% (Dec. 2019)

Source: Federal Reserve Bank Dallas, Forbes, Bureau of Economic Analysis

Texas is an exceptional home for MD Anderson

Population Growth

Economic Strength

Investments

THE UNIVERSITY of TEXAS SYSTEM
FOURTEEN INSTITUTIONS. UNLIMITED POSSIBILITIES.

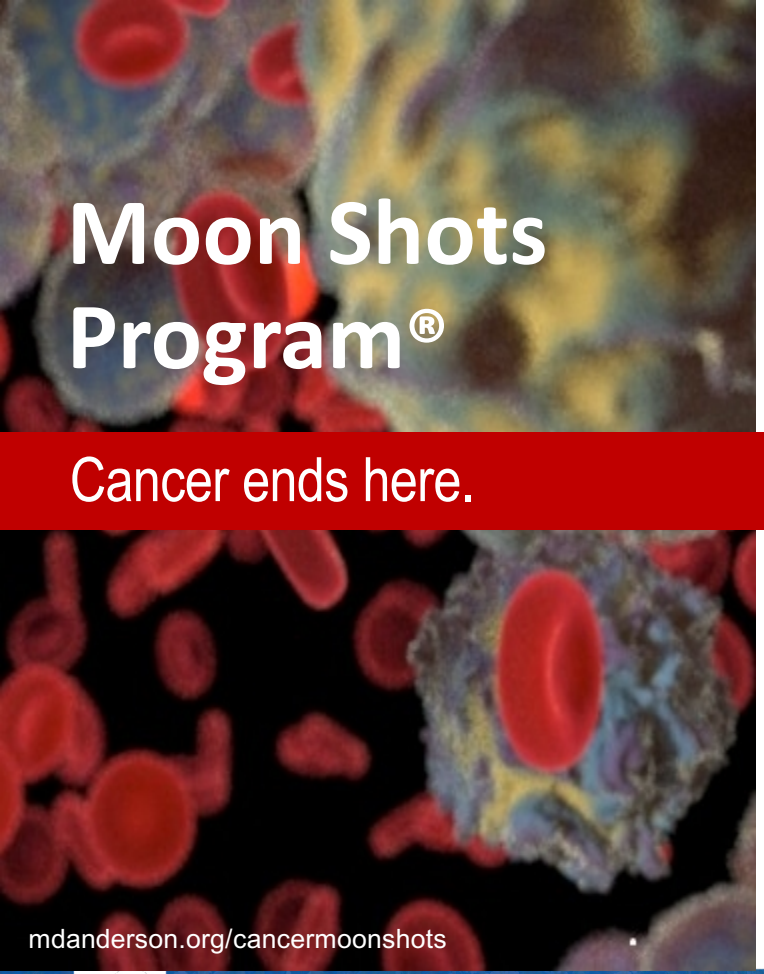
- $31B endowment (#2 in nation)
- Permanent University Fund ($887M - FY18)
- $73M for TMC^3 innovation hub (FY18)

STARs Program

- Talent program for faculty recruitment
- 53 recruits (2013 – 2018)
- MD Anderson impact: ~ $33 million (2013-2018)

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS (CPRIT)

- $3 billion bond-funded investment by State of Texas to support cutting edge cancer research and prevention programs in Texas
- 22 recruits (2013 – 2018)
- MD Anderson impact: $370 million (2013 – 2018)



Moon Shots Program®

Cancer ends here.

mdanderson.org/cancermoonshots

Our challenge:

Can we drive advances in prevention, early detection and treatment that will reduce cancer mortality?

Guiding principles:

+ Team-based science
+ Independent external advisory board
+ Leadership discipline

Moon Shots Program® components

Disease Sites (Flagship Projects)

- Myelodysplastic Syndrome (MDS) and Acute Myeloid leukemia (AML)
- Melanoma
- Chronic Lymphocytic Leukemia (CLL)
- Lung Cancer
- Prostate Cancer
- Breast Cancer
- Ovarian Cance
- Colorectal Cancer
- Glioblastoma
- High Risk Multiple Myeloma
- B-cell Lymphoma
- Pancreatic Cancer
- Human Papilloma Virus (HPV) Associated Cancers

Platforms

Cancer Prevention and Control Platform

Targeted impact investments

- Transformational initiatives in cancer control
- Accelerated execution and deployment of evidence-based strategies
- Impact return; dissemination at scale

Therapeutics Discovery Platforms

IACS, NDC, CCCT. ORBIT

- Institutional effort to discover and develop new drugs
- Corporate Product Development Funding Milestones and Royalties

Investigator-Driven Platforms

Immunotherapy, Proteomics

- Stimulates the creation of new initiatives

Data Generation and Integration Platforms

APOLLO, GCL, TMP-IP, TRA

- Critical for mission
- Enablement of better care
- Quality control
- Outcome studies

