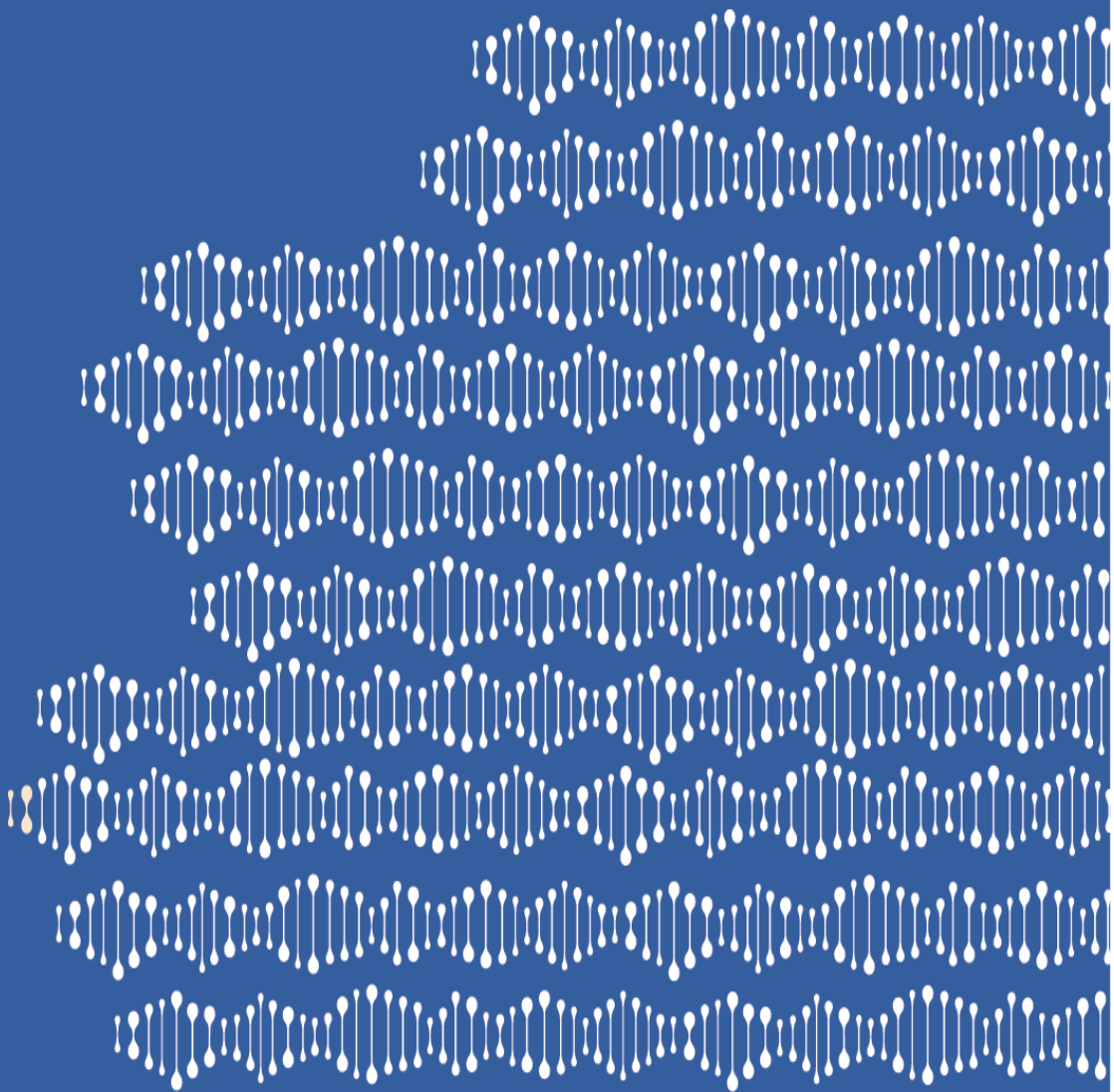
CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# Oversight Committee Meeting

February 15, 2023



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**Summary Overview of the February 15, 2023, Oversight Committee Meeting**

This summary provides an overview of major agenda items and background on key issues for Committee consideration at the February 15, 2023, Oversight Committee meeting.

**CEO Report**
Wayne Roberts will present the CEO's report and address issues including FY 2023 grant funds available, personnel, a legislative update, CPRIT's 2022 Annual Report, and other topics. Mr. Roberts will also present his annual report required by Tex. Health & Safety Code § 102.260(c).

**Chief Compliance Officer Report**
Vince Burgess will report on the status of required grantee reports, financial status report reviews, desk reviews, site visits, annual compliance attestation, audit tracking, and training. He will also certify that the proposed awards for the academic research and prevention programs complied with statutory and administrative rule requirements.

**Chief Scientific Officer Report and Grant Award Recommendations**
Dr. Michelle Le Beau will provide an update on the Academic Research Program and present the Program Integration Committee's (PIC) academic research and recruitment award recommendations. She will also present FY 2024 requests for applications for approval.

*CPRIT does not publicly disclose information related to the academic research grant applications recommended for funding until the Oversight Committee meeting. The information is available to board members through a secure electronic portal.*

**Chief Prevention Officer Report**
Ramona Magid will update the Oversight Committee on the on the Prevention Program and lay out the proposed FY 2024 prevention requests for applications for approval. She will also present the PIC's prevention award recommendations.

*CPRIT does not publicly disclose information related to the prevention grant applications recommended for funding until the Oversight Committee meeting. The information is available to board members through a secure electronic portal.*

**Chief Product Development Officer Report**
Dr. Ken Smith will provide an update on the Product Development Research Program and will present the four proposed product development requests for applications for FY 2024.

**Internal Auditor Report**
Weaver and Tidwell, CPRIT's internal auditor, will provide an internal audit update and present an update on the Internal Audit Report over Information Technology General Controls. The IT General Controls update will take place in closed session.

**Appointments - Scientific Research and Prevention Programs Committee, Advisory Committee on Childhood Cancer, and Product Development Advisory Committee**
Mr. Roberts has provisionally appointed six new members to CPRIT's Scientific Research and Prevention Programs Committees. Presiding Officer Dr. Patel has appointed a new member for the Oversight Committee's Advisory Committee on Childhood Cancer and a new appointment to the Product Development Advisory Committee. CPRIT's statute requires the Oversight Committee to finalize the appointments with votes of approval. CPRIT has provided the appointees' biographical sketches for the Oversight Committee's consideration.

**Advisory Committee Annual Presentations**
Two of the Oversight Committee's six advisory committees – the Advisory Committee on Childhood Cancer and the Prevention Advisory Committee - will present annual reports and answer Oversight Committee member's questions. (The other four advisory committees will present their annual reports at the Oversight Committee meeting in May and August.)

**Chief Operating Officer Report**
Heidi McConnell will discuss the operating budget, performance measures, and debt issuance history for the first quarter of FY 2023 as well as provide an update on the CPRIT conference.

**Communications Update**
Mark Loeffler will update the Oversight Committee on CPRIT's communication efforts, including coverage of the agency and grantees in earned media, digital media, and social media and the FY 2022 annual report.

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# Oversight Committee Meeting Agenda

**February 15, 2023**
9:00 a.m.

The Barbara Jordan Building
1601 Congress Avenue, Austin, TX 78701
Room 2.035A

The Oversight Committee may discuss or act on any item on this agenda, and as authorized by the Texas Open Meetings Act, Texas Government Code Section 551.001 et seq., may meet in closed session concerning any purpose permitted by the Act. If the Oversight Committee meets in closed session, it will do so in the Barbara Jordan Building, Room 2.027.

Also as authorized by Texas Government Code § 551.127, one or more Oversight Committee members may participate remotely in the meeting by videoconference. The Oversight Committee member presiding over the meeting will be physically present at the above-listed location, which will be open to the public.

Anyone wishing to offer public comments must notify the Chief Executive Officer in writing prior to the start of the meeting. The Committee may limit the time a member of the public may speak.

1. Call to Order
2. Roll Call/Excused Absences
3. Adoption of Minutes from the November 16, 2022, meeting — Tab 1
4. Public Comment
5. Chief Executive Officer Report — Tab 2
   - CEO Report Pursuant to Health & Safety Code § 102.260(c)
6. Chief Compliance Officer Report and Compliance Certification of Grant Award Process — Tab 3
7. Chief Scientific Officer Report — Tab 4
   - Grant Award Recommendations
   - FY 2024 Requests for Applications
8. Chief Prevention Officer Report — Tab 5
   - Grant Award Recommendations
   - FY 2024 Requests for Applications
9. Chief Product Development Officer Report — Tab 6
   - FY 2024 Requests for Applications
10. Internal Auditor Report — Tab 7
    - Internal Audit Report over Information Technology General Controls
11. Scientific Research and Prevention Program Committee Appointments — Tab 8
12. Advisory Committees — Tab 9
    - Appointments

- Advisory Committee on Childhood Cancer Presentation
- Prevention Advisory Committee Presentation

13. Chief Operating Officer Report — Tab 10
14. Communications Report — Tab 11
15. Subcommittee Business
16. Compliance Investigation Pursuant to Health & Safety Code § 102.2631
17. Consultation with General Counsel
18. Future Meeting Dates and Agenda Items
19. Adjourn

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**Oversight Committee Meeting Minutes**
**November 16, 2022**

NOTE: Unless the information is confidential, the reports, presentations, and grant award information referenced in the minutes are available at http://ocmeetings.cprit.texas.gov in the "Oversight Committee Board Packet" section for the corresponding meeting date.

**Call to Order – Agenda Item 1**

Presiding Officer Dr. Mahendra Patel announced a quorum present and called the meeting to order at 9:00 a.m.

**Roll Call/Excused Absences – Agenda Item 2**

Committee Members Present
Mahendra Patel, M.D., P.A.
David Cummings, M.D.
Donald (Dee) Margo
Ambrosio Hernandez, M.D.
Will Montgomery
Cindy Barberio Payne
Bill Rice, M.D.
Craig Rosenfeld, M.D.

**Adoption of Minutes from the August 17, 2022, and September 14, 2022, Meetings – Agenda Item 3, Tab 1**

**MOTION:**
On a motion by Mr. Montgomery and seconded by Dr. Rice, the Oversight Committee unanimously voted to approve the minutes of the August 17 and September 14 Oversight Committee meetings as presented.

**Public Comment – Agenda Item 4**

Presiding Officer Dr. Patel noted for the record that no member of the public requested to provide comments.

**Grantee Presentation – Agenda Item 5, Tab 2**

Presiding Officer Dr. Patel called on Chief Prevention Officer Ramona Magid to introduce Dr. Aubree Shay. Dr. Shay presented an update on the prevention program project she co-directs with Dr. Allison Grimes, HPV Vaccination in a Pediatric Minority-Based Community Oncology Network.



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An Oversight Committee member asked about the effectiveness of the vaccine in childhood cancer survivors. Dr. Shay responded that more research is necessary but that current guidelines include being six months out of treatment with no immunosuppressant medications.

Another member asked if Drs. Shay and Grimes had vaccinated the siblings of childhood cancer survivors as well. Dr. Shay responded that they had not looked at this.

Presiding Officer Dr. Patel thanked Drs. Shay and Grimes for their presentation. He called on Chief Product Development Officer Dr. Ken Smith to introduce Dr. Kartik Krishnan and Mr. Matthew Head from OncoNano Medicine, Inc. The OncoNano Medicine team presented progress updates on the advancement of their portfolio of oncological interventions.

An Oversight Committee member asked about the use of a dinucleotide with the activation of STING protein and subsequent clinical trials.

Another member commented on reducing the toxicity of traditional therapies with a more focused delivery system and no systemic effects.

Presiding Officer Dr. Patel thanked the OncoNano team for their presentation.

**Chief Executive Officer Report – Agenda Item 6, Tab 3**

Presiding Officer Dr. Patel recognized Chief Executive Officer Wayne Roberts to present his report.

Mr. Roberts informed members that CPRIT will hold future Oversight Committee meetings in the new Barbara Jordan state office building.

He reported that CPRIT has sufficient agency funds available to support all grant awards proposed for approval today.

Mr. Roberts concluded his report by introducing newly hired staff, noting that the agency's telework policy has allowed CPRIT to hire people otherwise unavailable and that this is the strongest staff during his tenure at CPRIT.

There were no questions for Mr. Roberts.

Presiding Officer Dr. Patel congratulated Mr. Roberts on reaching 45 years of employment and service to the state of Texas.

**Chief Compliance Officer Report and Compliance Certification for the Proposed Grant Awards – Agenda Item 7, Tab 4**

Presiding Officer Dr. Patel recognized Chief Compliance Officer Vince Burgess to present the Compliance Report and Compliance Certification of Grant Award Process.

Mr. Burgess presented the Compliance Report for the past quarter's activities and provided a summary of the Compliance staff activities for FY 2022.

Following Mr. Burgess's presentation of the compliance activities, an Oversight Committee member asked about including repeat findings in the compliance review process. Mr. Burgess replied that the compliance team was in the process of incorporating repeat findings into the reporting.

Mr. Burgess also presented the Compliance Certification for the proposed academic research grant awards, confirming that the proposed awards and review process complied with all applicable state and agency requirements.

**Chief Scientific Officer Report and Grant Award Recommendations – Agenda Item 8, Tab 5**

Presiding Officer Dr. Patel recognized Chief Scientific Officer Dr. Michelle Le Beau to present a program update and the academic research program award recommendations.

Dr. Le Beau directed Oversight Committee members to Table 1 on page 3 of the Proposed Grant Awards Book which displayed the Scientific Review Council (SRC) and Program Integration Committee (PIC) recommendations for the FY 2023 recruitment cycle 23.1, which included two Recruitment of Established Investigators awards totaling $11,999,198.

Dr. Le Beau provided an overview of the recommended awards.

| Rank | App. ID | Mechanism | Candidate | Organization | Budget | Overall Scores |
|---|---|---|---|---|---|---|
| 1 | RR230005 | REI | Rugang Zhang, Ph.D. | The University of Texas M. D. Anderson Cancer Center | $6,000,000 | 2.0 |
| 2 | RR230010 | REI | Keith Chan, Ph.D | The Methodist Hospital Research Institute | $5,999,198 | 2.3 |

There were no questions for Dr. Le Beau.

Approval of Academic Research Awards

Presiding Officer Dr. Patel noted for the record that no Oversight Committee member reported a conflict with any award recommendation presented today.

**MOTION:**
On a motion made by Mr. Margo and seconded by Dr. Rice, the Oversight Committee members voted unanimously to approve the PIC's recommendations for the Recruitment of Established Investigators.

**MOTION:**
On a motion made by Mr. Margo and seconded by Dr. Rice, the Oversight Committee members voted to approve the delegation of contract negotiation authority to CPRIT's CEO and staff and authorized the CEO to sign the contracts on behalf of CPRIT.

Approval of Proposed Academic Research RFAs for FY 2023 Cycle 2 (23.2)

Dr. Le Beau also introduced and provided an overview of the four proposed FY2023 Cycle 2 (FY23.2) Requests for Applications (RFAs) for Academic Research:

- Texas CONNECT for Cancer Prevention Study Awards (RFA R-23.2 TCCPA):
- TREC Pilot Study Award (RFA R-23.2 TREC-PSA):
- TREC Institutional Postdoctoral Training Award (RFA R-23.2 TREC PDTA):
- TREC Major Instrumentation Award (RFA R-23.2 TREC MIA):

Several Oversight Committee members expressed their enthusiasm for the TREC RFAs and the Texas CONNECT for Cancer Prevention Study Awards RFA.

**MOTION:**
On a motion made by Mr. Margo and seconded by Mr. Montgomery, the Oversight Committee members voted unanimously to approve the proposed Academic Research RFAs for FY 2023 Cycle 2.

**Chief Prevention Officer Report – Agenda Item 9, Tab 6**

Presiding Officer Dr. Patel recognized Chief Prevention Officer Ramona Magid to update the Oversight Committee on the prevention program. Ms. Magid reported that CPRIT received 28 prevention project applications for FY 2023 Cycle 1, which are undergoing peer review. She will present proposed award recommendations at the February Oversight Committee meeting.

Following the program update, Ms. Magid presented the proposed RFAs for FY 2023 Cycle 2 and provided a summary of the four mechanisms:

- Dissemination of CPRIT-Funded Cancer Control Interventions (RFA-P-23.2-DI)
- Primary Prevention of Cancer (RFA-P-23.2-PPC)
- Cancer Screening and Early Detection (RFA-P023.2-CSD)
- Colorectal Cancer Screening Coordinating Center (RFA-P-23.2-CCC)

There were no questions for Ms. Magid.

**MOTION:**
On a motion made by Mr. Margo and seconded by Dr. Rice, the Oversight Committee members voted unanimously to approve the proposed FY 2023 Cycle 2 RFAs.

**Chief Product Development Officer Report – Agenda Item 10, Tab 7**

Presiding Officer Dr. Patel recognized Chief Product Development Officer Dr. Ken Smith to present the Product Development Research update.

Dr. Smith provided an update on the FY 2023 cycle, noting that CPRIT notified invited applicants in October that the product development program was limiting the number of full applications that the review panels will consider in Review Cycle 1 to the first ten applications received on or before the November 1, 2022, deadline.

An Oversight Committee member asked if CPRIT is doubling the number of full applications as we increase preliminary applications. Dr. Smith explained that the program limited the number of full applications reviewed in the November cycle due to reviewer and calendar constraints.

The Oversight Committee members and Dr. Smith discussed portfolio diversity for the product development program. In response to an Oversight Committee member's question, Dr. Smith noted that CPRIT created the Texas New Technologies Company award to encourage more companies to apply, specifically those companies focusing on technology outside of therapeutics.

**FY 2024 Program Priorities – Agenda Item 11, Tab 8**

Presiding Officer Dr. Patel recognized Chief Executive Officer Wayne Roberts to present the staff recommendations for CPRIT's Program Priorities for FY 2024.

Mr. Roberts presented the FY 2024 Program Priorities. There were no questions for Mr. Roberts.

> **MOTION:**
> On a motion by Mr. Margo and seconded by Dr. Rice, the Oversight Committee unanimously voted to approve the fiscal year 2024 program priorities.

**Internal Auditor Report – Agenda Item 12, Tab 9**

Presiding Officer Dr. Patel recognized Dan Graves of Weaver and Tidwell, LLP, CPRIT's contracted internal auditor, to provide the Internal Auditor's Report. Mr. Graves summarized the four internal audit reports and the FY 2022 Annual Internal Audit Report. In addition, he informed the committee members that Weaver underwent its external quality assurance review and will present the report at the next Oversight Committee meeting.

There were no questions for Mr. Graves.

> **MOTION:**
> On a motion by Mr. Margo and seconded by Dr. Rice, the Oversight Committee unanimously voted to approve the four internal audit reports and the FY 2022 Annual Internal Audit Report.

**Scientific Research and Prevention Program Committee Appointments – Agenda Item 13, Tab 10**

Presiding Officer Dr. Patel recognized Mr. Roberts to present his appointments to the peer review panels.

Mr. Roberts presented his eight appointments to the CPRIT's Scientific Research and Prevention Programs Committee. He informed the committee members that the Board Governance Subcommittee reviewed the appointees at its November 3, 2022, meeting and recommends their approval to the Oversight Committee.

> **MOTION:**
> On a motion by Mr. Montgomery and seconded by Dr. Rice, the Oversight Committee unanimously voted to approve the CEO's eight appointments to the Scientific Research and Prevention Program Committee.

**Amendments to 25 T.A.C. Chapters 703 – Item 14, Tab 11**

Presiding Officer Dr. Patel recognized Assistant General Counsel Cameron Eckel. Ms. Eckel presented a proposed final order approving rule changes to Chapter 703. She informed the committee members that the Board Governance Subcommittee met on November 3, 2022, to discuss adoption of the proposed rule changes and voted to recommend that the Oversight Committee approve adoption of the rule changes.

> **MOTION:**
> On a motion made by Mr. Margo and seconded by Dr. Rice, the Oversight Committee unanimously voted to approve the final order adopting rule changes to the Texas Administrative Code Chapter 703.

**Chief Operating Officer Report – Agenda Item 15, Tab 12**

Presiding Officer Dr. Patel recognized Chief Operating Officer Heidi McConnell. Ms. McConnell presented her report on the operating budget, performance measures, and debt issuance history.

Ms. McConnell also provided an update on the 2023 CPRIT Conference, informing the committee members that staff is finalizing speakers and that the registration website will launch in early 2023.

In response to a question by an Oversight Committee member inquiring if there was any idea how many people may attend the conference, Ms. McConnell explained that the agency will not know until the registration system goes live, but grantees are aware of the conference and already reaching out about registration pricing.

**Contract Approvals – Agenda Item 16, Tab 13**

Presiding Officer Dr. Patel recognized Ms. McConnell. Ms. McConnell to review the proposed contract recommendations. Ms. McConnell presented the new contract with McDermott Will & Emery for outside counsel services, the new contract with Alan Boyd Consultants for due diligence review services, and an amendment to the current outside counsel contract with Norton Rose Fulbright.

There were no questions for Ms. McConnell.

> **MOTION:**
> On a motion made by Dr. Rosenfeld and seconded by Dr. Rice, the Oversight Committee unanimously voted to approve contracts and contract amendments with McDermott Will & Emery, Alan Boyd Consultants and Norton Rose Fulbright.

**Communication Report – Agenda Item 17, Tab 14**

Presiding Officer Dr. Patel recognized Communications Director Mark Loeffler to present his report. Mr. Loeffler updated the committee members on communications activities.

**Future Meeting Dates and Agenda Items – Agenda Item 21**

Presiding Officer Dr. Patel announced that the Oversight Committee would not take up standing agenda items 18, 19 and 20.

He reminded members that CPRIT Oversight Committee will meet on February 15, 2023.

**Adjournment – Agenda Item 22**

> **MOTION:**
> There being no further business, the Oversight Committee unanimously voted to approve Presiding Officer Dr. Patel's motion to adjourn, which Mr. Montgomery seconded.

Meeting adjourned at 11:27 p.m.

_____ _____

Signature Date

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# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | WAYNE ROBERTS, CHIEF EXECUTIVE OFFICER |
| **SUBJECT:** | AGENDA ITEM 5: CHIEF EXECUTIVE OFFICER REPORT |
| **DATE:** | FEBRUARY 6, 2023 |

The Chief Executive Officer Report presented at the February 15 Oversight Committee meeting will include the items listed below. I have also attached copies of the November/December 2022 and January 2023 CPRIT Activity Updates for your reference.

**Recognition of Donation from Travis County Emergency Services District No. 12**

The Travis County Emergency Services District No. 12 held a "Fire Up for a Cure" fundraiser in October and provided the funds raised to CPRIT to use for patient services. We have invited a representative of the district to attend the Oversight Committee meeting so that CPRIT may recognize them for their part in Texas' fight against cancer.

**FY 2023 Grant Awards Funds Available, FY 2023 Budget Status, and CPRIT Dashboard** (Attachments 1, 2 and 3)

As shown in Attachment 1, if the Oversight Committee approves the proposed Academic and Prevention awards at the February 15 meeting (totaling nearly $90.7 million), we will have $121.5 million remaining for awards in FY 2023. However, as indicated in Attachment 2, all three programs are fully subscribed for the remainder of the fiscal year. Chief Product Development Officer Dr. Ken Smith will discuss plans for bringing the Product Development Review Council's recommendations within the balance of funds available.

Attachment 3 is CPRIT's dashboard of metrics that we track on a regular basis.

**Personnel**

CPRIT has 41 of our 44 full-time equivalent (FTE) positions filled. We are in the process of hiring for the second Product Development Manager position, a Technical Writer position, and a Grant Compliance Specialist position.

**CPRIT's FY 2022 Annual Report**

CPRIT released its annual report for fiscal year 2022 on January 31. The report, which CPRIT makes available exclusively online at https://2022annualreport.cprit.texas.gov/, highlights the



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progress CPRIT and our grantees have made towards the agency's three-part mission to invest in the cancer research prowess of Texas' academic institutions, to create and grow the state's life science infrastructure, and to identify and fund innovation in the prevention, identification, treatment and cures for cancer.

While the report is a team effort across the entire agency, CPRIT's Communications Director Mark Loeffler, Digital Communications Specialist Justin Rand, technical writer Bridget Barstow, Information Resource Manager Shannon Cusick, and IT designer Royce Hart deserve special credit for the enormous amount of work necessary to put together the 2022 report. I also appreciate Deputy Executive Officer and General Counsel Kristen Doyle's work with the annual report team and for her role in helping to conceptualize the highlights and features.

**Legislative Update**

I will provide an update on legislative issues, including a report on the budget hearing before the Senate Committee on Finance on January 30.

**CEO Report on Progress and Continued Merit for FY 2022 Research Program**

Texas Health and Safety Code § 102.260(c) requires the Chief Executive Officer to report at least annually to the Oversight Committee on the progress and continued merit of each research program. I am pleased to report FY 2022 marked another year of progress for CPRIT and its Academic Research, Prevention, and Product Development Research programs. I have attached my FY 2022 report to this memo.

*****

CPRIT has awarded **1,819** grants totaling **$3.179 billion**

- 274 prevention awards totaling $327.9 million
- 1,545 academic research and product development research awards totaling $2.851 billion

Of the $2.851 billion in academic research and product development research awards,

- 31.0% of the funding ($882.6 million) supports clinical research projects
- 23.8% of the funding ($676.3 million) supports translational research projects
- 29.5% of funding ($841.6 million) supports recruitment awards
- 12.6% of the funding ($359.8 million) supports discovery stage research projects
- 3.2% of funding ($90.4 million) supports training programs.

CPRIT has 10 open Requests for Applications (RFAs)

- 2 Recruitment
- 4 Academic Research
- 4 Prevention

## FY 2023 GRANT AWARD FUNDS AVAILABLE

General Obligation Bond Proceeds

| | Prevention | Academic / Product Development Research | 1% Grant Funding Buffer | Operating Budget | Total Appropriations |
|---|---|---|---|---|---|
| **Available Appropriated Funds** | **$ 27,660,780** | **$ 251,369,432** | | **$ 20,969,788** | **$ 300,000,000** |
| **Appropriations Transfer to DSHS** | | **$ (3,118,032)** | | **$ 3,118,032** | |
| **Adjusted Appropriations** | **$ 27,660,780** | **$ 248,251,400** | | **$ 24,087,820** | **$ 300,000,000** |
| **Total Available for All Grants** | | | **$ 275,912,180** | | |
| **1% of Total Available Grant Funding** | | | **$ 2,759,122** | | |
| **Adjusted Grant Award Funding** | **27,660,780** | **$ 245,492,278** | | | **$ 273,153,058** |

| | Prevention Grants | Academic Research Grants | PD Research Grants | | |
|---|---|---|---|---|---|
| **Total Available for Grant Awards (Total GO Bond Proceeds Less Operating Budget)** | **$ 27,660,780** | **$ 173,775,980** | **$ 74,475,420** | | **$ 275,912,180** |
| **Total Available for Grant Awards Incorporating 1% Grant Funding Buffer** | **$ 27,660,780** | **$ 171,844,595** | **$ 73,647,683** | | **$ 273,153,058** |
| **Announced Grant Awards** | | | | | |
| Core Facility Support Awards (6) | $ - | $ 23,298,824 | $ - | | |
| Clinical Trials Network Awards (1) | $ - | $ 3,000,000 | $ - | | |
| Early Clinical Investigator Awards (2) | $ - | $ 2,994,784 | ` | | |
| High-Impact/High Risk Awards (14) | $ - | $ 3,474,906 | $ - | | |
| Company Grant Award (1) | $ - | $ - | $ 16,154,562 | | |
| Recruitment Awards (2) | $ - | $ 11,999,198 | $ - | | |
| **Announced Grant Award Subtotal** | **$ -** | **$ 44,767,712** | **$ 16,154,562** | $ - | **$ 60,922,274** |
| **Available Grant Funds as of November 16, 2022** | **$ 27,660,780** | **$ 127,076,883** | **$ 57,493,121** | | **$ 212,230,784** |
| **Pending Grants-PIC Recommendations** | | | | | |
| Prevention Grant Awards | $ 13,577,257 | $ - | $ - | | |
| Individual Investigator Research Awards (31) | $ - | $ 39,135,679 | $ - | | |
| Texas Regional Excellence in Cancer Awards (3) | $ - | $ 17,998,422 | $ - | | |
| Recruitment Awards (6) | $ - | $ 19,999,977 | $ - | | |
| | $ - | $ - | $ - | | |
| | $ - | $ - | $ - | | |
| **Pending Award Subtotal** | **$ 13,577,257** | **$ 77,134,078** | **$ -** | | **$ 90,711,335** |
| **Total Potential Grant Funding Committed** | **$ 13,577,257** | **$ 121,901,790** | **$ 16,154,562** | | **$ 151,633,609** |
| **Uncommitted Grant Funds as of February 15, 2022** | **$ 14,083,523** | **$ 49,942,805** | **$ 57,493,121** | | **$ 121,519,449** |
| **1% Grant Funding Buffer** | **$ -** | **$ 1,931,385** | **$ 827,737** | | **$ 2,759,122** |
| **Total Remaining Funds** | **$ 14,083,523** | **$ 51,874,190** | **$ 58,320,858** | | **$ 124,278,571** |

| **Operating Budget Detail** | |
|---|---|
| Indirect Administration | $ 4,910,893 |
| Grant Review & Award Operations | $ 16,058,895 |
| Subtotal, CPRIT Operating Costs | $ 20,969,788 |
| Cancer Registry Operating Cost Transfer | $ 3,118,032 |
| Total, Operating Costs | 24,087,820 |

# Attachment 2: FY 2023 Budget Status

| Item | Academic Research | Product Development Research | Prevention | Total |
|---|---|---|---|---|
| | | | | |
| | 70% | 30% | | |
| 2023 Total Available less 1% | 171,844,595 | 73,647,683 | 27,660,780 | 273,153,058 |
| | | | | |
| **Less: September Awards** | **32,768,514** | | | |
| Core Facility Support (6) | 23,298,824 | | | |
| Clinical Trials Network (1) | 3,000,000 | | | |
| Early Clinical Investigator (2) | 2,994,784 | | | |
| High Impact/High Risk (14) | 3,474,906 | | | |
| Company Grant | | 16,154,562 | | |
| | | | | |
| **Less: November Awards** | **11,999,198** | | | |
| Recruitments (2) | 11,999,198 | | | |
| | | | | |
| | | | | |
| **Less: Projected Allocations for Grant Mechanisms** | **120,634,101** | | | |
| TREC Peer Recommendations (3) | 17,998,422 | | | |
| *FY 2023 Projections, Released/Announced RFAs* | | | | |
| Scholars Allocation Remaining After February OC Mtng | 30,000,023 | | | |
| Scholars SRC Recommended for February OC | 19,999,977 | | | |
| **23.1 IIRAs | 39,135,679 | | | |
| Allocated to 4 new RFAs (3 TREC; NCI Connect) | 13,500,000 | | | |
| | | | | |
| BRIDGE, estimate [$20 M probably FY 2024] | | | | |
| | | | | |
| Product Development PDRC Feb OC Recommendations Deferred to May Meeting | | 82,116,440 | | |
| Prevention PRC February Recommendations | | | 13,577,257 | |
| | | | | |
| 2023 "Free" Budget*** | 6,442,782 | (24,623,319) | 14,083,523 | (4,097,014) |
| | | | | |
| | | | | |
| ** FY 22 Deferred 23 awards pending sufficient funds in August @ $32,768,514 | | | | |
| | | | | |
| *** Excludes probable transfer for June 2022 5% staff COLA | | | | |

**CPRIT MANAGEMENT DASHBOARD**
**FISCAL YEAR 2023**

| | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | CUMULATIVE (ANNUAL) | CUMULATIVE (TO DATE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ACCOUNTABILITY** | | | | | | | | | | | | | | |
| **Announced Grant Awards** | 25 | | 2 | | | | | | | | | | 27 | |
| **New Grant Contracts Signed** | 10 | 11 | 15 | 13 | 4 | | | | | | | | 53 | |
| **New Grant Contracts In Negotiation** | | | 8 | | | | | | | | | | 8 | |
| **Grant Reimbursements Processed (#)** | 172 | 150 | 124 | 193 | 148 | | | | | | | | 787 | |
| **Grant Reimbursements Processed ($)** | $ 16,461,776 | $ 18,449,931 | $ 9,059,403 | $ 15,994,971 | $ 25,810,994 | | | | | | | | $ 85,777,075 | |
| **Revenue Sharing Payments Received** | $ 20,611 | $ 10,783 | $ 70,854 | $ 3,100 | $ 41,334 | | | | | | | | $ 146,682 | $ 7,872,221 |
| **Grants Awarded (#)/ Applications Rec'd (#)** | 18% | 18% | 18% | 18% | 18% | | | | | | | | | |
| **Grantee Compliance Trainings** | 2 | 4 | 3 | 4 | 1 | | | | | | | | 14 | |
| **Grantee Compliance Monitoring Visits** | 0 | 0 | 2 | 4 | 1 | | | | | | | | 7 | |
| **Awards with Delinquent Reimbursement Submission (FSR)** | | | 0 | | | | | | | | | | | |
| **Awards with Delinquent Matching Funds Verification** | | | 3 | | | | | | | | | | | |
| **Awards with Delinquent Progress Report Submission** | | | 4 | | | | | | | | | | | |
| **MISSION** | | | | | | | | | | | | | | |
| **Open RFAs** | 7 | 6 | 6 | 10 | 14 | | | | | | | | | |
| **Prevention Applications Received** | 0 | 0 | 0 | 0 | 0 | | | | | | | | 0 | 963 |
| **Product Development Preliminary Applications Received** | 26 | 11 | 9 | 9 | 2 | | | | | | | | 57 | 57 |
| **Product Development Full Applications Received** | 0 | 0 | 14 | 0 | 1 | | | | | | | | 15 | 696 |
| **Academic Research Applications** | 4 | 3 | 0 | 4 | 0 | | | | | | | | 11 | 8,684 |
| **Help Desk Calls/Emails** | 175 | 221 | 132 | 136 | 123 | | | | | | | | 787 | |
| **Number of Research Grants Announced (Annual)** | 24 | | 2 | | | | | | | | | | 26 | |
| **Recruited Scientists Contracted** | | | | | | | | | | | | | | 283 |
| **Number of Product Development Grants Announced (Annual)** | 1 | | 0 | | | | | | | | | | 1 | |
| **Life Science Companies Recruited (in TX)** | | | | | | | | | | | | | 0 | 14 |
| **Number of Product Development Jobs Created & Maintained** | | | | | | | | | | | | | | 1,228 |
| **Number of Prevention Grants Announced (Annual)** | | | 0 | | | | | | | | | | 0 | |
| **Total Number of Education, Navigation and Training Services** | | | 162,223 | | | | | | | | | | 162,223 | |
| **Total Number of Clinical Services** | | | 46,301 | | | | | | | | | | 46,301 | |
| **Published Articles on CPRIT-Funded Projects (#)** | | | | | | | | | | | | | | |
| **Clinical Studies (#)** | | | | | | | | | | | | | | 228 |
| **Number of Patent Applications** | | | | | | | | | | | | | | |
| **Number of Patents Resulting from Research** | | | | | | | | | | | | | | |
| **TRANSPARENCY** | | | | | | | | | | | | | | |
| **Total Website Hits (Sessions)** | 10,994 | 9,456 | 9,086 | 6,474 | 10,576 | | | | | | | | | |
| **Total Unique Visitors to Website (Users)** | 8,280 | 7,276 | 7,070 | 5,081 | 8,142 | | | | | | | | | |

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

**TO:** OVERSIGHT COMMITTEE MEMBERS

**FROM:** WAYNE ROBERTS, CHIEF EXECUTIVE OFFICER

**SUBJECT:** TEXAS HEALTH & SAFETY CODE SECTION 102.260(C) REPORT ON THE MERIT AND CONTINUED PROGRESS OF CPRIT'S PROGRAMS IN FY 2022

**DATE:** FEBRUARY 15, 2023

## Summary

Texas Health and Safety Code § 102.260(c) requires the Chief Executive Officer to report at least annually to the Oversight Committee on the progress and continued merit of each research program. I am pleased to report FY 2022 marked another year of progress for CPRIT and its Academic Research, Prevention, and Product Development Research programs. In FY 2022 CPRIT awarded 117 grants totaling $266 million to 33 organizations throughout the state. Key metrics indicate that CPRIT is affecting Texas' national standing in both cancer research and the biomedical industry. CPRIT's investment is attracting, creating, and expanding the research capabilities of our institutions of higher education and the state's life science industry, expediting innovation, and increasing the likelihood of breakthroughs in cancer prevention and cures.

This report provides an overview illustrating the progress made in advancing CPRIT's mission to create and expedite innovation in cancer research and cancer prevention. Aligning program activities with the program priorities adopted by the Oversight Committee is a good gauge of progress and merit; this report highlights each program's implementation of the FY 2022 program priorities. CPRIT's 2022 *Annual Report*, which is available to read at https://2022annualreport.cprit.texas.gov/, provides more information on CPRIT program priorities and awards, including a summary of research findings reported by grantees in FY 2022 and notable grantee highlights.

Regarding progress made by individual grant projects within each of CPRIT's three programs, Texas Administrative Code § 703.21 requires all CPRIT grantees to submit progress reports at least annually. Outside experts evaluate these progress reports to ensure that the grantee has made appropriate progress and should continue work under the grant. To the extent that an expert reviewer determines that a grant project is not making progress towards the project goals and objectives, CPRIT has several options, including contract termination.



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**Academic Research Program**

CPRIT's Academic Research Program supports innovative and meritorious projects that are discovering new information about cancer that can lead to prevention, early detection, and cures; translating new and existing discoveries into practical advances in cancer diagnosis and treatment; and increasing the prominence and stature of Texas in the fight against cancer. In FY 2022, CPRIT's Oversight Committee approved 90 Academic Research and Recruitment Awards totaling $167.9 million. Notably in FY 2022, the Academic Research program surpassed the $2 billion mark in academic research grants.

Academic Research Program Priorities

The Oversight Committee adopted the following FY 2022 program priorities for the Academic Research Program:

- Recruit of outstanding cancer researchers to Texas;
- Support a broad range of innovative initiated research projects;
- Invest in core facilities;
- Implementation research to accelerate adoption and deployment of evidence-based prevention and screening interventions;
- Computational biology and analytic methods;
- Childhood and adolescent cancers;
- Hepatocellular cancer; and
- Expanding access to innovative clinical trials

CPRIT Scholars continue to serve as a shining example of CPRIT's positive impact on cancer research in Texas. Through FY 2022 CPRIT has helped Texas academic institutions recruit 288 researchers to the state. A notable first, the Texas A&M Engineering Experiment Station recruited the first CPRIT Scholar from South America, Vanderlei Bagnato, Ph.D. from the University of Sao Paulo, Brazil.

One example of the "hepatocellular cancer" program priority in practice is the Collaborative Action Program for Liver Cancer (CAP), created to reverse the rising rates of liver cancer in the state. Hepatocellular cancer is the most common form of primary liver cancer, and the fastest rising cause of cancer-related deaths in the United States. Texas has the highest incidence rates of hepatocellular cancer in the nation.

An important component of CAP is the Texas Collaborative Center for Hepatocellular Cancer (TeCH) that began at Baylor College of Medicine in 2018 with a $3 million CPRIT academic research grant (RP190641). The TeCH promotes collaborations among researchers and shares those discoveries with doctors, the community, and the public. On September 17, 2022, TeCH center director Hashem B. El-Serag, M.D., MPH, led the Third Annual TeCH Symposium. The CAP shows the impact that targeted priorities and funding can have on underfunded areas of cancer research

**Prevention Program**

CPRIT's Prevention Program continues to support effective, evidence-based prevention programs available to underserved populations in the state. Prevention Program grants help Texans reduce the risk of cancer, identify cancers earlier, and assist people in finding cancer treatment. Through August 31, 2022, prevention grantees have provided 8.2 million prevention services, including 3.5 million clinical services with 395,441 people receiving their first cancer screening through a CPRIT-funded project. The Oversight Committee approved 16 prevention grants totaling $27.63 million during FY 2022. In FY 2022, the prevention program reached an impressive milestone by surpassing 8 million prevention services in all 254 counties.

Prevention Program Priorities

The Oversight Committee adopted the following FY 2022 Prevention Program priorities:

- Populations disproportionately affected by cancer incidence, mortality, or cancer risk prevalence;
- Geographic areas of the state disproportionately affected by cancer incidence, mortality, or cancer risk prevalence;
- Underserved populations; and
- Program assessment to identify best practices, use a quality improvement tool, and guide future program direction.

Programs like the GRASSROOTS HEALTH program demonstrate how CPRIT prevention funding addresses program priorities and supports projects for populations disproportionately affected by cancer. GRASSROOTS HEALTH is a partnership between The University of Texas Health Science Center at Houston, Healthcare for the Homeless Houston, and New Hope Housing to usher homeless individual through Hepatitis B virus and Hepatitis C care that includes education, testing, vaccination, and treatment. Originally started in Harris County in 2018 with the support of a $1.2 million CPRIT prevention grant (PP180086), the program expanded its reach to four additional counties in 2022 with the support of a $2 million CPRIT expansion grant (PP220022).

A notable first in the prevention program in FY 2022 is the first CPRIT award to the University of Houston Downtown. The prevention grant will fund a program to increase the use of HPV vaccination services among medically underserved young adults in Texas counties.

**Product Development Research Program**

CPRIT's Product Development Research Program funds innovative and scientifically meritorious product development projects with the potential of translating research discoveries into commercial products to benefit cancer patients. During FY 2022, the Oversight Committee approved 11 Product Development Research awards totaling $70.87 million. Notably in 2022, CPRIT awarded a product development research award to its 50th company.

The Product Development Research program continues to be a vital component in building the life sciences infrastructure and community in Texas. Through August 31, 2022, CPRIT companies raised $5.2 billion in additional investments after their CPRIT awards (a 10:1 funding ratio). These additional investments and activities testify to the quality of the CPRIT-funded projects and CPRIT's review process. CPRIT-funded companies continue to help not only the life sciences ecosystem, but also the Texas economy with a $630 million increase in business activity in CPRIT programs and employment of 1,228 Texans at CPRIT-funded companies.

Product Development Research Program Priorities

The Oversight Committee adopted the following 2022 Product Development Research Program Priorities:

- Funding novel projects that offer therapeutic or diagnostic benefits not currently available, i.e., disruptive technologies;
- Funding projects addressing large or challenging unmet medical needs;
- Investing in early-stage projects when private capital is least available;
- Stimulating commercialization of technologies developed at Texas institutions;
- Supporting new company formation in Texas or attracting promising companies to Texas that will recruit staff with life sciences expertise, especially experienced C-level staff to lead to seed clusters of life science expertise at various Texas locations; and
- Providing appropriate return on Texas taxpayer investment.

An example of the product development program priority "funding novel projects that offer diagnostic benefits not currently available" in practice, CPRIT awarded Perimeter Medical Imaging AI a $7.4 million product development research grant in 2019 (DP190087). The company creates ultra-high-resolution, real-time, advanced imaging tools. Their novel technology includes the S-Series OCT (Optical Coherence Tomography) that provides cross-sectional, real-time margin visualization of excised tissue specimens in the operating room. This tool allows surgeons to see margins at the cellular level in real time as opposed to waiting days for pathology results.

Perimeter received the CPRIT grant to further the company's study to evaluate B-Series OCT combined with groundbreaking AI technology ImgAssist. Perimeter developed ImgAssist under the ATLAS AI project to use machine learning algorithms that find areas suspicious for breast cancer in the OCT images of excised breast tissue samples.

Perimeter is currently conducting studies at eight locations, four of which are in Texas, including Baylor College of Medicine. Principal investigator Dr. Alastair Thompson explained, "Perimeter's novel imaging technology with AI fits into the routine surgical process with no additional imposition to the patient as it examines a tissue sample that is already being extracted."

## Conclusion

CPRIT's three programs show merit and progress and should continue operations. The work conducted under the purview of CPRIT's programs is part of an iterative cycle with observations emerging from the laboratory making their way to the public and back again to the laboratory. Essential players in this cycle are basic scientists, physician scientists, clinical researchers, product development entrepreneurs, public health professionals, health care providers, patients, community organizations, early-stage companies, and research institutions across Texas.

Through CPRIT's programs the state is investing in intellectual and research support infrastructure that is attracting, creating and expanding research capabilities of Texas institutions of higher education and the Texas life science industry, expediting innovation, and increasing the likelihood of breakthroughs in cancer prevention and cures.

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | WAYNE R. ROBERTS, CHIEF EXECUTIVE OFFICER |
| **SUBJECT:** | CPRIT ACTIVITIES UPDATE FOR NOVEMBER- DECEMBER 2022 |
| **DATE:** | JANUARY 9, 2023 |

Topics in this memo address CPRIT activities in November and December, including recent milestones in our fight against cancer, a staffing summary, outreach efforts, the upcoming 2023 Texas legislative session, and updates from Compliance, Programs, and Operations.

CPRIT will hold the next Oversight Committee meeting Wednesday, February 15. As part of meeting preparations, several CPRIT staff members toured available meeting rooms in the new Barbara Jordan State Office Building on December 12. Unfortunately, we concluded that before CPRIT can use any of the new meeting rooms for future meetings, the Texas Facilities Commission must resolve many logistical issues, especially related information technology. It is our understanding that the general contractor working on the Jordan Building failed to incorporate IT requirements during the project design stage, which resulted in inflexible IT and seating arrangements. We are hopeful that the TFC will resolve the Jordan Building issues; however, we are considering other options, most likely our conference room in the Travis Building, as backup meeting locations for the February 15 meeting. We will keep you updated.

## Recent Milestones in the Fight Against Cancer

CPRIT Grantees in the News

- Oprah Winfrey selected Dr. Amelie Ramirez of The University of Texas Health Science Center San Antonio and project director of multiple CPRIT prevention projects as a "Cycle Breaker" for her groundbreaking work to build health equity in the Latino community. "Cycle Breakers" is a video series from the Smithsonian Channel that spotlights leaders who are solving health disparities in marginalized communities. Dr. Ramirez's episode, released October 3, 2022, features her life's work to break the cycles of inequities that worsen health for Latinos.

- On October 10, 2022, *Popular Science* announced that CPRIT Scholar Sangeetha Reddy, M.D., is part of the 2022 class of the "Brilliant 10." This annual list of early career scientists and engineers recognizes the brightest innovators of today whose work sets the stage for a healthier, safer, more efficient, and more equitable future. Dr. Reddy, a physician-scientist at The University of Texas Southwestern Medical Center and the Simmons Comprehensive Cancer Center, employs a "bedside to bench and back" approach to test the effects of new



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drugs on triple negative breast cancer biopsies from her patients in the laboratory. When she identifies a promising tactic, she designs early-phase clinical trials. This cyclical strategy has led Dr. Reddy to a promising combination of three drugs designed to improve the ability of the immune system to fight tumors; researchers are evaluating the regimen for safety and efficacy in a Phase 1 clinical trial. UT Southwestern recruited Dr. Reddy in 2019 with a $2 million CPRIT First-time, Tenure-Track Recruitment Award (RR190020.)

- The National Academy of Medicine announced October 17, 2022, the election of two CPRIT grantees from The University of Texas Southwestern Medical Center, Zhijian "James" Chen, Ph.D., and Lora Hooper, Ph.D., to The National Academy of Medicine (NAM.) This is one of the highest honors attainable in the fields of health and medicine. With their election, UT Southwestern now has 18 NAM members, along with 24 members of the National Academy of Sciences, placing the institution among the nation's elite academic medical centers. Ten UT Southwestern's faculty members – including Drs. Hooper and Chen – are members of both organizations. Drs. Chen and Hooper are also among UT Southwestern's 14 Howard Hughes Medical Institute Investigators.

  Dr. Chen, who holds the George L. MacGregor Distinguished Chair in Biomedical Science, is broadly interested in mechanisms of signal transduction, namely how a cell communicates with its surroundings and within itself, and how a cell detects harmful or foreign insults and mounts an appropriate response. He received the Breakthrough Prize in Life Sciences in 2019 for his discovery of pathways and proteins that trigger immune and stress responses, including a signaling pathway involving a novel DNA sensor. CPRIT awarded Dr. Chen several research grants totaling more than $11 million (RP110430, RP120718, RP150498, RP180725) since 2011. ImmuneSensor Therapeutics Inc., a Dallas-based clinical stage biotechnology company founded on Dr. Chen's CPRIT-funded research, is developing a new class of drug called STING agonists that target this cellular pathway to activate the patient's immune system to fight cancers. CPRIT awarded the company a $16 million product development grant in September (DP220030).

  Dr. Hooper, who holds the Jonathan W. Uhr, M.D., Distinguished Chair in Immunology and is the Nancy Cain and Jeffrey A. Marcus Scholar in Medical Research, studies how resident intestinal bacteria influence the biology of mammalian hosts. Dr. Hooper's discoveries have helped explain how a host peacefully coexists with the trillions of beneficial bacteria present in the intestinal tract and how these bacteria can shape immunological and metabolic functions in their host. Dr. Hooper received a $200,000 High Impact/High Risk CPRIT research award (RP130166) in 2012 to develop engineered membrane-toxic lectins that specifically target and destroy tumor cells using her discovery of RegIII lectins, a unique family of membrane toxic C-type lectins. These proteins bind to cell surface sugars and destroy the membranes of the targeted cell.

- On November 9, 2022, The University of Texas Health Science Center at Houston announced that Maria E. Fernández, Ph.D., received the 2021 President's Scholar Award for Excellence in Research. At UT Health Houston, Dr. Fernández is the co-director of the Institute for Implementation Science, a professor in the Department of Health Promotion and

Behavioral Sciences, the Lorne Bain Distinguished Professor in Public Health and Medicine, and the director for the Center for Health Promotion and Prevention Research. She currently serves as principal investigator on more than $40 million in active research funding from CPRIT, the National Institutes of Health, the Centers for Disease Control and Prevention, the Texas Department of State Health Services, the Health Resources and Services Administration, and the World Health Organization. CPRIT has awarded UT Health Houston and Dr. Fernández four CPRIT academic research grants (RP100865, RP130459, RP170493, RP210042) and four prevention grants (PP100077, PP230086, PP130075, PP160051) totaling $12.7 million.

- On November 30, 2022, the Institute of Electrical and Electronic Engineers (IEEE) announced prestigious honors for two renowned CPRIT grantees from Rice University, Lydia Kavraki, Ph.D., and Rebecca Richards-Kortum, Ph.D.

  Dr. Kavraki, a professor of bioengineering, mechanical engineering and electrical and computer engineering, the Noah Harding Professor of Computer Science, and director of the Ken Kennedy Institute at Rice University, has won the IEEE Frances E. Allen Medal "for foundational probabilistic algorithms and randomized search methods that have broad impact in robotic motion planning and computational biology." In biomedicine, she develops computational methods and tools to model protein structure and function, and to understand biomolecular interactions, work that has applications in the design of novel therapeutics for cancer and other diseases. Dr. Kavraki received a $900,000 Individual Investigator Research Award for Prevention and Early Detection (RP170508) from CPRIT in November 2016.

  Dr. Richards-Kortum, professor of bioengineering and electrical and computer engineering, the Malcolm Gillis University Professor, and director of the Rice 360: Institute for Global Health Technology, won the IEEE Medal for Innovations in Healthcare Technology "for contributions to optical solutions for cancer detection and leadership in establishing the field of global health engineering." Her research focuses developing low-cost, high-performance technologies for remote and low-resource settings, e.g., optical imaging systems that are inexpensive, portable and provide rapid point-of-care diagnosis for diseases such as cervical and oral cancer. CPRIT awarded Dr. Richards-Kortum $2.7 million in individual investigator research grants (RP160460, RP100932) in 2010 and 2015.

- The December 5, 2022, edition of UNDARK digital magazine featured the colorectal cancer screening project (PP200066) directed by Dr. Michael Pignone of The University of Texas at Austin Dell Medical School. https://undark.org/2022/12/05/with-stool-testing-fewer-americans-may-delay-colon-screening/

Notable CPRIT-Supported Research Accomplishments

- **Cancer Cells Assume a "New Identity" to Evade Therapies.** Drugs that target the androgen receptor (AR), a key protein for prostate development and maintenance, revolutionized prostate cancer management and extended the lives of hundreds of thousands of patients. However, most patients' prostate tumors eventually develop resistance to

androgen deprivation. A research team led by CPRIT Scholar Ping Mu, Ph.D., Assistant Professor of Molecular Biology at The University of Texas Southwestern Medical Center and a member of the Simmons Comprehensive Cancer Center, discovered that one reason these tumors become resistant is through a phenomenon called 'lineage plasticity' in which malignant prostate cells revert to an earlier stage in development and becoming a different cell type that no longer depends on the AR.

To understand what drives lineage plasticity and resistance, Dr. Mu and his colleagues compared prostate cancer cells that were resistant to AR-targeting drugs to those that were sensitive using multiple analytical methods, including single-cell RNA sequencing, searching for key molecular pathways that separated the resistant cells from the sensitive ones. Their investigation revealed that a particular signaling pathway called Janus kinase-signal activator of transcription (JAK-STAT) appeared to drive both lineage plasticity and resistance. When the researchers used a genetic technique to individually knock-out the 11 major genes that make up this pathway, they discovered that two genes, JAK1 and STAT1, played key roles in these phenomena. Eliminating these genes or treating cancer cells with drugs that inhibit these genes caused cancerous prostate cells that had shifted into new cell types to revert to their original identities and become sensitive to androgen deprivation therapy.

The findings, published in the September 5, 2022, edition of *Nature Cancer* could lead to a new approach to fight this disease, the second-most common cancer in American men. CPRIT research grants (RR170050, RP220473, RP190208, RR170079, and RP160157), totaling $10 million supported this work. Dr. Mu and a study collaborator, Dr. Bo Li, are CPRIT Scholars.

- **CPRIT-Supported Research Identifies New Biomarkers for Hepatocellular Carcinoma Risk.** Alcohol consumption and obesity are associated with an increased risk of cirrhosis and hepatocellular carcinoma (HCC). However, the risk is not uniform among people, prompting research on the identification of biomarkers to inform personalized risk prediction and interventions. A collaborative team of researchers at Baylor College of Medicine and the Dan L. Duncan Comprehensive Cancer Center found that a key genetic variant risk factor, PNPLA3, plays a synergistic role in increasing the risk for cirrhosis, liver cancer and liver-related death when combined with alcohol use and obesity.

  In this prospective study, published in the October 3, 2022, edition of *JAMA Network Open* and led by CPRIT Scholar Dr. Christopher Amos, professor of medicine and director for the Institute for Clinical and Translational Medicine, the researchers analyzed data from more than 400,000 people in the United Kingdom Biobank to assess whether PNPLA3 variant status could help stratify risk for heavy alcohol users with obesity. The risk for cirrhosis increases with any one of these factors, but the findings showed a dramatically increased risk (10-fold higher) when a person had all three risk factors (PNPLA3 variant, obesity, excessive drinking). The risk for developing liver cancer was 30.1-fold higher and the risk for liver-related mortality was 21.8-fold higher in people with all three risk factors.

These findings suggest that genotyping for the PNPLA3 I148M variant may be useful in refining the risk stratification of persons with obesity and excessive drinking who are at risk for advanced liver disease progression and may be candidates for early preventive measures. In addition to Dr. Amos (RR170048), two other CPRIT Scholars - Dr. Han Xu (RR160097), and Dr. Chao Cheng (RR180061) - also worked on the study. The $9.8 million CPRIT research grant (RP150587) to the Texas Hepatocellular Carcinoma Consortium in 2015 supported this work.

- **CPRIT Investigators Seek to Reduce the Side Effects of Lifesaving Immunotherapy.** Researchers working on a new CPRIT-supported preclinical study at The University of Texas MD Anderson Cancer Center discovered the underlying cause of gender differences in immunotherapy-associated cardiovascular toxicity (myocarditis) after immune checkpoint inhibitor (ICI) treatment. ICIs result in durable responses in many cancer patients, but they are associated with an increased risk of cardiovascular toxicities, which disproportionately affect women, and can significantly increase the mortality rate in women. *Science Translational Medicine* published the data in its November 2, 2022, edition.

  The study, led by CPRIT Scholar Liuqing Yang, Ph.D., and Chunru Lin, M.D., Ph.D., Associate Professors of Molecular and Cellular Oncology, demonstrates how life-saving ICI treatment reduces levels of the hormone estrogen. Estrogen functions to regulate the expression of many essential genes, including genes encoding important heart-protective proteins - MANF and HSPA5. The investigators developed laboratory models for melanoma, breast cancer, and colorectal cancer to study ICI-associated myocarditis. Treatment with commonly used ICIs (anti-PD-1 and anti-CTLA-4 antibodies) inhibited tumor growth, but also increased myocarditis, particularly in female mice. Infusions of recombinant MANF and HSPA5 proteins reversed these effects, improving cardiac function without affecting antitumor response after ICI.

  These seminal results suggest several treatment approaches, including hormone therapies, which could target this endocrine-cardiac-immune pathway without affecting treatment responses. The authors plan clinical trials to evaluate these approaches using drugs already approved by the Food and Drug Administration. CPRIT research grants (R1218, RP200423, RP180259) totaling $3.8 million supported this work

- **Defining Cancer's Features in a Unique Patient Population – Adolescents and Young Adults.** Cancer is a leading cause of death in adolescents and young adults (AYAs), but scientists do not completely understand its biological and genetic underpinnings, in part because adult and pediatric cancer projects do not typically include AYA cases. In a genomic tour-de-force, CPRIT Scholar Siyuan Zheng (RR170055) of the Greehey Children's Cancer Research Institute, lead a team of researchers from The University of Texas Health Science Center at San Antonio and The University of Texas MD Anderson Cancer Center.

  The scientists studied the clinical and genomic parameters and differences between more than 100,000 AYA and older adult cancer patients. The investigators found substantial differences in clinical presentation between the two age groups, including patient gender,

ethnicity, metastatic status, overall survival, and disease histological subtypes that provide seminal clues into the etiology of the diseases and how best to treat them. In most cancer types, AYA tumors showed lower mutation burden and less genome instability, resulting in fewer tumor-specific alterations to proteins, a finding that has been a barrier to developing effective immunotherapies for these tumors. However, some mutations, such as CTNNB1 and BRAF mutations are overrepresented in AYAs across multiple cancer types, important findings as these pathways are amenable to targeted therapy.

In contrast to tumors from adults, AYA tumors also exhibited more driver gene fusions that are frequently observed in pediatric cancers. Tumor histology proved to be an important contributor to genetic disparities between AYAs and other adult cancers. Finally, of high significance for the selection of therapy, the researchers provided a panoramic view of clinically actionable genetic events in AYA tumors that significantly expands the compendium of targetable alterations in these diseases. The journal *Nature Communications* published the study in its November 24, 2022, edition.

- On December 1, 2022, Houston-based Salarius Pharmaceuticals announced interim clinical trial results from the company's Phase 1/2 trial of its novel oral, reversible, targeted LSD1 inhibitor, seclidemstat, as a treatment for Ewing sarcoma and FET-rearranged sarcomas. These interim results appear to indicate that first- and second-relapse Ewing sarcoma patients treated with seclidemstat in combination with topotecan and cyclophosphamide who achieve disease control may have an increased time to tumor progression compared with treatment of topotecan and cyclophosphamide alone. CPRIT awarded Salarius a $16.1 million New Company product development grant (DP160014) in May 2016 to develop seclidemstat.

- Perimeter Medical Imaging AI, Inc. reported findings suggesting that the company's wide-field optical coherence tomography (WF-OCT) may be a promising adjunct imaging modality for intraoperative visualization in head and neck surgery, especially at deep margins. The study, released in the December 1, 2022, edition of *JAMA Otolaryngology—Head and Neck Surgery* included 53 adult patients undergoing primary ablative surgery of the oral cavity or oropharynx for squamous cell carcinoma (SCC). Clinicians imaged the resected specimens with Perimeter S-Series OCT in the operating room prior to routine pathology to allow for post-operative comparisons. The research showed that the Perimeter OCT images correlate to histological results with a process that does not interfere with surgical procedures or final pathology. SCC patients with positive margins after initial surgery are known to have increased risk of local recurrence, poorer rates of progression-free survival, and a need for adjuvant treatments such as radiotherapy, chemotherapy and additional surgery. Advanced imaging technology that allows surgeons to examine margin depth in real-time during surgery can help improve patient outcomes.

  The Dallas and Toronto-based medical technology company received a $7.4 million CPRIT Product Development award (DP190087) in August 2019 to develop the breakthrough-device-designated investigational Perimeter B-Series OCT with ImgAssist AI. The company is evaluating the next-generation AI technology in a pivotal clinical trial.

- Houston-based Bellicum Pharmaceuticals, Inc. announced that a research team from University of North Carolina Lineberger Comprehensive Cancer Center presented data regarding clinical evaluation of the company's CaspaCIDe® safety switch technology at the American Society of Hematology Annual Meeting and Exposition in New Orleans in December 2022. The UNC Lineberger research team concluded that the CaspaCIDe safety switch holds promise as a tool to potentially abrogate the most severe CAR T-cell toxicities.

  CAR-T cell therapies show tremendous opportunities for treating some cancers; however, they carry the risk of immune-related adverse events like cytokine release syndrome or neurotoxicities. An "off switch" for the CAR-T treatment that induces cell death in as little as 30 minutes may help stop these potentially fatal outcomes. The study of four patients who received rimiducid to activate the CaspaCIDe safety switch showed abrupt reduction of CAR-T cells and a lower immune effector cell neurotoxicity syndrome (ICANS) grade within 24 hours.

  CPRIT awarded Bellicum two product development grants in 2011 and 2016 totaling $22.5 million to develop the CaspaCIDe safety switch technology.

**Personnel**

CPRIT has filled 41 of our 44 full-time equivalent positions.

- The second Product Development Program Manager position and a Grant Compliance Specialist position are in progress of being filled.

- CPRIT plans to post a Systems Support position in January.

**CPRIT Outreach and Legislative Activities**

88th Texas Legislature

The 88th Texas Legislature will convene in Austin at noon on January 10 and adjourn *sine die* at midnight on May 29. We do not expect to learn budget recommendations for the 2024-25 fiscal biennium until after January 10. Early filing has begun, and we are monitoring bills for possible CPRIT impact.

Over the past few months, we have met with and discussed our legislative agenda and concerns with legislators expected to have CPRIT oversight, including Senator Joan Huffman (Senate Finance Chair), Senator Lois Kolkhorst (Senate Health & Human Services Chair) and Representative Stephanie Klick (House Public Health Chair).

You will receive regular reports on legislative activities affecting CPRIT, including appropriations and general legislation.

Texas-Israel Alliance

CPRIT co-hosted the second healthcare innovation summit of the Texas-Israel Alliance on November 14, 2022, on the Rice University campus in Houston. Other so-sponsors included the Israel Consulate General Southwest, DLA Piper, Rice University Ken Kennedy Institute, and Lyda Hill Philanthropies.

The summit assembled thought leaders from various institutions and companies to highlight technologies that drive innovation in digital health, biotech, and medical devices, and explore the nexus between data and biology. Chief Strategic Initiatives and Intellectual Property Officer Tracey Davies, Program Manager for Product Development Dr. Abria Magee and I sat on a panel that updated the attendees on CPRIT activities of interest. Other panels included computational biology, digital health, novel microbiome strategies, and mental health.

Advanced Research Projects Agency for Health (ARPA-H) and Federal Outreach

Although activities related to ARPA-H slowed down temporarily due to congressional reorganization after the November election, Congress passed its Omnibus Appropriations Bill that included $1.5 billion in funding for ARPA-H on December 23. The legislation establishes ARPA-H within the National Institutes of Health, but provides that the new agency cannot be located on NIH's Maryland campus. The bill further requires that ARPA-H must have offices in at least three geographic areas, with a "fair and open" selection process for ARPA-H locations. In standing up ARPA-H, the appropriators strongly encourage Health and Human Services to work with the Defense Advanced Research Projects Agency to develop policies, procedures and training for employees.

We strongly believe that the Texas coalition's efforts are responsible for the mandate that ARPA-H offices must locate in different geographic areas. The coalition has spent nearly a year educating key influencers and legislators on Texas' flourishing biotechnology ecosystem, especially in relation to cancer research and product development opportunities.

Separate from the ARPA-H initiative, I sent correspondence to U.S. Health and Human Services Secretary Xavier Becerra, ARPA-H Director Dr. Renee Wegrzyn and National Cancer Institute Director Dr. Monica Bertagnolli in November and December seeking to explore opportunities to coordinate CPRIT's efforts with their respective cancer-related initiatives. On November 30, several CPRIT senior staff and I met virtually with lead staff for Secretary Becerra. On December 23, Dr. Douglas Lowry, NCI Principal Deputy Director, responded on behalf of Dr. Bertagnolli, outlining next steps for aligning the efforts of NCI and CPRIT. I will keep you updated.

Other Staff Outreach

Staff outreach activities during November and December include:

- Deputy Executive Officer and General Counsel Kristen Doyle, Chief Strategic Initiatives and Intellectual Property Officer Tracey Davies, and Program Manager for Product Development Dr. Abria Magee attended BioHouston's Texas Life Science Forum in Houston on November 8, 2022. Ms. Davies gave a presentation about the ARPA-H initiative and Ms. Doyle presented an update on CPRIT's product development program, focusing on the improvements to the review process.

- Chief Scientific Officer Dr. Michelle Le Beau was an invited panelist in the inaugural Leadership Diversity and Development Initiative sponsored by the Association of American Cancer Institutes, held November 8, 2022, in Chicago. More than 200 junior faculty, identified as emerging leaders from Cancer Centers throughout the nation, attended the panel entitled "Navigating the Pathway to Cancer Center Leadership."

- On November 14 – 15, 2022, Dr. Le Beau was a guest of CPRIT Scholar Dr. Pavan Reddy, newly appointed Professor and Director of the Dan L. Duncan Comprehensive Cancer Center at the Baylor College of Medicine, where she toured the facilities, met with several junior faculty and CPRIT grantees, and participated in discussions regarding the cancer programs and strategic plan for further growth of the Cancer Center. Dr. Le Beau also presented an overview of CPRIT, and research opportunities available through CPRIT's Academic Research, Product Development, and Prevention Programs. Baylor College of Medicine recruited Dr. Reddy to Texas with a CPRIT Established Investigator recruitment award (RP220033) in 2022.

- On November 17, 2022, Chief Operating Officer Heidi McConnell, Ms. Doyle, and I briefed Senator Sarah Eckhardt on CPRIT activities and plans for the 88$^{th}$ Texas Legislature.

- On November 21, 2022, Chief Product Development Officer Dr. Ken Smith and Dr. Magee met with representatives of the Cancer Fund. The Cancer Fund, based in Arizona, invests in early-stage companies taking research innovations from the laboratory to the patient. They discussed potential partnering opportunities and ways the Cancer Fund may support CPRIT grantees.

- Dr. Magee met with the Convergence Ventures team in Houston on November 29, 2022. Convergence is interested in CPRIT working with CPRIT and the University of Houston Bauer School of Business to assess ways to back CPRIT's product development portfolio companies.

- I met with Senator Juan Hinojosa about CPRIT's efforts to increase the geographic distribution of CPRIT awards on December 1, 2022.

- Director of Research Dr. Patty Moore attended a December 6, 2022, luncheon at the Governor's Mansion, hosted by First Lady Anita Abbott and the Texas Commission for Women. The luncheon honored the state agencies, including CPRIT, participating in the Holiday Wishes Project. This year's Holiday Wishes project resulted in donations that granted three "wishes" for more than 3,500 children in Texas foster care.

- By all determinable measures, the December 8, 2022, American Cancer Society Cancer Action Network virtual event "The Cancer Prevention and Research Institute of Texas: Fifteen Years of Leading the Fight Against Cancer" was successful. Sections included survivor stories, how CPRIT began legislatively (Representative Geanie Morrison), attracting the best and the brightest (Dr. James Allison), and the economic impact of CPRIT (Dr. Ray Perryman). Presiding Office Dr. Mahendra Patel discussed the next fifteen years and Ms. Doyle discussed implementing the CPRIT vision and why she joined CPRIT in 2009. We hope to get permission to post the video file on CPRIT's website soon.

- Dr. Magee attended the Center for Houston's "Future Health Care 2022" report release on December 9, 2022, in downtown Houston. Many CPRIT academic and product development grantees also attended the release; Dr. Magee discussed CPRIT's funding opportunities with interested individuals.

- I discussed CPRIT's legislative agenda and concerns with Representative Geanie Morrison on December 12, 2022.

- Ms. Doyle and Ms. Davies traveled to Pegasus Park in Dallas on December 12, 2022, to meet with Reed Jobs and members of the Emerson Collective Health Team to discuss opportunities for strategic partnerships that will impact the lives of cancer patients. Founded by Laurene Powell Jobs, the Emerson Collective addresses several important societal issues, including the environment, health, and education. Emerson Collective Health focuses on solutions that will improve cancer detection, treatment, and the patient experience.

- On December 15, 2022, I participated in discussions at The University of Texas MD Anderson Cancer Center in Houston with a delegation from the Kingdom of Saudi Arabia interested in creating partnerships and expanding their cancer research and commercialization activities.

- Dr. Magee met with Rachel Rath, Interim Director of JLABS and the Johnson & Johnson BARDA Alliance director, at the TMC in Houston on December 19, 2022. Dr. Magee and Ms. Rath discussed the upcoming CPRIT conference and speaking opportunities.

- Throughout November and December Dr. Magee met with several companies interested in applying for CPRIT product development research awards in FY 2023, including Medicircle (redistributing unused medications, providing affordable care to American cancer patients), Pegwin (software for identifying and reporting safety and usability issues in electronic health

records to support healthcare providers) and FixNip (Israeli-based medical device company improving on current standard-of-care for nipple-areola complex reconstruction.)

## Compliance Program Update

Submission Status of Required Grant Recipient Reports

As of December, nine entities had not filed 20 Academic Research reports and four Prevention reports. CPRIT's grant accountants and compliance specialists review and process incoming reports and reach out to grantees to resolve filing issues. In most cases, CPRIT does not disburse grant funds until the grantee files the required reports. In some instances, grantee institutions may be ineligible to receive a future award if the grantee does not submit required reports.

Financial Status Report Reviews

CPRIT's compliance specialists performed 264 second-level reviews of grantee Financial Status Reports (FSRs) in November and December. Thirty-seven FSRs (14%) needed resubmission due to insufficient or inaccurate documentation sent by the grantee. CPRIT's grant accounting staff completes the first review of the FSRs and supporting documentation before routing them to the compliance specialists for final review and disposition.

Desk Reviews

Compliance specialists performed 11 enhanced desk-based financial monitoring reviews in November and December. Desk reviews confirm financial, administrative, and programmatic compliance using data from CGMS/CARS with additional focus on an organization's internal controls, current and previous fiscal audits, and grantee report submission timeliness. Desk reviews also aid in the identification of potential problems and technical assistance issues for follow-up during an onsite visit, as well as areas of non-compliance and grantee performance issues.

Onsite Reviews

CPRIT completed six virtual onsite reviews in November and December. Onsite reviews are the most extensive monitoring activity conducted by CPRIT and include virtual or field visits led by compliance grant monitoring staff. CPRIT monitors the grantee's financial and administrative operations, subcontract monitoring, procurement and contracting procedures, inventory procedures, personnel policies and procedures, payroll and timesheet policies, travel policies and records, and compliance with single audits during onsite reviews. Onsite monitoring enables CPRIT compliance staff to assess a grantees' capability, performance, and compliance with applicable laws, rules, and policies. Compliance specialists are collaborating with two grantees to address onsite review findings.

Annual Compliance Attestation

CPRIT requires grantees to submit an annual attestation form, demonstrating compliance with statutory and administrative grant requirements, CPRIT's policies and procedures, grant contract terms, and the Texas Grant Management Standards. This opportunity to self-report, in the form of a checklist, provides a baseline of grantee compliance and allows compliance specialists to proactively work with grantees towards full compliance prior to a desk review or onsite review. As of December 15, 22 of the 53 active grantees submitted their annual compliance attestation. Grantees have until December 31 to submit the completed attestation. As part of the annual attestation process, product development grantees must submit documentation demonstrating compliance with the Texas Location Criteria, pursuant to Texas Administrative Code §701.19.

Match Expenditures Review

CPRIT requires academic research and product development research grantees to show that they have available unused funds equal to at least one-half of the CPRIT grant award that the grantee will spend on the CPRIT-funded project. This obligation, often referred to as "CPRIT's matching funds requirement," requires the grantee to first certify that it has available matching funds, and then at the end of the grant year, to verify that the grantee spent the matching funds on the project. CPRIT's statute allows an institution of higher education to use its federal indirect cost rate as a credit toward the required 50% match.

Product development grantees and those academic research grantees whose indirect cost rate credit does not fully offset the required match must supply a detailed match expenditure report that includes the amount and date paid, vendor, description, and budget category. Compliance staff review grantees' match expenditures for appropriateness and allowability and work with CPRIT's grant accountants and the grantee to address any deficiencies. Compliance staff performed four annual match expenditure reviews for three grantees in November and December. The total amount of match expenses reviewed by compliance staff for FY 2023 is $11,489,735.04.

Training and Support

CPRIT staff conducted seven new grantee training webinars in November and December for PLUS Therapeutics, Atom Mines, InformAI Inc., Xerient Pharma, Nucore Medical, Stellanova Therapeutics, and University of Houston - Downtown. The trainings covered grant reporting requirements, administrative rule changes, grant closeout, and an overview of the compliance program including fraud, waste, and abuse reporting. Pursuant to Texas Administrative Code §703.22, CPRIT requires new grantees to complete the initial compliance training program prior to receiving disbursement of grant award funds.

**Academic Research Program Update**

Recruitment FY 2023 Review Cycle 1

CPRIT's Scientific Review Council (SRC) reviewed recruitment applications for the second quarter of FY 2023 (Cycle 23.2) on November 10, 2022. Dr. Le Beau will present the SRC's award recommendations for 23.2 recruitment awards to the Program Integration Committee (PIC) and the Oversight Committee in February.

| FY 23.2 Mechanism | Received | Funds Requested | Recommended | Recommended Funds |
|---|---|---|---|---|
| Recruitment of First-Time, Tenure Track Faculty Members | 3 | $5,999,977 | 3 | $5,999,977 |
| **TOTAL** | **3** | **$5,999,977** | **3** | **$5,999,977** |

Texas Regional Excellence in Cancer (TREC) FY 2023 Review Cycle

CPRIT opened the portal May 16 to receive applications for Texas Regional Excellence in Cancer (TREC) Awards. We received four applications requesting $23,998,422 by the September 8, 2022, deadline, which the peer review panel evaluated in November 2022. Dr. Le Beau will present the SRC's TREC Award recommendations to the PIC and Oversight Committee in February.

Academic Research FY 2023 Review Cycle 1 (23.1)

CPRIT released several RFAs for the first cycle of FY 2023 (23.1) in January 2022 and began accepting applications for targeted and untargeted Individual Investigator Research Awards in March through June 8, 2022. Peer review panels met in late October 2022 to consider the applications. Dr. Le Beau will present the SRC's recommendations for the Individual Investigator Research Awards to the PIC and the Oversight Committee in February.

| Cycle 23.1 RFA Mechanism | Applications | Requested Funding |
|---|---|---|
| Individual Investigator Research Awards | 235 | $241,561,941 |
| Individual Investigator Research Awards for Cancer in Children and Adolescents | 30 | $42,048,859 |
| Individual Investigator Research Awards for Clinical Translation | 19 | $35,897,103 |
| Individual Investigator Research Awards for Computational Systems Biology of Cancer | 23 | $26,041,589 |
| Individual Investigator Research Awards for Prevention and Early Detection | 22 | $36,681,588 |
| **Total** | **329** | **$382,231,080** |

Academic Research FY 2023 Review Cycle 2 (23.2)

The Oversight Committee approved four new RFAs for the second cycle of FY 2023 (23.2) at the November 16, 2022, meeting. Three of the four cycle 23.2 RFAs are first- time grants and will support research, training, and instrumentation at TREC-eligible institutions. The fourth RFA, also offered by CPRIT for the first time, will support the Texas CONNECT for Cancer Prevention Study in collaboration with the NCI CONNECT Study. I have listed a brief synopsis of each grant below.

We will officially release the cycle 23.2 RFAs on January 16 and begin accepting applications January 25. Dr. Le Beau will present the SRC's recommendations for the cycle 23.2 grants to the PIC and the Oversight Committee in August.

- *TREC Pilot Study Award*:

  Provides short-term funding to explore the feasibility of cancer research projects at TREC-eligible institutions that, if successful, would contribute new insights into the etiology, diagnosis, treatment, or prevention of cancers forming the basis for applications for peer-reviewed funding from CPRIT or other organizations.
  Award: Total of $200,000 over two years.

- *TREC Institutional Postdoctoral Training Award*:

  Solicits applications from TREC-eligible institutions to support training and the conduct of research and, ultimately, the retention as faculty of outstanding post-doctoral students recognized by their institutions for their high potential and strong interest in pursuing careers as independent cancer researchers.
  Award: Total of $800,000 over three years

- *TREC Major Instrumentation Award*:

  Solicits applications from TREC-eligible institutions to enhance research capacity by supporting the purchase of major instrumentation for one or more Core Facilities that will support multiple cancer researchers.
  Award: Total of $1 million over two years

- *Texas CONNECT for Cancer Prevention Study Awards*:

  Solicits applications from institutions to establish a Texas CONNECT for Cancer Prevention Study of 25,000-30,000 adults in collaboration with the NCI CONNECT Study. This study will address priorities in cancer prevention, early detection, and etiology research (including emerging exposures), novel biomarkers, genomics; current-edge methodology and diverse and special populations. The CONNECT Study has the long-term potential to identify social, environmental, behavioral, and genetic factors that underlie cancer risk among Texans.
  Award: Up to $7.5 million over five years.

## Product Development Research Program Update

Product Development FY 2023 Review Cycle

CPRIT released four FY 2023 Product Development Research RFAs and opened the portal to receive preliminary applications on a rolling basis beginning August 24. As of January 1, CPRIT received 70+ preliminary applications. The first deadline for full applications was November 1. Fourteen companies filed full applications for the ten review slots available. The first ten companies, requesting $149 million, presented their full applications to review panels the week of December 12 – 16. The review panels recommended six companies, requesting $82.1 million, to proceed to due diligence review. Panels will meet January 13 – January 20 to consider due diligence reports. Following due diligence review, Dr. Smith will present the Product Development Review Council's award recommendations to the PIC and the Oversight Committee in February.

## Prevention Program Update

Prevention FY 2023 Review Cycle 1 (23.1)

The Prevention Program released three RFAs on May 6, 2022, for the first cycle of FY 2023. CPRIT received 24 proposals totaling $29,628,112 through the August 31 deadline. Peer review panels met by teleconference December 5 - 6. The Prevention Review Council (PRC) will meet January 6 to make the final list of prevention award recommendations. Chief Prevention Officer Ramona Magid will present the PRC's recommendations to the PIC and the Oversight Committee in February.

| Cycle 23.1 Mechanism | Applications | Funds Requested |
|---|---|---|
| Primary Prevention of Cancer | 12 | $13,965,009 |
| Cancer Screening and Early Detection | 7 | $13,417,478 |
| Dissemination of CPRIT-Funded Cancer Control Interventions | 5 | $2,245,625 |
| **TOTAL** | **24** | **$29,628,112** |

Prevention FY 2023 Review Cycle 2 (23.2)

CPRIT released four prevention RFAs on November 17, including the new *Colorectal Cancer Coordinating Center* RFA. CPRIT will accept applications through February 8, 2023. Peer review of the applications takes place April - June. Ms. Magid will present the PRC's recommendations to the PIC and the Oversight Committee in August.

## Advisory Committee Meetings

The Clinical Trials Advisory Committee met December 5.

CPRIT staff set the FY 2023 schedule for annual advisory committee presentations to Oversight Committee:

February 15 Oversight Committee meeting

- The Childhood Cancer Advisory Committee
- Prevention Advisory Committee

May 17 Oversight Committee meeting

- Product Development Advisory Committee
- Geographic Diversity Advisory Committee

August 16 Oversight Committee meeting

- University Advisory Committee,
- Clinical Trials Advisory Committee

**Operations, Finance, and Conference Update**

McConnell & Jones LLP completed the audit of CPRIT's FY 2022 financial statements and issued an "unmodified," or clean report with no identified material weaknesses or significant deficiencies. The audit team presented these results to the Audit Subcommittee on December 12. CPRIT has submitted the audit report to the Comptroller's Office, State Auditor's Office, Governor's Office and Legislative Budget Board.

CPRIT program staff continue to work on the speakers to fill out the schedule for the *2023 CPRIT Innovations Conference VI*. The conference will take place October 2-3, 2023, at the Moody Gardens Hotel, Spa and Convention Center on Galveston Island.

**Upcoming Subcommittee Meetings**

Listed below are the subcommittee meetings in advance of the February 15 Oversight Committee meeting. We will send instructions for signing onto the Microsoft Teams platform along with the subcommittee agenda and meeting materials one week prior to the meeting.

| | |
|---|---|
| Board Governance | February 2 at 10:00 a.m. |
| Audit | February 6 at 10:00 a.m. |
| Prevention | February 7 at 12:00 p.m. |
| Academic Research | February 8 at 10:00 a.m. |
| Product Development | February 9 at 10:00 a.m. |

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CPRIT has awarded **1,819** grants totaling **$3.179 billion**

- 274 prevention awards totaling $327.9 million
- 1,545 academic research and product development research awards totaling $2.851 billion

Of the $2.851 billion in academic research and product development research awards,

- 31.0% of the funding ($882.6 million) supports clinical research projects
- 23.8% of the funding ($676.3 million) supports translational research projects
- 29.5% of funding ($841.6 million) supports recruitment awards
- 12.6% of the funding ($359.8 million) supports discovery stage research projects
- 3.2% of funding ($90.4 million) supports training programs.

CPRIT has ten open Requests for Applications (RFAs)

- 2 Research Recruitment
- 4 Product Development Research
- 4 Prevention

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | WAYNE R. ROBERTS, CHIEF EXECUTIVE OFFICER |
| **SUBJECT:** | CPRIT ACTIVITIES UPDATE FOR JANUARY 2023 |
| **DATE:** | FEBRUARY 6, 2023 |

Topics in this memo address CPRIT activities in January, including recent milestones in our fight against cancer, CPRIT's FY 2022 Annual Report, a staffing summary, outreach efforts, the 2023 Texas legislative session, and updates from Compliance, Programs, and Operations.

The Oversight Committee will meet in person on Wednesday, February 15, in a meeting room in the new Barbara Jordan State Office Building. We will provide a map ahead of the meeting, but please allow sufficient time to negotiate the newly opened areas of the Capitol Complex.

We will have a full agenda with several grant award recommendations as well as annual reports presented by two advisory committees. Please notify me as soon as possible if you are unable to attend the February 15 meeting or have schedule constraints that require you to arrive at the meeting after 9:00 a.m. or leave prior to 12:30 p.m.

You will receive an email from CPRIT by February 6 with a link and password to access the Program Integration Committee's award recommendations via the grant award portal. The portal has a summary of the award slates, as well as supporting documentation for each proposed award, including the application, CEO affidavit, summary statement, and grant pedigree. The academic research and prevention programs will present award recommendations at the meeting. Please allow time to complete the individual conflict of interest checks and review the supporting material.

Attached is a draft meeting agenda. CPRIT will post the final agenda for the Oversight Committee meeting by February 7. Oversight Committee members will receive an electronic copy of the agenda packet by February 8. Hard copies of the agenda and proposed award packets will be available at the meeting.

**Recent Milestones in the Fight Against Cancer**

<u>CPRIT Grantees in the News</u>

- CPRIT Scholar Christopher Flowers, M.D., division head ad interim of Cancer Medicine and chair of Lymphoma & Myeloma at The University of Texas MD Anderson Cancer Center received an ASH Mentor Award from the American Society of Hematology (ASH) in



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acknowledgement of his career-long commitment to mentoring and promoting the training and career development of others.

During the ceremony, held December 13, 2022, at the 2022 ASH Annual meeting, Dr. Flowers noted:

> "It is an honor to be recognized for something that I am very passionate about. Key mentors have impacted my career profoundly, so I understand the value these deep and long-lasting relationships can have on career success. I am thankful for all my mentors and for their support throughout my career. I also am grateful for my mentees allowing me to participate in their journey toward becoming the next generation of leaders in hematology and oncology."

Dr. Flowers is a globally recognized leader in lymphoma clinical and population science research as well as a national leader in oncology. He has made significant contributions to the field, including revealing racial disparities in lymphoid cancers, and supporting the successful development of the first PI3-kinase inhibitor and CD79b-directed therapy in oncology. Dr. Flowers developed unique, comprehensive patient databases that include underrepresented groups, leading to numerous cohort studies providing a greater understanding of lymphoma etiology, outcomes, and survivorship aspects. MD Anderson Cancer recruited Dr. Flowers from Emory University School of Medicine with support from a $6 million CPRIT Recruitment of Established Investigator Award (RR190079) in 2019. He mentors multiple CPRIT Scholars and grantees in translational cancer research.

- On December 19, 2022, The University of Texas MD Anderson Cancer Center released its 22 research highlights from the past year. MD Anderson recognized several CPRIT-funded projects, including the "Active Living After Cancer" program. The research, led by Karen Basen-Engquist, Ph.D., showed that physical activity and the ability to accomplish basic daily pursuits improved for breast cancer survivors, according to a study published in the September 23, 2021, volume of *Cancer*. The research could serve as a model to deliver a community-based physical activity program to minority and medically underserved cancer survivors. MD Anderson received three prevention grants (PP130079, PP170023, PP200028) totaling more than $4 million to support this successful project, including the expansion in El Paso, Beaumont, Tyler and nearby counties.

- Dallas-based OncoNano Medicine, Inc. announced January 4 that the FDA granted its lead clinical development candidate, pegsitacianine, a pH-sensitive fluorescent nanoprobe for image-guided cancer surgery, Breakthrough Therapy Designation as an adjunct for the visualization of metastatic disease in the peritoneal cavity in patients undergoing cytoreductive surgery. The FDA's Breakthrough Therapy Designation expedites development and regulatory review of medicines that address a serious or life-threatening condition with preliminary clinical evidence demonstrating substantial improvement over existing treatments on one or more clinically significant endpoints. A Breakthrough Therapy Designation provides more intensive FDA guidance on an efficient drug development program, an organizational commitment involving senior managers, and eligibility for rolling

review and priority review. Based on the results of an ongoing Phase 2 clinical trial evaluating the safety and efficacy of pegsitacianine following standard of care cytoreductive surgery, pegsitacianine enabled surgeons to detect additional cancerous tissue at a clinically significant rate of >50%. More than 17,000 patients in the United States undergo cytoreductive surgery each year due to metastasis from many different tumor types, including appendiceal, colorectal or ovarian cancer.

OncoNano is developing a new class of products that utilize principles of molecular cooperation in their design to use pH as a biomarker to diagnose and treat cancer with high specificity. OncoNano has received three CPRIT product development awards since 2014, totaling $31 million (DP140072, DP190066, DP200081).

- On January 4 Aravive, Inc. announced full enrollment in the registrational Phase 3 trial of batiraxcept plus paclitaxel for platinum-resistant ovarian cancer (PROC). The global, randomized, double-blind, placebo-controlled Phase 3 AXLerate-OC trial is evaluating efficacy and tolerability of 15 mg/kg batiraxcept in combination with weekly paclitaxel versus placebo in combination with weekly paclitaxel. The trial enrolled ~350 patients with high grade serous PROC who received 1-4 prior lines of therapy at 165 sites in the U.S. and Europe.

  "Completing enrollment of this pivotal study brings us closer to the day when batiraxcept potentially is available to patients," explained Scott Dove, Ph.D., Chief Operating Officer of Aravive. "Public reporting of topline data remains on track for mid-2023 and, if successful, are expected to support a Biologics License Application for PROC at the end of 2023. I would like to thank the patients enrolled in the trial, the clinical investigators, our CRO partners, and the Aravive team who worked tirelessly to advance the trial to this stage."

  Houston-based Aravive is a late clinical-stage oncology company developing targeted therapeutics to treat metastatic diseases. CPRIT awarded Aravive a $20 million research grant (DP150127) in 2015 to develop batiraxcept.

- Hummingbird Bioscience announced January 4 a licensing agreement with Synaffix B.V. to develop a next generation antibody drug conjugate (ADC) program using Synaffix technology. "Hummingbird Bio's [rational antibody discovery] RAD platform generates high affinity antibodies against unique epitopes on hard targets, potentially unlocking novel mechanisms of action. We believe that, by combining Synaffix's ADC technologies with our antibodies, we have the potential to create best-in-class ADCs." said Piers Ingram, Ph.D., Chief Executive Officer and co-founder of Hummingbird Bio. "We are excited by the potential of this partnership and look forward to sharing additional updates on our ADC efforts throughout 2023."

  Houston and Singapore-based Hummingbird Bio is data-driven precision biotherapeutics company discovering and developing transformative biologic medicines for hard-to-treat diseases. The Hummingbird Bio model combines computational and systems biology with wet lab drug discovery in a multi-disciplinary, collaborative environment spanning initial

discovery through clinical development. The company has two clinical-stage assets: HMBD-001, a humanized anti-HER3 monoclonal antibody targeting a novel epitope on HER3, and HMBD-002, a humanized anti-VISTA IgG4 monoclonal antibody. Both programs are currently in Phase 1 studies. Hummingbird Bio received a $13.1 million Texas Company Relocation grant (DP190027) in 2019 to develop HMBD-002.

- A January 4 editorial in *IPO Edge* featured PLUS Therapeutics, highlighting the Austin-based company's promising treatment targeting brain tumors with greater precision and the company's Fast Track designation from the FDA for its two most important treatments: recurrent glioblastoma and leptomeningeal metastases.

  Radiation is one of the only treatment options available for brain cancers because the body's blood-brain barrier stops chemotherapy from reaching tumors in large enough doses to be effective. Traditional radiation is also problematic because the radiation beam causes serious damage to healthy parts of the brain adjacent to the targeted tumor cells.

  PLUS Therapeutics specializes in targeted radiation treatments, using needle-sized catheters to aim radiation directly into the brain fluid. Developing effective brain cancer treatments is critical because, according to the National Brain Tumor Society, survival rates and mortality statistics have been virtually unchanged for decades and only a small number of drugs approved to treat them. PLUS Therapeutics received a $17.3 million Product Development grant (DP220039) in 2022 to develop Rhenium-186 NanoLiposome (186RNL), a novel radiotherapeutic that will combat rare and difficult-to-treat cancers.

- On January 11, 2023, The University of Texas at Dallas announced that the National Academy of Inventors (NAI) named CPRIT Grantee, A. Dean Sherry, Ph.D., an NAI Fellow. Dr. Sherry is a distinguished scientist and educator who retired in 2022 after 50 years on the faculty of UT Dallas. Over the years, Dr. Sherry established himself as a trailblazer in designing molecules called macrocyclic chelates for use in medical imaging and therapy. Macrocyclics are molecules that contain a cyclic framework of at least twelve atoms and have found use in many areas of chemical science. Based on his pioneering synthesis and coordination chemistry, Dr. Sherry founded a Plano -based company in the mid-1990s called Macrocyclics to produce specialized chemical compounds that have advanced diagnostics and therapies for cancer and other diseases.