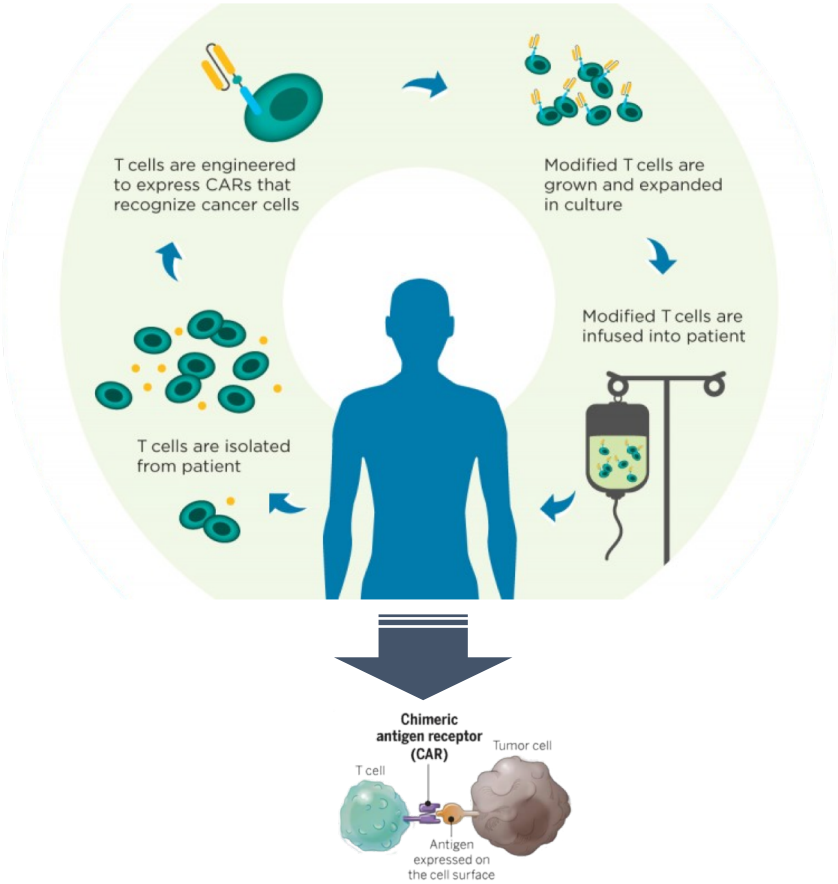
Accelerated discovery

An example:

- CAR NK cellular therapy

CAR T-Cell Therapy

Lymphocytes (T Cells) are engineered to recognize and kill ‘camouflaged tumor’ cells through the expression of Chimeric Antigen Receptors – CARs



CAR T-Cell Therapy

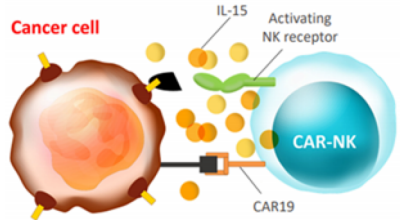
- Patient-specific cells only
- Expensive to manufacture and administer
- Significant Inpatient time and cost
- Significant risk for toxicity
- Risk of graft-versus-host-disease (GVHD)

Societal Need for Better Therapies

- Off-the-shelf product (allogenic cells)
- Lower cost to manufacture and administer
- Outpatient therapy option
- Less toxicity potential
- Freedom from GVHD

Disruptive Status: CAR NK-Cell Therapy

- Off the shelf, sourced from cord blood
- Significantly lower cost – can manufacture >100 doses from one cord unit
- Outpatient accessibility
- No toxicity to date
- No risk for GVHD



First-in-human clinical trial of CAR NK cells in lymphoid cancer

PET scan uses a special dye containing radioactive tracers.
The tracer will collect in areas of higher metabolic activity, such as cancer cells, but also in some normal tissue such as the brain, kidneys and bladder.

Whole body PET

Pre-treatment

Day 30 post CAR NK

MD Anderson - Takeda collaboration (2019)

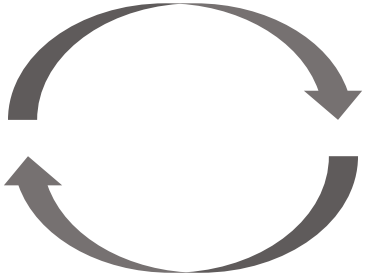
MD Anderson and Takeda Announce Collaboration to Accelerate the Development of Clinical-Stage, Off-The-Shelf CAR NK-Cell Therapy Platform

MD Anderson News Release November 05, 2019

The University of Texas MD Anderson Cancer Center and Takeda Pharmaceutical Company Limited today announced an exclusive license agreement and research agreement to develop cord blood-derived chimeric antigen receptor-directed natural killer (CAR NK)-cell therapies, 'armored' with IL-15, for the treatment of B-cell malignancies and other cancers.

Under the agreement, Takeda will receive access to MD Anderson's CAR NK platform and the exclusive rights to develop and commercialize up to four programs, including a CD19-targeted CAR NK-cell therapy and a B-cell maturation antigen (BCMA)-targeted CAR NK-cell therapy. Takeda and MD Anderson also will conduct a research collaboration to further develop these CAR NK programs.

Creating synergies to accelerate discoveries



INTERNAL CAPABILITIES	STRATEGIC ALLIANCES
CAR NK Technology	Takeda Pharmaceuticals
ATR Inhibitor program	Shang Pharma Corp. / Artios Pharma Ltd.
TCR-T (T-cell receptors in T-cells) research program	Ziopharm Oncology
Therapeutics Discovery - TRACTION platform	Boehringer Ingelheim

Strategic industry alliances enhance MD Anderson research

- 51 industry alliances since 2013
- CEO to CEO involvement
- Interactive joint governance
- Dedicated personnel on both sides
- Enhanced approach to conflict of interest (institutional and individual)
- $475 million in financial commitments to-date

Final Thoughts

+ A series of unique factors position MD Anderson and Texas for an unprecedented pace of discovery and innovation
+ MD Anderson is strategically positioned with:
  - Talent and infrastructure
  - Financial resources, bioresources and patient volumes
  - Industry relationships with transformational potential
+ Anticipate practice-changing discovery

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center

Making Cancer History®