  An inventor on 34 patents, Dr. Sherry has received numerous honors for his contributions to science, including recognition as a fellow of the World Molecular Imaging Society and of the International Society for Magnetic Resonance in Medicine. At UT Dallas, Dr. Sherry served as head of chemistry from 1979 to 1990; held a Cecil H. and Ida Green Distinguished Chair in Systems Biology from 2005 to 2022; and served as interim dean of the School of Natural Sciences and Mathematics in 2020. Dr. Sherry and UT Dallas received a CPRIT Multi-Investigator Research Award (RP101243, RP140021) and a research grant (RP180178) totaling $5.7 million.

- On January 20, Houston's *InnovationMap* featured digital health company InformAI's technology, RadOnc-AI, which helps doctors prescribe first pass radiation dose plans for head and neck cancers. RadOnc-AI autogenerates the dose treatment plan based on medical images of that patient, reducing what can be an hours-long process for a doctor to calculate and configure to just over five minutes. According to Jim Havelka, Inform AI CEO, because the company developed the technology using the expertise of some of the world's top oncologists, "the first pass plan is in line with what [patients would] get at tier-one institutions." This creates "tremendous equity" among patients who can afford to travel to major facilities and those that cannot.

  Houston-based InformAI is a part of JLABS @ TMC innovation facilities. The company uses artificial intelligence to develop both diagnostic tools and clinical outcome predictors. CPRIT awarded the company a $1.5 million Seed Company product development grant (DP22063) in August 2022.

Notable CPRIT-Supported Research Accomplishments

- The American Cancer Society's "Facts and Figures 2023" reports that cancer death rates have fallen 33% since 1991. By contrast, prostate cancer, already the second leading cause of cancer death for men in the US, increased by 3% per year from 2014 through 2019 following two decades of decline. Prostate cancer has long been known to have a strong heritable component; scientists recognize at least 185 genetic variants that affect the risk of prostate cancer. But because most of these alleles are in DNA's noncoding regions – which do not contain genes and, therefore, do not produce proteins – how they affect prostate cancer risk has largely been a mystery. A seminal new study led by CPRIT Grantee Ram Mani, Ph.D., at The University of Texas Southwestern Medical Center sheds light on the molecular function of 87 inherited genetic variants that affect the risk of prostate cancer. He shows that the variants appear to control the activity of genes located far away from the risk variant themselves, a process made feasible by the ability of chromatin to fold and associate with regulatory elements of distant genes.

  Dr. Mani, an Assistant Professor of Pathology and Urology, and member of the Harold C. Simmons Comprehensive Cancer Center, used integrative three-dimensional spatial genomics analysis of prostate cancer risk alleles to identify the chromatin interaction partners through data from 565 prostate cancers revealing that 87 of these risk alleles affected the activity of hundreds of genes. As Dr. Mani explains "Traditionally, we think of regulatory elements in the genome affecting neighboring genes. But these risk variants, or risk alleles, can act like a light switch. The light is on the ceiling, but the switch is on the wall on the other side of the room."

  Although malignant tumors typically arise in the prostate's epithelial cells, the researchers also found that by affecting the function of genes in stromal cells and smooth muscle cells that support the epithelial cells, they could mediate the effect of the risk variant in other tissue types in the tumor microenvironment. Most of the risk alleles appeared to alter the activity of these genes, which produced proteins known to be involved in molecular

pathways for development, apoptosis (programmed cell death), and metabolism, among other cellular processes. The finding published in the December 2, 2022, issue of *Cancer Discovery* could lead to the development of new prostate cancer treatments and to better risk models for patients, particularly for especially aggressive disease and for populations at high risk, such as African American men who have an elevated risk of prostate cancer. A $900,000 CPRIT Individual Investigator research grant (RP190454) supported this work.

- **Tackling the "Holy Grail" of Cancer Therapy.** Driver mutations in KRAS, the first oncogene scientists identified in human tumors over four decades ago, underlie the pathogenesis of up to 20% of human tumors, making KRAS an attractive drug target.

  The KRAS protein is part of a normal signaling pathway regulating growth and proliferation of cells, but activating mutations in KRAS drives abnormal growth in cancer. KRAS mutations are especially common in pancreatic cancers, occurring in about 90% of patients, while KRAS G12C mutations are present in 1-2% of cases.

  Despite intensive efforts, the lack of obvious drug binding sites on KRAS hinders pharmaceutical development. In a recent collaborative, tour-de-force effort between the National Cancer Institute and several pharmaceutical companies, iterative computational and structural modeling of candidate drug interactions with mutant KRAS has led to the development of drugs that selectively bind the mutant protein form and leave the normal protein untouched. The first of these drugs to receive FDA approval (in 2021) is Amgen's Sotorasib, launching several early-phase clinical trials.

  In the December 21, 2022, edition of the *New England Journal of Medicine*, David S. Hong, M.D., professor of Investigational Cancer Therapeutics at The University of Texas MD Anderson Cancer Center reported that in the early-phase I/II trial (the CodeBreaK 100 trial), the KRAS G12C inhibitor Sotorasib achieved meaningful anticancer activity with an acceptable safety profile in heavily pretreated patients with KRAS G12C-mutated metastatic pancreatic cancer - a highly recalcitrant cancer. The results of the trial indicated an objective response rate of 21.1% and a median time-to-response of 1.5 months, with 84% of patients experiencing disease control. Median progression-free survival was 4 months and overall survival was 6.9 months. "These are encouraging early data because they point toward establishing that KRAS inhibitors can work in pancreatic cancers, which have been difficult to crack from a targeted therapy standpoint" explained Dr. Hong. Trials have recently begun on drugs targeting a substantially more frequent KRAS mutation in pancreatic cancer, G12D, as well as pan-RAS therapies, which target multiple forms of mutated KRAS.

  The $6 million CPRIT Core Facility grant "Precision Oncology Decision Support Core" (RP150535) awarded to MD Anderson in 2015 supported the clinical research by providing molecular annotation and evidence-based interpretation of molecular abnormalities to assist with clinical decision making, including eligibility to multiple clinical trials matched to the patient's tumor molecular and clinical profile.

- **Using the Right Tool for the Job**. Since sequencing the human genome over twenty years ago, geneticists have conducted large, genome-wide association studies to identify genomic regions linked to human disease. In addition to DNA sequence, another stable level of molecular information that may also affect one's risk of disease is the epigenome – a system of molecular modifications to DNA that tells different cells in the body the genes to turn on or off in that cell type.

  In the January 12, 2023, edition of the journal *Genome Biology*, a team led by Robert Waterland, Ph.D., professor of Pediatrics and Nutrition at Baylor College of Medicine and the Dan L. Duncan Comprehensive Cancer Center, reported a surprising finding: the commercial high-throughput platform that has been the workhorse for hundreds of population studies of DNA methylation is not appropriate for studies of epigenetic-based variants. Researchers have been using this platform to assess the relationship between variations at thousands of CpG sites distributed throughout the genome and disease, referred to as methylation quantitative trait loci (mQTL.)

  Instead of interrogating CpG sites that have variable degrees of methylation in different tissues of a single individual, Dr. Waterland and his colleagues have taken a "mirror-image approach." In this approach they focus on a different set of CpG sites: those at which DNA methylation differs substantially among people but is consistent across the different tissues of each person. These sites are "CoRSIVs" - correlated regions of systemic interindividual variation. The research team reasoned that CoRSIVs are most useful for population studies because scientists can use DNA from a blood sample to investigate epigenetic causes of disease in internal organs like the brain or heart.

  The team developed a novel approach of target-capture bisulfite sequencing to analyze 4086 CoRSIVs, and studied their methylation in DNA samples from multiple tissues of nearly 200 individuals. As compared to the most powerful previous study including 33,000 people, the team's much smaller study discovered a 72X higher number of mQTL. Seeking to explain this unexpected finding, the team discovered that around 95% of the CpG sites on the commercial methylation arrays did not show appreciable methylation differences among people. Interindividual variation, which scientists call variance, is the foundation for statistical associations. With no population variance, there is no way to detect mQTLs, or to detect associations between DNA methylation and risk of disease. Scientists have already linked CoRSIVs to health outcomes for many diverse diseases. These findings suggest that focusing on CoRSIVs will make epigenome-wide association studies about 70 times more powerful than the current technologies, accelerating progress in understanding epigenetic causality of disease. A $1.1 million CPRIT Individual Investigator Research Award for Prevention and Early Detection grant (RP170295) awarded to Dr. Waterland and Baylor College of Medicine in 2016 supported this research.

**Personnel**

CPRIT has filled 41 of our 44 full-time equivalent positions.

- The second Product Development Program Manager position, a Technical Writer position, and a Grant Compliance Specialist position are in progress of being filled.

- CPRIT plans to post a Systems Support position in February.

**CPRIT's 2022 Annual Report**

CPRIT released its annual report for fiscal year 2022 on January 31. The report, which CPRIT makes available exclusively online at https://2022annualreport.cprit.texas.gov/, highlights the progress CPRIT and our grantees have made towards the agency's three-part mission to invest in the cancer research prowess of Texas' academic institutions, to create and grow the state's life science infrastructure, and to identify and fund innovation in the prevention, identification, treatment and cures for cancer.

State law mandates that CPRIT must submit an annual report to the governor and the Texas legislature by January 31 of each year. CPRIT's statute specifies several required components for the report, including the grants approved for the year, a summary of research findings, an assessment of CPRIT's grants and the overall strategy of the research program, an estimate of how much cancer has cost the state, the agency's compliance activities, and information related to reviewers' conflicts of interest requiring recusal. In addition to these components, CPRIT incorporates several grantee highlights and program features that illustrate the connection between the grants CPRIT funds and the advancements made in Texas' fight against cancer.

While the report is a team effort across the entire agency, CPRIT's Communications Director Mark Loeffler, Digital Communications Specialist Justin Rand, technical writer Bridget Barstow, Information Resource Manager Shannon Cusick, and IT designer Royce Hart deserve special credit for the enormous amount of work necessary to put together the 2022 report. I also appreciate Deputy Executive Officer and General Counsel Kristen Doyle's work with the annual report team and for her role in helping to conceptualize the highlights and features.

**88th Texas Legislature Update and Activities**

The 88th Texas Legislature convened in Austin at noon on January 10 and will adjourn *sine die* at midnight on May 29. Bill filing is underway and we are monitoring bills for possible CPRIT impact.

Senate and House Committee Assignments and Upcoming Hearings

Lieutenant Governor Patrick announced his standing committee assignments for the 88th Texas Legislature on January 23. As expected, Senator Joan Huffman chairs the Senate Committee on Finance and Senator Lois Kolkhorst chairs the Senate Committee on Health and Human

Services. Both are friends of CPRIT. I will update you when Speaker Phelan announces the House standing committee assignments, which I expect in mid-February.

The Senate Committee on Finance held CPRIT's budget hearing January 30. Chief Operating Officer Heidi McConnell and I presented our budget request as outlined below.

General Appropriations Bills

The House and Senate released the draft appropriations bills January 18. Both provide CPRIT's full, constitutionally authorized annual appropriation of $300 million less the required transfer of $3.1 million per year to the Cancer Registry at the Texas Department of State Health Services. There are no changes to the specific rider provisions governing our funding.

Both draft bills include a five percent (5%) per year cost-of-living-adjustment (COLA) for non-exempt employees specifically shown in our bill pattern. Since CPRIT is a special fund agency, the legislature does not provide additional general revenue to fund the COLA; instead, the budget writers transfer the money from (and thereby reduce) the money available for CPRIT's research and prevention programs. The draft bills also include an increase to the CEO position of $402 to match a market compensation report issued by the State Auditor's Office this past fall.

Because the COLA change does not apply to our two exempt positions - the Chief Scientific Officer and CEO - I am requesting a COLA adjustment for the Chief Scientific Officer in testimony to the Senate Committee on Finance and the House Committee on Appropriations. This request conforms with CPRIT's Legislative Appropriations Request approved by the Oversight Committee last summer. Historically, the legislature adjusts exempt salaries at the end of budget conference committee in May. This may occur in the current session.

You will receive regular reports on legislative activities affecting CPRIT, including appropriations and general legislation.

CPRIT Legislative Briefings

- I discussed CPRIT's legislative issues with a senior member of Speaker Phelan's staff on January 3.

- On January 11, Deputy Executive Officer and General Counsel Kristen Doyle, Ms. McConnell, and I briefed staff of Lieutenant Governor Dan Patrick on CPRIT's legislative issues.

- I updated Representative R.D. "Bobby" Guerra on CPRIT's efforts to increase geographic diversity in CPRIT's academic research awards on January 25.

**CPRIT Outreach**

Advanced Research Projects Agency for Health (ARPA-H) and Federal Outreach

Representatives of the Coalition for Health Advancement and Research in Texas (CHART), including Chief Strategic Initiatives and Intellectual Property Officer Tracey Davies and me, are coordinating a Texas site tour by ARPA-H Director Rene Wegrzyn with members of her staff. We expect the visit will occur sometime in late Spring (April – June).

I plan to travel to Washington, D.C., the week of February 6 as part of a CHART delegation to brief the seven new members of the Texas delegation on our efforts to establish an ARPA-H presence in Texas. These will be similar to the briefings I participated in last July.

On February 10 Chief Scientific Officer Dr. Michelle Le Beau and I will teleconference with Dr. Douglas Lowy, Principal Deputy Director of the National Cancer Institute, to discuss planning for aligning the efforts of NCI and CPRIT. We plan to include additional CPRIT staff and interested Oversight Committee members in subsequent discussions.

Other Staff Outreach

Staff outreach activities during January include:

- On January 6, Chief Product Development Officer Dr. Ken Smith, Senior Product Development Program Manager Dr. Abria Magee, Chief Strategic Initiatives and Intellectual Property Officer Tracey Davies and I met with Dr. Irit Milman Krentis. Dr. Krentis is a computational scientist that moved from the Weizmann Institute in Israel to The University of Texas MD Anderson Cancer Center. Dr. Krentis also manages an Israeli scientist and biotech group on social media. Dr. Krentis and the CPRIT team discussed product development opportunities available in Texas for Israeli-startups. Dr. Krentis also invited Drs. Smith and Magee to speak at a virtual/live event about CPRIT's product development program.

- Dr. Magee met with Anthony Bajoras of the Cancer Fund on January 11. The Cancer Fund, based in Arizona, is a venture capital firm that invests in early-stage cancer companies. They discussed ways that CPRIT may leverage the Cancer Fund for product development companies in Texas.

- Dr. Smith, Dr. Magee, Ms. Davies, Ms. Doyle and I met with the Convergence Ventures team on January 19. Convergence is interested in working with CPRIT and the University of Houston Bauer School of Business to assess ways to back CPRIT's product development portfolio companies.

- Several CPRIT staff, including Chief Prevention Officer Ramona Magid, Deputy Executive Officer and General Counsel Kristen Doyle, and Ms. Davies attended The University of Texas MD Anderson's External Advisory Panel Legislative Priorities forum on January 20.

MD Anderson and leaders representing the major medical organizations and societies in Texas shared their priorities for the current legislative session.

- Director of Academic Research Dr. Patty Moore hosted a virtual CPRIT Funding Opportunity Workshop for researchers at the University of North Texas on January 23.

- On January 26, Dr. Smith, Dr. Magee, Ms. Doyle, Ms. Davies, and I traveled to San Antonio to meet with grantees from The University of Texas at San Antonio's Center for Innovative Drug Discovery, the Southwest Research Institute (SwRI), The University of Texas Health Science Center in San Antonio Mays Cancer Center; and the biotech accelerator Velocity Tx.

- Dr. Adam Klivans, Director of the Institute for Foundations of Machine Learning, professor or computer science, and Danny Diaz, The University of Texas at Austin, met with Dr. LeBeau, Dr. Smith, Ms. Davies, Ms. Doyle and me on January 27 to discuss issues related to deep machine learning and AI and how CPRIT can help fund new work in cancer. Oversight Committee member Dr. Bill Rice arranged the meeting and attended the discussion, along with Presiding Officer Dr. Mahendra Patel.

- In January, the product development team met with several companies interested in applying for product development research awards, including Israeli-based companies Intragel (intra-tumoral injectable deliver system with extended release of anticancer drugs) and NRGene and Enlivex (developing the immunotherapy Allocetra™). They also met with Houston-based AI startup Constantium Biosciences (leveraging experimental data on gene function to inform variant interpretation at scale). In addition, Dr. Magee met with Dose Therapeutics (developing a compound for neuroblastoma.)

**Compliance Program Update**

Submission Status of Required Grant Recipient Reports

As of January 25, 13 entities had not filed 54 academic research reports and on product development report. CPRIT's grant accountants and compliance specialists review and process incoming reports and reach out to grantees to resolve filing issues. In most cases, CPRIT does not disburse grant funds until the grantee files the required reports. In some instances, grantee institutions may be ineligible to receive a future award if the grantee does not submit required reports.

Financial Status Report Reviews

CPRIT's compliance specialists performed 115 second-level reviews of grantee Financial Status Reports (FSRs) in January. Twenty FSRs (17%) needed resubmission due to insufficient or inaccurate documentation sent by the grantee. CPRIT's grant accounting staff completes the first review of the FSRs and supporting documentation before routing them to the compliance specialists for final review and disposition.

Desk Reviews

Compliance specialists performed four enhanced desk-based financial monitoring reviews in November and December. Desk reviews confirm financial, administrative, and programmatic compliance using data from CGMS/CARS with additional focus on an organization's internal controls, current and previous fiscal audits, and grantee report submission timeliness. Desk reviews also aid in the identification of potential problems and technical assistance issues for follow-up during an onsite visit, as well as areas of non-compliance and grantee performance issues. Compliance specialists are collaborating with one grantee to address desk review findings.

Onsite Reviews

CPRIT completed one virtual onsite review in January. Onsite reviews are the most extensive monitoring activity conducted by CPRIT and include virtual or field visits led by compliance grant monitoring staff. CPRIT monitors the grantee's financial and administrative operations, subcontract monitoring, procurement and contracting procedures, inventory procedures, personnel policies and procedures, payroll and timesheet policies, travel policies and records, and compliance with single audits during onsite reviews. Onsite monitoring enables CPRIT compliance staff to assess a grantees' capability, performance, and compliance with applicable laws, rules, and policies. Compliance specialists are collaborating with one grantee to address onsite review findings.

Annual Compliance Attestation

CPRIT requires grantees to submit an annual attestation form, demonstrating compliance with statutory and administrative grant requirements, CPRIT's policies and procedures, grant contract terms, and the Texas Grant Management Standards. This opportunity to self-report, in the form of a checklist, provides a baseline of grantee compliance and allows compliance specialists to proactively work with grantees towards full compliance prior to a desk review or onsite review. Grantees have until December 31 to submit the completed attestation. As of January 25, 52 of the 53 active grantees submitted their annual compliance attestation. As part of the annual attestation process, product development grantees must submit documentation demonstrating compliance with the Texas Location Criteria, pursuant to Texas Administrative Code §701.19. Compliance specialists are collaborating with eight product development grantees to address Texas Location Criteria documentation.

Match Expenditures Review

CPRIT requires academic research and product development research grantees to show that they have available unused funds equal to at least one-half of the CPRIT grant award that the grantee will spend on the CPRIT-funded project. This obligation, often referred to as "CPRIT's matching funds requirement," requires the grantee to first certify that it has available matching funds, and then at the end of the grant year, to verify that the grantee spent the matching funds on the project. CPRIT's statute allows an institution of higher education to use its federal indirect cost rate as a credit toward the required 50% match.

Product development grantees and those academic research grantees whose indirect cost rate credit does not fully offset the required match must supply a detailed match expenditure report that includes the amount and date paid, vendor, description, and budget category. Compliance staff review grantees' match expenditures for appropriateness and allowability and work with CPRIT's grant accountants and the grantee to address any deficiencies. Compliance staff performed two annual match expenditure reviews for two grantees in January. The total amount of match expenses reviewed by compliance staff for FY 2023 is $12,953,737.45. Unallowable match expenses identified during the review total $22,324.85 for FY 2023.

Training and Support

CPRIT staff conducted one new grantee training webinar in January for PanTher Therapeutics. The trainings covered grant reporting requirements, administrative rule changes, grant closeout, and an overview of the compliance program including fraud, waste, and abuse reporting. Pursuant to Texas Administrative Code §703.22, CPRIT requires new grantees to complete the initial compliance training program prior to receiving disbursement of grant award funds.

## Academic Research Program Update

Recruitment FY 2023 Review Cycle 1

CPRIT's Scientific Review Council (SRC) reviewed recruitment applications for the second quarter of FY 2023 on November 10, 2022, (Cycle 23.2) and January 12 (Cycle 23.3). Dr. Le Beau presented the SRC's award recommendations for recruitment awards to the Program Integration Committee (PIC) and will present to the Oversight Committee in February.

| FY 23 Mechanism | Received | Funds Requested | Recommended | Recommended Funds |
|---|---|---|---|---|
| Recruitment of Established Investigators | 3 | $18,000,000 | 2 | $12,000,000 |
| Recruitment of First-Time, Tenure Track Faculty Members | 4 | $7,999,977 | 4 | $7,999,977 |
| **TOTAL** | **3** | **$25,999,977** | **6** | **$19,999,977** |

Texas Regional Excellence in Cancer (TREC) FY 2023 Review Cycle

CPRIT opened the portal May 16 to receive applications for Texas Regional Excellence in Cancer (TREC) Awards. We received four applications requesting $23,998,422 by the September 8, 2022, deadline, which the peer review panel evaluated November 29, 2022. Dr. Le Beau presented the SRC's TREC Award recommendations to the PIC and will present to Oversight Committee in February.

Academic Research FY 2023 Review Cycle 1 (23.1)

CPRIT released several RFAs for the first cycle of FY 2023 (23.1) in January 2022 and began accepting applications for targeted and untargeted Individual Investigator Research Awards in March through June 8, 2022. Peer review panels met in late October 2022 to consider the applications. Dr. Le Beau presented the SRC's recommendations for the Individual Investigator Research Awards to the PIC and will present to the Oversight Committee in February.

| Cycle 23.1 RFA Mechanism | Applications | Requested Funding |
|---|---|---|
| Individual Investigator Research Awards | 235 | $241,561,941 |
| Individual Investigator Research Awards for Cancer in Children and Adolescents | 30 | $42,048,859 |
| Individual Investigator Research Awards for Clinical Translation | 19 | $35,897,103 |
| Individual Investigator Research Awards for Computational Systems Biology of Cancer | 23 | $26,041,589 |
| Individual Investigator Research Awards for Prevention and Early Detection | 22 | $36,681,588 |
| **Total** | **329** | **$382,231,080** |

Academic Research FY 2023 Review Cycle 2 (23.2)

The Oversight Committee approved four new RFAs for the second cycle of FY 2023 (23.2) at the November 16, 2022, meeting. Three of the four cycle 23.2 RFAs are first- time grants and will support research, training, and instrumentation at TREC-eligible institutions. The fourth RFA, also offered by CPRIT for the first time, will support the Texas CONNECT for Cancer Prevention Study in collaboration with the NCI CONNECT Study. I have listed a brief synopsis of each grant below.

CPRIT posted the cycle 23.2 RFAs on January 17 and began accepting applications January 25. Dr. Le Beau will present the SRC's recommendations for the cycle 23.2 grants to the PIC and the Oversight Committee in August.

- *TREC Pilot Study Award*:

  Provides short-term funding to explore the feasibility of cancer research projects at TREC-eligible institutions that, if successful, would contribute new insights into the etiology, diagnosis, treatment, or prevention of cancers forming the basis for applications for peer-reviewed funding from CPRIT or other organizations.
  Award: Total of $200,000 over two years.

- *TREC Institutional Postdoctoral Training Award*:

  Solicits applications from TREC-eligible institutions to support training and the conduct of research and, ultimately, the retention as faculty of outstanding post-doctoral students

recognized by their institutions for their high potential and strong interest in pursuing careers as independent cancer researchers.
Award: Total of $800,000 over three years

- *TREC Major Instrumentation Award*:

  Solicits applications from TREC-eligible institutions to enhance research capacity by supporting the purchase of major instrumentation for one or more Core Facilities that will support multiple cancer researchers.
  Award: Total of $1 million over two years

- *Texas CONNECT for Cancer Prevention Study Awards*:

  Solicits applications from institutions to establish a Texas CONNECT for Cancer Prevention Study of 25,000-30,000 adults in collaboration with the NCI CONNECT Study. This prospective study will address priorities in cancer prevention, early detection, and etiology research (including emerging exposures), novel biomarkers, genomics; current-edge methodology and diverse and special populations. The CONNECT Study has the long-term potential to identify social, environmental, behavioral, and genetic factors that underlie cancer risk among Texans.
  Award: Up to $7.5 million over five years.

**Product Development Research Program Update**

Product Development FY 2023 Review Cycle

CPRIT released four FY 2023 Product Development Research RFAs and opened the portal to receive preliminary applications on a rolling basis beginning August 24, 2022. As of January 20, CPRIT received 60 preliminary applications. Based on preliminary review scores, CPRIT invited 29 companies to submit full applications. The table below provides information by RFA mechanism for the preliminary applications.

| FY 2023 RFA | Invited | Not Invited | Total Apps |
|---|---|---|---|
| Texas Therapeutics Company (TTC) | 21 | 9 | 30 |
| Texas Device and Diagnostics Company (TDDC) | 1 | 5 | 6 |
| Texas New Technologies Company (TNTC) | 2 | 5 | 8* |
| Seed Company | 5 | 10 | 16* |
| TOTAL | 29 | 29 | 60 |

*CPRIT withdrew two applications without review due to the closing of the application portal.

The first deadline for companies invited to submit full applications was November 1. Fourteen companies filed full applications for the ten review slots available. The first ten companies, requesting $149 million, presented their full applications to review panels the week of December 12 – 16. The review panels recommended six companies, requesting $82.1 million, to proceed to

due diligence review. The panels met January 13 – January 20 to consider due diligence reports. Based on the work done by the peer review panels, the Product Development Review Council (PDRC) recommended six companies for product development awards in a letter the PIC and the Oversight Committee. The table below provides information about the full application review.

| FY 2023 RFA | Submitted by Nov 1 | Budget Request | Apps Review Cycle 1 | Review Cycle 1 Request | Due Diligence Apps | Due diligence Request |
|---|---|---|---|---|---|---|
| TTC | 9 | $150,026,040 | 7 | $118,109,015 | 4 | $67,456,802 |
| TDDC | 1 | $3,644,032 | 0 | N/A | N/A | N/A |
| TNTC | 2 | $27,982,099 | 2 | $27,982,099 | 1 | $12,000,000 |
| Seed | 2 | $5,983,763 | 1 | $2,999,858 | 1 | $2,999,858 |
| **TOTAL** | **14** | **$183,991,902** | **10** | **$149,091,114** | **6** | **$82,456,660** |

The total budget request for the six companies recommended by the PDRC is $82.5 million, which exceeds the $57 million available for FY 2023 product development awards. Upon the recommendation of the Chief Product Development Officer Dr. Ken Smith, the PIC voted to defer action on the PDRC's recommendations until the May Oversight Committee meeting. This delay will give Dr. Smith and Senior Product Development Program Manager Dr. Abria Magee time to negotiate budget requests with each of the recommended companies. Our goal is to fund all the companies recommended by the PDRC. Because the pre-award negotiations will require Dr. Smith to speak with the applicants about the substance of their applications, I have granted Dr. Smith a communication waiver pursuant to T.A.C. Section 702.19(e).

**Prevention Program Update**

Prevention FY 2023 Review Cycle 1 (23.1)

The Prevention Program released three RFAs on May 6, 2022, for the first cycle of FY 2023. CPRIT received 24 proposals totaling $29,628,112 through the August 31, 2022, deadline. Peer review panels met by teleconference December 5, 2022. The Prevention Review Council (PRC) met January 6 to make the final list of prevention award recommendations. Chief Prevention Officer Ramona Magid presented the PRC's recommendations to the PIC and will present to the Oversight Committee in February.

| Cycle 23.1 Mechanism | Applications | Funds Requested | Proposed for funding | Funds Requested |
|---|---|---|---|---|
| Primary Prevention of Cancer | 12 | $13,965,009 | 2 | $3,257,152 |
| Cancer Screening and Early Detection | 7 | $13,417,478 | 4 | $9,421,420 |
| Dissemination of CPRIT-Funded Cancer Control Interventions | 5 | $2,245,625 | 2 | $898,685 |
| **TOTAL** | **24** | **$29,628,112** | **8** | **$13,577,257** |

Prevention FY 2023 Review Cycle 2 (23.2)

CPRIT released four prevention RFAs on November 17, including the new *Colorectal Cancer Coordinating Center* RFA. CPRIT will accept applications through February 23, 2023. Peer review of the applications takes place April - June. Ms. Magid will present the PRC's recommendations to the PIC and the Oversight Committee in August.

**Advisory Committee Meetings**

- The Prevention Advisory Committee met January 17.
- The Advisory Committee on Childhood Cancer met January 23.

**Operations, Finance, and Conference Update**

CPRIT's website for the 2023 CPRIT Innovations Conference VI, www.texascancerconference.org, is operational. CPRIT IT and communications staff are finalizing the design of the conference registration and abstract submission sections on the website. CPRIT program staff are confirming speakers to fill out the schedule.

**Upcoming Subcommittee Meetings**

Listed below are the subcommittee meetings in advance of the February 15 Oversight Committee meeting. We will send instructions for signing onto the Microsoft Teams platform along with the subcommittee agenda and meeting materials one week prior to the meeting.

| | |
|---|---|
| Board Governance | February 2 at 10:00 a.m. |
| Audit | February 6 at 10:00 a.m. |
| Prevention | February 7 at 12:00 p.m. |
| Academic Research | February 8 at 10:00 a.m. |
| Product Development | February 9 at 10:00 a.m. |

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CPRIT has awarded **1,819** grants totaling **$3.179 billion**

- 274 prevention awards totaling $327.9 million
- 1,545 academic research and product development research awards totaling $2.851 billion

Of the $2.851 billion in academic research and product development research awards,

- 31.0% of the funding ($882.6 million) supports clinical research projects
- 23.8% of the funding ($676.3 million) supports translational research projects
- 29.5% of funding ($841.6 million) supports recruitment awards
- 12.6% of the funding ($359.8 million) supports discovery stage research projects
- 3.2% of funding ($90.4 million) supports training programs.

CPRIT has 10 open Requests for Applications (RFAs)

- 6 Research Recruitment
- 4 Prevention

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | VINCE BURGESS, CHIEF COMPLIANCE OFFICER |
| **SUBJECT:** | COMPLIANCE PROGRAM UPDATE |
| **DATE:** | FEBRUARY 6, 2023 |

The Chief Compliance Officer is responsible for apprising the Oversight Committee and the Chief Executive Officer of institutional compliance functions and activities and assuring the Oversight Committee that controls are in place to prevent, detect and mitigate compliance risk. The required reporting includes quarterly updates to the Oversight Committee on CPRIT's compliance with applicable laws, rules, and agency policies. In addition, the Compliance Officer is responsible for monitoring the timely submission status of required grant recipient reports and notifying the Oversight Committee and General Counsel of a grant recipient's failure to meaningfully comply with reporting deadlines.

## Submission Status of Required Grant Recipient Reports

As of January 31, 13 entities had not filed 44 academic research reports and one product development report. CPRIT's grant accountants and compliance specialists review and process incoming reports and reach out to grantees to resolve filing issues. In most cases, CPRIT does not disburse grant funds until the grantee files the required reports. In some instances, grantee institutions may be ineligible to receive a future award if the grantee does not submit the required reports.

## Financial Status Report Reviews

CPRIT's compliance specialists performed 482 second-level reviews of grantee Financial Status Reports (FSRs) in November, December, and January. Seventy-six FSRs (16%) needed resubmission due to insufficient or inaccurate documentation sent by the grantee. CPRIT's grant accounting staff completes the first review of the FSRs and supporting documentation before routing them to the compliance specialists for final review and disposition.

## Single Audit Tracking

Compliance specialists track the submission of grantees' independent audit reports and the resolution of issues named in these reports. Grantees who spend $750,000 or more in state awards in the grantee's fiscal year must undertake a single independent audit, a program specific audit, or an agreed upon procedures engagement. The grantee sends the independent audit report



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with findings to CPRIT within 30 days of receipt, but no later than nine months after the grantee's fiscal year end.

Currently, all grantees have submitted the required audit. Grantees are unable to receive reimbursements or advances if they are delinquent in filing the required audit and corrective action plan unless the grantee requested more time by the due date of the required audit and CPRIT's CEO approves the request.

Desk Reviews

Compliance specialists performed 15 enhanced desk-based financial monitoring reviews in November, December, and January. Desk reviews are intended to confirm financial, administrative, and programmatic compliance using data from CGMS/CARS with additional focus on an organization's internal controls, current and previous fiscal audits, and grantee report submission timeliness. Desk reviews also aid in the identification of potential problems and technical assistance issues for follow-up during an onsite visit, as well as areas of non-compliance and grantee performance issues. Compliance specialists are collaborating with one grantee to address desk review findings.

Onsite Reviews

CPRIT completed six virtual onsite reviews in November, December, and January. Onsite reviews are the most extensive monitoring activity conducted by CPRIT and include virtual or field visits led by compliance grant monitoring staff. CPRIT monitors the grantee's financial and administrative operations, subcontract monitoring, procurement and contracting procedures, inventory procedures, personnel policies and procedures, payroll and timesheet policies, travel policies and records, and compliance with single audits during onsite reviews. Onsite monitoring enables CPRIT compliance staff to assess a grantees' capability, performance, and compliance with applicable laws, rules, and policies. Compliance specialists are collaborating with one grantee to address onsite review findings.

Annual Compliance Attestation

CPRIT requires grantees to submit an annual attestation form, demonstrating compliance with statutory and administrative grant requirements, CPRIT's policies and procedures, grant contract terms, and the Texas Grant Management Standards. This opportunity to self-report, in the form of a checklist, provides a baseline of grantee compliance and allows compliance specialists to proactively work with grantees towards full compliance prior to a desk review or onsite review. As of January 27, 52 of the 53 active grantees have submitted their annual compliance attestation. Grantees have until December 31 to submit the completed attestation. As part of the annual attestation process, product development grantees must submit documentation demonstrating compliance with the Texas Location Criteria, pursuant to Texas Administrative Code §701.19. Compliance specialists are collaborating with eight product development grantees to address Texas Location Criteria documentation.

Match Expenditures Review

CPRIT requires academic research and product development research grantees to show that they have available unused funds equal to at least one-half of the CPRIT grant award that the grantee will spend on the CPRIT-funded project. This obligation, often referred to as "CPRIT's matching funds requirement," requires the grantee to first certify that it has available matching funds, and then at the end of the grant year, to verify that the grantee spent the matching funds on the project. CPRIT's statute allows an institution of higher education to use its federal indirect cost rate as a credit toward the required 50% match.

Product development grantees plus those academic research grantees whose indirect cost rate credit does not fully offset the required match must supply a detailed match expenditure report that includes the amount and date paid, vendor, description, and budget category. Compliance staff review grantees' match expenditures for appropriateness and allowability and work with CPRIT's grant accountants and the grantee to address any deficiencies. Compliance staff performed six annual match expenditure reviews for five grantees in November, December, and January. The total amount of match expenses reviewed by compliance staff for FY 2023 is $14,304,173.69. Unallowable match expenses for FY 2023 total $22,324.85.

Training and Support

CPRIT staff conducted eight new grantee training webinars in November, December, and January for PLUS Therapeutics, Atom Mines, InformAI, University of Houston-Downtown, Xerient Pharma, Prana Thoracic, Stellanova Therapeutics, and PanTher Therapeutics. The trainings covered grant reporting requirements, administrative rule changes, grant closeout procedures, a hands-on navigation of CPRIT's online grants management system, and an overview of the compliance program including fraud, waste, and abuse reporting. Pursuant to Texas Administrative Code §703.22, CPRIT requires new grantees to complete the initial compliance training program prior to receiving disbursement of grant award funds.

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | MICHELLE LE BEAU, PH.D., CHIEF SCIENTIFIC OFFICER |
| **SUBJECT:** | ACADEMIC RESEARCH PROGRAM UPDATE |
| **DATE:** | FEBRUARY 15, 2023 |

**Proposed Academic Research RFAs for Fiscal Year 2024 Cycle 1 (FY24.1)**

- **Individual Investigator Research Awards (IIRA)**
  Supports applications for innovative research projects addressing critically important questions that will significantly advance knowledge of the causes, prevention, and/or treatment of cancer. Areas of interest include laboratory research, translational studies, and/or clinical investigations. Competitive renewal applications accepted.
  Award: Up to $350,000 per year. Exceptions permitted if extremely well justified; maximum duration: 3 years.

- **Individual Investigator Research Awards for Computational Systems Biology of Cancer (IIRACSBC)**
  Supports applications for innovative mathematical and/or computational research projects addressing questions that will advance current knowledge in the (a) mechanisms that tie altered gene expression and downstream molecular mechanisms to functional cancer phenotypes and/or (b) mechanisms that tie tumor morphology to functional cancer phenotypes and/or mechanisms that tie treatment sequence and combination to evolving functional cancer phenotypes (that emerge as a result of treatment selection).
  Award: Up to $400,000 in total costs per year for up to 3 years. Exceptions permitted if extremely well justified.

- **Individual Investigator Research Awards for Cancer in Children and Adolescents (IIRACCA)**
  Supports applications for innovative research projects addressing questions that will advance knowledge of the causes, prevention, progression, detection, or treatment of cancer in children and adolescents. Laboratory, clinical, or population-based studies are all acceptable. CPRIT expects the outcome of the research to reduce the incidence, morbidity, or mortality from cancer in children and/or adolescents in the near or long term. Competitive renewal applications accepted.
  Award: Up to $350,000 per year. Applicants that plan on conducting a clinical trial as part of the project may request up to $500,000 in total costs. Exceptions permitted if extremely well justified; maximum duration: 4 years.



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- **Individual Investigator Research Awards for Prevention and Early Detection (IIRAP)**
  Supports applications which propose clinical and population-based projects designed to develop effective prevention and early detection interventions to reduce cancer risk, mortality, and morbidity among Texans. Projects that propose such research collaborations with existing CPRIT Prevention Program awardees including the CPRIT funded *Texas Collaborative Center for Hepatocellular Cancer* (https://www.bcm.edu/research/labs-and-centers/research-centers/texas-collaborative-center-for-hepatocellular-cancer) are strongly encouraged.
  Award: Up to $400,000 per year. Exceptions permitted if extremely well justified; maximum duration: 5 years.

- **Individual Investigator Research Awards for Clinical Translation (IIRACT)**
  Supports applications that propose innovative cancer clinical studies that are hypothesis driven and involve patients enrolled prospectively on a clinical trial. Areas of interest include clinical studies of new or repurposed drugs, hormonal therapies, immune therapies, surgery, radiation therapy, stem cell transplantation, combinations of interventions, or therapeutic devices. Clinical trial must be planned to begin when contract is awarded.
  Award: Up to $500,000 per year. Maximum duration: 4 years. Exceptions permitted if extremely well justified.

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

# MEMORANDUM

**TO:** OVERSIGHT COMMITTEE MEMBERS

**FROM:** RAMONA MAGID, CHIEF PREVENTION OFFICER

**SUBJECT:** PREVENTION PROGRAM UPDATE

**DATE:** FEBRUARY 15, 2023

## FY 2023 Review Cycle 1 (23.1)

The Prevention Program released three RFAs on May 6, 2022. CPRIT opened the application portal June 2 to receive proposals through the August 31, 2022, deadline. Twenty-eight applications were submitted; four applications were research projects and were administratively withdrawn. Of the remaining nineteen applications requesting a total of $27,382,487, 13 were discussed during peer review on December 5 by teleconference. The five applications responding to the Dissemination of CPRIT-Funded Cancer Control Interventions mechanism were reviewed by the Prevention Review Council (PRC) on January 6 and programmatic review by the PRC was conducted January 13. The Program Integration Committee (PIC) met on February 1, 2023, to consider the PRC's recommendations. Ms. Magid presents the PIC's award recommendations to the Oversight Committee on February 15, 2023.

**FY 2023.1 (23.1) Application Data by Mechanism**

| Mechanism | Received | Funds Requested |
|---|---|---|
| **Primary Prevention of Cancer** | 12 | $13,965,009 |
| **Cancer Screening and Early Detection** | 7 | $13,417,478 |
| **Dissemination of CPRIT-Funded Cancer Control Interventions** | 5 | $2,245,625 |
| **TOTAL** | **24** | **$29,628,112** |

## FY 2023 Review Cycle 2 (23.2)

CPRIT released four prevention RFAs on November 17, including the new *Colorectal Cancer* Coordinating Center RFA. CPRIT will accept applications through February 23, 2023. Peer review of the applications takes place April-June. Ms. Magid will present the PRC's recommendations to the PIC and the Oversight Committee in August.



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**FY2024 Review Cycles 1 and 2 (24.1 and 24.2)**

The CPRIT Prevention program is recommending the release of four Requests for Applications for fiscal year 2024. The Colorectal Cancer Coordinating Center RFA will be released only if no award is recommended in FY2023 cycle 2.

## I. Dissemination of CPRIT- funded Cancer Prevention and Control Interventions

**Summary:**

This RFA solicits applications that will describe and package strategies or approaches to introduce, modify, and implement previously funded CPRIT evidence-based cancer prevention and control interventions for dissemination to other settings and populations in the state. To be eligible, the applicant should be able to develop one or more "products" based on the results of the CPRIT-funded intervention. The proposed projects should also identify and assist others in overcoming barriers to implementation.

**Award Description:**

The **Dissemination of CPRIT-Funded Cancer Control Interventions** RFA solicits applications from currently or previously funded CPRIT projects that have demonstrated exemplary success and have materials, policies, and other resources that have been successfully implemented and evaluated and could be scaled up and/or applied to other systems and settings. The goal is to expand successful models for the delivery of prevention interventions across the state through adaptation or replication.

This award will support both passive and active dissemination strategies and support implementation strategies in the form of technical assistance, coaching, and consultation within the grant period.

**Funding Amount and Duration:** up to 3 years, $450K maximum

## II. Primary Prevention of Cancer

This award mechanism solicits applications for eligible projects up to 36 months in duration that will deliver multilevel, evidence-based interventions that improve cancer-related health behaviors. Interventions may address tobacco use, obesity, physical inactivity, unhealthy eating, alcohol use, HPV vaccination, Hepatitis B vaccination, and environmental/occupational cancer exposures. Sun safety education may be addressed if combined with another behavioral intervention to reduce risk.

**Funding Amount and Duration:**

The amount of funding that applicants may request is dependent on the primary focus of the project and on the type of project – New, Initial Expansion or Maintenance Expansion (see table below).

| Project Type | Maximum Amount of Funding | Maximum Duration |
|---|---|---|
| **New Project** | $1 million | 3 years |

| | | |
|---|---|---|
| **Initial Expansion** | $1 million | 3 years |
| **Initial Expansion – vaccination/tobacco cessation** | $1.5 million | 3 years |
| **Maintenance Expansion** | $2 million | 5 years |
| **Maintenance Expansion – vaccination/tobacco cessation** | $2.5 million | 5 years |

## III. Screening and Early Detection

This award mechanism solicits applications for eligible projects up to 5 years in duration that will deliver evidence-based clinical services in cancer screening for breast, cervical, colorectal, liver, and lung cancers according to established and current national guidelines and criteria. Nonmetropolitan (rural) and/or medically underserved populations must be included in the defined service area.

**Funding Amount and Duration:**
The amount of funding that applicants may request is dependent on the primary focus of the project and on the type of project – New, Initial Expansion or Maintenance Expansion (see table below).

| Project Type | Maximum Amount of Funding | Maximum Duration |
|---|---|---|
| New project | $1.5 million | 3 years |
| Initial Expansion Project | $2 million | 3 years |
| Maintenance Expansion Project | $2.5 million | 5 years |

## IV. Colorectal Cancer Screening Coordinating Center

To significantly reduce the burden of colorectal cancer in Texas, CPRIT seeks to support one Colorectal Cancer Screening Coordinating Center to establish and oversee a collaborative network of regional CPRIT-funded colorectal cancer screening projects, patients, communities, clinicians, and healthcare professionals. The Center will serve as a hub of expertise and resources, forge innovative partnerships, catalyze interactions, and enable resource and data sharing among multiple stakeholders across the state to reduce the CRC burden in the state.

**Funding Amount and Duration:**
CPRIT plans to make one award to a single applicant in response to this RFA.
Applicants may request a maximum of $3 million in total costs over a period of 5 years.

**Other Activities**
Ms. Magid attended The University of Texas MD Anderson's External Advisory Panel Legislative Priorities forum on January 20. MD Anderson and leaders representing the major medical organizations and societies in Texas shared their priorities for the current legislative session.

CANCER PREVENTION & RESEARCH
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# MEMORANDUM

**TO:** OVERSIGHT COMMITTEE MEMBERS
**FROM:** KEN SMITH, PH.D., CHIEF PRODUCT DEVELOPMENT OFFICER
**SUBJECT:** PRODUCT DEVELOPMENT PROGRAM UPDATE
**DATE:** FEBRUARY 3, 2023

## FY 2023 Product Development Review

Preliminary Application Review

CPRIT released four FY 2023 Product Development Research RFAs and opened the portal to receive preliminary applications on a rolling basis beginning August 24. CPRIT received 60 preliminary applications on a rolling basis through January 20. CPRIT's Product Development Review Council (PDRC) members reviewed the preliminary applications weekly to determine those that demonstrated sufficient scientific merit and a compelling premise for more extensive review. Of the 60 preliminary applications submitted to CPRIT, 20 companies are currently located in states/countries outside of Texas, including California, Florida, Kansas, Massachusetts, Maryland, North Carolina, New Jersey, Virginia, Washington, India, and Sweden.

Based on the decision of the preliminary review panels, CPRIT invited 29 companies to submit full applications. Listed below is the breakdown of the preliminary applications by status and RFA mechanism.

| FY 2023 RFA | Invited | Not Invited | Total Apps |
|---|---|---|---|
| Texas Therapeutics Company (TTC) | 21 | 9 | 30 |
| Texas Device and Diagnostics Company (TDDC) | 1 | 5 | 6 |
| Texas New Technologies Company (TNTC) | 2 | 5 | 8* |
| Seed Company | 5 | 10 | 16* |
| TOTAL | 29 | 29 | 60 |

*CPRIT withdrew two applications without review due to the closing of the application portal.

Full Application Review

Invitations to submit a full application are valid only during the fiscal year that CPRIT extends the invitation. CPRIT established three FY 2023 submission deadlines – November 1, 2022, February 1, 2023, and May 1, 2023, for companies to submit full applications.



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Due to scheduling and resource constraints, CPRIT notified applicants in October that the review panels would consider only the first 10 applications submitted by the November 1, 2022, deadline for the first review cycle. We received 14 applications by the November deadline. CPRIT moved forward the first 10 applications for review and deferred four applications until the next review cycle that CPRIT planned to begin in February 2023.

The ten companies in the first cycle included four applicants currently located out of state. The total budget request for the ten applications was $149,091,114. The companies presented their full applications to the ten review panels the week of December 12 – 16. Following the presentations, the review panels moved six applications forward to due diligence. Listed below is the application information by RFA mechanism.

| FY 2023 RFA | Submitted by Nov 1 | Budget Request | Apps Review Cycle 1 | Review Cycle 1 Request | Due Diligence Apps | Due diligence Request |
|---|---|---|---|---|---|---|
| TTC | 9 | $150,026,040 | 7 | $118,109,015 | 4 | $67,456,802 |
| TDDC | 1 | $3,644,032 | 0 | $0 | 0 | $0 |
| TNTC | 2 | $27,982,099 | 2 | $27,982,099 | 1 | $12,000,000 |
| Seed | 2 | $5,983,763 | 1 | $2,999,858 | 1 | $2,999,858 |
| **TOTAL** | **14** | **$183,991,902** | **10** | **$149,091,114** | **6** | **$82,456,660** |

Due Diligence Review and Final Recommendations from the PDRC

Following the due diligence meetings held January 13 – 20 to review the reports prepared for the six remaining companies, the review panels finalized scores and recommended each of the companies for funding. The PDRC convened January 23 to finalize the ranking and recommendations for the final six companies. The total funding request for the companies recommended by the PDRC is $82,456,660.

PIC Deferral and Budget Negotiation

The total budget request for the final slate of companies recommended by the PDRC exceed the remaining funds ($57,493,121) allocated for FY 2023 product development program awards. At my request, the Program Integration Committee (PIC) approved deferring final PIC action on the PDRC's recommendations until the May Oversight Committee meeting.

Dr. Magee and I will use this time to negotiate proposed budgets with each of the companies recommended for product development awards. Our goal is to reduce the budget requests such that CPRIT may fund all six companies recommended by the PDRC. CPRIT CEO Wayne Roberts has granted me a communication waiver pursuant to T.A.C. section 702.19(e) because I will need to communicate with companies directly about the substance of their pending applications as part of the budget and contract pre-award negotiations.

Closing the FY 2023 Review Cycle

When it became clear that the PDRC would recommend a slate of awards that would exhaust all remaining FY 2023 award funds, CPRIT closed the preliminary and full application portals and notified all applicants that CPRIT would not consider further any pending applications for FY 2023 awards. As noted in the RFAs, all pending invitations to submit full applications will expire at the end of FY 2023. However, CPRIT made an exception for the four companies who submitted full applications by the November 1, 2022, deadline that CPRIT did not review because of resource limitations. CPRIT will carry over these four full applications to the first review cycle of FY 2024. All other potential applicants must submit a preliminary application to begin the FY 2024 review cycle.

**FY 2024 Requests for Applications**

I recommend that the Oversight Committee approve the proposed FY 2024 Product Development requests for applications (RFAs):

- Texas Therapeutic Company Award (TTC)
- Texas Device and Diagnostics Company Award (TDDC)
- Texas New Technologies Company Award (TNTC)
- Texas Seed Company Award (SEED)

These RFAs will be the same as the FY 2023 RFAs, with updated information as appropriate. We plan to release these RFAs in late April/early May and open the portal for preliminary applications. The first full application deadline will be August 1, with award announcements as early as the November 2023 Oversight Committee meeting.

**Product Development Outreach**

- Mr. Roberts, Mrs. Davies, and Dr. Magee and I met with Dr. Irit Milman Krentis on January 6. Dr. Krentis is a computational scientist that has moved from the Weizmann Institute in Israel to The University of Texas MD Anderson Cancer Center. Dr. Krentis also manages an Israeli scientist and biotech group on social media. Dr. Krentis spoke to the group about the potential in Texas for Israeli-startups and the product development program. Dr. Krentis also invited Dr. Magee and me to speak at a virtual/live event about the product development program.

- Dr. Magee met with Dr. Arin Aurora on Monday, January 9. Dr. Aurora is a former Assistant Professor from The University of Texas Southwestern Medical Center. Dr. Aurora is now the Director of Research at Dose Therapeutics and is interested in product development funding. Dose Therapeutics is a small Dallas-based biotech company focused on a compound for neuroblastoma. Dr. Magee discussed the new product development application process and timelines for applications.

- Dr. Magee met with Mr. Anthony Bajoras of the Cancer Fund on January 11. The Cancer Fund is a venture capital firm that invests in early-stage cancer companies. Dr. Magee and Mr. Bajoras discussed ways in which CPRIT could lever the Cancer Fund for the product development companies.

- On Thursday, January 26, CPRIT Executives and the product development program traveled to San Antonio for meetings and presentations from The University of Texas at San Antonio, Center for Innovative Drug Discovery, Southwest Research Institute (SwRI), The University of Texas Health Science Center in San Antonio, Mays Cancer Center and the accelerator, Velocity Tx.
- In January, we met with several companies interested applying for product development research awards, including Israeli-based companies Intragel (intra-tumoral injectable deliver system with extended release of anticancer drugs), NRGene and Enlivex (developing the immunotherapy Allocetra™) and Florida-based, Regenerative Processing Plant, LLC. We also met with Houston-based AI startup Constantium Biosciences (leveraging experimental data on gene function to inform variant interpretation at scale).

**February 2023 Oversight Committee**
**Internal Audit Status Report**
**As of January 27, 2023**

Weaver and Tidwell, LLP (Weaver) is the outsourced internal auditor of the Cancer Prevention Research Institute of Texas (CPRIT). The Weaver engagement team is led by Daniel Graves, Partner.

***2023 Internal Audit Plan and Schedule***

Based on the approval of the 2023 Internal Audit Plan by the Oversight Committee in the November meeting, we have coordinated and planned the timing of the internal audits and follow-up procedures for the 2023 Internal Audit Plan.

| **2023 NEW INTERNAL AUDITS** | | |
|---|---|---|
| Internal Audit | **Description** | **Status** |
| Contract Risk Assessment | Internal Audit Advisory Project will include a review of risks and internal controls in place related to CPRIT's Contract Risk Assessment practices. Activities include developing a contract risk assessment process and contract risk assessment matrix in compliance with state requirements. | In Progress |
| Post-Award Compliance Program | Internal Audit Advisory Project will include a review of risks and internal controls in place related to CPRIT's Post-Award Compliance Program practices. Post-Award Compliance Program activities to be evaluated will include grantee monitoring, compliance monitoring, sub-recipient monitoring, and grantee reporting. | February 2023 – March 2023 |
| Purchasing | Internal Audit will include a review of risks and internal controls in place related to CPRIT's Purchasing practices. Purchasing activities to be evaluated will include purchase orders, bidding process and award, contract negotiation and approval, vendor selection, vendor acceptance and set-up, P-card, central travel card, and employee travel cards. | April 2023 – May 2023 |
| IT General Controls | Internal Audit will include a review of risks and internal controls in place related to CPRIT's IT General Controls practices. IT General Control activities to be evaluated will include network operations, help desk, change management, website maintenance, and back-up an d recovery. | May 2023 – June 2023 |

| 2023 NEW INTERNAL AUDIT FOLLOW-UPS | | |
|---|---|---|
| Communications Follow-Up<br>• 1 High Finding | Internal Audit will perform follow-up procedures on the one open finding from the 2018 Internal Audit to ensure corrective action has been taken. | July 2023 |
| Information Security Follow-Up | Internal Audit will perform follow-up procedures on the open findings from the 2016 Internal Audit to ensure corrective action has been taken. | May 2023 – June 2023 |
| Disaster Recovery and Business Continuity Follow-up<br>• 5 Findings | Internal Audit will performed follow-up procedures on the five open findings from the 2020 Internal Audit to ensure corrective action has been taken. | July 2023 |
| Vendor Contract Compliance Follow-Up<br>• 2 Low Findings | Internal Audit will performed follow-up procedures on the two open findings from the 2022 Internal Audit to ensure corrective action has been taken. | July 2023 |

We have prepared a summary schedule of audits, their status and a summary of the findings by risk rating. The schedule maps out the internal audit and follow-up procedures performed, by year, the report date, report rating, and the findings by risk rating. The summary schedule is attached.

Daniel Graves

Daniel Graves, CPA, Internal Auditor
Partner
Weaver and Tidwell L.L.P.

**Cancer Prevention and Research Institute of Texas**
**Schedule of Audits, Status, and Findings Summary**
**As of January 27, 2023**

| Audit | Fiscal Year | Status/Timing | Report Date | Report Rating | Open Findings | | | | Closed Findings | | | | Total Findings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | High | Mod | Low | Total | High | Mod | Low | Total | High | Mod | Low | Total |
| **Fiscal Year 2017** | | | | | | | | | | | | | | | | |
| 2016 Information Security Follow-Up | 2017 | Complete | May 30, 2017 | | | | | | | | | | | | | |
| **Fiscal Year 2017 Subtotal** | | | | | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| **Fiscal Year 2018** | | | | | | | | | | | | | | | | |
| Communications Internal Audit | 2018 | Complete | April 30, 2018 | Satisfactory | 1 | 4 | - | 5 | - | - | - | - | 1 | 4 | - | 5 |
| 2016 Information Security Follow-Up | 2018 | Complete | July 17, 2018 | | | | | | | | | | | | | |
| **Fiscal Year 2018 Subtotal** | | | | | **1** | **4** | **-** | **5** | **-** | **-** | **-** | **-** | **1** | **4** | **-** | **5** |
| **Fiscal Year 2019** | | | | | | | | | | | | | | | | |
| 2016 Information Security Follow-Up | 2019 | Cancelled | N/A | | | | | | | | | | | | | |
| 2018 Communications Follow-Up | 2019 | Complete | August 30, 2019 | Satisfactory | 1 | 4 | - | 5 | - | 2 | - | 2 | 1 | 2 | - | 3 |
| **Fiscal Year 2019 Subtotal** | | | | | **1** | **4** | **-** | **5** | **-** | **2** | **-** | **2** | **1** | **2** | **-** | **3** |
| **Fiscal Year 2020** | | | | | | | | | | | | | | | | |
| Governance | 2020 | Complete | October 30, 2020 | Strong | - | 1 | - | 1 | - | - | - | - | - | 1 | - | 1 |
| 2016 Information Security Follow-Up | 2020 | Complete | N/A | | | | | | | | | | | | | |
| 2018 Communications Follow-Up | 2020 | Complete | N/A | N/A | 1 | 4 | - | 5 | - | 2 | - | 2 | 1 | 2 | - | 3 |
| **Fiscal Year 2020 Subtotal** | | | | | **1** | **5** | **-** | **6** | **-** | **2** | **-** | **2** | **1** | **3** | **-** | **4** |
| **Fiscal Year 2021** | | | | | | | | | | | | | | | | |
| Sunset Self-Assessment Advisory | 2021 | Cancelled | N/A | N/A | - | - | - | - | - | - | - | - | - | - | - | - |
| Information Technology General Computer Controls | 2021 | Complete | September 24, 2022 | | | | | | | | | | | | | |
| Grantee Compliance Records Management | 2021 | Rescheduled | FY 2022 | N/A | - | - | - | - | - | - | - | - | - | - | - | - |
| 2016 Information Security Follow-Up | 2021 | Rescheduled | FY 2022 | | | | | | | | | | | | | |
| 2018 Communications Follow-Up | 2021 | Rescheduled | FY 2022 | N/A | 1 | 4 | - | 5 | - | 2 | - | 2 | 1 | 2 | - | 3 |
| 2020 Governance Follow-up | 2021 | Rescheduled | FY 2022 | Strong | - | 1 | - | 1 | - | - | - | - | - | - | - | 1 |
| 2020 Disaster Recovery and Business Continuity Follow-up | 2021 | Complete | September 28, 2021 | N/A | - | - | - | 30 | - | - | - | 25 | - | - | - | 5 |
| **Fiscal Year 2021 Subtotal** | | | | | **1** | **5** | **-** | **36** | **-** | **2** | **-** | **27** | **1** | **2** | **-** | **9** |
| **Fiscal Year 2022** | | | | | | | | | | | | | | | | |
| Vendor Contract Compliance | 2022 | Complete | October 25, 2022 | Strong | - | - | 2 | 2 | - | - | - | - | - | - | 2 | 2 |
| Information Technology General Computer Controls | 2022 | Cancelled | N/A | | | | | | | | | | | | | |
| 2016 Information Security Follow-Up | 2022 | Cancelled | N/A | | | | | | | | | | | | | |
| 2018 Communications Follow-Up | 2022 | Complete | October 28, 2022 | Satisfactory | 1 | 4 | - | 5 | - | 4 | - | 4 | 1 | - | - | 1 |
| 2020 Governance Follow-up | 2022 | Complete | October 28, 2022 | Strong | - | 1 | - | 1 | | 1 | - | 1 | - | - | - | - |
| 2020 Disaster Recovery and Business Continuity Follow-up | 2022 | Complete | October 28, 2022 | Satisfactory | - | - | - | 30 | - | - | - | 25 | - | - | - | 5 |
| **Fiscal Year 2022 Subtotal** | | | | | **1** | **5** | **2** | **38** | **-** | **5** | **-** | **30** | **1** | **-** | **2** | **8** |

**NOTE:** The 2020 Disaster Recovery and Business Continuity findings are recommendations for improvement of the DR/BCP documentation. Therefore, they do not have a risk rating associated with them.

**Cancer Prevention and Research Institute of Texas**
**Schedule of Audits, Status, and Findings Summary**
**As of January 27, 2023**

| | | | | | Open Findings | | | | Closed Findings | | | | Total Findings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Audit** | **Fiscal Year** | **Status/Timing** | **Report Date** | **Report Rating** | **High** | **Mod** | **Low** | **Total** | **High** | **Mod** | **Low** | **Total** | **High** | **Mod** | **Low** | **Total** |
| **Fiscal Year 2023** | | | | | | | | | | | | | | | | |
| Contract Risk Assessment | 2023 | In Progress | N/A | N/A | - | - | - | - | - | - | - | - | - | - | - | - |
| Post-Award Compliance Program | 2023 | Scheduled | N/A | N/A | - | - | - | - | - | - | - | - | - | - | - | - |
| Purchasing | 2023 | Scheduled | N/A | N/A | - | - | - | - | - | - | - | - | - | - | - | - |
| IT General Controls | 2023 | Scheduled | N/A | | | | | | | | | | | | | |
| 2016 Information Security Follow-Up | 2023 | Scheduled | N/A | | | | | | | | | | | | | |
| 2018 Communications Follow-Up | 2023 | Scheduled | N/A | N/A | 1 | 4 | - | 5 | - | 4 | - | 4 | 1 | - | - | 1 |
| 2020 Disaster Recovery and Business Continuity Follow-up | 2023 | Scheduled | N/A | N/A | - | - | - | 30 | - | - | - | 25 | - | - | - | 5 |
| 2022 Vendor Contract Compliance | 2023 | Scheduled | N/A | N/A | - | - | 2 | 2 | - | - | - | - | - | | 2 | 2 |
| **Fiscal Year 2023 Subtotal** | | | | | **1** | **4** | **2** | **37** | **-** | **4** | **-** | **29** | **1** | **-** | **2** | **8** |

| **Open Items Summary** | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Findings | | | | Closed Findings | | | | Total Open Findings | | | | |
| **Audit** | **Fiscal Year** | **Status/Timing** | **Report Date** | **Report Rating** | **High** | **Mod** | **Low** | **Total** | **High** | **Mod** | **Low** | **Total** | **High** | **Mod** | **Low** | **Total** | **IA Follow-Up Procedure Timing** |
| 2016 Information Security Follow-Up | 2020 | August 2020 | October 28, 2022 | | | | | | | | | | | | | | **FY 2023** |
| 2018 Communications Follow-Up | 2020 | November 2020 | October 28, 2022 | Satisfactory | 1 | 4 | - | 5 | - | 4 | - | 4 | 1 | - | - | 1 | **FY 2023** |
| 2020 Disaster Recovery and Business Continuity Follow-up | 2020 | September 2021 | September 28, 2021 | Satisfactory | - | - | - | 30 | - | - | - | 25 | - | - | - | 5 | **FY 2023** |
| Information Technology General Computer Controls | 2021 | September 2021 | September 24, 2022 | | | | | | | | | | | | | | **FY 2023** |
| 2022 Vendor Contract Compliance | 2022 | September 2021 | September 28, 2021 | Satisfactory | - | - | 2 | 2 | - | - | - | - | - | - | 2 | 2 | **FY 2023** |
| **Total Findings For Internal Audit Follow-Up** | | | | | **1** | **4** | **2** | **37** | **-** | **4** | **-** | **29** | **1** | **-** | **2** | **8** | |

**NOTE:** The 2020 Disaster Recovery and Business Continuity findings are recommendations for improvement of the DR/BCP documentation. Therefore, they do not have a risk rating associated with them.

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | CAMERON ECKEL, ASSISTANT GENERAL COUNSEL |
| **SUBJECT:** | APPOINTMENTS TO THE SCIENTIFIC RESEARCH AND PREVENTION PROGRAMS COMMITTEE |
| **DATE:** | FEBRUARY 6, 2023 |

## Summary and Recommendation

The Chief Executive Officer has appointed six experts to CPRIT's Scientific Research and Prevention Programs Committee. CPRIT's statute requires Oversight Committee approval for the appointments. At their February 2 meeting, the Board Governance subcommittee reviewed the appointees and recommends approval by the Oversight Committee.

## Discussion

Scientific Research and Prevention Programs committee members (also referred to as "peer reviewers") are responsible for reviewing grant applications and recommending grant awards for meritorious projects addressing cancer prevention and research, including product development research. Peer reviewers perform a significant role for the state; all CPRIT grant awards must first be recommended by a Scientific Research and Prevention Programs committee. Individuals appointed to serve as CPRIT's Scientific Research and Prevention Programs committee members must be exceptionally qualified, highly respected, well-established members of the cancer research, product development research, and prevention communities.

Texas Health and Safety Code Section 102.151(a) directs the Chief Executive Officer to appoint members to the Scientific Research and Prevention Programs committees. The CEO's appointments are final once approved by a simple majority of the Oversight Committee. The Board Governance Subcommittee charter assigns the subcommittee with the responsibility "to circulate to Oversight Committee members in advance of a public meeting written notification of the committee's intent to make the nomination, along with such information about the nominee as may be relevant."

The Board Governance Subcommittee reviewed the appointees at its February 2 meeting and recommends their approval by the Oversight Committee.



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CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

**Product Development Peer Review Appointments**

**February 2023**

| Name | Organization | Title | Expertise |
|---|---|---|---|
| **Andrew Chow, MD, PhD** | Memorial Sloan Kettering Cancer Center | Assistant Attending Physician | Soft tissue sarcomas, thoracic oncology, lung cancer |
| **Edward H. Cho, PhD** | GenMark Diagnostics, Inc., a member of the Roche Group | Sr. Manager, Assay Development | Cancer biology, molecular medicine, companion diagnostics, imaging applications development |
| **Eric J. Gomez, PhD** | Mubadala Capital Venture | Principal | Biological engineering, gene therapy, oncology, synthetic biology |
| **Holly K. Koblish, PhD** | Ikena Oncology | VP, Cancer Biology | Immunotherapy, small molecule, dual inhibitor |
| **Michael Hostetler, JD, PhD** | Wilson Sonsini Goodrich & Rosati | Partner | IP strategies for FDA approved drugs, M&As, chemistry |
| **Sydney Xin-Li Lu, MD, PhD** | Stanford University | Assistant Professor | Medical oncology, RNA processing and splicing, cancer biology, normal and malignant hematopoiesis |

**6 Appointees*

# Andrew Chow, MD, PhD

530 E. 74th Street, 22nd Floor
New York, NY 10021
Phone: (646) 761-1523
Email: chowa1@mskcc.org

**CURRENT POSITION**
Assistant Member L1, May 2020 – Present
Memorial Sloan Kettering Cancer Center, New York, NY
New York State Physician License Number: 281228
New Jersey State Physician License Number: 25MA10908500

**TRAINING and EDUCATION**
Memorial Sloan Kettering Cancer Center, New York, NY
Medical Oncology Fellow, July 2016 – April 2020
ABIM Medical Oncology Exam Fall 2019 - Pass

Icahn School of Medicine at Mount Sinai, New York, NY
Doctor of Philosophy (PhD) in Biomedical Sciences, July 2006 - May 2012
Doctor of Medicine (MD), July 2006 - May 2014
Residency in Internal Medicine at Mount Sinai Hospital, July 2014 – June 2016
ABIM Internal Medicine Certification Exam Fall 2017: Pass

New York University, New York, NY
Bachelor of Arts in Biology with Economics minor and Pre-Med concentration, July 2002 – May 2006
Magna Cum Laude, Phi Beta Kappa, GPA: 3.89

**HONORS/AWARDS**
2021 Society of MSK Grant – *awarded $50,000 for research on leveraging CD39 to predict ICB outcomes and improve adoptive T cell therapies*
2021 International Lung Cancer Foundation's Young Investigator Award – *awarded $50,000 for research on leveraging CD39 to predict ICB outcomes and improve adoptive T cell therapies*
2021 Stony Wold-Herbert Fund Research Grant – *awarded $25,000 for research on CD39 as a selectable marker of tumor reactive CD8$^+$ T cells*
2020 SITC Young Investigator Poster and Travel Award – *awarded for poster presentation at 2020 SITC Annual Meeting and Travel Award for 2021 SITC Annual Meeting*
2020 K08 Clinical Investigator Award from National Cancer Institute (K08-CA248723-01) – *awarded $200,575 per year over five years to study the role of Tim-4$^+$ macrophages in lung cancer*
2019 American Society of Clinical Oncology Young Investigator Award – *awarded $50,000 in competitive grant competition to fund study of Tim-4$^+$ macrophages in lung cancer*
2019 American Association of Cancer Research James V. Buzzitta, MD Family Fund Scholar-in-Training Award – *awarded for high quality abstract selected for oral presentation at 2019 AACR Annual Meeting*
MSKCC T32 Investigational Cancer Therapeutics Training Program Grant (T32-CA009207) – *awarded from 9/1/2017-8/31/2019 for research funding after competitive internal review of investigative proposals*
Silver Apple Teaching Award- *awarded Spring 2015 for outstanding teaching by house staff*
2014 Jeffrey Modell Immunology Prize – *awarded to graduating medical student for outstanding contribution to the field of immunology research*
American Society of Hematology 2012 Achievement Award – *awarded for 2012 ASH meeting abstract*
NIH Ruth L. Kirschstein NRSA Predoctoral Fellowship (F30-HL099028) – *awarded $32,549/year from 1/2010-7/2012 for stipend, tuition, and institutional allowance support*

**PUBLICATIONS**

**Chow A**, Uddin FZ, Mangarin L, Rizvi, H, Dobrin A, Tischfield S, Quintanal-Villalonga Á, Chan JM, Shah N, Allaj V, Manoj P, Mattar M, Meneses M, Liu M, Landau R, Ward M, Kulick A, Kwong C, Wierzbicki M, Yavner J, Chavan SS, Farillas A, Holland A, Sridhar H, Ciampricotti M, Hirschhorn D, Richards AL, Donoghue MTA, Heller G, Klebanoff CA, Hellmann MD, de Stanchina E, Sen T, Wolchok JD, Merghoub T, Rudin C. CD39 identifies tumor-reactive CD8 T cells in patients with lung cancer. *BioRxiv*. doi: https://doi.org/10.1101/2022.01.24.477554

Pai JA*, **Chow A***, Sauter JL, Mattar M, Rizvi, Woo HJ, Shah N, Uddin F, Quintanal-Villalonga Á, Chan JM, Manoj P, Allaj V, Baine M, Chaft JE, Plodkowski AJ, Won H, Wells D, Donoghue MTA, de Stanchina E, Sen T, Wolchok JD, Houck-Loomis B, Merghoub T, Rudin CM, Satpathy AT, Hellmann MD. Regional and clonal T cell dynamics at single cell resolution in immune checkpoint blockade. *BioRxiv*. doi: https://doi.org/10.1101/2021.09.27.461389

**Chow A***, Perica K*, Klebanoff C, Wolchok J. Clinical implications of T cell exhaustion for cancer immunotherapy. *Nat Rev Clin Oncol*. 2022 Oct 10; doi: 10.1038/s41571-022-00689-z. PMID: 36216928

Ghosh A, Michels J, Mezzadra R, Venkatesh D, Dong L, Gomez R, Samaan F, Ho Y, Campesato LF, Mangarin L, Fak J, Suek N, Holland A, Liu C, Abu-Akeel M, Bykov Y, Zhong H, Fitzgerald K, Budhu S, **Chow A**, Zappasodi R, Panageas KS, de Henau O, Ruscetti M, Lowe SW, Merghoub T, Wolchok JD. Increased p53 expression induced by APR-246 reprograms tumor-associated macrophages to augment immune checkpoint blockade. *JCI* 2022;132(18):e148141. https://doi.org/10.1172/JCI148141.

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Schad SE, **Chow A**, Mangarin L, Pan H, Zhang J, Ceglia N, Caushi JX, Malandro N, Zappasodi R, Gigoux M, Hirschhorn D, Budhu S, Amisaki M, Arniella M, Redmond D, Chaft J, Forde PM, Gainor JF, Hellmann MD, Balachandran V, Shah S, Smith KN, Pardoll D, Elemento O, Wolchok JD, Merghoub T. Tumor-induced double positive T cells display distinct lineage commitment mechanisms and functions. *J Exp Med*. 2022 June 6;219(6):e202112169. PMID: 35604411

Taniguchi H, Caeser R, Chavan SS, Zhan YA, **Chow A**, Manoj P, Uddin F, Kitai H, Qu R, Hayatt O, Shah NS, Quintanal Villalonga Á, Allaj V, Nguyen EM, Chan J, Michel AO, Mukae H, de Stanchina E, Rudin CM, Sen T. WEE1 inhibition enhances the antitumor immune response to PD-L1 blockade by the concomitant activation of STING and STAT1 pathways in SCLC. *Cell Reports*. 2022 May 17;39(7):110814. PMID: 35584676

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**Chow A**, Hellmann MD. Insights from prospective multi-omic profiling of lymphocytes in resected lung cancer. *Annals of Oncology*. 2022 Jan;33(1):4-5. PMID: 34715315

Hirschhorn D, Betof Warner A, Maniyar R, **Chow A**, Mangarin LM, Cohen AD, Hamadene L, Rizzuto GA, Budhu S, Suek N, Liu C, Houghton AN, Merghoub T, Wolchok JD. Cyclophosphamide enhances the antitumor

potency of GITR engagement by increasing oligoclonal cytotoxic T cell fitness. *JCI Insight*. 2021 Oct 22;6(20). PMID: 34676831

Quintanal-Villalonga Á, Taniguchi H, Zhan YA, Hasan MM, Chavan SS, Meng F, Uddin F, Allaj V, Manoj P, Shah NS, Chan JM, Ciampricotti M, **Chow A**, Offin M, Ray-Kirton J, Egger JD, Bhanot UK, Linkov I, Asher M, Roehrl MH, Ventura K, Qiu J, de Stanchina E, Chang JC, Rekhtman N, Houck-Loomis B, Koche RP, Yu HA, Sen T, Rudin CM. Comprehensive molecular characterization of lung tumors implicates AKT and MYC signaling in adenocarcinoma to squamous cell transdifferentiation. *J Hematol Oncol*. 2021 Oct 16;14(1):170. PMID: 34656143

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Jiao J, Dragomir AC, Kocabayoglu P, Rahman AH, **Chow A**, Hashimoto D, Leboeuf M, Krause T, Moran T, Carrasco-Avino G, Friedman SL, Merad M, Aloman C. Central role of conventional dendritic cells in regulation of bone marrow release and survival of neutrophils. *J Immunol* 2014, 192(7): 3374-82. PMID: 24591364

Baliram R, **Chow A,** Huber AK, Collier L, Ali MR, Morshed SA, Latif R, Teixeira A, Merad M, Liu L, Blair HC, Zaidi M, Davies TF. Thyroid and bone: macrophage-derived TSH-ß-splice variant increases murine osteoblastogenesis. *Endocrinology* 2013; 154(12): 4919-26. PMID: 24140716

Lucas D, Scheiermann C, **Chow A**, Kunisaki Y, Bruns I, Barrick C, Tessarollo L, Frenette PS. Chemotherapy-induced bone marrow nerve injury impairs hematopoietic regeneration. *Nat Med* 2013; 19(6): 695-703. PMID: 23644514

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**Chow A**, Huggins M, Ahmed J, Hashimoto D, Lucas D, Kunisaki Y, Pinho S, Leboeuf M, van Rooijen N, Tanaka M, Zhao ZJ, Bergman A, Merad M, Frenette PS. $CD169^{+}$ macrophages regulate erythropoiesis under homeostasis and in JAK2V617F-induced polycythemia vera. *Nat Med* 2013; 19(4): 429-36. PMID: 23502962

Scheiermann C, Kunisaki Y, Lucas D, **Chow A**, Jang JE, Zhang D, Hashimoto D, Merad M, Frenette PS. Adrenergic nerves govern circadian leukocyte recruitment to tissues. *Immunity* 2012; 37(2): 290-301. PMID: 22863835

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Gautier EL, **Chow A**, Spanbroek R, Marcelin G, Greter M, Jakubzick C, Bogunovic M, Leboeuf M, van Rooijen N, Habenicht AJ, Merad M, Randolph GJ. Systemic analysis of PPARγ in mouse macrophage populations reveals marked diversity in expression with critical roles in resolution of inflammation and airway immunity. *J Immunol* 2012; 189(5): 2614-24. PMID: 22855714

Miller J, Brown B, Shay T, Gautier EL, Jojic V, Cohain A, Pandey G, Leboeuf M, Elpek KG, Helft J, Hashimoto D, **Chow A**, Price J, Greter M, Bogunovic, Bellemare-Pelletier A, Frenette PS, Randolph GJ, Turley SJ, Merad M and the Immunological Genome Consortium. Deciphering the transcriptional network of the dendritic cell lineage. *Nat Immunol* 2012; 13(9): 888-99. PMID: 22797772

Greter M, Helft J, **Chow A**, Hashimoto D, Mortha A, Agudo-Cantero J, Leboeuf M, Bogunovic M, Gautier EL Miller J, Lu G, Aloman C, Brown BD, Pollard JW, Randolph GJ, Xiong H, Chipuk JE, Frenette PS, Merad M. GM-CSF controls non-lymphoid tissue resident DC development and function in the steady state but is dispensable for the development of inflammatory DC. *Immunity* 2012; 36(6): 1031-46. PMID: 22749353

**Chow A**, Brown B, Merad M. Studying the mononuclear phagocyte system in the molecular age. *Nat Rev Immunol* 2011; 11(11): 788-98. PMID: 22025056

Hashimoto D, **Chow A**, Greter M, Leboeuf M, van Rooijen N, Frenette PS, Ochando JC, Teshima T, Stanley ER, Merad M. Pre-transplant CSF-1 therapy expands the recipient macrophage pool and prevents graft versus host disease after allogeneic hematopoietic cell transplantation. *J Exp Med* 2011; 208(5): 1069-82. PMID: 21536742

Liberman KM, Meah YS, **Chow A**, Tornheim J, Rolon O, Thomas DC. Quality of mental health care at a student-run clinic: care for the uninsured exceeds that of publicly and privately insured populations. *J Community Health* 2011; 36(5): 733-40. PMID: 21298472

**Chow A*,** Lucas D*, Hidalgo A, Mendez-Ferrer S, Hashimoto D, Battista M, Leboeuf M, Prophete C, van Rooijen N, Tanaka M, Merad M, Frenette PS. Bone marrow $CD169^{+}$ macrophages promote retention of hematopoietic stem and progenitor cells. *J Exp Med* 2011; 208(2): 261-71. PMID: 21282381

Mendez-Ferrer S, **Chow A**, Merad M, Frenette PS. Circadian rhythms influence hematopoietic stem cells. *Curr Opin Hematol* 2009; 16(4): 235-42. PMID: 19417648

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Ramirez-Montagut T, **Chow A**, Kochman AA, Smith OM, Suh D, Sindhi H, Lu S, Borsotti C, Grubin J, Patel N, Terwey TH, Kim TD, Heller G, Murphy GF, Liu C, Alpdogan O, van den Brink MR. IFN-gamma and Fas ligand are required for graft-versus-tumor activity against renal cell carcinoma in the absence of lethal graft-versus-host disease. *J Immunol* 2007; 179(3): 1669-80. PMID: 17641033

Borsotti C, Franklin AR, Lu SX, Kim TD, Smith OM, Suh D, King CG, **Chow A**, Liu C, Alpdogan O, van den Brink MR. Absence of donor T-cell-derived soluble TNF decreases graft-versus-host disease without impairing graft-versus-tumor activity. *Blood* 2007; 110(2): 783-6. PMID: 17395784

Ramirez-Montagut T, **Chow A**, Hirschhorn-Cymerman D, Terwey TH, Kochman AA, Lu S, Miles RC, Sakaguchi S, Houghton AN, van den Brink MR. Glucocorticoid-induced TNF receptor family related gene activation overcomes tolerance/ignorance to melanoma differentiation antigens and enhances antitumor immunity. *J Immunol* 2006; 176(11): 6434-42. PMID: 16709800

Zakrzewski JL, Kochman AA, Lu SX, Terwey TH, Kim TD, Hubbard VM, Muriglan SJ, Suh D, Smith OM, Grubin J, Patel N, **Chow A**, Cabrera-Perez J, Radhakrishnan R, Diab A, Perales MA, Rizzuto G, Menet E, Pamer EG, Heller G, Zúñiga-Pflücker JC, Alpdogan O, van den Brink MR. Adoptive transfer of T-cell precursors enhances T-cell reconstitution after allogeneic hematopoietic stem cell transplantation. *Nat Med* 2006; 12(9): 1039-47. PMID: 16936725

**BOOK CHAPTERS**

**Chow A**, Frenette PS. Origin and development of blood cells. *Wintrobe's Clinical Hematology*, 14th Edition, 2018.

**Chow A**, Tap WD. Soft tissue sarcomas. *Pocket Oncology*, 2nd Edition, 2018.

**Chow A**, Reidy-Lagunes D. Tumors of the adrenal cortex. *Pocket Oncology*, 2nd Edition, 2018.

**Chow A**, Parameswaran R. Bleeding diatheses. *Pocket Oncology*, 2nd Edition, 2018.

**Chow A**, Frenette PS. Origin and development of blood cells. *Wintrobe's Clinical Hematology*, 13th Edition, 2013.

Lucas D, **Chow A**, Frenette PS. Neural and immune regulation of the hematopoietic stem cell niche. *European Hematology Association: Hematology Education* 2011; 5(1): 140-5.

**INTELLECTUAL PROPERTY**

**Chow A,** Frenette PS, Merad M. Erythropoietic role of resident macrophages in hematopoietic organs. US20140248281 A1. Application number US 14/189,110. Publication date: Sep 4, 2014.

**PRESENTATIONS**

2019 American Association for Cancer Research in Atlanta, GA. Tim-4$^{+}$ tissue-resident macrophages impair anti-tumor T cell immunity. Oral presentation. March 31, 2019.

2012 American Society of Hematology Conference in Atlanta, GA. CD169$^{+}$ macrophages regulate erythropoiesis under homeostasis, recovery from erythron injury and in JAK2V617F-induced polycythemia vera. Oral presentation. December 10, 2012.

2010 International Congress of Immunology in Kobe, Japan. Bone marrow CD169+ macrophages promote retention of hematopoietic stem and progenitor cells. Poster presentation. August 26, 2010.

**RESEARCH EXPERIENCE**

*Post-doctoral Fellow in Laboratories of Charles Rudin, MD, PhD and Jedd Wolchok, MD, PhD*
*July 2017 to present*
*Memorial Sloan Kettering Cancer Center, New York, NY*
· Assessment of the role of Tim-4$^{+}$ macrophages in regulating T cell immunity.
· Evaluation of CD39 as a biomarker of tumor-reactive cytotoxic CD8$^{+}$ T lymphocytes.
· Establishment of single T cell dataset from patients with lung cancer receiving anti-PD-1 with regional, clonal, and longitudinal resolution.
· Development of biospecimen bank of paired tumor-infiltrating lymphocytes and patient-derived xenograft tumors from lung cancer resection specimens.

*Graduate Student in Laboratories of Paul S. Frenette, MD and Miriam Merad, MD, PhD*
*August 2008 to June 2012*
*Mount Sinai School of Medicine, New York, NY*
· Demonstrated the contribution of bone marrow macrophages to maintenance of the stem cell niche.
· Elucidated the role of bone marrow macrophages in erythropoiesis.
· Illustrated the functional importance of local self-maintenance of tissue macrophage populations.

*Undergraduate Researcher in Laboratory of Marcel van den Brink, MD, PhD*
*July 2003 to June 2006*
*Memorial Sloan-Kettering Cancer Center, New York, NY*
· Studied effect of GITR stimulation on tumor immunity and graft versus tumor activity.
· Established a mouse model for allogeneic BMT against renal cell carcinoma.

**MEMBERSHIPS**

American Society of Clinical Oncology – Member
American Association of Cancer Research – Associate Member
Society for Immunotherapy of Cancer –Member

# Edward H. Cho, Ph.D.

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## Education

**The Scripps Research Institute** — **La Jolla, CA**
Postdoctoral Fellowship — *Jan. '10 – Sep. '11*

**University of Maryland at Baltimore School of Medicine** — **Baltimore, MD**
Doctor of Philosophy (Ph.D.) in Molecular Medicine/Cancer Biology — *Aug. '06 – Dec. '09*

**The Johns Hopkins University** — **Baltimore, MD**
Master of Science (M.S.) in Biotechnology — *Sep. '02 – May '05*

**The Johns Hopkins University** — **Baltimore, MD**
Bachelor of Arts (B.A.) in Natural Sciences/Public Health — *Sep. '96 – May '00*

## Employment

**GenMark Diagnostics, Inc., a member of the Roche Group** — **Carlsbad, CA**
*Sr. Manager, Assay Development* — *Sep. '22 – Present*

**Freelance Life Sciences Consultant** — **San Diego, CA**
*Principal* — *Aug. '04 – Present*

**Detect, Inc.** — **Guilford, CT**
*Head of Biologics Development* — *Aug. '21 – Jun. '22*
*Chief of Staff, Research and Development* — *Dec. '20 – Aug. '21*

**Spin Bio, LLC** — **San Diego, CA**
*Co-Founder, Chief Scientific Officer* — *Jun. '15 – Present*

**Spectrum Genomics, Inc.** — **San Diego, CA**
*Vice President of Operations, Principal Scientist* — *Jun. '15 – Jul '18*

**BioNano Genomics, Inc.** — **San Diego, CA**
*Staff Scientist* — *Mar. '16 – Apr. '16*
*Senior Scientist, Systems Integration* — *Jan. '15 – Feb. '16*
*Senior Scientist, Instrumentation and Systems Integration* — *Jan. '13 – Jan. '15*
*Senior Scientist, Instrumentation* — *Nov. '11 – Jan. '13*
*Consultant* — *Oct. '11 – Nov. '11*

**The Scripps Research Institute** — **La Jolla, CA**
*Research Associate, Postdoctoral Fellow* — *Jan. '10 – Sep. '11*

**University of Maryland at Baltimore School of Medicine** — **Baltimore, MD**
*Graduate Research Assistant, Ph.D. Candidate* — *Sep. '06 – Jan. '10*

**University of Maryland Biotechnology Institute** — **Baltimore, MD**
**Institute of Human Virology**
*Research Assistant* — *Jul. '06 – Aug. '06*

**SAIC Frederick/National Cancer Institute at Frederick** — **Frederick, MD**
**Image Analysis Laboratory**
*Research Assistant, Microscopist* — *Apr. '02 – May '06*
*Senior Research Technician, Microscopist* — *Apr. '01 – Apr. '02*
*Research Technician, Microscopist* — *Dec. '00 – Apr. '01*

**The Johns Hopkins Medical Institutions** — **Baltimore, MD**
**Department of Neuropathology**
*Undergraduate Research Assistant* — *Sep. '97 – May '00*

**The Johns Hopkins University** — **Baltimore, MD**

*Senior Residential Networking Consultant* — *Aug. '98 – May '00*
*Residential Networking Consultant* — *Aug. '96 – Aug. '98*

**University of Minnesota** — **Minneapolis, MN**
**Department of Hematology**
*Summer Undergraduate Research Assistant* — *Jun. '97 – Aug. '97*

**CompuTutor, Inc.** — **Minnetonka, MN**
*Co-Founder, Vice President* — *Jan. '95 – Sep. '98*

## Consulting

**Cancer Fund** — **Phoenix, AZ**
*Venture Partner* — *Apr. '22 – Present*

**Newchip, Inc.** — **Austin, TX**
*Startup Mentor* — *Apr. '22 – Present*

**Gerson Lehrman Group, Inc.** — **New York, NY**
*Subject Matter Expert Consultant* — *Jan. '10 – Present*

**Vertex Pharmaceuticals Incorporated** — **San Diego, CA**
*Temporary Research Scientist* — *Sep. '19 – Feb. '20*

**Accunome Sciences, Inc.** — **San Diego, CA**
*Sr. Director Operations, Principal Scientist* — *Aug. '18 – Feb. '19*

**Lumencor, Inc.** — **Beaverton, OR**
*Business Development Consultant* — *Sep. '17 – Sep. '18*

**Diagnomics, Inc.** — **San Diego, CA**
*Sr. Director of Product Management* — *Oct. '17 – Oct. '17*

**Better Marketing, LLC** — **Brooklyn, NY**
*Operations Consultant* — *Jan. '17 – Jan. '17*

**MicroStem, Inc.** — **San Diego, CA**
*Consultant* — *Oct. '11 – Oct. '12*

**Epic Sciences, Inc.** — **La Jolla, CA**
*Consultant* — *Oct. '11 – Dec. '11*

**Molecular Response, LLC** — **San Diego, CA**
*Consultant* — *May '11 – Jun. '11*

**Carl Zeiss MicroImaging, Inc.** — **Thornwood, NY**
*AIM Specialist Consultant* — *Aug. '04 – Dec. '09*

## Volunteer Activities

- Science Delivered, Board Member, 7/2017 – 7/2022
- The Scripps Research Institute Alumni Association, Co-Founder, Executive Board Member, 1/2015 – 12/2017
- AACR AMC-Led Program Committee Member, 4/2015 – 4/2016
- Society of Fellows, Executive Committee Member, Webmaster, 5/10 – 9/11
- Maryland Science Center, BodyLink Intern, 6/07 – 1/09

## Honors

- Abstract selected for oral symposium presentation at Department of Defense Breast Cancer Research Program Era of Hope Meeting, 8/2011
- NCI Physical Sciences Oncology Centers (PSOC) Young Investigators Trans-Network Award, 4/2011
- Outstanding Student Award, Graduate Program in Life Sciences, Program in Molecular Medicine, 9/2008
- Abstract selected for oral symposium presentation at Department of Defense Breast Cancer Research Program Era of Hope Meeting, 6/2008

- GPILS Distinguished Lectureship Molecular Medicine Program Representative, 4/2008
- UMB Graduate Research Conference Women's Health Research Award, 4/2008
- Maryland Science Center-University of Maryland at Baltimore BodyLink Internship Award (2007)
- Research featured in Biophotonics International, Sept. 2006 issue, *Method developed for testing and comparing microscope performance*, pp. 58-59 (with erratum in Nov. 2006 issue)
- Inventor of "Standard Slide for Testing the Axial Resolution of Microscopes" DHHS Reference No. E-148-2005/0 -- Research Tool, Federal Register 2005 Apr 29;40(82):22352
- NCI-Frederick 10th Annual Spring Research Festival Outstanding Poster in Cancer Biology Award, 5/2006
- SAIC-Frederick Annual Performance Award, 4/2005
- SAIC-Frederick Consistent Outstanding Performance Award, 4/2004
- SAIC-Frederick Consistent Outstanding Performance Award, 3/2002
- SAIC-Frederick Specific Outstanding Performance Award, 11/2001
- 1998 The Johns Hopkins University Provost Undergraduate Research Award, 4/1998

## Professional Affiliations

- American Society for Cell Biology (ASCB)
- Biophysical Society
- International Society for Analytical Cytology (ISAC)
- International Society for Stem Cell Research (ISSCR)
- American Association for Cancer Research (AACR)

## Invited Talks

**Department of Defense Breast Cancer Research Program Era of Hope Meeting 2011**

- *BRCA1-regulated gamma-tubulin delocalization increases microtentacle incidence and colchicine-resistant microtubules in the BRCA1 mutant human breast cancer cell lines HCC1937*, DOD BCRP Era of Hope Meeting Symposium Presentation, 8/2011

**NCI Physical Sciences in Oncology Annual Meeting 2011**

- *Understanding the formation of circulating tumor cell clusters*, Young Investigator Trans-network Award Presentation, 4/2011

**Pfizer Inc.**

- *Interpreting the semantics of cancer: studying tumor cells in context*, 11/2010

**Lawrence Berkeley National Laboratory/UCSF School of Medicine**

- *Elucidating the role of aberrant microtubule nucleation in breast cancer metastasis*, 9/2009

**The Scripps Research Institute**

- *Elucidating the role of aberrant microtubule nucleation in breast cancer metastasis*, 8/2009

## Publications

https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/48542952/?sort=date&direction=ascending

1. Kunal Bhutani, Kristopher L. Nazor, Roy Williams, Ha Tran, Heng Dai, Zeljko Dzakula, Edward H. Cho, Andy W.C. Pang, Mahendra Rao, Han Cao, Nicholas J. Schork, Jeanne F. Loring, ***Whole Genome Mutational Burden Analysis of Three Pluripotency Induction Methods***, Nat Commun. 2016 Feb 19;7:10536

2. Stephanie A. Kazane, Devin Sok, Edward H. Cho, Maria Loressa Uson, Peter Kuhn, Peter G. Schultz, Vaughn V. Smider, ***Site-specific DNA-antibody conjugates for specific and sensitive immuno-PCR***, Proc Natl Acad Sci U S A. 2012 Mar 6;109(10):3731-6. Epub 2012 Feb 15.

3. Edward H Cho, Marco Wendel, Madelyn Luttgen, Craig Yoshioka, Dena Marrinucci, Daniel Lazar, Ethan Schram, Jorge Nieva, Lyudmila Bazhenova, Alison Morgan, Andrew H Ko, W Michael Korn, Anand Kolatkar, Kelly Bethel, and Peter Kuhn, ***Characterization of circulating tumor cell aggregates identified in patients with epithelial tumors***, Phys Biol. 2012 Feb;9(1):016001. Epub 2012 Feb 3.

4. Edward H. Cho, ***Circulating tumor cells as emerging tumor biomarkers in lung cancer.***, J Thorac Dis. 2012 Oct;4(5):444-5. (Invited Editorial)

5. Michele I. Vitolo, Amanda E. Boggs, Rebecca A. Whipple, Jennifer R. Yoon, Keyata Thompson, Michael A. Matrone, Edward H. Cho, Eric M. Balzer, and Stuart S. Martin, ***Loss of PTEN induces microtentacles through PI3K-independent activation of cofilin***, Oncogene. 2012 Jun 11. [Epub ahead of print]

6. Stephanie A. Kazane, Devin Sok, Edward H. Cho, Maria Loressa Uson, Peter Kuhn, Peter G. Schultz, Vaughn V. Smider, ***Site-specific DNA-antibody conjugates for specific and sensitive immuno-PCR***, Proc Natl Acad Sci U S A. 2012 Mar 6;109(10):3731-6. Epub 2012 Feb 15.

7. Edward H Cho, Marco Wendel, Madelyn Luttgen, Craig Yoshioka, Dena Marrinucci, Daniel Lazar, Ethan Schram, Jorge Nieva, Lyudmila Bazhenova, Alison Morgan, Andrew H Ko, W Michael Korn, Anand Kolatkar, Kelly Bethel, and Peter Kuhn, ***Characterization of circulating tumor cell aggregates identified in patients with epithelial tumors***, Phys Biol. 2012 Feb;9(1):016001. Epub 2012 Feb 3.

8. Daniel C Lazar, Edward H Cho, Madelyn S Luttgen, Thomas J Metzner, Maria Loressa Uson, Melissa Torrey, Mitchell E Gross, and Peter Kuhn, ***Cytometric comparisons between circulating tumor cells from prostate cancer patients and the prostate-tumor-derived LNCaP cell line***, Phys Biol. 2012 Feb;9(1):016002. Epub 2012 Feb 3

9. Marco Wendel, Lyudmila Bazhenova, Rogier Boshuizen, Anand Kolatkar, Meghana Honnatti, Edward H Cho, Dena Marrinucci, Ajay Sandhu, Anthony Perricone, Patricia Thistlethwaite, Kelly Bethel, Jorge Nieva, Michel van den Heuvel, and Peter Kuhn, ***Fluid biopsy for circulating tumor cell identification in patients with early-and late-stage non-small cell lung cancer: a glimpse into lung cancer biology***, Phys Biol. 2012 Feb;9(1):016005. Epub 2012 Feb 3.

10. Jennifer R. Yoon, Rebecca A. Whipple, Eric M. Balzer, Edward H. Cho, Michael A. Matrone, and Stuart S. Martin, ***The Effects of Local Anesthetics on Microtentacles in Human Epithelial and Breast Tumor Cells***, Breast Cancer Res Treat. 2010 Nov 11. [Epub ahead of print]

11. Eric M. Balzer, Rebecca A. Whipple, Keyata Thompson, Amanda E. Boggs, Jana Slovic, Edward H. Cho, Michael A. Matrone, Toshiyuki Yoneda, Susette C. Mueller, and Stuart S. Martin, ***c-Src Differentially Regulates the functions of Microtentacles and Invadapodia***, Oncogene. 2010 Dec 2;29(48):6402-8. Epub 2010 Oct 18.

12. Rebecca A. Whipple, Michael A. Matrone, Edward H. Cho, Eric M. Balzer, J. Yang, and Stuart S. Martin, ***Metastasis-associated microtentacles are promoted by Epithelial-Mesenchymal Transition in human mammary epithelial cells and breast tumor cells***, Cancer Res. 2010 Oct 15;70(20):8127-37. Epub 2010 Oct 5

13. Michael A. Matrone, Rebecca A. Whipple, Keyata Thompson, Edward H. Cho, Michele I. Vitolo, Eric M. Balzer, Jennifer R. Yoon, Olga B. Ioffe, Kimberly C. Tuttle, Ming Tan, and Stuart S. Martin, ***Metastatic breast tumors express increased tau, which promotes microtentacle formation and the reattachment of detached breast tumor cells***, Oncogene. 2010 Jun 3;29(22):3217-27. Epub 2010 Mar 15

14. Edward H. Cho, Rebecca A. Whipple, Michael A. Matrone, Eric M. Balzer, and Stuart S. Martin, ***Delocalization of γ-tubulin due to increased solubility in human breast cancer cell lines***, Cancer Biol Ther. 2010 Jan;9(1) Epub 2009 Dec

15. Edward H. Cho, ***Elucidating the role of aberrant microtubule nucleation in breast cancer metastasis***, Dissertation, Graduate Program in Life Sciences, Program in Molecular Medicine, University of Maryland at Baltimore, UMI Dissertation Publishing 2009 Dec

16. Eric M. Balzer, Rebecca A. Whipple, Edward H. Cho, Michael A. Matrone, and Stuart S. Martin, ***Anti-mitotic chemotherapeutics induce tubulin microtentacles and promote the adhesion of detached tumor cells***, Breast Cancer Res Treat. 2010 May;121(1):65-78. Epub 2009 Jul 11

17. Dalit Barkan, Hynda Kleinman, Justin Simmons, Holly Asmussen, Anil K. Kamaraju, Mark Hoenorhoff, Zi-yao Liu, Sylvain V. Costes, Edward H. Cho, Stephen Lockett, Chand Khanna, Ann F. Chambers, and Jeffery E. Green, ***Inhibition of Metastatic Outgrowth from Single Dormant Tumor Cells by Targeting the Cytoskeleton***, Cancer Res. 2008 Aug 1;68(15):6241-50

18. Rebecca A. Whipple, Eric M. Balzer, Edward H. Cho, Michael A. Matrone, Jennifer R. Yoon, and Stuart S. Martin, ***Vimentin filaments support extension of tubulin-based microtentacles in detached breast tumor cell lines***, Cancer Res. 2008 Jul 15;68(14):5678-88

19. Changcheng Song, Zhen Xiao, Kunio Nagashima, Chou-Chi H. Li, Stephen J. Lockett, Ren-Ming Dai, Edward H. Cho, Thomas P. Conrads, Timothy D. Veenstra, Nancy H. Colburn, Qing Wang and Ji Ming Wang, ***The heavy metal cadmium induces valosin-containing protein (VCP)-mediated aggresome formation***, Toxicol Appl Pharmacol. 2008 May 1;228(3):351-363. Epub 2008 Jan 8

20. Satinder S. Rawat, C. Zimmerman, B. T. Johnson, Edward H. Cho, Stephen J. Lockett, Robert Blumenthal and Anu Puri, ***Restricted Lateral Mobility of Plasma Membrane CD4 Impairs HIV-1 Envelope Glycoprotein Mediated Fusion***, Mol Membr Biol. 2008 Jan-Feb;25(1):83-94

21. David R. Hodge, Edward Cho, Terry D. Copeland, Tad Guszczynski, Eric Yang, Arun K. Seth, and William L. Farrar, ***IL-6 Enhances the Nuclear Translocation of DNA Cytosine-5-Methyltransferase 1 (DNMT1) via Phosphorylation of the Nuclear Localization Sequence by the AKT Kinase***, Cancer Genomics Proteomics. 2007 Nov-Dec;4(6):387-98

22. Pablo Iribarren, Keqiang Chen, Wanghua Gong, Edward H. Cho, Stephen Lockett, Badarch Uranchimeg, and Ji Ming Wang, ***Interleukin 10 and TNFα synergistically enhance the expression of the G protein-coupled formylpeptide receptor 2 in microglia***, Neurobiol. Dis. 2007 Jul;27(1):90-98. Epub 2007 May 5

23. Catherine M. Finnegan, Satinder S. Rawat, Edward H. Cho, Danielle L. Guiffre, Stephen Lockett, Alfred H. Merrill, Jr., and Robert Blumenthal, ***Sphingomyelinase Restricts the Lateral Diffusion of CD4 and Inhibits HIV Fusion***, J. Virol. 2007 May;81(10):5294-5304. Epub 2007 Mar 7

24. Keqiang Chen, Pablo Iribarren, Jian Huang, Lingzhi Zhang, Wanghua Gong, Edward H. Cho, Stephen Lockett, Nancy M. Dunlop, and Ji Ming Wang, ***Induction of the Formyl Peptide Receptor 2 in Microglia by IFN-γ and Synergy with CD40 Ligand***, J. Immunol. 2007 Feb 1;178(3):1759-66

25. Edward H. Cho, Stephen J. Lockett, ***Calibration and standardization of the emission light path of confocal Microscopes***, J. Microsc. 2006 Jul;223(Pt 1):15-25

26. Keqiang Chen, Pablo Iribarren, Jinyue Hu, Jianhong Chen, Wanghua Gong, Edward H. Cho, Stephen Lockett, Nancy M. Dunlop, Ji Ming Wang, ***Activation of toll-like receptor 2 on microglia promotes cell up-take of Alzheimer's disease-associated amyloid beta peptide,*** J Biol Chem. 2006 Feb 10;281(6):3651-9. Epub 2005 Dec 9.

27. Pablo Iribarren, Keqiang Chen, Jinyue Hu, Wanghua Gong, Edward H. Cho, Stephen Lockett, Badarch Uranchimeg, Ji Ming Wang, ***CpG-containing oligodeoxynucleotide promotes microglial cell uptake of amyloid beta 1-42 peptide by up-regulating the expression of the G-protein-coupled receptor mFPR2***, FASEB J. 2005 Dec;19(14):2032-4. Epub 2005 Oct 11

28. David R. Hodge, Benjamin Peng, Celine Pompeia, Suneetha Thomas, Edward Cho, Peter A. Clausen, Victor E. Marquez, William L. Farrar, ***Epigenetic Silencing of Manganese Superoxide Dismutase (SOD-2) in KAS 6/1 Human Multiple Myeloma Cells Increases Cell Proliferation***, Cancer Biol Ther. 2005 May;4(5):585-592 Epub 2005 May 5

29. Delphine Muriaux, Sylvain Costes, Kunio Nagashima, Jane Mirro, Ed Cho, Stephen Lockett, Alan Rein, ***Role of Murine Leukemia Virus Nucleocapsid Protein in Virus Assembly***, J. Virol. 2004 Nov;78(22):12378-12385

30. Dirk Daelemans, Sylvain V. Costes, Edward H. Cho, Rebecca A. Erwin-Cohen, Stephen Lockett, George N. Pavlakis, ***In vivo HIV-1 Rev multimerization in the nucleolus and cytoplasm by fluorescence resonance energy transfer***, J. Biol. Chem. 2004 Nov;279(48):50167-50175

31. Ali Saleh, Gareth E. Davies, Veronique Pascal, Paul W. Wright, Deborah L. Hodge, Edward H. Cho, Stephen J. Lockett, Mehrnoosh Abshari, Stephen K. Anderson, ***Identification of Probabilistic Transcriptional Switches in the Ly49 Gene Cluster: A Eukaryotic Mechanism for Selective Gene Activation,*** Immunity 2004 Jul;21:55-66

32. Ronghua Sun, Pablo Iribarren, Ning Zhang, Ye Zhou, Wanghua Gong, Edward H. Cho, Stephen Lockett, Oleg Chertov, Filip Bednar, Thomas J. Rogers, Joost J. Oppenheim, Ji Ming Wang, ***Identification of Neutrophil Granule Protein Cathepsin G as a Novel Chemotactic Agonist for the G Protein-Coupled Formyl Peptide Receptor FPR***, J. Immuno. 2004 Jul;173(1):428-436

33. Sylvain V. Costes, Dirk Daelemans, Edward H. Cho, Zachary Dobbin, George Pavlakis, Stephen Lockett, ***Automatic and quantitative measurement of protein-protein co-localization in live cells***, Biophys. J. 2004 Jun;86(6):3993-4003

34. Valance Washington, Rebecca L. Schubert, Laura Quigley, Theresa Disipio, Robert Feltz, Edward H. Cho, and Daniel W. McVicar, ***A TREM Family Member, TLT-1, Is Found Exclusively in the {alpha}-granules of Megakaryocytes and Platelets***, Blood 2004 Aug;104(4):1042-1047. Epub 2004 Apr 20.

35. Qingsheng Yan, Edward Cho, Stephen Lockett, Kathrin Muegge, ***Association of Lsh with heterochromatin requires intact higher order heterochromatin structure***, Mol Cell Biol. 2003 Dec;23(23):8416-28



36. Tao Fan, Qingsheng Yan, Jiaqiang Huang, Sharon Austin, Edward Cho, Doug Ferris, Kathrin Muegge, ***Lsh-deficient murine embryonal fibroblasts show reduced proliferation with signs of abnormal mitosis***, Cancer Res. 2003 Aug 1;63(15):4677-83

37. Sylvain Costes, Olga Slobodskaya, Edward Cho, Maria Tsopanomichalou, George N. Pavlakis, Stephen Lockett, ***FRAP model to determine the bi-directional transport rate of GFP across the nuclear membrane and the mobile fraction in the cytoplasm and nucleus***, Proceedings SPIE 2002 4622:32-39

## Research Support

Principal Investigator, Physical Science-Oncology Centers Young Investigators Trans-Network Award, 8/2011 – 8/2012

Principal Investigator, Congressionally Directed Medical Research Programs Department of Defense Breast Cancer Research Program Predoctoral Traineeship Award (BC083126), 9/08 – 12/09

## References

Stuart Martin, PhD
Professor, University of Maryland School of Medicine
ssmartin@som.umaryland.edu
(410) 706-6601

Sylvain Costes, PhD
GeneLab Project Manager and Principal Investigator, NASA
Sylvain.V.Costes@nasa.gov
(650) 604-5343

Daniel Solis, PhD
Associate Director, Product Development, Illumina
dsolis@illumina.com
(619) 768-3470

# Eric J. Gomez, PhD

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## Experience

***Principal* – Mubadala Capital Ventures**
San Francisco, CA
October 2021 – *Present*

- Investor in $400mn fund with mandate to invest in U.S. biotechnology start-ups from Seed stage to Series C
- Evaluated 100+ companies so far, with specialization in oncology therapeutics
- Investments include Auron Therapeutics, Interline Therapeutics (board observer), Recursion Pharmaceuticals, Xilis

***Vice President, Asset Acquisition* – BridgeBio Pharma**
San Francisco, CA
*December 2020 – October 2021*

- Joined May 2018 as Associate Director, Promoted to Director in May 2019
- Build scientific and business cases for new investments
- Evaluated 250+ assets, led creation of 4 new companies, and served as VP of Operations for two subsidiary companies in oncology
- Board Member of 2 subsidiary companies

***Head, Strategic Partnering* – BridgeBio Pharma**
San Francisco, CA
*May 2018 – October 2021*

- Ambassador to universities, research institutions, and investigators
- Evaluated 100+ proposals from university PIs for sponsored research funding
- Executed 23 alliances with top universities

***Co-founder & Director of BD* – Stingray Therapeutics**
Houston, TX
*September 2017 - April 2018*

***Associate Director, Business Development* – Salarius Pharma (CPRIT) and Beta Cat Pharma (CPRIT)**
Houston, TX
*July 2016 – April 2018*

## Education

**Rice University 2011–2016**
Houston, TX
PhD, Biological Engineering – Specializations in molecular biology, synthetic biology, gene therapy, and oncology

**Massachusetts Institute of Technology, 2007–2011**
Cambridge, MA
SB, Biological Engineering

8-15

# HOLLY K. KOBLISH, PH.D.

, Exton, PA 19341

hkoblish@comcast.net

## HIGHLIGHTS

Creative drug discovery scientist with greater than 20 years of experience in oncology and immuno-oncology
Key contributor to the discovery of 8 compounds which progressed to the clinic, including two FDA-approved medicines
Project team leader of multiple exploratory stage through clinical programs
Team-centered approach working with colleagues from medicinal chemistry, drug metabolism and biopharmaceutics, toxicology, translational sciences, clinical development and business development
Expertise in both in vitro and in vivo pharmacology and issues-based research
Member of several external research collaboration teams and point of contact for numerous individual academic research agreements
Excellent communication skills, with ability to effectively convey key issues to management and motivate and guide scientific staff

## PROFESSIONAL EXPERIENCE

**Ikena Oncology** **Boston, MA**
*VP, Cancer Biology* *2021-2022*

***Key Accomplishments***
Recruited a more comprehensive Cancer Biology team, growing the group to build additional capabilities in both in vitro and in vivo pharmacology
Oversaw work for 5 pre-IND and 2 post-IND projects, coaching project leaders in effective project management, people management and cross-functional communication
Balanced internal and external resources to reach Go/No Go decisions for 2 projects, including the project where I served as SLT-level Project Champion
Assisted in setting the agendas for Board and SAB meetings and was an active participant in joint ET/SLT and Research and Development Advisory Committee (RDAC) meetings to establish research priorities and project progression
Created framework for target proposal and selection process utilizing broader teams, and led the team for inaugural proposal that gained endorsement from the Scientific Advisory Board and additional academic key opinion leaders
Evaluated molecules for in-licensing opportunities, data packages for out-licensing discussions and proposals for sponsored research
Managed the budget for approximately 20% of the organization

**Incyte Corporation** **Wilmington, DE**
*Senior Director, Pharmacology* *2019-2021*
*Director, Pharmacology* *2016-2019*
*Associate Director, Pharmacology* *2015-2016*
*Senior Principal Investigator, Pharmacology* *2010-2015*
*Principal Investigator, Pharmacology* *2008-2010*
*Senior Research Investigator, Pharmacology* *2006-2008*

***Management***
Oversaw Small Molecule In Vivo Pharmacology, leading a team of up to 19 in vitro and in vivo PhD and BS/MS level scientists to provide data for INDs and clinical prioritization, executing work on up to 9 pre-IND projects and 6 post-IND projects concurrently
Continually expanded capabilities of the group through novel models, techniques and platforms
Coached PhDs through project leadership, including developing a professional voice, a collaborative style and effective messaging skills
Served as Vice-Chair of Incyte IACUC

***Asset Development***
Designed and executed the in vivo pharmacology plan for the discovery of molecules for the c-MET (Tabrecta™/capmatinib), FGFR (Pemazyre®/pemigatinib), IDO (epacadostat), PIM (INCB53914), and AXL/MER (INCB81776) projects, and oversaw the plan for more than 10 other programs
Proposed and led project team for PIM kinase inhibitor program, supervising multidisciplinary team of ~30 scientists and leading the team to successful corporate goals and the selection of a development candidate
Served on cross-functional Strategy Focus Groups for pemigatinib, epacadostat, oral PD-L1 (INCB86550, INCB99280, INCB99318), and INCB53914 (PIM)
Participated in New Target Selection Committee to effectively shape the Incyte pipeline

***Communication***
Regularly presented key issues and strategies for pipeline projects to CEO and Executive Team members
Contributed to slides and narratives for presentation to the Board of Directors and to external partners
Cross-trained Medical Affairs colleagues in fundamental science behind assets
Presented at inaugural Incyte Research and Development Investor Event

***Clinical Development and Regulatory Activities***

Contributed to Pemazyre® (pemigatinib) filings during review cycle in multiple regions (US, Japan, EU, Canada) – approvals in 2020 and 2021
Served as Incyte Discovery contact for Novartis for Tabrecta™ (capmatinib) during review cycle in multiple regions – approvals in 2020
Wrote and reviewed modules for IND and NDA submissions and IB and DSUR updates for more than 10 molecules
Contributed to business development evaluations of in-licensing candidates and presentations of out-licensing opportunities

***Talent Development***

Created PI Development Program for Discovery Biology leaders in training to better understand project progression and communication
Initiated Discovery Seminar Series, inviting approximately eight speakers each year, to support innovation on our projects
Organized Discovery Lunch and Learn Series for Discovery Chemists to learn biology approaches to drug discovery
Formally and informally mentored women in Discovery at their request

***External Research***

Participated as founding member of Vanderbilt, Moffitt and University of Pennsylvania Alliance teams, presenting Incyte strategies, contributing to collaborative work plans and co-authoring manuscripts
Collaborated with Agenus and Calithera on joint drug discovery and development teams, contributing to late-stage combination strategies and regulatory filings
Managed more than 20 independent research collaborations with academic partners to advance the science around our drug targets

**Johnson and Johnson Pharmaceutical Research and Development** **Spring House, PA**
*Senior Scientist, Oncology* *2004-2006*
Served as Biology Project Champion for Aurora kinase program
Developed enzyme, cell-based and in vivo pharmacodynamic assays
Participated in new target evaluation for Oncology drug discovery programs

**3-Dimesional Pharmaceuticals** **Exton, PA**
*Scientist, Discovery Biology* *2001-2004*
Performed and direct experimentation to investigate the activities of antiproliferative agents
Participated in new target evaluation and selection for a variety of therapeutic areas

## EDUCATION AND TRAINING

| | | |
|---|---|---|
| **Princeton University,** Princeton NJ | Postdoctoral Training, Molecular Biology – James R. Broach, mentor | 1998-2001 |
| **University of Pennsylvania,** Philadelphia PA | PhD, Cell and Molecular Biology – William M.F. Lee, mentor | 1993-1998 |
| **Rensselaer Polytechnic Institute,** Troy NY | BS, Biology – Dwight E. Wilson, mentor | 1989-1993 |

## PUBLICATIONS AND PRESENTATIONS

**Manuscripts (35 total)**

**HK Koblish**, L Wu, L-C Wang, PCC Liu, R Wynn. J Rios-Doria, S Spitz, H Liu, A Volgina, N Zolotarjova, K Kapilashrami, E Behshad, M Covington, Y Yang, J Li, S Diamond, M Soloviev, K O'Hayer, S Rubin, C Kanellopoulou, G Yang, M Rupar, D DiMatteo, L Lin, C Stevens, Y Zhang, P Thekkat, R Geschwindt. C Marando, S Yeleswaram, J Jackson, P Scherle, R Huber, W Yao, G Hollis. Preclinical and Clinical Activity of INCB086550, a potent and novel small molecule PD-L1 inhibitor. Cancer Discovery, 2022.

L Wu, C Zhang, C He, D Qian, L Lu, Y Sun, M Xu, J Zhuo, PCC Liu, R Klabe, R Wynn, M Covington, K Gallagher, L Leffet, K Bowman, S Diamond, **H Koblish**, Y Zhang, M Soloviev, G Hollis, TC Burn, P Scherle, S Yeleswaram, R Huber, W Yao. Discovery of Pemigatinib: A Potent and Selective Fibroblast Growth Factor Receptor (FGFR) Inhibitor. J Med Chem, 2021.

H Celik, E Krug, CR Zhang, W Han, N Issa, WK Koh, H Bjeije, O Kukhar, M Allen, T Li, DA Fisher, JS Fowles, TN Wong, MC Stubbs, **HK Koblish**, ST Oh, GA Challen. A Humanized Animal Model Predicts Clonal Evolution and Therapeutic Vulnerabilities in Myeloproliferative Neoplasms. Cancer Discovery, 2021.

J Rios-Doria, M Favata, K Lasky, P Feldman, Y Lo, G Yang, C Stevens, X Wen, S Sehra, K Katiyar, K Liu, R Wynn, JJ Harris, M Ye, S Spitz, X Wang, C He, YL Li, W Yao, M Covington, P Scherle, **H Koblish**. A Potent and Selective Dual Inhibitor of AXL and MERTK Possesses Both Immunomodulatory and Tumor-Targeted Activity. Front Oncol., 2020.

PCC Liu, **H Koblish**, L Wu, K Bowman, S Diamond, D DiMatteo, Y Zhang, M Hansbury, M Rupar, X Wen, P Collier, P Feldman, R Klabe, C Gardner, Y Li, M Covington, M Stubbs, R Wynn, B Ruggeri, TC Burn, S Yeleswaram, P Scherle, W Yao, R Huber, and G Hollis. Pemigatinib (INCB054828), a Potent and Selective Inhibitor of Fibroblast Growth Factor Receptors 1, 2 and 3, Displays Activity against Genetically Defined Tumor Models. PLoS One, 2020.

N Shin, M Stubbs, **H Koblish**, E Yue, M Soloviev, B Douty, KH Wang, Q Wang, P Feldman, G Yang, M Hansbury, L Leffet, R Collins, K Katiyar, X He, M Gao, P Waeltz, P Collier, J Lu, Y Li, P Liu, B Ruggeri, T Burn, M Covington, S Diamond, D Shuey, A Roberts, S Yeleswaram, G Hollis, W Yao, R Huber, A Combs, R Newton, P Scherle. Parsaclisib is a second generation PI3Kδ inhibitor with improved safety profile and potent anti-malignant B-cell proliferation and tumor immunomodulation activities. J Pharmacol Exp Ther. 2020.

J Rios-Doria, C Stevens, C Maddage, K Lasky and **HK Koblish**. Characterization of human cancer xenografts in humanized mice. J Immunother Cancer, 2020

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N Shin, YL Li, S Mei, KH Wang, L Hall, K Katiyar, Q Wang, G Yang, B Rumberger, L Leffet, X He M Rupar, K Bowman, M Favata, J Li, M Liu, Y Li, M Covington, **H Koblish**, M Soloviev, D Shuey, T Burn, S Diamond, J Fridman, A Combs, W Yao, S Yeleswaram, G Hollis, K Vaddi, R Huber, R Newton, P Scherle. INCB040093 Is a Novel PI3Kδ Inhibitor for the Treatment of B Cell Lymphoid Malignancies. J Pharm Exp Ther 364(1): 120-130, 2018.

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**HK Koblish**, MJ Hansbury, KJ Bowman, G Wang, CL Neilan, PJ Haley, TC Burn, P Waeltz, RB Sparks, EW Yue, AP Combs, PA Scherle, K Vaddi and JS Fridman. Hydroxylamidine Inhibitors of Indoleamine-2,3-dioxygenase Potently Suppress Tryptophan Catabolism and the Growth of IDO-expressing Tumors. Mol. Cancer Ther., 9(2):489-498, 2010.

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AC Maroney, JJ Marugan, TM Mezzasalma, AN Barnakov, TG Garrabrant, LE Weaner, WJ Jones, LA Barnakova, **HK Koblish**, MJ Todd, JA Masucci, IC Deckman, RA Galemmo, Jr., DL Johnson. Dihydroquinone Ansamycins: Towards Resolving the Conflict Between Low In Vitro Affinity and High Cellular Potency of Geldanamycin Derivatives. Biochemistry, 45 (17):5678-5685, 2006.

**HK Koblish**, S Zhao, CF Franks, RR Donatelli, LV LaFrance, K Leonard, JM Gushue, DJ Parks, RR Calvo, KL Milkiewicz, JJ Marugan, P Raboisson, MD Cummings, BL Grasberger, DL Johnson, T Lu, CJ Molloy, AC Maroney. Benzodiazepinediones: Inhibitors of the Hdm2:p53 Complex Suppress Human Tumor Cell Proliferation in Vitro and Sensitize Tumors to Doxorubicin In Vivo. Mol. Cancer Ther. 5(1):160-169, 2006.

P Raboisson, JJ Marugán, C Schubert, **HK Koblish**, T Lu, S Zhao, MR Player, AC Maroney, RL Reed, ND Huebert, J Lattanze, DJ Parks, MD Cummings. Structure-Based Design, Synthesis and Biological Evaluation of Novel 1,4-Diazepines as HDM2 Antagonists. Bioorg. Chem. Med. Let. 15(7): 1857-61, 2005.

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MS Gee, CJ Koch, SM Evans, WT Jenkins, CH Pletcher Jr., JS Moore, **HK Koblish**, JE Lee, EM Lord, G Trinchieri, WMF Lee. Hypoxia-mediated apoptosis from angiogenesis inhibition underlies tumor control by recombinant interleukin 12. Cancer Res., 59:4882-4889, 1999.

**HK Koblish**, CA Hunter, M Wysocka, G Trinchieri, WMF Lee. Immune suppression by recombinant IL-12 involves IFNγ induction of iNOS activity: Inhibitors of NO generation reveal the extent of rIL-12 vaccine adjuvant effect. J. Exp. Med.,188:1603-1610, 1998.

**H Kurzawa**, M Wysocka, E Aruga, AE Chang, G Trinchieri, WMF Lee. Recombinant interleukin-12 enhances cellular immune responses to vaccination only after a period of suppression. Cancer Res., 58: 491-499, 1998.

CM Coughlin, KE Salhany, M Wysocka, E Aruga, **H Kurzawa**, AE Chang, CA Hunter, KC Fox, G Trinchieri, WMF Lee. Interleukin-12 and interleukin-18 synergistically induce murine tumor regression which involves inhibition of angiogenesis. J. Clin. Inv., 101: 1441-1452, 1998.

M Wysocka, CM Coughlin, **H Kurzawa**, G Trinchieri, SL Eck, WMF Lee. Mechanism of the induction of anti-tumor immunity by B7-1 and interleukin-12. Ann. of the New York Acad. Sci. 795: 429-33, 1996.

CM Coughlin, M Wysocka, **H Kurzawa**, WMF Lee, G Trinchieri, SL Eck. B7-1 and interleukin-12 synergistically induce effective anti-tumor immunity. Cancer Res. 55: 4980-4987, 1995.

GC Prendergast, R Khosravi-Far, PA Solski, **H Kurzawa**, PF Lebowitz, CJ Der. Critical role of Rho in cell transformation by oncogenic Ras. Oncogene 10: 2289-2296, 1995.

Z Pei, CR Keese, I Giaever, **H Kurzawa**, DE Wilson. Effect of the pSV2neo plasmid on NIH 3T3 cell motion detected electrically. Exp. Cell Res. 212: 225-229, 1994.

**Patents**

**HK Koblish**, GW Reuther. Low dose combination therapy for treatment of myeloproliferative neoplasms. US20190175578 (Issued 3/24/20)

AC Maroney, **HK Koblish**, T Lu. Combinational Therapy Involving a Small Molecule Inhibitor of the Mdm2:p53 Interaction. Application filed March, 2005.

**HK Koblish**, CL Manthey, CJ Molloy. Method for Cytoprotection through Mdm2 and Hdm2 Inhibition. Application filed May, 2002.

G Trinchieri, WMF Lee, **HK Koblish**. Methods and Compositions for Enhancing the Immunostimulatory Effect of Interleukin-12. US 6,375,944 (Issued 4/23/02).

**Invited Talks (Selected)**

**HK Koblish**. Effect of the PI3Kδ-selective inhibitor INCB50465 plus PD-1 axis blockade on the tumor microenvironment: A preclinical and clinical review. NextGen IO, Philadelphia PA 2018.

**HK Koblish**. Small Molecule Inhibition of Tumor Immune Suppression: IDO1 and Beyond. Immune Checkpoint Inhibitors, Boston, MA, 2016.

**HK Koblish**. Overview of the pan-PIM Kinase Inhibitor INCB053914. Incyte Corporation Research and Development Investor Event, AACR 2015, Philadelphia PA.

**HK Koblish**. Selective IDO1 Inhibition: Pharmacodynamic and Antitumor Activity of INCB24360. 26th Annual Meeting, Society for the Immunotherapy of Cancer, North Bethesda, MD, 2011.

**H Kurzawa**. Recombinant interleukin-12 enhancement of tumor vaccine-induced protection is preceded by a period of impairment. Young Investigators Panel, Department of Defense Breast Cancer Research Program Meeting, Washington DC, 1997.

## HONORS AND AWARDS

Cheers for Peers Award, Ikena Oncology – 2022
Bravo Awards, Incyte Corporation – 2007, 2017, 2018
Vision Award, Johnson & Johnson Pharmaceutical Research and Development - 2005
NIGMS Postdoctoral NRSA (F32 GM 20212-02)
Postdoctoral Fellowship, New Jersey Commission on Cancer Research (declined)
NIH Cancer Training Grant, Department of Molecular Biology, Princeton University
Department of Defense Breast Cancer Training Grant, University of Pennsylvania
NSF Graduate Fellowship Competition, Honorable Mention
HHMI Summer Research Fellowship, Rensselaer Polytechnic Institute
Rensselaer Medal for Math and Science
NSF Young Scholars Fellowship, Roswell Park Cancer Institute

WILSON SONSINI


# Michael Hostetler

PARTNER

Patents and Innovations

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## FOCUS AREAS

Biotech

Intellectual Property

Life Sciences

Patents and Innovations

## EXPERIENCE

- **Designed and implemented IP strategy for 7 FDA-approved drugs and 60 active clinical trials**

  Imbruvica, Erleada, Lesinurad, Otiprio, Xiidra, Talazoparib, and Maralixibat

- **Extensive experience representing clients on both sell-side and buy-side M&As with six over $1 billion**

  Synthorx, Vividion Therapeutics, Lengo Therapeutics, Amplyx Pharmaceuticals, Abide Therapeutics, Aragon Pharmaceuticals, Ardea Biosciences, Pharmacyclics, and Seragon Pharmaceuticals, each leading to an acquisition by a major pharmaceutical company.

  Amicus Therapeutics, Denali Therapeutics, and United Therapeutics in various intellectual property matters, including acquisitions.

- **Extensive experience representing underwriters, investors, and companies in financings**

  General Atlantic Service Company, SR One Capital Management, RA Capital Management, New Enterprise Associates (NEA), Vida Ventures, OrbiMed, Frazier Healthcare Partners, venBio Partners, Foresite Capital, Novo Holdings, Coi Pharmaceuticals, Adjuvant Capital, Foundation Fighting Blindness, and other venture and investment funds, in IP diligence matters.

  Have supported more than 100 clients undergoing IP diligence for a venture round of investment

  Tenaya Therapeutics, Erasca, Ventyx BioSciences, Acumen Pharmaceuticals, Centessa Pharmaceuticals, Design Therapeutics, Janux Therapeutics, ORIC Pharmaceuticals, Avidity Biosciences, Ambrx, Kinnate Biopharma, Denali Therapeutics, Crinetics Pharmaceuticals, Synthorx, TCR2, and Harpoon Therapeutics, all on IP matters related to their IPOs.

- **Connects Life Sciences Community**

  Co-creator of Wilson Sonsini's Healthcare Investment Initiative, which includes the Healthcare Investment Forum and the Innovator's Edge Series. Also on the board of directors for LaunchBio.

## CREDENTIALS

### Education

- J.D., Duke University School of Law, 2001
  *Order of the Coif; Summa Cum Laude; Grand Prize Winner, Duke Business Plan Competition*
- Ph.D., Chemistry, University of California, Berkeley, 1992
- B.S., Chemistry, Massachusetts Institute of Technology, 1987

## Honors

- Recipient, LMG Life Sciences' 2020 Patent Strategy Attorney of the Year – California

## Admissions

- State Bar of California
- U.S. Patent and Trademark Office

# CURRICULUM VITAE


NAME: Sydney Xin-Li Lu

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LANGUAGES: English, Chinese, some Spanish

## PERSONAL STATEMENT

I am a laboratory-based physician-scientist focused on basic and translational questions at the interface of RNA biology, immunology, and cancer. Based on my recent work using therapeutic modulation of RNA splicing to enhance anti-tumor immunity, there are two related domains in which I conduct research. These revolve around studies of RNA processing in the context of (1) regulating leukocyte development and function (2) cancer immunotherapy.

## EDUCATION

Post-graduate Training: July 1st, 2015-June 30th, 2019
Fellowship in Hematology and Medical Oncology
Advisor: Omar Abdel-Wahab, MD

Human Oncology & Pathogenesis Program
**Memorial Sloan-Kettering Cancer Center** (New York, NY)

June 21st, 2013-June 25th, 2015
Residency in Internal Medicine
**New York Presbyterian Hospital**
**Weill Cornell Campus** (New York, NY)

M.D.

August 18th, 2009-June 15th, 2013
School of Medicine
**Stanford University** (Stanford, CA)
University ID: 005638465
AAMC ID: 11415888

Licensure:

USMLE Step I: 273 on 05/19/2011
USMLE Step II CK: 272 on 12/28/2012
CS: pass on 12/12/2012
USMLE Step III: 262 on 11/20/2013
USMLE ID: 52702032

NPI: 1831432566
FCVS ID: 217363779

Hematology Subspeciality
Initial Certification November 2020
Expires 12/31/2030

Medical Oncology Subspecialty
Initial Certification November 2019
Expires 12/31/2029

American Board of Internal Medicine
Initial Certification August 2016
Expires 12/31/2026
ABIM ID: 372218

California Medical License
Initial Licensure October 6th, 2021
Expires: September 30th, 2023
License No. A 175114

DEA Registration (California)
Initially issued December 15th, 2021
Expires: March 31st, 2025
No. FL1038618

New York Medical License
Initial Licensure January 31st, 2019, renewed Oct 10th, 2021
Expires: February 29th, 2024
License No. 297426-1

DEA Registration (New York)
Initially issued March 29th, 2019
Renewed February 2, 2022
Expires: March 31st, 2025
No. FL8241363

New Jersey Medical License
Initial Licensure May 13th, 2021
Expires: June 30th, 2023
License No. 25MA11113100
NJ Controlled Dangerous Substances (CDS) No. D12020800
CDS Registration Code: 42183929
CDS effective 9/28/2021; expires 10/31/2022

DEA Registration (New Jersey)
Initially issued October 1st, 2021
Expires: March 31st, 2024
No. FL0862664

Florida Telehealth Provider Registration
Initially issued November 17th, 2021
No. TPME3320
Expires: n/a

Ph.D: July 2003 – May 24th, 2009
Thesis: "*Non-antigen specific strategies for the attenuation of experimental graft-versus-host-disease by modulation of alloreactive donor T cells via organ-specific disparities in lymphocyte function*"
Defense date: April 29th, 2009
Advisor: Marcel R.M. van den Brink, MD PhD
Laboratory of Allogeneic Bone Marrow Transplantation
Departments of Medicine and Immunology
**Memorial Sloan-Kettering Cancer Center** (New York, NY)

Tri-Institutional Training Program in Chemical Biology
Weill Graduate School of Medical Sciences
**Cornell University** (New York, NY)

B.A.: September 1st, 1999-June 1st, 2003
Degree conferral: June 8th, 2003
Major: Chemistry

8-24

Major: Biology
Honors Thesis: "*Crystal structure of a Drosophila ncd kinesin mutant*"
Advisor: F. Jon Kull, PhD
Department of Chemistry
**Dartmouth College** (Hanover, NH)

High School: 1997-1999
**Phillips Exeter Academy** (Exeter, NH)

**POSITIONS HELD**

March 1st, 2022 – ongoing
Assistant Professor, University Tenure Line
C.R. Krishnamurthi Faculty Scholar
Division of Hematology, Department of Medicine
Stanford University School of Medicine (Palo Alto, CA)

March 1st, 2022 – August 31st, 2022
Visiting Investigator
Human Oncology & Pathogenesis Program
Memorial Sloan-Kettering Cancer Center (New York, NY)

July 25th, 2019 – February 28th, 2022
Assistant Attending L1, Myeloma Service
Memorial Hospital for Cancer and Allied Diseases
Memorial Sloan-Kettering Cancer Center (New York, NY)

09/15/2019 – February 28th, 2022
Instructor in Medicine
Weill Cornell Medical College
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**eRA Person ID:** 14647164

**PEER-REVIEWED PUBLICATIONS**

1. Maclachlan KH, Bagratuni T, Kastritis E, Ziccdeddu B, **Lu SX***, Yellapantula V, Famulare CA, Argyropoulos KV, Derkach A, Papaemmanuil E, Dogan A, Lesokhin AM, Usmani SZ, Landgren O, Palomba ML, Maura F, Dimopoulos M.
Waldenström Macroglobulinemia Whole Genome Reveals Prolonged Germinal Center Activity and Late Copy Number Aberrations
Blood Adv. 2022, Nov 4. doi: 10.1182/bloodadvances.2022008876
* enrolled patients, critical revision of the manuscript.

2. Shah UA, Maclachlan KH, Derkach A, Salcedo M, Barnett K, Caple J, Blaslov J, Tran L, Ciardiello A, Burge M, Shekarkhand T, Adintori P, Cross J, Pianko MJ, Hosszu K, McAvoy D, Mailankody S, Korde N, Hultcrantz M, Hassoun H, Tan C, **Lu SX***, Patel D, Diamond B, Shah G, Scordo M, Lahoud O, Chung DJ, Landau H, Usmani SZ, Giralt S, Taur Y, Landgren CO, Block G, Block T, Peled JU, van den Brink MR, Lesokhin AM.
Sustained Minimal Residual Disease Negativity in Multiple Myeloma is Associated with Stool Butyrate and Healthier Plant-Based Diets.
Clin Cancer Res. 2022 Sep 28;CCR-22-0723. doi: 10.1158/1078-0432.CCR-22-0723.
* enrolled patients, critical revision of the manuscript.

3. Wang E, Mi X, Thompson MC, Montoya S, Notti RQ, Afaghani J, Durham BH, Penson A, Witkowski MT, **Lu SX***, Bourcier J, Hogg SJ, Erickson C, Cui D, Cho H, Singer M, Totiger TM, Chaudhry S, Geyer M, Alencar A, Linley AJ, Palomba L, Coombs CC, Park J, Zelenetz A, Roeker L, Rosendahl M, Ebata K, Brandhuber B, Hyman D, Aifantis I, Mato A, Taylor J, Abdel-Wahab O.
Resistance Mechanisms to Non-covalent Bruton's Tyrosine Kinase Inhibitors.
New England J. Med. 2022, *In press*.
* performed experiments and critical revision of the manuscript.

4. Diamond B, Korde N, Lesokhin AM, Smith EL, Shah U, Mailankody S, Hultcrantz M, Hassoun H, **Lu SX***, Tan C, Rustad EH, Maura F, Maclachlan K, Peterson T, Derkach A, Devlin S, Landau HJ, Scordo M, Chung DJ, Shah GL, Lahoud O, Thoren K, Murata K, Ramanathan L, Arcila ME, Ho C, Roshal M, Dogan A, Giralt SA, Landgren O.
Dynamics of minimal residual disease in patients with multiple myeloma on continuous lenalidomide maintenance: a single-arm, single-centre, phase 2 trial.
Lancet Haematol. 2021 Jun;8(6):e422-e432. DOI: 10.1016/S2352-3026(21)00130-7
* enrolled patients, critical revision of the manuscript.

5. Piedra K, Peterson T, Tan C, Orozco J, Hultcrantz M, Hassoun H, Mailankody S, Lesokhin A, Shah U, **Lu S***, Patel D, Derkach A, Wilkins C, Korde N.
Comparison of Venous Thromboembolism Incidence in Newly Diagnosed Multiple Myeloma Patients Receiving Bortezomib, Lenalidomide, Dexamethasone (RVD) or Carfilzomib, Lenalidomide, Dexamethasone (KRD) with Aspirin or Rivaroxaban Thromboprophylaxis.
British J. Hematol. 2022 Jan;196(1):105-109. DOI: 10.1111/bjh.17772
* enrolled patients, participated in data analysis and critical revision of the manuscript.

6. **Lu SX**, de Neef E, Thomas JD, Sabio E, Rousseau B, Gigoux M, Knorr DA, Greenbaum B, Elhanati Y, Hogg SJ, Chow A, Ghosh A, Xie A, Zmarin D, Cui D, Erickson C, Singer M, Cho H, Wang E, Lu B, Durham BH, Shah H, Chowell D, Gabel AM, Shen Y, Liu J, Jin J, Rhodes MC, Taylor RE, Molina H, Wolchok J, Merghoub T, Diaz Jr. LA, Abdel-Wahab O, Bradley RK.
Pharmacologic modulation of RNA splicing enhances anti-tumor immunity.
Cell 2021 Jul 22;184(15):4032-4047.e31. DOI: 10.1016/j.cell.2021.05.038

7. Inoue D, Polaski JT, Taylor J, Castel P, Chen S, Kobayashi S, Hogg SJ, Hayashi Y, Bello Pineda JM, El Marabti E, Erickson C, Knorr K, Fukumoto M, Yamazaki H, Tanaka A, Fukui C, **Lu SX***, Durham BD, Liu B, Wang E, Mehta S, Zakheim D, Garippa R, Chew GL, McCormick F, Bradley RK, Abdel-Wahab O.
Minor intron retention drives clonal hematopoietic disorders and diverse cancer predisposition.
Nature Genetics 2021, Apr 12. PMID: 33846634. DOI: 10.1038/s41588-021-00828-9
* performed experiments and critical revision of the manuscript.

8. Landgren O, Hultcrantz M, Diamond B, Lesokhin A, Mailankody S, Hassoun H, Tan C, Shah U, **Lu SX***, Salcedo M, Werner K, Rispoli J, Caple J, Sams A, Verducci D, Jones K, Concepcion I, Ciardiello A, Chansakul A, Schlossman J, Tavitian E, Shekarkhand T, Harrison A, Piacentini C, Rustad E, Yellapantula V, Maclachlan K, Maura F, Landau H, Scordo M, Chung D, Shah G, Lahoud O, Thoren K, Murata K, Ramanathan L, Arcila M, Ho C, Roshal K, Dogan A, Derkach A, Giralt S, Korde N.
Safety and Effectiveness of Weekly Carfilzomib, Lenalidomide, Dexamethasone, and Daratumumab Combination Therapy for Patients With Newly Diagnosed Multiple Myeloma: The MANHATTAN Nonrandomized Clinical Trial.
JAMA Oncology 2021 Jun 1;7(6):862-868. DOI: 10.1001/jamaoncol.2021.0611
* enrolled patients, participated in data analysis and critical revision of the manuscript.

9. Eveillard M, Korde N, Ciardiello A, Diamond B, Lesokhin A, Mailankody S, Smith E, Hassoun H, Hultcrantz M, Shah U, **Lu S***, Salcedo M, Werner K, Rispoli J, Mastey D, Landgren O, Thoren K.
Using MALDI-TOF mass spectrometry in peripheral blood for the follow up of newly diagnosed multiple myeloma patients treated with daratumumab-based combination therapy.
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* enrolled patients

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Lesokhin AM, **Lu S***, Mailankody S, Shah U, Smith E, Hultcrantz ML, Ulaner GA, van Rhee F, Morgan GJ, Landgren O, Papaemmanuil E, Iacobuzio-Donahue C, Maura F.
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* enrolled patients

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* performed experiments, analyzed data and performed critical revision of the manuscript.

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* experimental design, patient enrollment, and critical revision of the manuscript.

17. Pastore A, Gaiti F, **Lu SX***, Brand RM, Kulm S, Chaligne R, Gu H, Huang KY, Stamenova EK, Beguelin W, Jiang Y, Schulman R, Kim KT, Alonso A, Allan JN, Furman RR, Gnirke A, Wu CJ, Melnick AM, Meissner A, Bernstein BE, Abdel-Wahab O, Landau DA.
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*** SHARED FIRST AUTHOR**

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20. Durham BH, Getta B, Dietrich S, Taylor J, Won H, Bogenberger JM, Scott S, Kim E, Chung YR, Chung SS, Hüllein J, Walther T, Wang L, **Lu SX***, Oakes CC, Tibes R, Haferlach T, Taylor BS, Tallman MS, Berger MF, Park JH, Zenz T, Abdel-Wahab O.
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* performed experiments and analyzed data

21. Yoshimi A, Balasis ME, Vedder A, Feldman K, Ma Y, Zhang H, Lee SC, Letson C, Niyongere S, **Lu SX***, Ball M, Taylor J, Zhang Q, Zhao Y, Youssef S, Chung YR, Zhang XJ, Durham BH, Yang W, List AF, Loh ML, Klimek V, Berger MF, Stieglitz E, Padron E, Abdel-Wahab O.
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PLOS One, 017 May 18;12(5):e0175523. PMID: 28545085 PMCID: PMC5436638
* designed and performed experiments

23. **Lu SX**, Willis L, Charbonneau-Allard A, Atallah R, Holland A, Turbide C, Hubbard VM, Rotolo JA, Smith M, Suh D, King C, Rao UK, Yim N, Bautista JL, Jenq RR, Penack O, Na IK, Liu C, Murphy G, Alpdogan O, Blumberg R, Macian F, Holmes KV, Beauchemin N, van den brink MR.
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*** SHARED FIRST AUTHOR**

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* performed experiments, analyzed data and performed critical revision of the manuscript.

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* performed experiments, analyzed data and performed critical revision of the manuscript.

28. Rotolo JA, Stancevic B, **Lu SX***, Zhang J, Suh D, King CW, Kappel LW, Murphy GF, Liu C, Fuks ZR, van den Brink MR, Kolesnick R.

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* performed experiments

29. Jenq RR, King C, Volk C, Suh D, Smith OM, Holland A, **Lu SX***, Zakrzewski J, Goldberg G, Diab A, Alpdogan O, Penack O, Na I, Kappel L, Wolchok J, Houghton AN, Perales M, van den Brink MR.
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STAT-3 and ERK 1/2 phosphorylation are critical for T cell alloactivation and Graft-Versus-Host-Disease.
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Rapidly Proliferating CD44hi Peripheral T cells Undergo Apoptosis and Delay Post-transplant T cell Reconstitution After Allogeneic Bone Marrow Transplantation.
Blood. 2008 Dec; 112(12):4755-4764. PMID: 18815289 PMCID: PMC2597141
* performed experiments, analyzed data and performed critical revision of the manuscript.

32. Zakrzewski JL, Suh D, Markley JC, Smith OM, King C, Goldberg GL, Jenq R, Holland AM, Grubin J, Cabrera-Perez J, Brentjens RJ, **Lu SX***, Rizzuto G, Sant'Angelo DB, Riviere I, Sadelain M, Heller G, Zúñiga-Pflücker JC, Lu C, van den Brink MR.
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* analyzed data and performed critical revision of the manuscript

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* performed experiments and analyzed data

34. Borsotti C, Franklin AR, **Lu SX***, Kim TD, Smith OM, Suh D, King CG, Chow A, Liu C, Alpdogan O, van den Brink MR.

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Blood. 2007 Jul; 110(2):783-6. PMID: 17395784 PMCID: PMC1924485
* performed experiments, analyzed data and performed critical revision of the manuscript.

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* performed experiments, analyzed data and performed critical revision of the manuscript.

36. Ramirez-Montagut T, Chow A, Hirschhorn-Cymerman D, Terwey TH, Kochman AA, **Lu S***, Miles RC, Sakaguchi S, Houghton AN, van den Brink MR.
Glucocorticoid-induced TNF receptor family related gene activation overcomes tolerance/ignorance to melanoma differentiation antigens and enhances antitumor immunity.
J. Immunol. 2006 Jun 1;176(11):6434-42. PMID: 16709800.
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* performed experiments and analyzed data

37. Alpdogan O, Hubbard VM, Smith OM, Patel N, **Lu S***, Goldberg GL, Gray DH, Feinman J, Kochman AA, Eng JM, Suh D, Muriglan SJ, Boyd RL, van den Brink MR.
Keratinocyte growth factor (KGF) is required for postnatal thymic regeneration.
Blood. 2006 Mar 15;107(6):2453-60. PMID: 16304055 PMCID: PMC1895735
* performed experiments and analyzed data

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Absence of $\beta_7$ integrin results in less graft-versus-host disease because of decreased homing of alloreactive T cells to intestine.
Blood. 2006 Feb 15;107(4):1703-11. PMID: 16291587 PMCID: PMC1895413
* performed experiments, analyzed data and performed critical revision of the manuscript.

39. Terwey TH, Kim TD, Kochman AA, Hubbard VM, **Lu S**, Zakrzewski JL, Ramirez-Montagut T, Eng JM, Muriglan SJ, Heller G, Murphy GF, Liu C, Budak-Alpdogan T, Alpdogan O, van den Brink MR.
CCR2 is required for CD8-induced graft-versus-host disease.
Blood. 2005 Nov 1;106(9):3322-30. PMID: 16037386 PMCID: PMC1895329
* performed experiments and analyzed data

**BOOK CHAPTERS, REVIEWS & COMMENTARY**
1. **Lu SX**, Rustad EH, Usmani SZ, Landgren O.

Multiple Myeloma.
*Hoffman Hematology: Basic Principles and Practice, 8th Ed., In press*

2. **Lu SX**.
Modern treatments and future directions for newly diagnosed multiple myeloma patients.
Best Pract Res Clin Haematol. 2020 Mar;33(1):101151. PMID: 32139016
DOI: 10.1016/j.beha.2020.101151

3. Landgren O, **Lu SX**, Hulcrantz M.
MRD Testing In Multiple Myeloma: the Main Future Driver for Modern Tailored Treatment.
Semin. Hematol. 2018 Jan; 55(1):44-50. PMID: 29759154
DOI: 10.1053/j.seminhematol.2018.03.001

4. **Lu SX**, Abdel-Wahab O.
Flow Cytometry & Cytogenetics
*Pocket Oncology 2nd Ed*, Vasan & Carlo (Eds). 2018

5. **Lu SX**, Abdel-Wahab O.
Genetic drivers of vulnerability and resistance in relapsed acute lymphoblastic leukemia.
Proc Natl Acad Sci U S A. 2016 Oct 4;113(40):11071-11073. PMID: 27663730
PMCID: PMC5056046

6. van den Brink MR, Porter DL, Giralt S, **Lu SX**, Jenq RR, Hanash A, Bishop MR.
Relapse After Allogeneic Hematopoietic Cell Therapy.
Biol. Blood and Marrow Transplant. 2010 Jan;16(1 Suppl):S138-45. PMID: 19857588
PMCID: PMC3637945

**HONORS & AWARDS**

| | |
|---|---|
| 2003 | Dartmouth College Zabriski Award |
| 2003 | Dartmouth College Merck Index Award |
| 2006 | ASBMT Travel Scholarship |
| 2009 | ASBMT Travel Scholarship |
| 2009 | ASH Abstract Achievement Award |
| 2011-2012 | Stanford University MacKenzie Foundation Scholarship |
| 2017 | NIH Loan Repayment Program |
| 2017 | AACR 'Molecular Biology in Clinical Oncology' Program |
| 2017-2019 | Mortimer J. Lacher Fellowship, The Lymphoma Foundation |
| 2018 | ASH Abstract Achievement Award |
| 2019 | Portlock Challenge – Robert Hirschhorn Endowment Award |
| 2019 | Doris Duke Charitable Foundation Physician-Scientist Fellowship (declined due to conflicting award) |
| 2019 | ASH Research Training Award for Fellows (declined due to conflicting award) |
| 2022 | ASH Scholar Award, Junior Faculty |

**ONGOING RESEARCH SUPPORT**

1 K08 CA245242-01 (PI: Lu) 7/1/2020 – 6/30/2025 9.00 calendar
NIH/NCI $ 223,735
Dissecting the Roles and Requirements for RBM39 in Acute Myeloid Leukemia and Normal Hematopoiesis
Role: Principal Investigator

Bridge Scholar Award (PI: Lu) 8/1/2020 – 10/31/2023 *0.96 calendar
Parker Institute for Cancer Immunotherapy $ 150,000
Enhancing the anti-tumor immune response through therapeutic modulation of RNA splicing
Role: Principal Investigator
* Specified effort not required

Clinical Scientist Dev. Awd. 2022048 (PI: Lu) 7/1/2022 – 6/30/2025 *3.00 calendar
Doris Duke Charitable Foundation $ 150,000
Targeting Cancer-Associated RNA Splicing Factor Mutations and Resultant Neoantigens for Immunotherapy
Role: Principal Investigator
* Effort is subsumed under NIH K08 CA245242-01

**COMPLETED RESEARCH SUPPORT**
Riney Myeloma Initiative (PI: Lu/Abdel-Wahab) 7/1/2021 – 6/30/2022 *0.00 calendar
Paula and Rodger Riney Foundation $ 685,650
Understanding & Targeting FAM46C Mutations in Multiple Myeloma
Role: co-PI, multi-PI grant
* Specified effort not required

GC240423 (PI: Lu) 7/1/2018 – 6/30/2020 *0.00 calendar
Aplastic Anemia & MDS International Foundation, Inc. $ 27,273
Therapeutic Targeting of Spliceosomal-Mutant Myeodysplastic Syndromes with Anti-Cancer Sulfonamides
Role: Principal Investigator
* Specified effort not required

5492-20 (PI: Lu) 7/1/2019-6/30/2020 5.74 calendar
Leukemia and Lymphoma Society $ 57,143
The role of FAM46C in the pathogenesis of multiple myeloma
Role: Principal Investigator

18-40-12-LU (PI: Lu) 7/1/2018-6/30/2020 6.00 calendar
American Association for Cancer Research $ 55,000
Understanding and Targeting SF3B1 Mutations in CLL
Role: Principal Investigator

Young Investigator Award 13033 (PI: Lu) 7/1/2018-6/30/2019 6.00 calendar
Conquer Cancer Foundation (ASCO) $ 50,000

Therapeutic Targeting of RNA Splicing Factor mutant Leukemias via Inhibiting Protein Arginine Methylation
Role: Principal Investigator

1L30CA220728-01 (PI: Lu) 10/1/2017-9/30/2018 *0.00 calendar
NIH/NCI n/a
Splicesome modulation for the therapy of splicing factor mutant myeloid hematologic neoplasms
Role: Principal Investigator

**INVITED SPEAKER**

2022 Parker Institute for Cancer Immunotherapy, Autumn Retreat
"Modulating T cell alloreactivity by targeting an RNA splicing factor"

2022 Stanford University Hematology, Oncology, BMT-CT Research Retreat
"Therapeutic modulation of RNA splicing for anti-tumor immunity and the T cell alloantigen response"

2022 FASEB RNA Associated Mechanisms Conference - In Immunity and Disease
"Therapeutic modulation of RNA splicing for anti-tumor immunity and the T cell alloantigen response"

2022 Leukemia & Lymphoma Society SCOR (PI: T. Graubert)
Project Meeting
"The RNA splicing factor RBM39 regulates T cell function and alloantigen responses"

2021 Washington University in St. Louis, School of Medicine
Seminar, Division of Hematology
"Targeting RNA Binding Proteins in Cancer"

2021 Yale Cancer Center
Seminar, Center of Molecular and Cellular Oncology
"Targeting RNA Binding Proteins in Cancer"

2021 Cleveland Clinic
Seminar, Center for Immunotherapy & Precision Immuno-Oncology
"Targeting RNA Binding Proteins in Cancer"

2021 MD Anderson Cancer Center
Seminar, Department of Hematopoietic Biology and Malignancy
"Targeting RNA Binding Proteins in Cancer"

2021 University of Washington

Hematology Grand Rounds
"Targeting RNA Binding Proteins in Cancer"

2021 City of Hope
Seminar, Department of Hematology & Hematopoietic Cell Transplantation
"Targeting RNA Binding Proteins in Cancer"

2021 Sylvester Comprehensive Cancer Center, University of Miami
Special Seminar
"Pharmacologic modulation of RNA splicing enhances anti-tumor immunity"

2021 Stanford Medicine
Department of Medicine, Division of Hematology Seminar
"Targeting RNA Binding Proteins in Cancer"

2021 Memorial Sloan-Kettering Cancer Center
4th Annual Parker Institute for Cancer Immunotherapy Symposium
"Targeting RNA Binding Proteins in Cancer"

2021 Albert Einstein College of Medicine
Seminar, Department of Medicine, Division of Hemato-Oncology
"Pharmacologic modulation of RNA splicing enhances anti-tumor immunity"

2019 Memorial Sloan-Kettering Cancer Center
*Grand Rounds, Department of Medicine*
"Enhancing the Antitumor Immune Response through modulation of RNA splicing"

2018 American Society of Hematology
*Annual Meeting*
"Therapeutic Targeting of an RNA Splicing Factor Network for the Treatment of Myeloid Neoplasms"
*Selected for Best of ASH*

2009 American Association of Immunologists
*Annual Meeting*

- "The T Cell Cytolytic Molecules FasL and TRAIL are Required for Thymic GVHD"

- "A high-color antibody panel for the flow cytometric analysis of thymic stromal cell populations" (BD Biosciences, didactic session)

2009 American Society of Bone Marrow Transplantation

*Annual Meeting*
"Ceacam1 Regulates Experimental Graft-versus-Host-Disease"

2009 Stanford IDP Immunology Scientific Conference
*Annual Meeting*
"TRAIL/DR5 Interactions Are Important for Thymic Damage After Allogeneic Bone Marrow Transplantation"

2007 American Society of Hematology
*Annual Meeting*
**"**Ceacam1 Is a Negative Regulator of Graft-versus-Host-Disease"

2007 Annual CEA Symposium
*Annual Meeting*
"Ceacam1 Affects Multiple Aspects of Graft-versus-Host-Disease After Allogeneic Bone Marrow Transplantation"

2006 BD Biosciences Technology Days Seminar
*Annual Meeting*
"High-Throughput Analysis of Signaling Profiles in T cell Development and Activation"

**EDITORIAL ACTIVITIES**

Ad hoc reviewer for *Genes & Development*, *Haematologica*, *Cell Reports Medicine*, *Future Oncology, Current Cancer Drug Targets*

**SCIENTIFIC SOCIETIES**

2003- Sigma XI Honor Society
2009- American Association of Immunologists
2009- American Society of Hematology (FASEB)
Member ID: 1019876
2009- American Society for Transplantation and Cellular Therapy
2009- American Association for the Advancement of Science
1/2014- American Society for Clinical Oncology
Member ID: 321964
1/2017- American Association for Cancer Research
Member ID: 377724 or 376369
2018- Society of Hematologic Oncology
2020- American College of Physicians
Member ID: 01444879
2021- Society for Immunotherapy of Cancer
Member ID: 98184

**MENTORING**

10/22 Stanford University Hematology, Oncology, BMT/CT annual retreat

8/1/22 Oliver August Takacsi-Nagy (Stanford Immunology Graduate Student)
8/3/22 Hematology/Oncology Fellowship Speed Mentoring Session

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | CAMERON ECKEL, ASSISTANT GENERAL COUNSEL |
| **SUBJECT:** | APPOINTMENTS TO ADVISORY COMMITTEES |
| **DATE:** | FEBRUARY 6, 2023 |

**Summary**
At its February 2 meeting, the Board Governance subcommittee reviewed Presiding Officer Dr. Mahendra Patel's proposed appointments to the Advisory Committee on Childhood Cancers (ACCC) and Product Development Advisory Committee (PDAC). The subcommittee recommends that the Oversight Committee approve the two appointments.

**Discussion**

Texas Health and Safety Code Section 102.155(a) directs the Oversight Committee to create an ad hoc committee of experts to address childhood cancers. The ACCC advises the Oversight Committee on issues surrounding childhood cancer. The ACCC collects current information regarding innovative research on the prevention, control and cure of childhood cancers, and current information regarding treatment programs designed to prevent and control cancer.

CPRIT's statute also allows the Oversight Committee to create ad hoc committees of experts to advise the Oversight Committee. The PDAC is an ad hoc committee that provides targeted advice to the Oversight Committee concerning the agency's product development program.

The presiding officer of the Oversight Committee is responsible for appointing experts to serve on CPRIT's advisory committees, including the ACCC and PDAC. Appointments to each advisory committee must be approved by the Oversight Committee.

The Board Governance subcommittee reviewed the appointments to the ACCC and PDAC at its February 2 meeting and voted to recommend approval to the Oversight Committee.



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**Advisory Committee Appointments**
**February 2023**

## Advisory Committee on Childhood Cancers

- Atul Varadhachary, M.D., Ph.D.

## Product Development Advisory Committee

- Harry Bushong



PO Box 12097 | Austin, Texas 78711 | PH: 512-463-3190 | F: 512-475-2563 | cprit.texas.gov

**BIOGRAPHICAL SKETCH**

NAME: Varadhachary, Atul

eRA COMMONS USER NAME (credential, e.g., agency login): atuary

POSITION TITLE: Managing Director, Fannin Partners, LLC

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

| INSTITUTION AND LOCATION | DEGREE *(if applicable)* | Completion Date MM/YYYY | FIELD OF STUDY |
|---|---|---|---|
| University of Bombay, L.T.M. Medical College, India | M.B., B.S. | 11/1985 | Medicine |
| L.T.M. Medical College, India, University of Bombay, India | | 05/1987 | Medical Internship |
| Education Commission for Foreign Medical Graduates, Philadelphia | M.D. (Equiv.) | 08/1988 | Medical Certification |
| Johns Hopkins University School of Medicine, Baltimore | Ph.D. | 05/1992 | Physiology |
| Johns Hopkins University School of Medicine, Baltimore | Postdoctoral Fellowship | 08/1994 | Biological Chemistry |

**A. Personal Statement**

The goal of the proposed research is advance the development of a novel monoclonal antibody (MAb) against the IL-7 receptor for the targeted therapy of pediatric T-cell acute lymphoblastic leukemia (T-ALL). While several targeted agents against B-ALL are now available, none are available or in clinical development for relapsed T-ALL. Our NIH collaborator, Dr. Durum, has demonstrated that the MAb he is developed in active in multiple animal models. and we are excited about moving this closer to clinic.

My professional background, including advancing a novel anti-cancer agent from preclinical studies into global Phase 3 studies, provides highly relevant development experience and I am delighted to help lead the development of this promising technology.

My role in drug development allows me to live my passions every day. As a physician, making an impact in patients' lives has always been important to me. During my research years, I learned and successfully used scientific methods to make fundamental research breakthroughs. And seven years as a management consultant at McKinsey & Co. provided me a broad understanding of the business world including imperatives of successful pharmaceutical and device development. I especially learnt the criticality of a commercialization focus for successful translation of basic science to the bedside.

As President and COO of Agennix, Inc., I led development of talactoferrin alfa, a novel immunotherapy, from preclinical development into global Phase 3 trials for cancer indications. Additional discussion of our work at Agennix is in Section C. Most relevant to this project's current stage of development, my role as lead for scientific discovery and development including responsibility for mechanistic characterization, pre-clinical pharmacology, and toxicology for multiple molecules and indications. I also led the clinical development program and the regulatory strategy, serving as the primary point of contact with the FDA, the EMA, and other regulatory agencies. This experience is relevant to defining our broader development and regulatory strategy well the specific aims of this proposal.

For the last seventeen years, I have been able to combine these areas of passion – new science and active translational research, with an overall commercialization focus. I have been fortunate in receiving 9-3

significant SBIR/STTR support (PI on eleven grants) perhaps because the SBIR/STTR program is itself focused on supporting this combination of fundamental research, translation, and commercialization. Fannin also received a Tibbetts Award from SBIR that recognizes “those companies, organizations, and individuals that exemplify the very best in SBIR/STTR achievements.” Due to the proprietary nature of product development, I have had only a limited ability to publish in peer-reviewed journals in recent years. However, this is partly offset by my work on grants and patents and opportunities to contribute to the broader dialogue on innovation and product development, including as an invited speaker at conferences and scientific meetings.

I am excited about using my experience in drug development to help advance development of a promising new targeted anti-cancer agent.

**B. Positions and Honors**

***Professional Positions***

| | |
|---|---|
| 1994-2001 | Senior Engagement Manager, McKinsey & Company, Houston, TX |
| 1998-1999 | Program Founder, Pratham Health, Mumbai, India (on leave, McKinsey & Co.), |
| 2001-2010 | President & Chief Operating Officer, Agennix, Inc., Houston, TX |
| 2011-2013 | President and Director, Reliance Life Sciences, Inc., Houston, TX |
| 2013-present | Managing Director, Fannin Partners, LLC, Houston, TX |

***Honorary Positions***

| | |
|---|---|
| 2002-present | Adjunct Professor of Management, Jones Graduate School of Management, Rice University, Houston, TX |
| 2003-2013 | Adjunct Professor, Molecular & Cellular Biology, Baylor College of Medicine, Houston, TX |
| 2013-present | Director, Pulmotect, Inc., Houston, TX |
| 2014-present | Adjunct Professor, School of Public Health, University of Texas, Houston, TX |

***Selected Additional Activities and Appointments***

| | |
|---|---|
| 1983-84 | Editor, Medical School Journal, LTMMC, University of Mumbai |
| 1984-85 | President Medical College Students’ Association, LTMMC, University of Mumbai |
| 1991-93 | Member, Medical School Council, Johns Hopkins University |
| 1992-94 | Founding President, Johns Hopkins University Postdoctoral Association |
| 1992-94 | Member, Postdoctoral Program Committee, Johns Hopkins University |
| 2000-present | Various Pratham-related roles including President, Pratham USA (2008-13), Director of Pratham Education Foundation, Pratham USA, ASER Foundation |
| 2005-present | Director, Niramaya Health Foundation, Mumbai, India |
| 2006-08 | Member, Biotechnology Industrial Advisory Committee, University of Houston |
| 2006-present | Member, Life Sciences Advisory Committee, Houston Technology Center |
| 2007-2009 | President, Indo-American Chamber of Commerce of Greater Houston |
| 2009-2013 | Member, Board of Managers, Harris Health System |
| 2013-present | The Indus Entrepreneurs (TiE); Currently serving as President TiE Houston |
| 2013-present | Director, Center for Public Policy Priorities |
| 2013-present | Member, Healthcare Advisory Board, Greater Houston Partnership |

2014-present Member, Jones Health Care Advisory Board, Rice University

2017-present Director, BioHouston

2018-present President, TiE Houston

**C. Contribution to Science**

1. As President of Agennix, Inc. (2001-2010), I served as scientific, developmental and regulatory lead. In collaboration with a number of academic researchers, we redefined the mechanism of talactoferrin's immunomodulatory and anti-cancer activity, identifying its important role in bridging the innate and adaptive immune systems and in helping establish the gut associated lymphoid tissue, the largest immune organ in the body. Much of our work took place at a time of great skepticism about the value of cancer immunotherapy, but the mechanistic insights and methods generated by our work contributed to the broader development and eventual acceptance of cancer immunotherapy as an important modality.
   - Lactoferrin acts as an alarmin to promote the recruitment and activation of antigen- presenting cells and antigen-specific immune response. Rosa G, et al. *Journal of Immunology*, 2008, 180(10): 6868-76.
   - Lactoferrin, a major defense protein of innate immunity, is a novel maturation factor for human dendritic cells. Spadaro M, et al. *FASEB Journal,* 2008, 22:2747-2757.
   - Requirement for IFN-$\gamma$, $CD8^+$ T lymphocytes and NKT cells in Talactoferrin-induced inhibition $neu^+$ tumors. Spadaro M, et al. *Cancer Res* 2007, 7(13):6425-6432.
   - Inventor on numerous patents emerging from our characterization of the biology of talactoferrin and its applications including US PTO Nos. 7901879, 8242079, 8105615, 8247373, 8058234, 8030272, 7638487, 7592306, 7524814, 7420033
2. Also at Agennix, I played the lead role in advancing talactoferrin into clinical development including multiple Phase 2 and Phase 3 studies. Our results helped change the paradigm for the clinical evaluation of such agents. Decades of experience had established the expectation that chemotherapy had a greater impact on tumors (as measured by overall response or progression-free-survival; PFS) than on overall survival (OS). FDA had even estimated ~0.87 as the expected ratio between OS and PFS impacts. Ours were among the first placebo-controlled randomized studies to find that, with immunomodulation, the OS improvement could exceed that of PFS. Following extended discussions with the FDA for which I was the lead, and confirmation by other immunotherapy data, these findings eventually made their way into updates to RECIST criteria and FDA guidance on the conduct of such studies. Although talactoferrin eventually failed to meet its primary endpoint in a pivotal Phase 3 study, our early data and regulatory discussions played a role in helping redefine the development path and basis for approval of immunotherapeutic agents.
   - Randomized, double-blind, placebo-controlled phase II study of single-agent oral talactoferrin in patients with locally advanced or metastatic non-small-cell lung cancer that progressed after chemotherapy. Parikh PM, et al. J Clin Oncol. 2011 Nov 1;29(31):4129-36.
   - A randomized, double-blind, placebo-controlled, phase II study of oral talactoferrin in combination with carboplatin and paclitaxel in previously untreated locally advanced or metastatic non-small cell lung cancer. Digumarti R, et al. *J Thorac Oncol*, 2011, 6(6):1098-103.
   - Phase IB trial of oral talactoferrin in the treatment of patients with metastatic solid tumors. Hayes TG, Falchook GS, Varadhachary A. *Invest New Drugs,* 2010, 28(2): 156-162.
   - Phase II trial of talactoferrin in previously treated patients with metastatic renal cell carcinoma. Jonasch E, et al. *Cancer*, 2008, 113(1):72-7.
3. As a scientific advisor, board member and Interim Chief Medical Officer of Pulmotect, Inc. I have contributed to the characterization of this promising new science and its advancement into the clinic. 9-5

PUL-042, the lead molecule is a combination of two TLR agonists that stimulate the innate epithelial defense of the lung providing rapid and broad-spectrum protection against a range of pathogens. This can be helpful in a number of settings including in immunosuppressed patients who are susceptible to respiratory infections. The innate epithelial defenses, mediated primarily through the production of reactive oxygen species, remain active in immunosuppressed patients and can provide protection until the cellular and humoral defense return. The work of our scientific collaborators has highlighted the importance of the broad-spectrum epithelial defenses in a number of settings including ophthalmic infections and sexually transmitted diseases. As the principal monitor (referenced in the link below to the FDA's clinical trials website), I also play a lead role in the clinical development of this promising molecule.

- Safety, tolerability, and biomarkers of the treatment of mice with aerosolized Toll-like receptor ligands. Alfaro VY, et al. Front Pharmacol. 2014, Feb 6;5:8
- https://clinicaltrials.gov/ct2/show/NCT02124278

4. As managing partner at Fannin Innovation Studio (Fannin Partners), I help advance the development of promising new science developed in Houston academic institutions including MD Anderson, Baylor College of Medicine, Rice University and University of Texas. The amount of commercialization in Houston falls far short of the opportunity provided by ~$1B of basic research taking place locally each year. At Fannin we work with innovators in the medical center to advance development of breakthrough technology working in partnership with the innovators. This is a promising new model of life science commercialization which is making an impact on commercialization in Houston (e.g. Pulmotect, the NIH-funded Fannin company referenced earlier is now in the clinic). Our model has generated broader interest from several other cities with strong academic research institutions as well as recognition from the SBIR program. Fannin is a recipient of both Growth Accelerator Award from the SBA and a Tibbetts award from SBIR. I am currently working on a solicited article for Nature Biotechnology.
   - http://goo.gl/cFyPky (Life Science Leader article on the Fannin approach)
   - http://goo.gl/RSASGa (Houston Chronicle article describing the Fannin approach)
   - http://goo.gl/gvDGXA (Xconomy article on creation of life science entrepreneurs)
   - https://goo.gl/fnf3qm (CEO Magazine interview on the Fannin approach)
5. As founder of Pratham Health, I worked to create and validate a micronutrient supplementation program for underprivileged pre-school children in Mumbai. Children received supplementation with iron and folic acid, and deworming with albendazole. We reached 65,000 children in the course of one year and demonstrated gains in weight and significant reduction in malnutrition even without any food supplementation at a cost of under $1/year/child. In follow-up work, we showed an improvement in anemia and school attendance as well as observing variations in worm burden in different parts of India. This work validated the ability to inexpensively and effectively intervene at scale and also the need to adapt large-scale population interventions to local requirements. Our data influenced the Government of India guidelines on micronutrient supplementation and deworming. I have remained active with the organization over the last fifteen years, serving on both the U.S. and the international boards and contributing to additional research including as an advisor on collaborative grants from the Gates and other Foundations.
   - A point of light in Mumbai. Banerji R, et al. *McKinsey Quarterly*, 2001, No. 1:156-165.
   - Anemia and School Participation. Bobonis, G et al. 2006. J Human Resources 41(4): 692-721.
   - http://goo.gl/FwT4OE (Gates Foundation Grand Challenges Explorations Award)

**URL to My Bibliography on NCBI.**
http://goo.gl/eRWESF

9-6

**D. Research Support**

**1.** 1R44 AR49961-01 Role: Co-investigator 2003-2004
Efficacy of rh-lactoferrin in diabetic ulcers (Fast Track – Phase I).

**2.** 4R44 AR049961-02 Role: Co-investigator 2004-2006
Efficacy of rh-lactoferrin in diabetic ulcers (Fast Track – Phase II).

**3.** 1R41 HD046305-01A1. Role: Co-Investigator 2004-2005
Recombinant lactoferrin and necrotizing enterocolitis, 2004.

**4.** 1R43 DE 015914-01 Role: Principal Investigator 2004-2005
Recombinant human lactoferrin to treat oral mucositis.

**5.** 1 R44 AI058553-01. Role: Principal Investigator. 2004-2005
Lactoferrin in primate and mouse models of asthma.

**6.** 2R44 AI058553-02. Role: Principal Investigator. 2005-2006
Phase II clinical trial of lactoferrin in asthma.

**7.** 1R43 GM076741-01 Role: Principal Investigator. 2007-2008
Treatment of sepsis with talactoferrin.

**8.** 4R44 HD057744 Role: Co- investigator 2008-2010.
Reduction of nosocomial infection in preterm infants.

**9.** 1R44 GM077816-01A2. Role: Principal Investigator 2009-2010
Treatment of sepsis with talactoferrin.

**10.** 1R41 AI125007-01A1 Role: Co-investigator 2016-2017
STAT inhibitors for asthma therapy

**11.** RP160813 (CPRIT) Role: Co-investigator 2016-2018
Nanoparticle Prophylaxis for Protection from Chemotherapy Ototoxicity

**12.** 1R41 HL136057-01 Role: Co-PI 2017-2018
Targeting synaptotagamin-2 for airway mucus obstruction

**13.** 1R43 TR002043-01 Role: Co-PI 2017-2018
Reconstituted high density lipoprotein particles as siRNA carriers

**14.** 1R43 AI131867 - 01 Role: Co-PI* 2017-2018
Targeting STAT proteins for management of atopic dermatitis

**15.** 1R43 DK115336-01 Role: Principal Investigator 2017-2018
Pediatric ureteral stent electromagnetic removal device

**16.** 1 R43 HD094456-01 Role: Principal Investigator 2017-2018
Uterine wall-membrane anchor device for fetal surgery

**17.** 1 R41 AG055254-01A1 Role: Co-investigator 2017-2019
Mitochondrial targeted nano-antioxidants for Alzheimer's Disease

**18.** 2 R44 AI125007-02 Role: Co-investigator 2018-2019
Preclinical evaluation of a novel small molecule STAT inhibitor

**19.** 1R43AG062064-01 Role: Principal Investigator 2018-2019
Innovative Delivery of siRNA across the Blood Brain Barrier

**20.** 2R44DA043325-02 Role: Co-investigator 2019-2020
Physician Office-Based Urine Analyzer to Tackle Prescription Drug Abuse

**21.** 7R44AI125007-03 Role: Principal Investigator 2019-2020
Preclinical evaluation of a novel small molecule STAT inhibitor

**22.** 1R43DK123908-01 Role: Principal Investigator 2019-2020
Artificial urethral sphincter for control of urinary incontinence in pediatric patients

**23.** 2R44HD094456-02 Role: Principal Investigator 2019-2021
Uterine wall-membrane anchor device for fetal surgery

**24.** DP190025 (CPRIT) Role: Principal Investigator 2019-2022
Preclinical Development of a Novel T-ALL Therapeutic Antibody

**Harry Bushong**

**Houston, TX 77027**
**+1.281.382.5153 (Mobile)**
**hbushong@convergence-ventures.com (E-mail)**

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**Professional Profile:**

Entrepreneur and venture capitalist with direct experience in venture investing, general corporate management, corporate directorship, and corporate strategy. Considerable background in the healthcare, biotechnology, material science, biopharmaceutical and digital health industries. Successfully raised capital for venture funds, investment programs and development staged companies in the life sciences sector. History of making principal investments in venture stage companies and leading early developmental businesses through successive rounds of financing.

**Experience:**

**Convergence Ventures GP, LLC**
**Managing Director, Partner, and Founder**
*March 2017 to Present*

- Founded Convergence Ventures, a venture capital firm
- Manage the firm's operations
- Originate and execute healthcare, biotechnology, material science, biopharmaceutical, and digital health venture stage investments
- Lead transaction execution including due diligence, investor materials production, co-investor communications, committee review, documentation, and closing
- Manage limited partner investor relationships such as family office groups
- Serve as board member and executive committee member of the portfolio companies
- Recruit and retain c-suite executive management for the portfolio companies
- Execute mergers and corporate restructurings of the portfolio companies

**Material Intellect, Inc.**
**Chief Executive Officer and Director**
*December 2016 to August 2022*

- Led Material Intellect, which uses Machine Learning and other advanced tools to enhance the research capabilities of corporations and academic and government laboratories.

**nanoTox, Inc.**
**President and Director**
*September 2005 to December 2016*

- Co-founded nanoTox, Inc. in 2005 with a focus on providing toxicology services for companies using nano-scale technology across a wide range of industries.

**Olmsted Group**
**[Title]**
*[Month] [Year] to [Month] [Year]*

- Made principal investments at the Olmsted Group, a New York life sciences merchant bank. The companies in the Olmsted portfolio were based on intellectual property licensed from MIT, Columbia University, University of Wisconsin, Vanderbilt University and Baylor College of Medicine in the fields of pluripotent stem cells, genomics, biotech and hepatocytes. Some of the companies included Omnimmune Corp, Plurion, Zirius (formerly Avatar) and Amphioxus.

**Aurora Financial Services**
**[Title]**
*[Month] [Year] to [Month] [Year]*

- Drove fund raising for multiple startups since 1995 at Aurora Financial Services, a private NASD broker/dealer in Houston focused on the energy sector.

**Prudential Financial, Inc.**
**[Title]**
*[Month] [Year] to [Month] [Year]*

- Earned the Series 7 Securities License with Pruco Securities Corp., a subsidiary of Prudential Financial, Inc.

**Representative Investments:**

- Active investor in Advanced Throughput, Inc., a genomics company focused on personalized medicine, which was acquired by privately held Bastra, Ltd.

- Active Investor in Optokey, Inc., a Bay Area company focused on bio-spectroscopic and environmental analysis.

**Education:**

- Attended Southwest Texas University from 1993-1997 with a concentration in [major].

## Richard Gorlick, M.D.

Dr. Richard Gorlick is Division Head and Department Chair of Pediatrics, Department Chair ad interim of Sarcoma Medical Oncology in the Division of Cancer Medicine at the MD Anderson Cancer Center, and H. Grant Taylor, M.D., W. W. Sutow, M.D. and Margaret P. Sullivan, M.D. Distinguished Chair in Pediatrics. Dr. Gorlick received his medical degree from Downstate Medical School. He trained at New York-Presbyterian and Memorial Sloan-Kettering Cancer Center, where he began his sarcoma research laboratory and clinical practice. His laboratory is the founding Bone Tumor Resource Laboratory for the Children's Oncology Group. His molecular pharmacology laboratory is completely focused on osteosarcoma. His laboratory is a member of the NCI-funded Pediatric Preclinical Testing Consortium. Dr. Gorlick is involved in clinical trials, in part, as past chair of the Bone Tumor Disease Committee for COG. He is a past president of the Connective Tissue Oncology Society. Dr. Gorlick has published more than 303 peer-reviewed papers, reviews and book chapters.

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

# Advisory Committee on Childhood Cancer

## Committee Annual Report

## February 16, 2022


## Presented By: Richard Gorlick, MD

Chair, ACCC

Division Head and Chair, Pediatrics, MD Anderson

H. Grant Taylor, M.D., W.W. Sutow, M.D., and Margaret P. Sullivan, M.D. Distinguished Chair in Pediatrics

Department Chair *ad interim*, Sarcoma Medical Oncology, Division of Cancer Medicine


THE UNIVERSITY OF TEXAS MD Anderson Cancer Center Children's Cancer Hospital®

# Outline of Presentation

- **Childhood Cancer**
- **Summary of ACCC Accomplishments**
  - Summary of Pediatric RFAs
  - Cores
  - Researcher's Round Up
- **ACCC Vision**
  - Vision for the ACCC
- **ACCC Strategy**
  - Establishing monthly virtual meetings with action items to continue making progress
  - Roster expansion (geography and pediatric oncology area)
- **Summary/Next Steps**

# Childhood Cancer

# Childhood Cancer: Evolution of the Problem

- **Leading cause of childhood death from disease***
  - 14,000 new cases per year in US
  - 1 in every 330 Americans develops cancer before age 20

- **Childhood cancer survivors represent a growing "problem"**
  - 1 in 750 20-year-olds alive in the US today is a survivor of childhood cancer





* 0 – 19 years of age

# Adolescent & Young Adult Cancer (AYA)

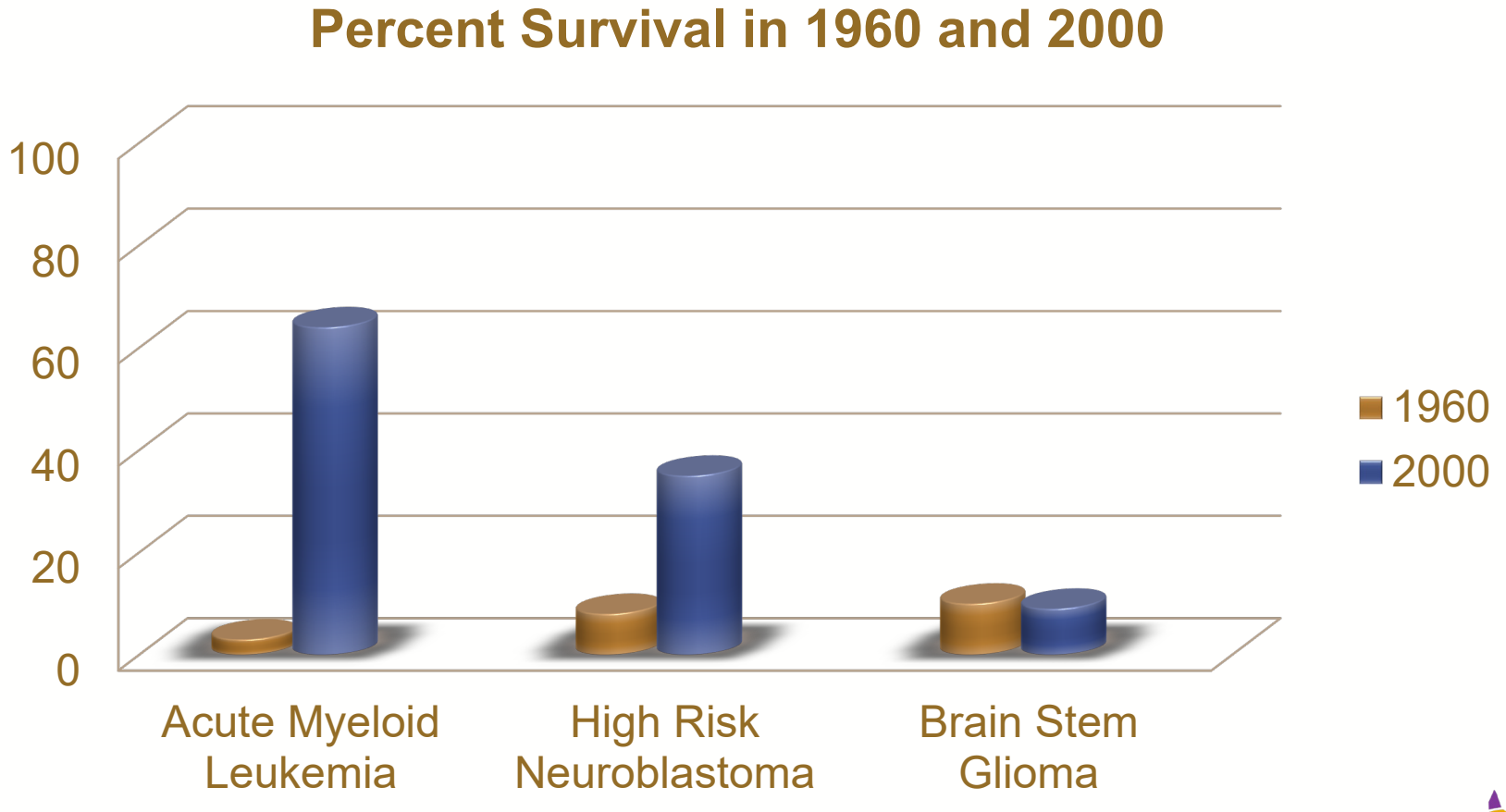
- 90,000 AYAs (15-39 yrs) diagnosed with cancer each year in the United States
  - 10% of AYAs with cancer are diagnosed and treated in Texas
- Prevalence of cancer subtypes differ between AYAs, older adults, and children
  - Biology of childhood, AYA and adult cancers differs for many malignancies
- >100,000 childhood and AYA  survivors live in Texas
- 5-yr Overall Survival- 85%, however, limited improvement in cure rates for many AYA diagnoses (sarcoma, CNS tumors, early onset CRC, breast cancer)
- Few studies focused on AYA short and long-term survival and quality of life
- TX is uniquely positioned to be leader in AYA cancer research



https://seer.cancer.gov/statfacts/html/aya.html
Smith et al. JCO 2010
Isakoff et al. JCO 2015

# Children with Certain Forms of Cancer are Still Rarely Cured

- More effective treatments are needed



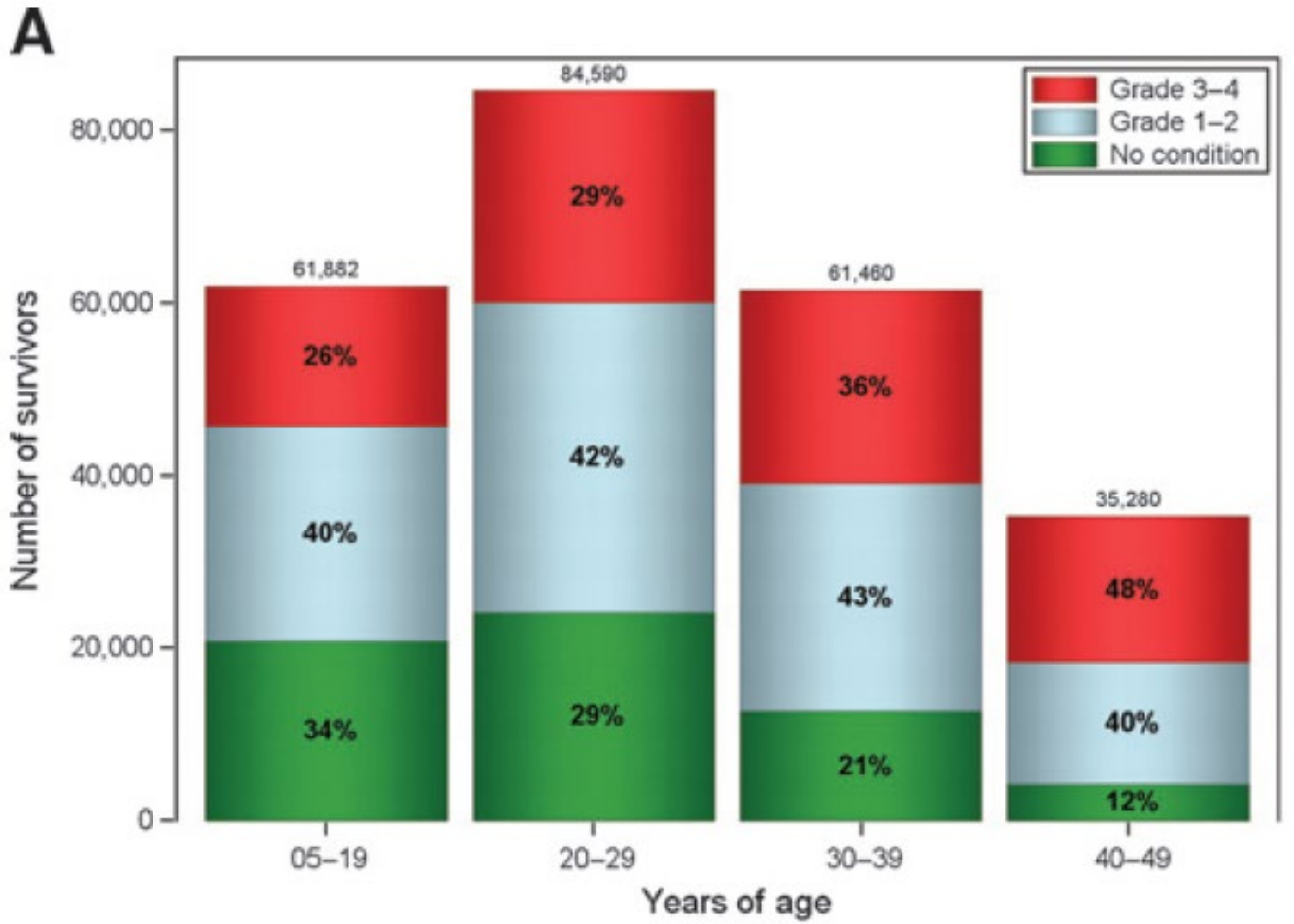





Children's Oncology Group, unpublished

# Most Childhood Cancer Survivors Suffer Lasting Side-effects

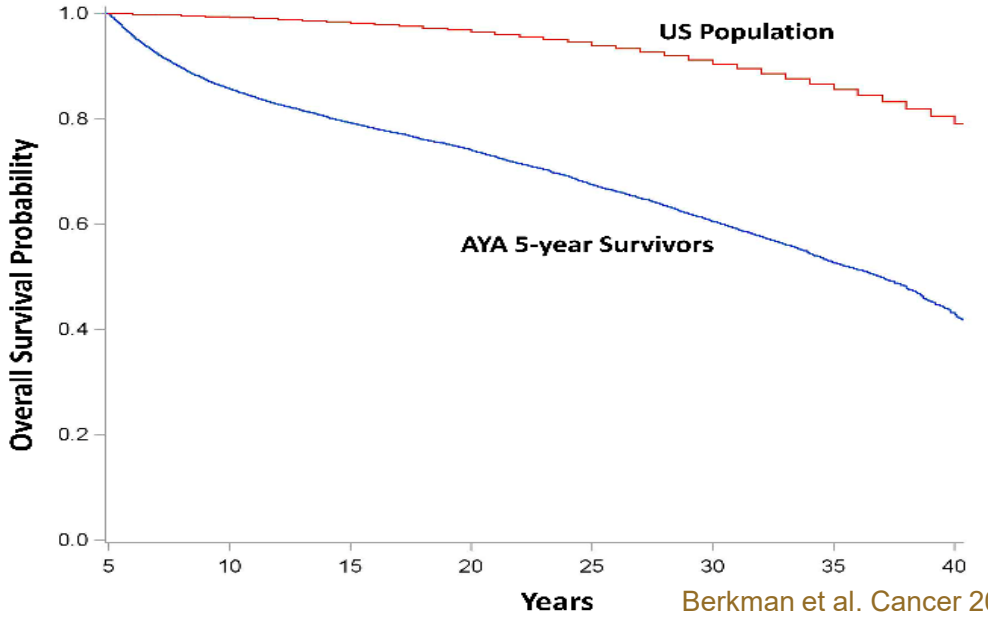
- "Precision medicine" can help balance chances for cure with risk for side effects
- Better understanding of late-effect risks can lead to prevention



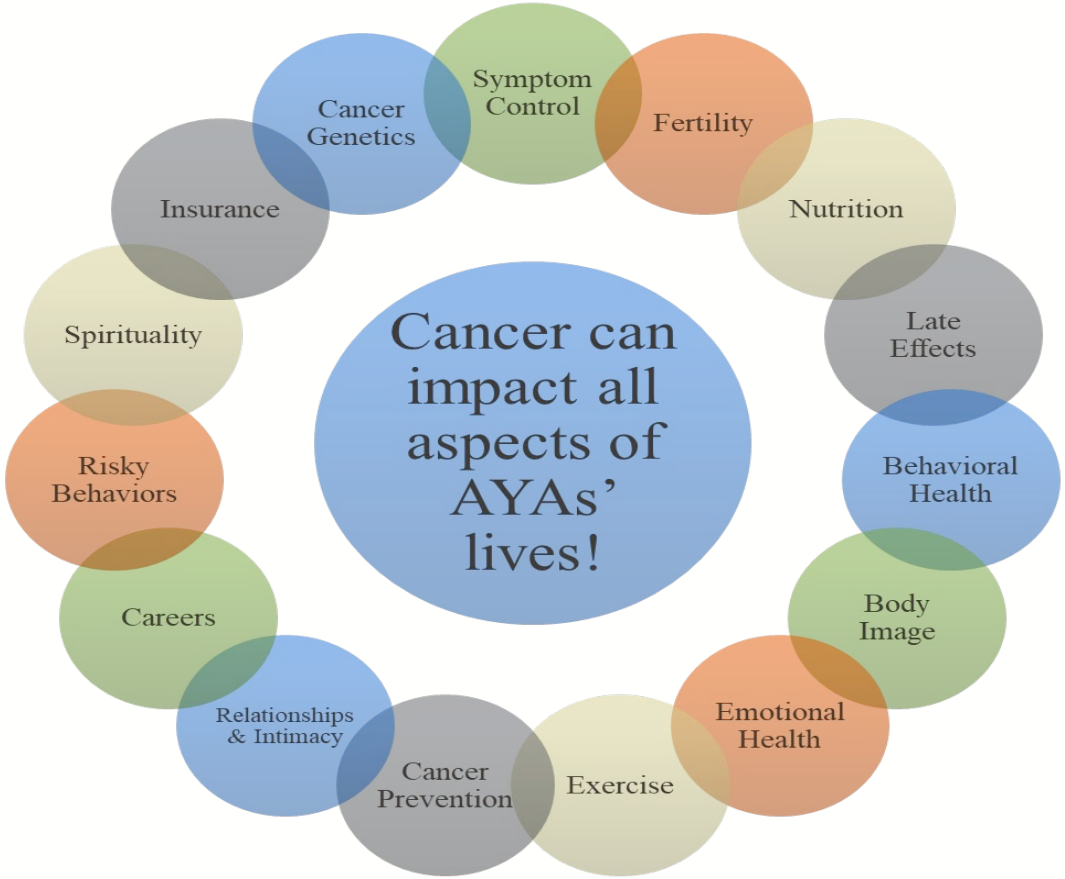

Philips et al, CEBP, 2015

# AYA Cancer Research: Many Unanswered Questions

- AYAs with cancer have shortened long-term survival
  - Limited data on health and cause of death in survivorship
  - Few intervention studies aimed at improving outcomes
- AYAs with cancer have unique needs during and after treatment
  - Studies needed assessing and addressing AYA short and long-term health-related quality of life




Berkman et al. Cancer 2020



# Pediatric Cancer Incidence in Texas

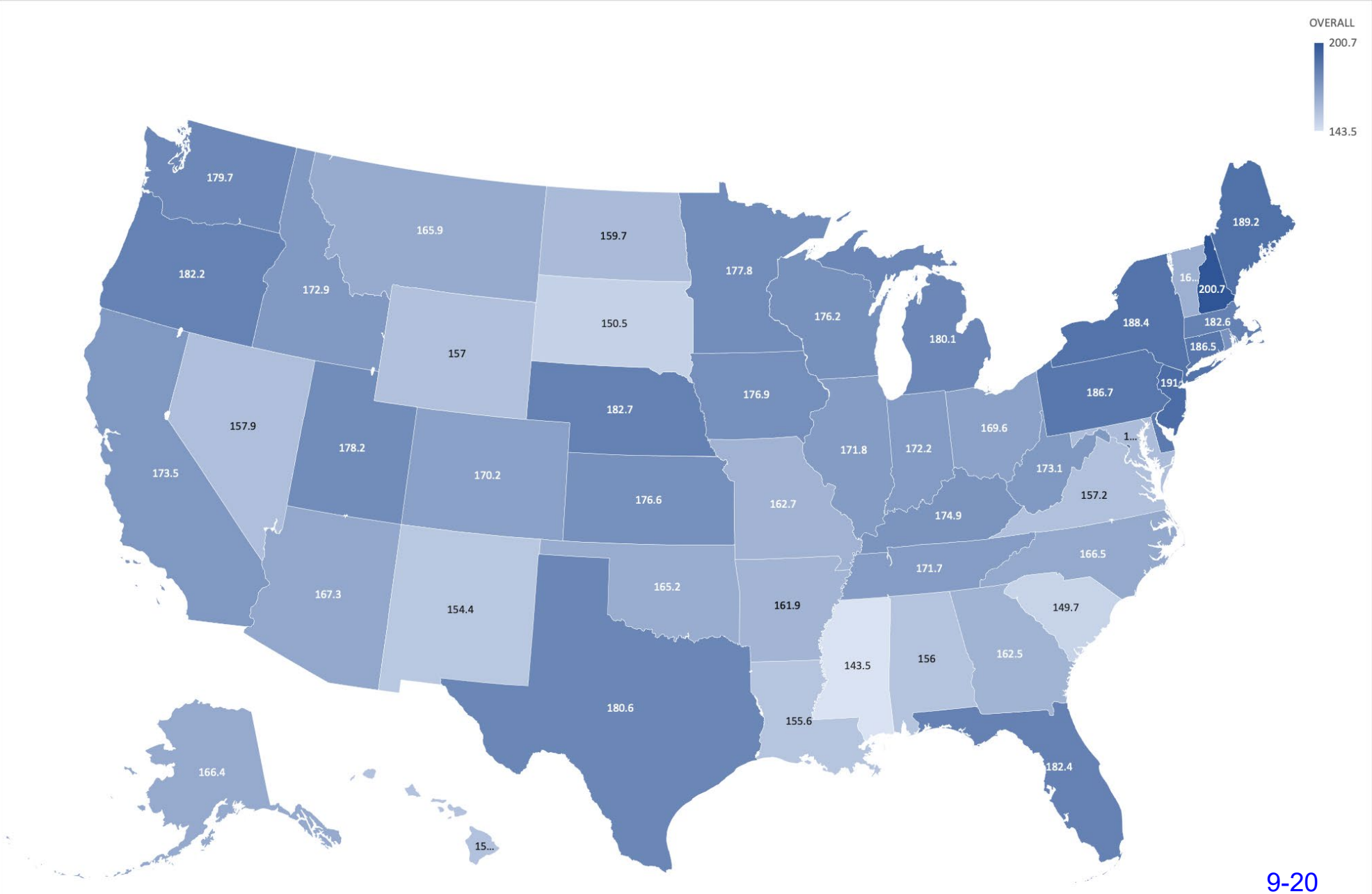
- The State of Texas ranks #13 in childhood cancer incidence
  - When we look at cancer sub-types, Texas ranks
    - #3 for Leukemia
    - #5 for ALL
    - #7 for Ependymoma and for Germ Cell Tumors (GCTs)
    - #9 for Other Gliomas





Data source: Siegel et al., 2018

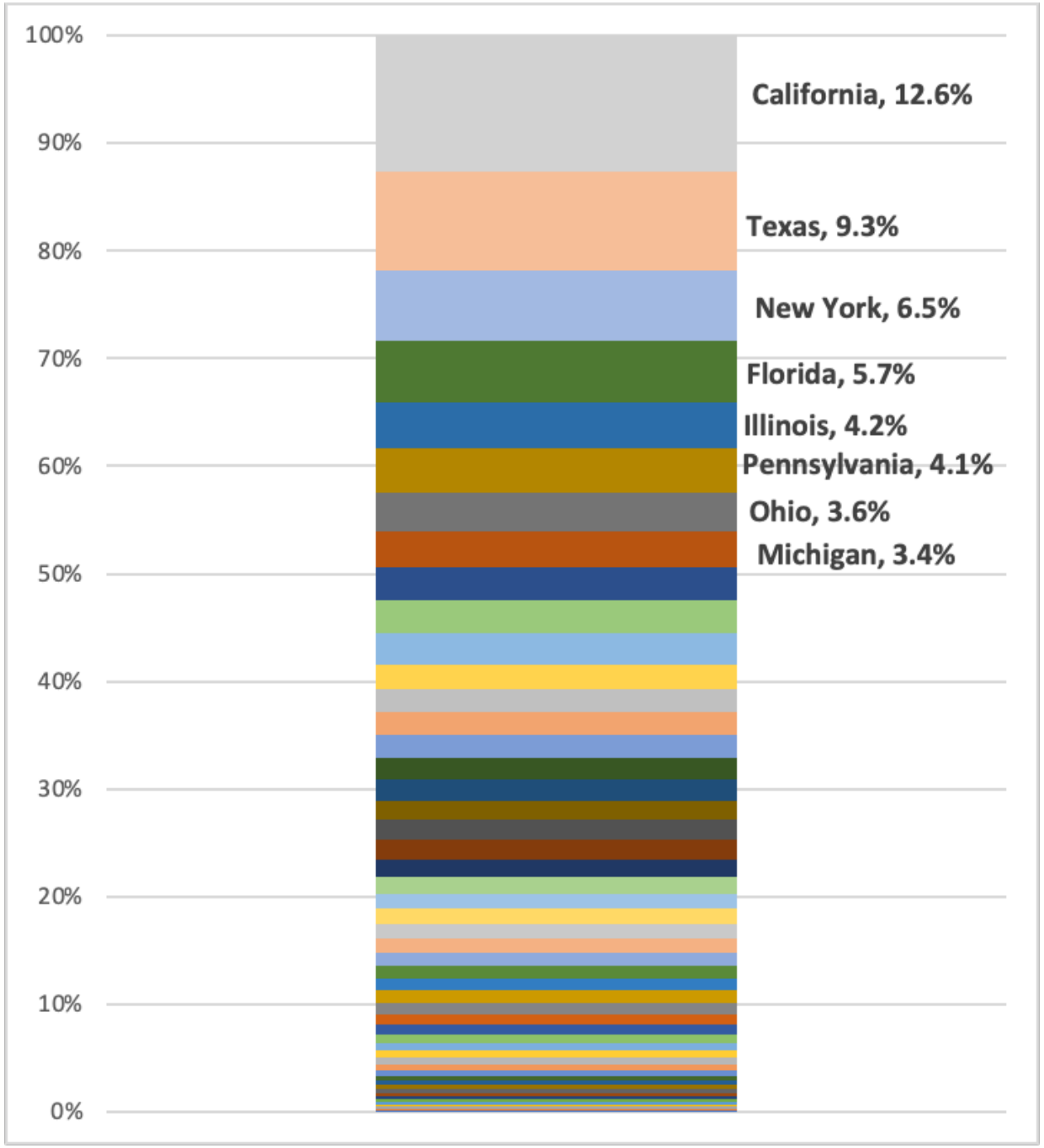
Incidence, NPCR data, Dx years 2003-2014




US Overall Childhood Cancer Incidence: 174 per million

9-20

# Percentage of Childhood (0-19) Cancer Cases, NPCR 2001-2016




12.5%

9.2%

5.9%

5.4%

4.2%

3.8%

3.7%

3.2%

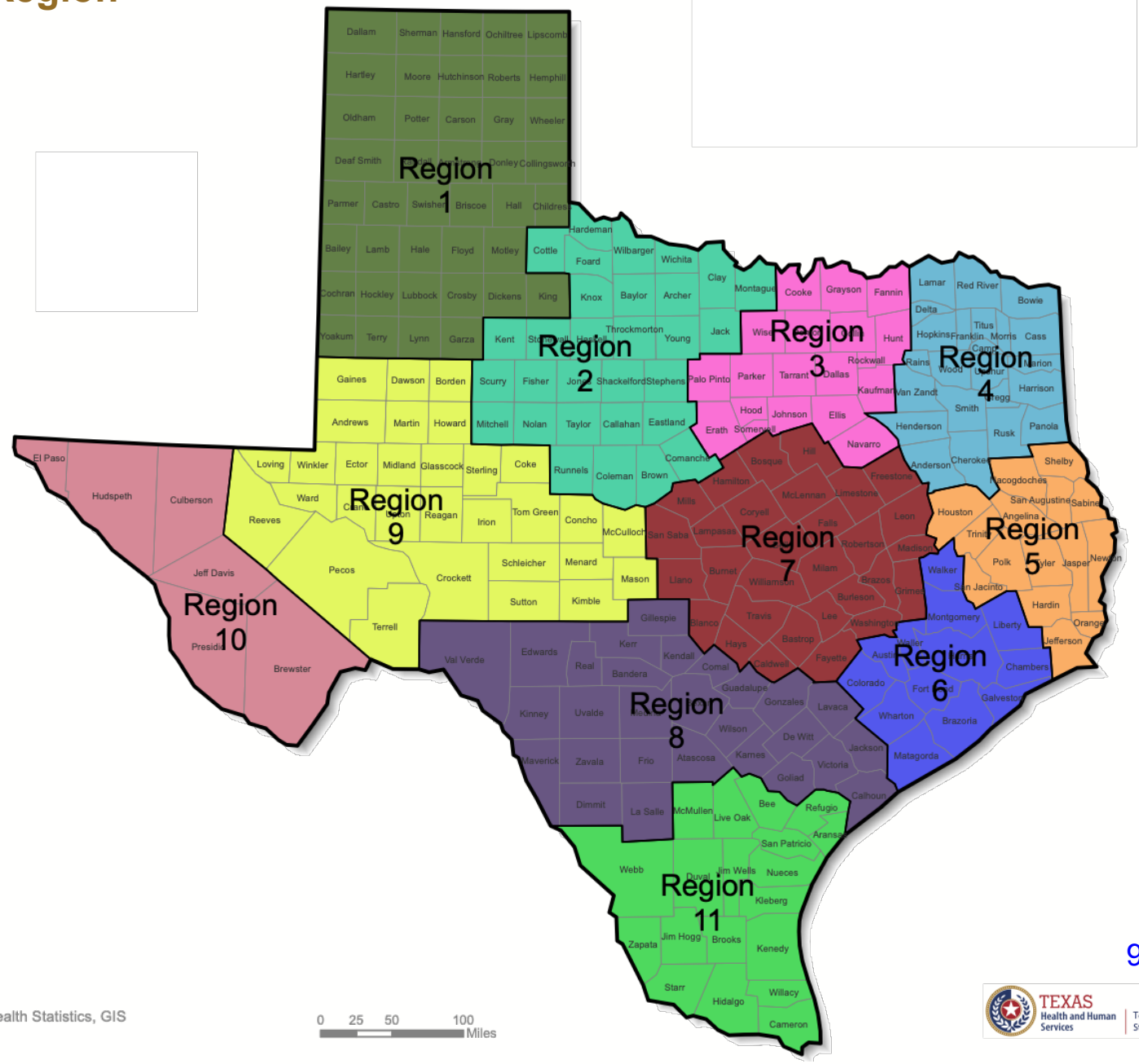
% of US population of children (0-19)

# Overall Incidence Trends by Public Health Region

## Using data from TCR 1995-2018

| | APC | 1995 Incidence | 2018 Incidence |
|---|---|---|---|
| Texas | 0.7* | 166.1 | 188.6 |
| PHR 1 | 0.5 | 183.8 | 234.1 |
| PHR 2 | 0.7 | 181.7 | 209.3 |
| PHR 3 | 0.9* | 157 | 193.8 |
| PHR 4 | 2.6* | 119.4 | 179.1 |
| PHR 5 | 0.4 | 156.4 | 191.1 |
| PHR 6 | 0.5* | 164 | 171.1 |
| PHR 7 | 0.7* | 194.1 | 216.1 |
| PHR 8 | 1.0* | 142.3 | 170.5 |
| PHR 9 | -0.4 | 145.9 | 171.6 |
| PHR 10 | 0.9* | 212.8 | 269.9 |
| PHR 11 | 0.3 | 193.5 | 169 |

***significant Annual Percent Change***



# Pediatric Cancer Survival in US versus Texas

| US Pediatric Cancer Survival by Survial Period (1-yr to 5-yr) by Diagnosis Year | | | |
|---|---|---|---|
| *ages 0-19 at diagnosis; all diagnoses combined* | | | |
| Survival Period | | | |
| **Diagnosis Year** | 12 mo | 24 mo | 60 mo |
| 2000 | 91.7% | 85.0% | 79.2% |
| 2001 | 90.9% | 85.2% | 79.0% |
| 2002 | 91.2% | 85.6% | 79.1% |
| 2003 | 92.6% | 87.3% | 81.4% |
| 2004 | 92.3% | 87.5% | 81.8% |
| 2005 | 92.4% | 87.7% | 81.9% |
| 2006 | 92.7% | 87.3% | 82.3% |
| 2007 | 92.9% | 88.1% | 82.8% |
| 2008 | 93.1% | 88.9% | 83.4% |
| 2009 | 93.0% | 88.5% | 83.7% |
| 2010 | 93.5% | 89.6% | 84.8% |
| 2011 | 94.0% | 89.2% | 84.1% |
| 2012 | 94.4% | 90.1% | 85.2% |
| 2013 | 93.6% | 89.0% | 84.7% |
| 2014 | 93.9% | 90.0% | |
| 2015 | 94.2% | 89.8% | |
| 2016 | 94.2% | 89.6% | |
| 2017 | 94.5% | | |
| 2018 | | | |
| *Source: SEER-18, 2000-2018* | | | |

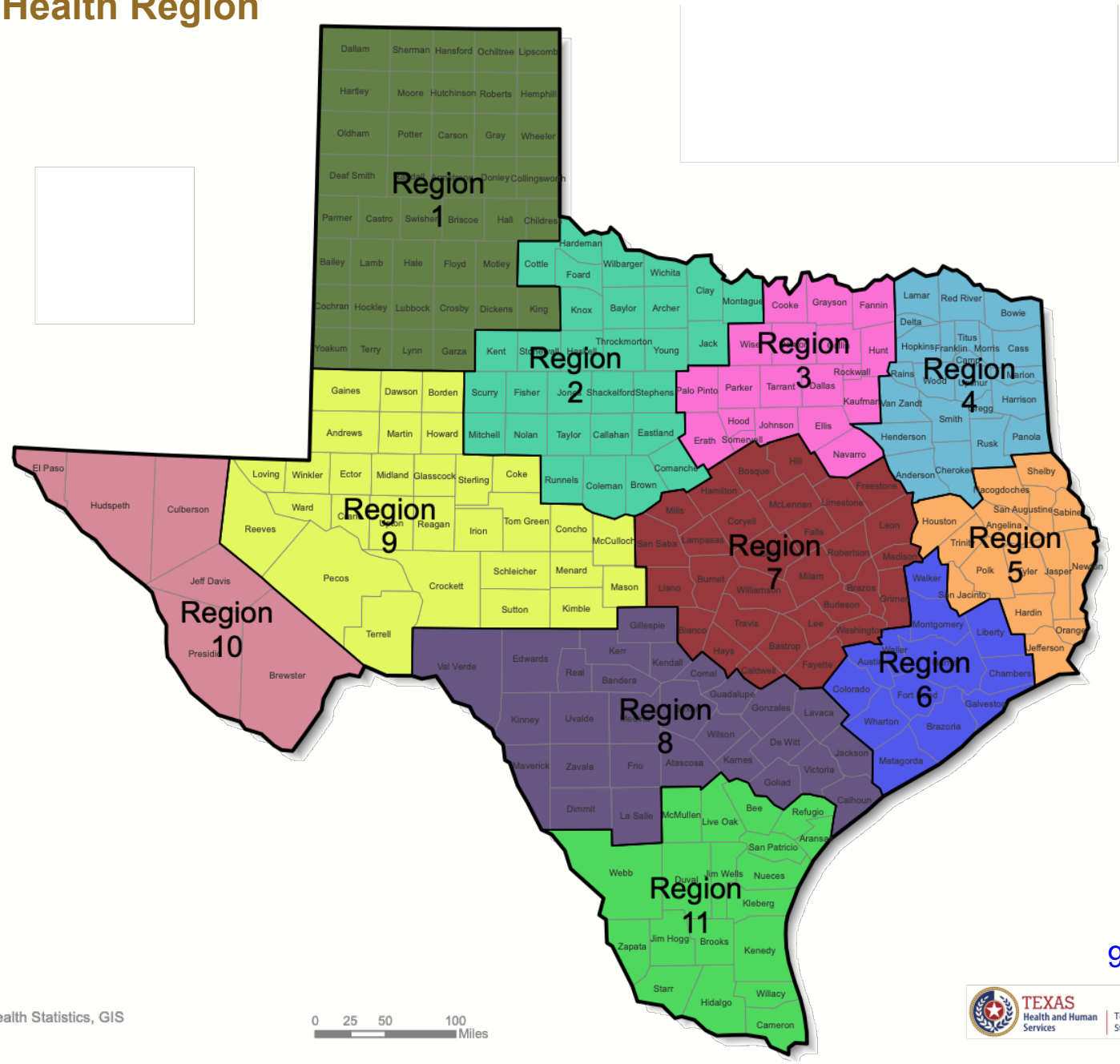
| Texas Pediatric Cancer Survival by Survial Period (1-yr to 5-yr) by Diagnosis Year | | | |
|---|---|---|---|
| *ages 0-19 at diagnosis; all diagnoses combined* | | | |
| Survival Period | | | |
| **Diagnosis Year** | 12 mo | 24 mo | 60 mo |
| 2000 | 91.4% | 85.9% | 79.4% |
| 2001 | 91.3% | 84.7% | 77.3% |
| 2002 | 91.4% | 85.7% | 79.2% |
| 2003 | 91.8% | 86.0% | 80.4% |
| 2004 | 92.2% | 86.8% | 81.4% |
| 2005 | 92.7% | 87.7% | 82.3% |
| 2006 | 92.5% | 86.6% | 81.7% |
| 2007 | 92.0% | 88.1% | 83.5% |
| 2008 | 92.2% | 87.1% | 82.3% |
| 2009 | 92.3% | 87.9% | 82.8% |
| 2010 | 93.5% | 88.6% | 84.0% |
| 2011 | 94.3% | 89.8% | 85.3% |
| 2012 | 94.3% | 90.0% | 84.8% |
| 2013 | 93.8% | 89.9% | 85.5% |
| 2014 | 94.0% | 90.8% | 86.7% |
| 2015 | 93.9% | 89.6% | |
| 2016 | 92.5% | 88.3% | |
| 2017 | 93.9% | 89.7% | |
| 2018 | 94.3% | | |
| *Source: TCR* | | | |

# Incidence and Five-Year Survival by Public Health Region

Using data from TCR 1995-2018

| PHR | Incidence, per M | | 5-Yr Survival |
|---|---|---|---|
| 1 | 174.1 | | 84.0% |
| 2 | 173 | | 80.7% |
| 3 | 181.5 | | 83.0% |
| 4 | 174 | | 82.9% |
| 5 | 176.7 | | 83.4% |
| 6 | 190.1 | | 82.2% |
| 7 | 179.1 | | 82.7% |
| 8 | 185.9 | | 81.0% |
| 9 | 170.3 | | 83.6% |
| 10 | 212.8 | | 79.6% |
| 11 | 185.8 | | 79.7% |
| | | | |
| TX | 184.2 | | 82.1% |

*Red cells are worse than state values.*




Cener for Health Statistics, GIS
April, 2018

# Summary

- Pediatric cancer incidence and survival varies by public health regions in Texas
- We know access to care is challenging for children in rural Texas and may be a factor in differential survival
- This may suggest a mechanism is needed to increase access to life saving treatments via clinical trials for children across the State of Texas

# Summary of ACCC Accomplishments

# CPRIT Propels Childhood Cancer Research

- CPRIT funding has launched 178 research projects focused on childhood cancer
  - More than $308 million dollars
  - Approximately 11% of CPRIT award portfolio
  - 490 scientific publications
  - 38 patents filed

- Independent research awards address important childhood cancer topics and disease types:
  - Topics
    - Molecularly targeted therapies
    - Response biomarkers
    - Cancer metabolism
    - Immune surveillance
    - Mechanisms underlying heart toxicity
    - Cancer genetic susceptibility
    - Cancer prevention: HPV vaccine
  - Disease
    - Colon Cancer
    - Ewing Sarcoma
    - Glioblastoma
    - Hepatocellular cancer
    - HPV-related cancer
    - Leukemia, Lymphoma
    - Malignant Yolk Sac Tumors
    - Medulloblastoma
    - Neuroblastoma
    - Rare Pediatric Cancers
    - Sarcoma, Osteosarcoma, Rhabdomyosarcoma
    - Wilms Tumor

# CPRIT Funds Important Childhood Cancer Research

- New research projects tackling big problems
  - Ewing sarcoma – Vlassakis, Rice University
  - Leukemia - Schraw, BCM
  - All Cancers – Scheurer, BCM
  - Rhabdomyosarcoma – Grow, UTSouthwestern
  - Leukemia – Lee, MD Anderson Cancer Center
  - HPV - Berenson, UTMB
  - All Pediatric Cancers, Survivorship – Poplack, BCM
- High-impact, high-risk awards realizing new opportunities
  - Biological basis of ethnic and social disparities in pediatric ALL– Schraw, BCM
- Core Facilities Support Awards create new resources
  - Adolescent and Childhood Cancer Epidemiology and Susceptibility Service (ACCESS) – Scheurer, BCM

# CPRIT Core Facility Support Awards

Provides financial support for a wide variety of projects relevant to cancer research in Texas, including for pediatric specific projects such as:

| Title | PI | Institution | Award Year |
|---|---|---|---|
| The Adolescent and Childhood Cancer Epidemiology and Susceptibility Service (ACCESS) for Texas | Michael Scheurer, PhD, MPH | Baylor College of Medicine | 2016, 2021 |
| TTUHSC Cancer Animal Facility (Ewing sarcoma, Wilms tumor, ALL, neuroblastoma) | Scott Trasti, DVM | Texas Tech University Health Sciences Center | 2019 |
| CARMIT (Children's Access to Regenerative Medicine in Texas) | Adrian Gee, PhD | Baylor College of Medicine | 2018 |
| Pediatric Solid Tumors Comprehensive Data Resource Core | Richard Gorlick, MD | MD Anderson Cancer Center | 2018 |
| Pediatric Cancer Data Core | Yang Xie, PhD | The University of Texas Southwestern Medical Center | 2018 |
| Texas Pediatric Patient Derived Xenograft Facility | Peter J. Houghton, PhD | The University of Texas Health Science Center at San Antonio | 2016 |

# CPRIT Recruits New Childhood Cancer Researchers to Texas

| Mechanism | # Awards | Funding |
|---|---|---|
| Recruitment of Established Investigators | 3 | $20,177,801 |
| Recruitment of First-Time, Tenure Track Faculty Members | 11 | $22,000,000 |
| **Total** | **14** | $42,177,901 |

*In 2020, Dr. Tanmay LeLe was successfully recruited to Texas, from the University of Florida to Texas A&M Engineering Experiment Station through a CPRIT Recruitment of Established Investigators award.*

*At Texas A&M he plans to further develop his methods that combine microscopy and advanced mathematical image analysis in partnership with cancer scientists at the Texas Medical Center and members of the engineering/computer science faculty at Texas A&M to identify candidate therapies for medulloblastoma.*

# Researcher's RoundUp



- CPRIT and the Carson Leslie Foundation rounded up Texas' brightest childhood cancer investigators to discuss, identify, and encourage collaboration
- The first meeting held in January 12-13, 2020 in Dallas helped frame much of the strategy that will be presented
- Due to COVID-19 travel restrictions, 2021 Researcher's RoundUp was canceled
- Much thanks to Annette Leslie whose energy and advocacy has made this so successful

# Where are we going?

# ACCC Vision

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Children's Cancer Hospital®

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

To improve the patient experience, quality of life, and long-term survival of children in Texas diagnosed with cancer through fostering high impact research

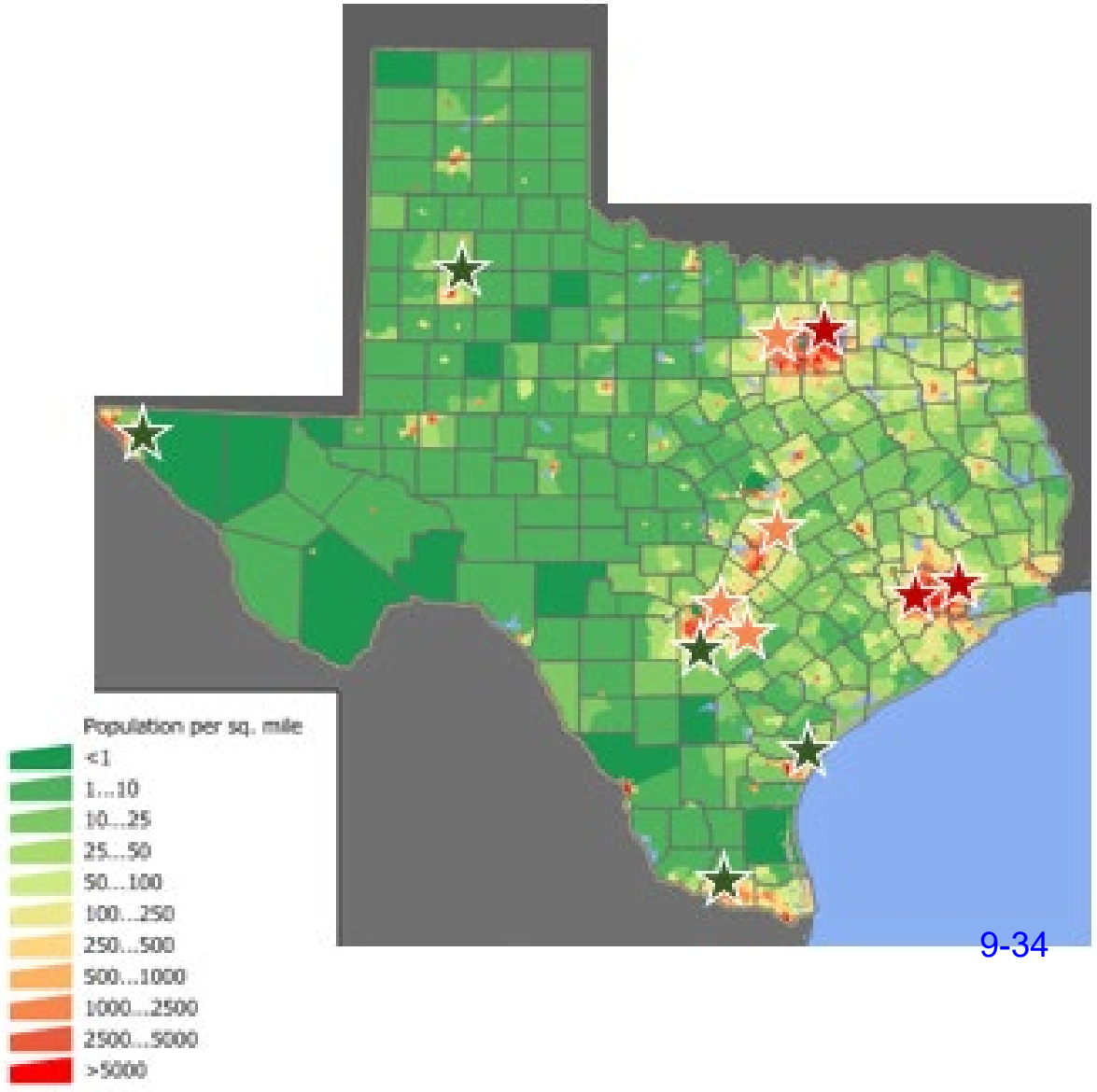
# Pediatric Cancer Care in Texas

- Pediatric oncology care across Texas is unevenly distributed across population centers, leaving Central Texas with limited access to large academic sub-specialized cancer care

★ Large pediatric oncology centers (>15 sub-specialists)
- MD Anderson (Houston)
- Texas Children's (Houston)
- UT Southwestern (Dallas)

★ Medium pediatric oncology programs (5-15 sub-specialists)
- Dell Children's (Austin)
- Cook Children's (Fort Worth)
- UT San Antonio (San Antonio)
- Children's San Antonio (San Antonio)

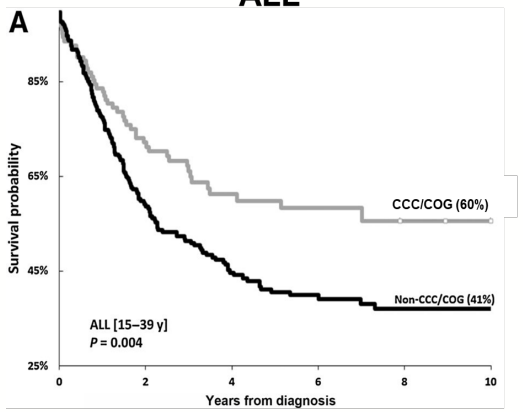
★ Small pediatric oncology programs (<5 sub-specialists)
- El Paso
- Texas Tech (Lubbock)
- Methodist (San Antonio)
- Vannie Cook TCH (Corpus Christi)



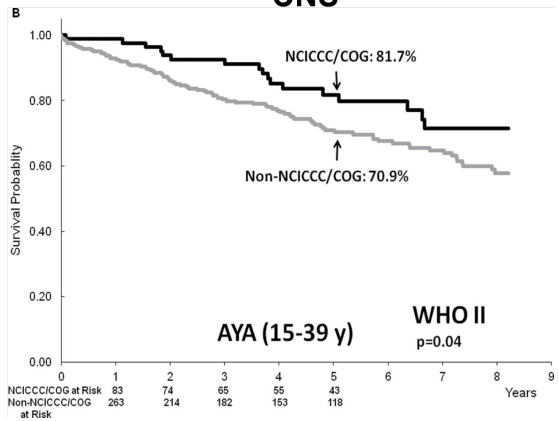
# Disparities in AYA Care and Outcomes

- Treatment location impacts survival
  - Improved survival with treatment at academic NCI-supported centers vs community sites
  - Unclear where AYAs receive cancer care in TX
- Need to increase access to and uptake of supportive care
  - Fertility preservation
  - Psychosocial support
  - Genetic services
- AYA enrollment in clinical trials is very poor
- Limited knowledge of sociodemographic disparities in outcomes

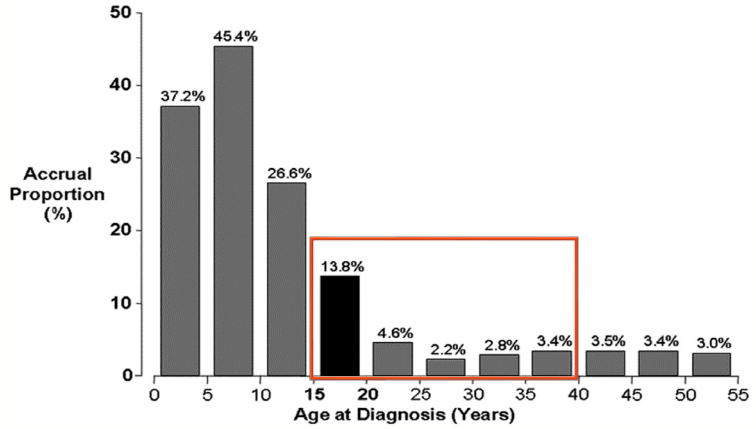
**ALL**




**CNS**




**Enrollment on NCI Trials**






Wolfson et al. JNCI. 2014.

Wolfson et al. CEBP. 2014

# Pediatric Cancer Care Close to Home

- A cancer diagnosis in a child or adolescent is traumatic for patients and their families


- For optimal patient-centered care, patients need:
  - access to expert sub-specialized care
  - novel cutting-edge targeted therapies
  - immunotherapy
  - clinical trials
  - close proximity to home environment with loved ones

# How will we get there?

# Continue to Support Broad-based Scientific Discovery

- Individual research awards for childhood cancer
  - Biology of cancer in children and adolescents
  - Immune system and childhood cancer
  - Experimental therapeutics
  - Clinical translational research
- Opportunities for multi-investigator research awards
  - 28 MIRA projects
    - $16M follow-on funds outside of CPRIT
    - 81 publications
    - 2 patents
- New and established faculty recruitment awards
  - Sean Morrison, PhD, HHMI, National Academy of Sciences
  - 14 new childhood cancer researchers in Texas
- Texas Regional Excellence in Cancer Award
  - Texas Regional Excellence in Cancer Developmental Therapeutics Center at TTUHSC
  - $6 million grant with major focus of developmental therapeutics in childhood cancer

# Continue Childhood Cancer Core Facilities Support Awards

- Impact to date
  - 12 Cores, $55M follow-on funds, 82 publications, 2 patents
  - New, shareable childhood cancer models
    - Texas Pediatric PDX facility (Houghton, UTHSCSA)
    - PDX-AIM (Lewis, BCM)
    - Cancer Animal Facility (Trasti, TTUHSC)
  - New capacity for data storage and sharing
    - Pediatric Cancer Data Core (Xie, UTSW)
    - Pediatric Solid Tumors Comprehensive Data Core (Gorlick, UTMDACC)
    - ACCESS for Texas (Scheurer, BCM)
- Recommendations
  - Specific calls for CFSA proposals focused on childhood cancer
    - Ensure impact extends beyond local institutions
    - Enlist ACCC to help prioritize Core Facilities
  - Invite competitive renewal of high-performing Cores that fill state-wide needs

# Enhancements to Strategy

- Established monthly virtual ACCC meetings and specific action items to maintain momentum and make meaningful progress
- Expanded ACCC roster to include 3 new parent committee members
- Formed 9 sub-committees comprised of expert physicians and researchers in the following geographic and pediatric oncology areas:
  1. AYA
  2. Brain Tumors
  3. Cell Therapy
  4. Epidemiology
  5. Frontiers
  6. Genetic Predisposition and Genetic Risk
  7. Leukemia/Lymphoma
  8. Solid Tumors
  9. Survivorship

# ACCC Membership

| MEMBER | INSTITUTION | MEMBER | INSTITUTION |
|---|---|---|---|
| Richard Gorlick, MD (Chair) | MD Anderson CC | Stan Goldman, MD | Medical City Dallas |
| D. Will Parsons, MD, PhD (Vice-Chair) | Texas Children's Baylor College of Medicine | Barkat Hooda, MD | UTMB Galveston |
| Carl E. Allen, M.D. | Baylor College of Medicine | Eugenie Kleinerman, MD | MD Anderson CC |
| Karen Albritton, MD | Cook Children's | Andrew Y. Koh, MD | UT Southwestern Children's Health |
| Mohamad Al-Rahawan, MD, MPH | Texas Tech HSC | Annette Leslie* | Carson Leslie Foundation |
| Greg Aune, MD, PhD | UTHSC San Antonio | Julie Luke, CPNP | Methodist Children's |
| Smita Bhaskaran, MD | Texas Tech HSC, Amarillo | Philip Neff, MD | Dell Children's |
| Juan Carlos Bernini, MD | Vannie Cook Jr. Clinic | Patrick Reynolds, MD, PhD | Texas Tech HSC |
| Tim Culliver* | Adam's Angels Ministry | Stephen X. Skapek, MD | UT Southwestern |
| Meaghan Granger, MD | Cook Children's | Lisa Tichenor* | QadW Foundation |
| | | Gail Thomlinson, MD, PhD | UTHSC San Antonio |





Updated February 4, 2022

* Patient Advocate

# CPRIT ACCC Organization

**Leadership**
Richard Gorlick, M.D., Chair
Donald (Will) Parsons, M.D., Ph.D., Vice-Chair

**Members**
Karen Albritton, M.D.; Carl E. Allen, M.D.; Mohamad Al-Rahawan, M.D., MPH; Greg Aune, M.D., Ph.D., FAAP; Juan Carlos Bernini, M.D.; Smita Bhaskaran, M.D.; Tim Culliver; Stan Goldman, M.D.; Meaghan Granger, M.D.; Barkat Hooda, M.D.; Eugenie Kleinerman M.D.; Andrew Y Koh, M.D.; Annette Leslie; Julie Luke, CPNP; Phillip Neff, M.D.; C Patrick Reynolds, M.D., Ph.D.; Stephen X. Skapek, M.D.; Lisa Tichenor; Gail Tomlinson, M.D., Ph.D.

**SC1: AYA**
Karen Albritton (Leader), Michael Roth, Chibuzo O'Suoji (Members)

**SC2: Brain Tumors**
Donald Parsons (Leader), Daniel Bowers, Holly Lindsay (Members)

**SC3: Cell Therapy**
Andrew Koh (Leader), Kris Mahadeo, Robin Parihar, Samuel John, Matthew Campbell, Meena Hegde (Members)

**SC4: Epidemiology**
Philip Lupo (Leader), Paul Scheet, Sandi Pruitt, Michael Scheurer, Michael Roth (Members)

**SC5: Frontiers**
Smita Bhaskaran, Mohamad Al-Rahawan, Phil Neff (Co-Leaders), Lisa Thicenor, Shannon Cohn (Members), Richard Gorlick (Advisor)

**SC6: Genetic Predisposition & Risk**
Gail Tomlinson (Leader), Laura Klesse (Member)

**SC7: Leukemia / Lymphoma**
Carl Allen (Leader), Rachel Rau (Member)

**SC8: Solid Tumors**
Nino Rainusso (Leader), Jessica Naiditch, Dinesh Rakheja, Gabriel Axelrud, Lorimar Ramirez (Members)

**SC9: Survivorship**
Greg Aune (Leader), Barbara Jones, Monica Gramatges, Chibuzo O'Suoji, Michael Roth (Members)

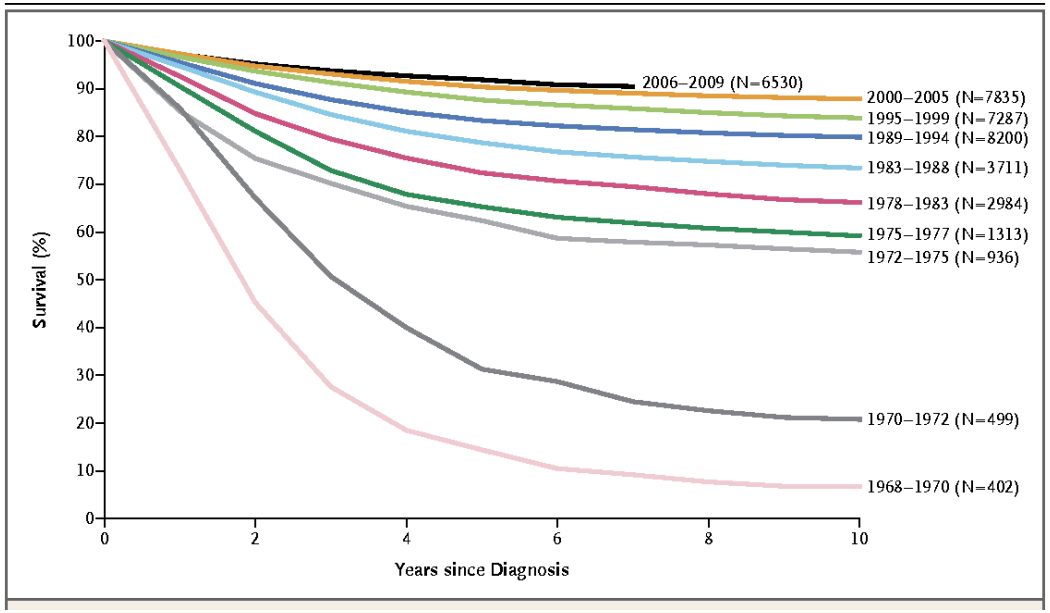
# Dedicate a Clinical Trials Network RFA to Pediatrics

- Develop a clinical trials network in Texas that is pediatric oncology focused on improving survival and survivorship
  - Could begin by focusing on targeted agents in which the molecular phenotype is found in both pediatric and adult cancers
  - Could focus on bringing new technologies such as stem cell therapy from larger to smaller centers
  - Could improve follow up particularly among AYAs who can be lost in the transition from pediatric to medical providers
  - Could enhance our understanding of the unique challenges faced by young cancer patients in Texas

# Clinical Trials Improve Survival

- 30-60% of all children with cancer participate in clinical trials
- Superior clinical trial enrollment has led to significantly improved cure rates
- Urgent need to:
  - Improve cure rates for many pediatric and AYA cancers
  - Improve long-term health-related quality of life of childhood and AYA cancer survivors
- Clinical trials are the path forward

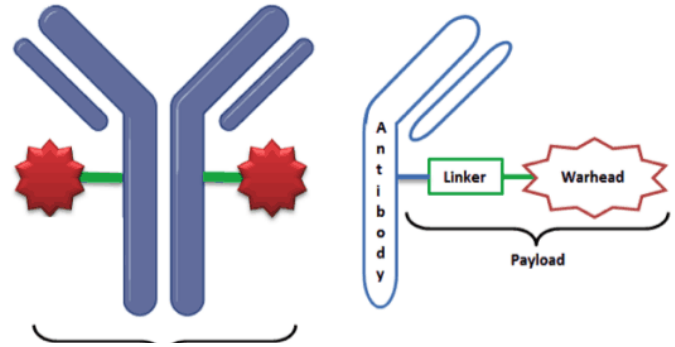
**Overall Survival of Children with Acute Lymphoblastic Leukemia**

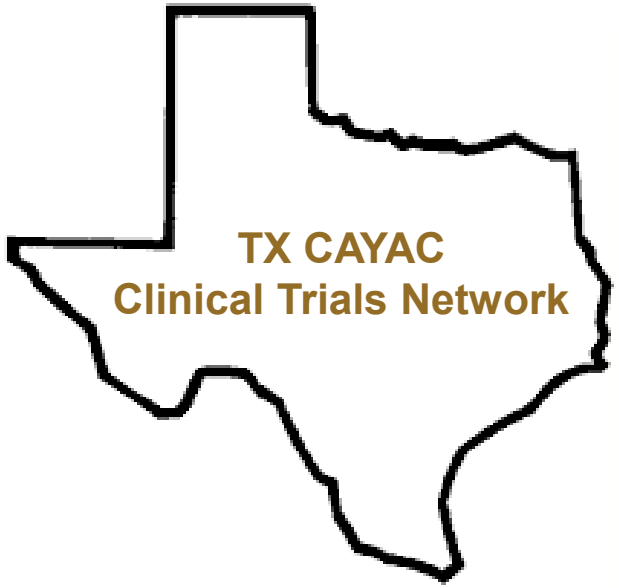



Hunger et al. NEJM. 2015

# Texas Childhood & AYA Cancer Clinical Trials Network

- New treatment approaches to improve outcomes need to be efficiently studied in childhood and AYA cancer patients
- Due to the rarity of childhood and AYA cancers, most trials are conducted nationally
  - Slow development of new trials and opening across sites
- Texas has the patient volume and diversity and clinical expertise to conduct and complete these trials intra-state
- A Texas-wide childhood and AYA cancer clinical trials network would:
  - Increase TX patient access to novel agents
  - Expedite discovery to improve outcomes for children & AYAs








Rostami et al. ADCReview. 2014

# Researcher's RoundUp



- The outcome of Researchers RoundUp will help inform CPRIT's Childhood Cancer RFA's
- This year, Researchers RoundUp has been expanded to all childhood cancer researchers – both those funded by CPRIT and those who have not been
- Emphasis has been placed on Texas wide representation
- Goal will to be define the highest priority clinical trials and their common elements to help define what is needed to advance our field

**Will be held in person on July 24-26, 2022 at Pegasus Park, Dallas, TX**

# ACCC Recommendations

- Childhood Cancer Recommendations
  - Broad-based discovery research
  - Core Facilities with broader reach
  - Consider a Clinical Trials Network RFA devoted to Pediatrics

# Summary

# Summary

- The ACCC applauds Texans for the forward-thinking development of CPRIT and supporting its visionary leadership that continues to embrace childhood cancer research.

- CPRIT has supported remarkable innovation and scientific breakthroughs benefitting children with cancer in Texas. Continued support of pediatric targeted proposals remains critical.

- Supporting a Texas wide clinical trials network will improve care of children and AYAs throughout Texas. More suggestions on this topic will follow after Researchers Roundup 2022.

# Q&A

Richard Gorlick, MD
Chair, CPRIT Advisory Committee on Childhood Cancers

Navkiran K. Shokar, MA, MD, MPH is professor and chair of the Department of Population Health, Associate Dean for Community Affairs and co-lead for cancer prevention and control within the Livestrong Cancer Institutes at Dell Medical School at the University of Texas at Austin. She was born and raised in England where she received her Master of Arts degree from the University of Cambridge and her medical degree from the University of Oxford Medical School. She was previously at UTMB Galveston and Texas Tech University Health Sciences Center El Paso. Dr. Shokar's research focuses on multilevel clinic and community-based interventions that bridge the divide between public health, the community and the health care system in order to address cancer health disparities among racial/ethnic minorities and vulnerable populations. Her work incorporates theory-based health promotion methods and culturally tailoring to maximize intervention effectiveness.

Suncerria (Sun) Tillis serves as the Senior Director, Cancer Support Strategic Partnerships for the American Cancer Society in Texas. She leads a team of health systems account & territory managers responsible for developing partnerships to advance the Society's Patient Support Priorities. This includes implementing clinical and community interventions focused on primary prevention and increasing cancer screening rates, advancing navigation support for patients diagnosed with cancer, and promotion of engagement with the Society's research and advocacy programs. In her over 30-year career, Ms. Tillis has led the development and implementation of many public health, behavioral health, and community development initiatives in diverse communities in Arizona, Texas, New Mexico, Oklahoma, Kansas, and Missouri. She is an advocate for integrated health equity strategies that are sustained within organization practice. Ms. Tillis earned an MBA and bachelor's degree from the University of Arizona. She currently resides in Houston, Texas.

Cancer Prevention & Research Institute of Texas

# CPRIT Prevention Advisory Committee

## Report to the Oversight Committee

## February 15th 2023

Navkiran K Shokar, MD MPH
Suncerria Tillis, MBA

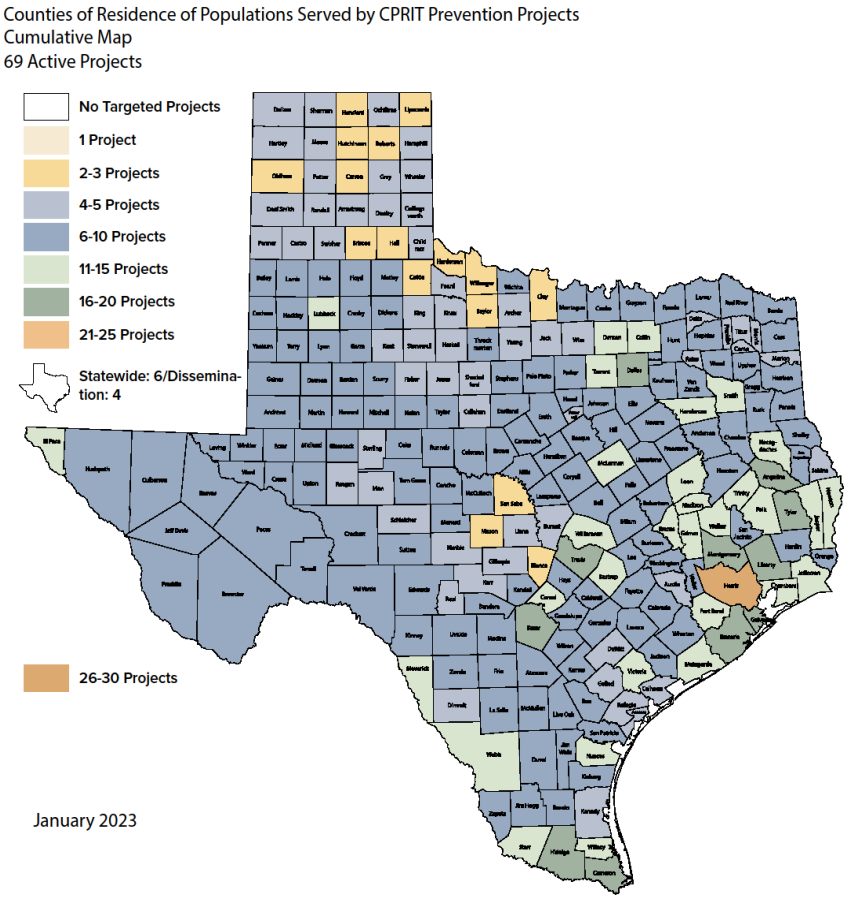
# PAC Members Roster

| | |
|---|---|
| Keith Argenbright, MD | UT Southwestern, Moncrieff Cancer Institute |
| Abbey Berenson, MD | UTMB, Galveston |
| Roxana Cruz, MD | Texas Association of Community Health Centers, Inc. |
| Dorothy Gibbons, BA | The Rose |
| Amanda Hall, MD | Associate Commissioner, Div. of Community Health Improvement, DSHS |
| Ernest Hawk, MD, MPH | UT MD Anderson |
| David Lakey, MD | UT System |
| Mike Pignone, MD, MPH | Dell Medical School, UT Austin |
| Kenneth Ramos, MD, PhD | Texas A and M Health |
| Rakhshanda Rahman, MD | TTUHSC |
| Navkiran Shokar, MD MPH (Chair) | Dell Medical School, UT Austin |
| Suncerria Tillis, MBA (Vice Chair) | American Cancer Society |

9-54

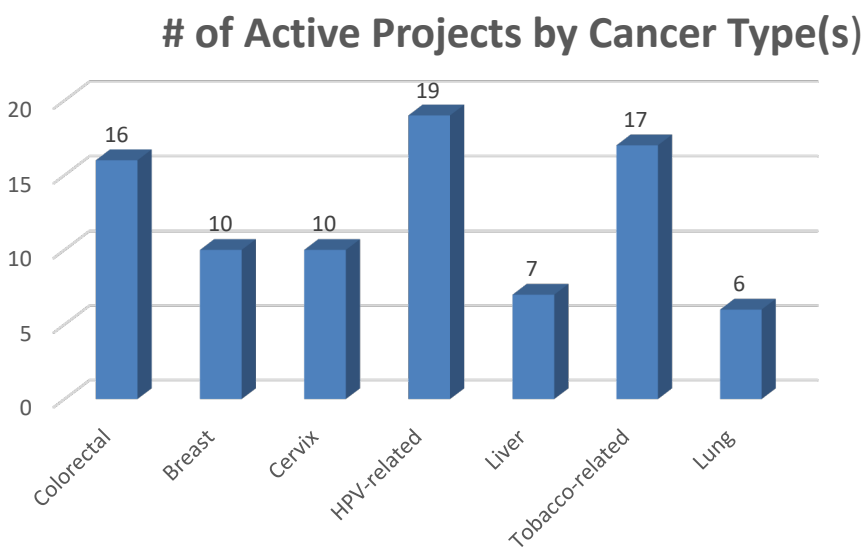
# Active Projects: Geographic Distribution

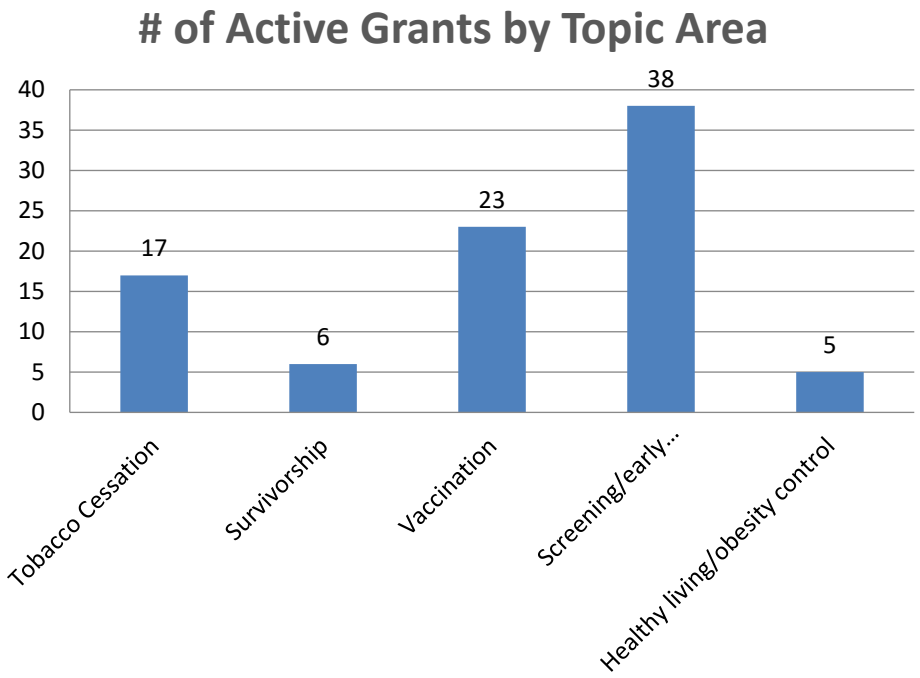
69 Total Projects




9-55

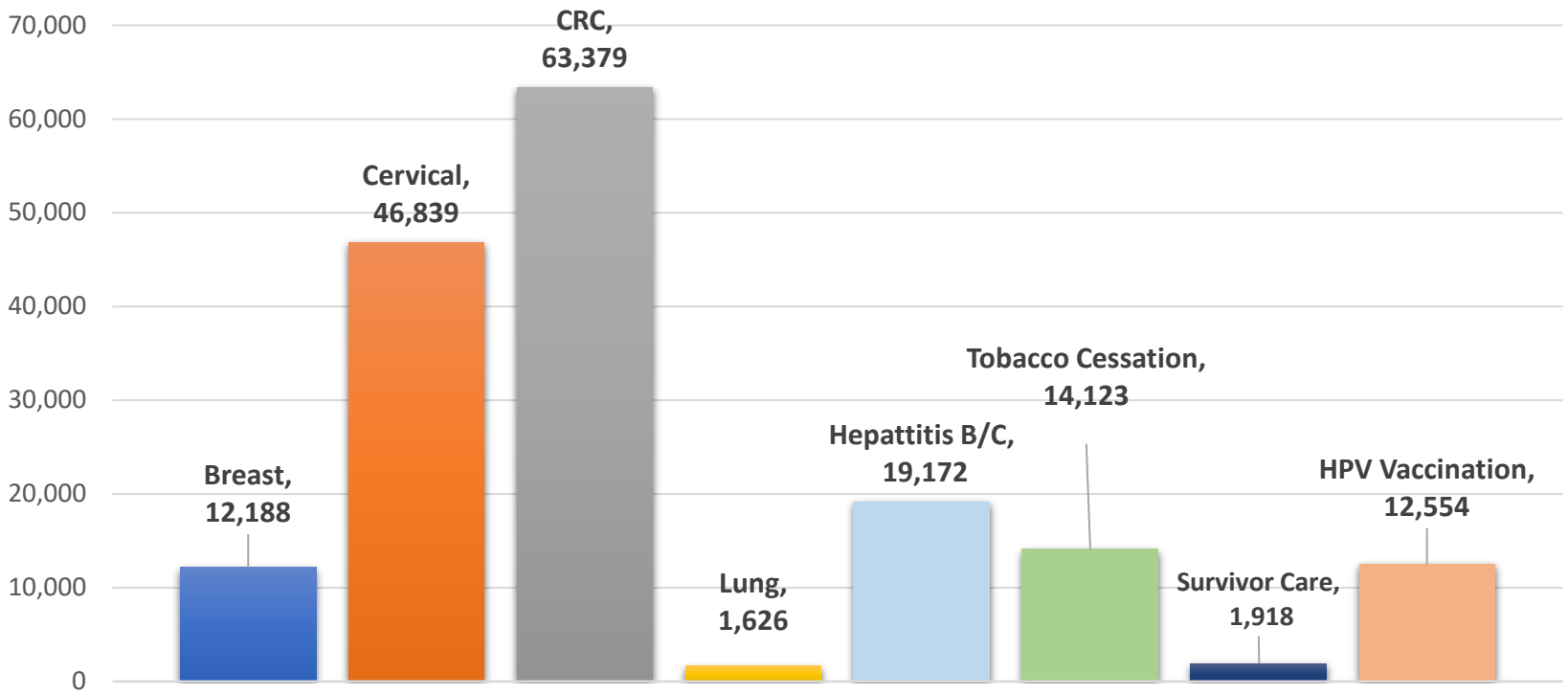
# Active Projects by Focus Area & Cancer Type



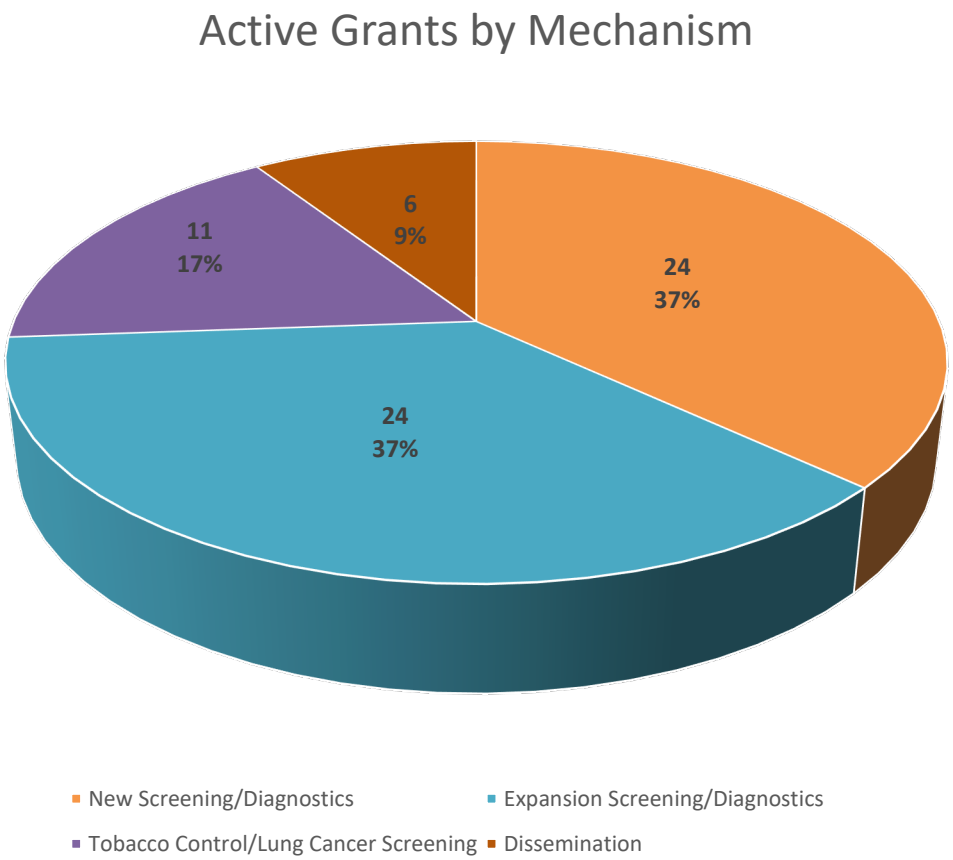

9-56

# Prevention Program Services 2022




**2022 total = 171,799**

# Active Projects by RFA Mechanism




9-58

# Updates on current PAC initiatives

**1. CRC Statewide Coordinating Center RFA**

- A new RFA has been developed and released. First applications expected in Feb 2023.

**2. CRC Treatment Initiative**

- Conceptualized by committee to address increase in demand for CRC treatment among underserved populations due to increased and focused CRC screening through statewide coordinating center
- Proposes $20 million general revenue appropriation to cover CRC treatment costs modeled on State's breast and cervical cancer treatment program
- American Cancer Society leading advocacy efforts alongside other partners

**3. Prevention program assessment grant**

- Currently in data collection phase
- Completed program director surveys and collaborator surveys are underway
- Aggregation of impact data complete

9-59

# PAC Recommendations

## 1. Accelerate Research *and* Capacity in Prevention and Control Research

** Collaboration with the Academic Program is key **

→ Track basic and applied prevention research within the academic program

Foster research

- Community-based research methods, health services , D&I, and cost effectiveness research. Maximize opportunities for data analysis of existing resources, data (e.g., Medicaid/Medicare data analysis, EMR data, prevention program data).
- Develop new mechanisms to support prevention focused research including small grants or research supplements for prevention program grantees to compare implementation strategies or examine their data.
- Consider an RFA focused on harmonizing data across prevention program grantees, to develop datasets for secondary analysis research.

Increase capacity

- Cultivate a pool of experts in scientific areas that focus on increasing prevention and early diagnosis and cancer risk reduction.
- Develop training programs and foster scholar recruitment within the Academic Program: Junior investigator awards, K-type, or American Cancer Society's Cancer Control Career Development Award for primary care physicians training program (this program no longer exists);

9-60

# PAC Recommendations

**2. Facilitate the development of a comprehensive statewide cancer prevention, early detection, and connection to care strategy**

- **Convene** and create collaborative relationships amongst stakeholder groups in the cancer prevention, early detection, and treatment pathway (payors, health care provider groups, community organizations, public health, academic institutions, CPRIT grantees, etc.).
- **Synthesize data to identify gaps and potential opportunities** for alignment (HEDIS, UDS measures, Commission on Cancer accreditation, CPRIT funding opportunities, etc.).
- **Disseminate findings and seek input on strategies**

Potential Mechanisms: --

- **Cancer Prevention Symposium**
- **Leverage partnerships to stretch CPRIT dollars**

9-61

# PAC Recommendations

**3. Simplify access to Texas cancer prevention, early detection and treatment related statistics, resources, and program information**

- Expand CPRIT material repository to also be a cancer information repository
- Integrate all cancer prevention related resources through linkages and connections to relevant websites, (e.g. TCR stats, BRFSS, Teen Vaccination, YRBSS, DSHS, BCBS, FQHC, CPRIT grantees and clinical service partners)
- Include GIS mapping tools to assess geographic impact of cancer programs across the state
- Create built in mechanism for ongoing review and updates

**4. Identify next cancer focus area for a statewide screening RFA**

- Use data informed approaches to identify priority areas and criteria for prioritization

**5. Integrate PAC recommendations into the next Texas Cancer Plan scheduled to begin in 2023**

9-62

# Questions

9-63

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

# MEMORANDUM

**TO:** OVERSIGHT COMMITTEE MEMBERS

**FROM:** HEIDI MCCONNELL, CHIEF OPERATING OFFICER

**SUBJECT:** CHIEF OPERATING OFFICER REPORT

**DATE:** FEBRUARY 6, 2023

## CPRIT Financial Overview for FY 2023, Quarter 1

FY 2023, Quarter 1 Operating Budget

In FY 2023, CPRIT had an appropriated budget of $4.9 million in Indirect Administration and approximately $16.1 million budgeted in Grant Review and Award Operations. The Grant Review and Award Operations budget includes the majority of the agency's vendor contracts which support grant award and administration, including the $9.9 million contract for grant management support services with GDIT.

In addition, there are $263,754 in contracts carried forward from FY 2022 to FY 2023 to cover contract extensions for TexHahn Media ($44,314), Weaver and Tidwell LLP ($120,440), and Swift Solutions ($99,000) for conference planning and coordinating services. This carryforward increases Indirect Administration to approximately $5.2 million.

Approximately 31 percent of the almost $5.2 million budget for Indirect Administration had been encumbered or expended. Of the $16.1 million budget for Grant Review and Award Operations, approximately 79 percent had been encumbered or is expended.

CPRIT received $103,349 in revenue sharing payments during the first quarter. This amount includes the receipt of a quarterly royalty payment for $56,750 from Merck & Co., Inc. from the sales revenue of WELIREG™ (belzutifan).

Revenue sharing payment deposits from CPRIT's inception total approximately $7.9 million through the end of November 2022.

FY 2023, Quarter 1 Performance Measure Report

In the first quarter, CPRIT reported to the Legislative Budget Board a total of 208,582 people served through CPRIT prevention and control grants and no company relocations.

Debt Issuance History

The Texas Public Finance Authority (TPFA) issued $79.5 million in commercial paper notes on CPRIT's behalf in September 2022. This was the first tranche of issuances against the $298.3 million projected to be issued in FY 2023.



PO Box 12097 | Austin, Texas 78711 | PH: 512-463-3190 | F: 512-475-2563 | cprit.texas.gov

**2023 CPRIT Innovations VI Conference Update**

A "Save the Date" for the conference was released on the conference website, texascanccerconference.org in mid-January. The notice can be found in the revolving carousel at the top of the main page of the CPRIT website.

Several speakers for keynote and plenary sessions have been confirmed. They include:

- Dr. Doug Lowy, Deputy Director of the National Cancer Institute as the Day 1 keynote,
- Dr. John Carpten, Chair of Translational Genomics at the Keck School of Medicine, University of Southern California as a Day 1 plenary speaker, and
- Dr. Robin Vanderpool, Chief of the Health Communications and Informatics Research Branch at the National Cancer Institute as the Day 2 keynote.

The conference website is being populated with the conference schedule, speaker information, registration and hotel reservation information for release throughout February. The abstract submission website will also be launched in February.

# Cancer Prevention and Research Institute of Texas
## Quarterly Financial Report
### As of November 30, 2022

**Indirect Administration (B.1.1.)**

| | | 2023 Appropriated | 2023 Budgeted | % of Total Budget | Actual Expenditures & Grant Encumbrances (FYTD) | Remaining Budget | Percent Expended | Estimated Expenditures (YTD) | Lapse/Overspent |
|---|---|---|---|---|---|---|---|---|---|
| 1001 | Salaries and Wages | $ 1,847,425 | $ 1,847,425 | | $ 403,484 | 1,443,941 | 22% | $ 403,484 | $ 1,443,941 |
| 1002 | Other Personnel Costs | 38,785 | 38,785 | | 29,093 | 9,692 | 75% | 29,093 | 9,692 |
| 2001 | Professional Fees and Services | 1,038,960 | 1,203,714 | | 904,880 | 298,835 | 75% | 904,880 | 298,835 |
| 2003 | Consumable Supplies | 24,000 | 24,000 | | 1,441 | 22,559 | 6% | 1,441 | 22,559 |
| 2004 | Utilities | 58,600 | 58,600 | | 24,266 | 34,334 | 41% | 24,266 | 34,334 |
| 2005 | Travel | 45,000 | 45,000 | | 14,889 | 30,111 | 33% | 14,889 | 30,111 |
| 2006 | Rent-Building | 11,000 | 11,000 | | 2,349 | 8,651 | 0% | 2,349 | 8,651 |
| 2007 | Rent-Machine and Other | 39,172 | 39,172 | | 17,671 | 21,501 | 45% | 17,671 | 21,501 |
| 2009 | Other Operating Expenses | 1,807,951 | 1,906,951 | | 210,549 | 1,696,402 | 11% | 210,549 | 1,696,402 |
| | **Subtotal - Indirect Administration (B.1.1.)** | **$ 4,910,893** | **$ 5,174,647** | **1.74%** | **$ 1,608,622** | **$ 3,566,025** | **31%** | **$ 1,608,622** | **$ 3,566,025** |

**Grant Review and Award Operations (A.1.3.)**

| | | 2023 Appropriated | 2023 Budgeted | % of Total Budget | Actual Expenditures & Grant Encumbrances (FYTD) | Remaining Budget | Percent Expended | Estimated Expenditures (YTD) | Lapse/Overspent |
|---|---|---|---|---|---|---|---|---|---|
| 1001 | Salaries and Wages | $ 3,505,873 | 3,321,559 | | $ 943,247 | $ 2,378,312 | 28% | $ 943,247 | $ 2,378,312 |
| 1002 | Other Personnel Costs | 45,000 | 79,314 | | 79,314 | 0 | 0% | 79,314 | 0 |
| 2001 | Professional Fees and Services | 12,420,663 | 12,570,663 | | 11,661,626 | 909,037 | 93% | 11,661,626 | 909,037 |
| 2003 | Consumable Supplies | - | - | | - | - | 0% | - | - |
| 2004 | Utilities | 12,000 | 12,000 | | 644 | 11,356 | 5% | 644 | 11,356 |
| 2005 | Travel | 45,000 | 45,000 | | 1,379 | 43,621 | 3% | 1,379 | 43,621 |
| 2009 | Other Operating Expenses | 70,359 | 104,606 | | 9,152 | 95,454 | 9% | 9,152 | 95,454 |
| | **Subtotal - Grant Operations (A.1.3.)** | **$ 16,098,895** | **$ 16,133,142** | **5.43%** | **$ 12,695,362** | **$ 3,437,780** | **79%** | **$ 12,695,362** | **$ 3,437,780** |

**Grants**

| | | 2023 Appropriated | 2023 Budgeted | % of Total Budget | Actual Expenditures & Grant Encumbrances (FYTD) | Remaining Budget | Percent Expended | Estimated Expenditures (YTD) | Lapse/Overspent |
|---|---|---|---|---|---|---|---|---|---|
| 4000 | Grants - Prevention (A.1.2) | $ 27,671,780 | $ 27,718,402 | | $ - | $ 27,718,402 | 0% | $ - | $ 27,718,402 |
| 4000 | Grants - Research (A.1.1.) | 248,251,400 | $ 248,251,400 | | - | $ 248,251,400 | 0% | - | 248,251,400 |
| | **Subtotal - Grants** | **$ 275,923,180** | **$ 275,969,802** | **92.83%** | **$ -** | **$ 275,969,802** | **0%** | **$ -** | **$ 275,969,802** |
| | **Grand Totals** | **$ 296,932,968** | **$ 297,277,591** | **100.00%** | **$ 14,303,984** | **$ 282,973,607** | **5%** | **$ 14,303,984** | **$ 282,973,607** |

# Cancer Prevention and Research Institute of Texas

## Cancer Prevention and Research Institute Fund Account - 5136

## As of November 30, 2022

| | 11/01/2022-11/30/2022 | AY 23 Year to Date as of 11/30/2022 |
|---|---|---|
| **Beginning Balance : 9/01/2022** | | **$ 600,506** |
| **Increases:** | | |
| (1) | $ - | $ - |
| (2) | - | |
| **Total Increases** | **$ -** | **$ 600,506.00** |
| **Reductions:** | | |
| Expenditures - Appropriated | $ - | $ - |
| | $ - | $ - |
| | $ - | $ - |
| **Total Reductions** | **$ -** | **$ -** |
| **Ending Balance: 11/30/2022** | | **$ 600,506.00** |

Note: (1) The Institute received a settlement from the Texas Cancer Coalition (TCC). This amount represents the final distribution and transfer of all funds ($303,877) from the TCC which ceased operations in May 2013. These funds are in the State Treasury but are not appropriated to CPRIT. The beginning balance reflects the transfer of all TCC funds.

# Cancer Prevention and Research Institute of Texas

## License Plate Trust Fund Account - 0802

## As of November 30, 2022

| | | 11/01/2022-11/30/2022 | AY 23 Year to Date as of 11/30/2022 |
|---|---|---|---|
| **Beginning Balance : 9/01/2022** | | | **$ 46,621.77** |
| **Increases:** | | | |
| (1) | License Plate Revenue Received | $ 423.49 | $ 1,450.14 |
| | Interest | $ 109.08 | $ 279.29 |
| **Total Increases** | | **$ 532.57** | **$ 48,351.20** |
| **Reductions:** | | | |
| | Expenditures - Appropriated | $ - | $ - |
| | | - | - |
| **Total Reductions** | | **$ -** | **$ -** |
| **Ending Balance: 11/30/2022** | | | **$ 48,351.20** |

Note:

Balance forward from 2022 License Plate $46,621.77

10-5

# Cancer Prevention and Research Institute of Texas

## Appropriated Receipts - 666

## As of November 30, 2022

| | | 11/01/2022-11/30/2022 | AY 23 Year to Date as of 11/30/2022 |
|---|---|---|---|
| **Beginning Balance : 9/01/2022** | | | **$ 34,246.90** |
| **Increases:** | | | |
| **(1)** | Product Development Application Fees Received | $ 2,500.00 | $ 6,500.00 |
| **(2)** | Conference Registration Fees | $ - | $ - |
| **(3)** | Conference Registration Fees-Credit Card | $ - | $ - |
| **Total Increases** | | **$ 2,500.00** | **$ 6,500.00** |
| **Reductions:** | | | |
| | Conference Expenditures - Appropriated | $ - | $ - |
| | Credit Card Fees Expended | $ - | $ - |
| | Refund-Application Fees | $ - | $ - |
| | Legal Services Expenses (Application Fees) | $ - | $ - |
| **Total Reductions** | | **$ -** | **$ -** |
| **Ending Balance: 11/30/2022** | | | **$ 40,746.90** |

Forward balance for FY 2022 is $34,246.90
Application Fees

# Cancer Prevention and Research Institute of Texas

## Interest & Sinking Fund Account - 5168

## As of November 30, 2022

| | | 11/01/2022-11/30/2022 | AY 23 Year to Date as of 11/30/2022 |
|---|---|---|---|
| **Beginning Balance : 9/01/2022** | | | **$ 4,467,549.58** |
| **Increases:** | | | |
| (1) | Revenue Sharing / Royalties | $ 70,854.00 | $ 92,465.33 |
| | | $ - | |
| **Total Increases** | | **$ 70,854.00** | **$ 4,560,014.91** |
| **Reductions:** | | | |
| | Expenditures - Appropriated | $ - | $ - |
| | | $ - | |
| | | $ - | $ - |
| **Total Reductions** | | **$ -** | **$ -** |
| **Ending Balance: 11/30/2022** | | | **$ 4,560,014.91** |

Balance forward from FY 2022 is $4,467,549.58

## Cancer Prevention and Research Institute of Texas
### FY 2023, Quarter 1 Performance Measure Report

| Measure | Targeted Performance | QTR 1 | QTR 2 | QTR 3 | QTR 4 | Sum of QTRs | % of Mandate Attained |
|---|---|---|---|---|---|---|---|
| **Number of People Served by Institute Funded Prevention and Control Activities** | 700,000 | 208,582 | - | - | - | 208,582 | 29.80% |
| **Number of Entities Relocating to TX for Cancer Research Related Projects** | 1 | 0 | - | - | - | 0 | 0.00% |
| **Annual Age-adjusted Cancer Mortality Rate** | 145.2 | N/A | N/A | N/A | N/A | 0 | 0.00% |
| **Number of Published Articles on CPRIT-Funded Research Projects** | 1,000 | N/A | N/A | N/A | N/A | 0 | 0.00% |
| **Number of New Jobs Created and Maintained** | 1,500 | N/A | N/A | N/A | N/A | 0 | 0.00% |

## Variance Explanations

| Number of Entities Relocating to TX for Cancer Research Related Projects |
|---|
| This output is dependent on the number of companies applying for CPRIT Company Awards that can successfully advance through CPRIT's rigorous review and evaluation process, receive an award and actually relocate operations to Texas. Therefore, the results vary. A company must meet 4 of CPRIT's 7 criteria for a relocation to be considered complete. |

# CPRIT Commercial Paper and G.O. Bond Issuance

| Fiscal Year | Amount Appropriated | Dated Issued | Amount Issued | Amount Issued for Fiscal Year | Commercial Paper or GO Bond Issuance | Series | Comments | Interest Rate |
|---|---|---|---|---|---|---|---|---|
| 2010 | $ 225,000,000 | September 9, 2009 | $ 9,100,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2010 | | September 9, 2009 | $ 3,600,000 | | Commercial Paper Notes | Series B, Tax-Exempt | Defeased with cash July 2011 | |
| 2010 | | March 12, 2010 | $ 63,800,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2010 | | August 26, 2010 | $ 148,500,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| | | | | $ 225,000,000 | | | | |
| | | | | | | | | |
| 2011 | $ 225,000,000 | September 7, 2010 | $ 11,800,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2011 | | August 10, 2011 | $ 51,000,000 | | G.O. Bonds | Taxable Series 2011 | Par amount of new money | Fixed Rate Bonds All-In-True Interest Cost 4.0144% |
| 2011 | | August 10, 2011 | $ 232,045,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2011 | Par amount of refunding; Refunded $233.2M of GOCP CPRIT Series A (9/9/09, 3/12/09, 8/26/09, 9/7/10) | Fixed Rate Bonds All-In-True Interest Cost 4.0144% |
| | | | | $ 62,800,000 | | | | |
| | | | | | | | | |
| 2012 | $ 300,000,000 | September 7, 2011 | $ 3,200,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2012 | | December 8, 2011 | $ 3,200,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2012 | | March 2, 2012 | $ 12,300,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2012 | | June 21, 2012 | $ 15,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2012 | | August 16, 2012 | $ 42,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| | | | | $ 75,700,000 | | | | |
| | | | | | | | | |
| 2013 | $ 300,000,000 | September 6, 2012 | $ 9,600,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2013 | | May 16,2013 | $ 13,400,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| | | | | $ 23,000,000 | | | | |
| | | | | | | | | |
| 2014 | $ 300,000,000 | November 25, 2013 | $ 55,200,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2014 | | March 13, 2014 | $ 47,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2014 | | June 17, 2014 | $ 60,300,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2014 | | July 8, 2014 | $ 233,280,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2014 | Par amount of refunding; Refunded $237.88M of GOCP CPRIT Series A | Fixed Rate Bonds All-In-True Interest Cost 3.327184% |
| | | | | $ 162,500,000 | | | | |
| | | | | | | | | |
| 2015 | $ 300,000,000 | November 5, 2014 | $ 57,600,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2015 | | April 29, 2014 | $ 112,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2015 | | June 26, 2015 | $ 75,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| | | | | $ 244,600,000 | | | | |
| | | | | | | | | |

# CPRIT Commercial Paper and G.O. Bond Issuance

| Fiscal Year | Amount Appropriated | Dated Issued | Amount Issued | Amount Issued for Fiscal Year | Commercial Paper or GO Bond Issuance | Series | Comments | Interest Rate |
|---|---|---|---|---|---|---|---|---|
| 2016 | $ 300,000,000 | September 22, 2015 | $ 55,400,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2016 | | October 29, 2015 | $ 300,000,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2015C | Par amount of refunding; Refunded $300M of GOCP CPRIT Series A | Fixed Rate Bonds All-In-True Interest Cost 3.299867% |
| 2016 | | October 29, 2015 | $ 69,800,000 | | G.O. Bonds | Taxable Series 2015C | Par amount of new money: Disbursed to CPRIT January 2016 | Fixed Rate Bonds All-In-True Interest Cost 3.299867% |
| 2016 | | May 16, 2016 | $ 92,100,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2016 | | August 29, 2016 | $ 60,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| | | | | $ 277,300,000 | | | | |
| | | | | | | | | |
| 2017 | $300,000,000 | October 19, 2016 | $ 58,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2017 | | January 5, 2017 | $ 58,900,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2017 | | February 8, 2017 | $ 269,000,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2017 | Par amount of refunding: Refunded $269M of GOCP CPRIT Series A | Fixed Rate Bonds All-In-True Interest Cost 3.4622% |
| 2017 | | February 8, 2017 | $ 106,000,000 | | G.O. Bonds | Taxable Series 2017 | Par amount of new money | Fixed Rate Bonds All-In-True Interest Cost 3.4622 % |
| | | | | $ 222,900,000 | | | | |
| | | | | | | | | |
| 2018 | $300,000,000 | September 29, 2017 | $ 68,200,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2018 | | March 8, 2018 | $ 99,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| 2018 | | July 11, 2018 | $ 55,000,000 | | Commercial Paper Notes | Series A, Taxable | Refunded as G.O. Bonds | |
| | | | | $ 222,200,000 | | | | |
| | | | | | | | | |
| 2019 | | September 21, 2018 | $ 222,200,000 | | G.O. Bond (Refunding Bonds) | Taxable Series 2018 | Par amount of refunding: Refunded $222.2M of GOCP CPRIT Series A | Fixed Rate Bonds All-In-True Interest Cost 3.720632% |
| 2019 | $300,000,000 | September 21, 2018 | $ 75,975,000 | | G.O. Bonds | Taxable Series 2018 | Par amount of new money | Fixed Rate Bonds All-In-True Interest Cost 3.720544% |
| 2019 | | March 28, 2019 | $ 77,725,000 | | Commercial Paper Notes | Series A, Taxable | | Interest rates between 1.90% - 2.55% |
| 2019 | | July 12, 2019 | $ 54,000,000 | | Commercial Paper Notes | Series A, Taxable | | Interest rates between 1.95% - 2.35% |
| | | | | $ 207,700,000 | | | | |
| | | | | | | | | |
| | | | | | | | | |

# CPRIT Commercial Paper and G.O. Bond Issuance

| Fiscal Year | Amount Appropriated | Dated Issued | Amount Issued | Amount Issued for Fiscal Year | Commercial Paper or GO Bond Issuance | Series | Comments | Interest Rate |
|---|---|---|---|---|---|---|---|---|
| 2020 | | September 16, 2019 | $ 64,300,000 | | Commercial Paper Notes | Series A, Taxable | | Interest rate of 2.10% |
| 2020 | | January 9, 2020 | $ 52,000,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2020 | | April 23, 2020 | $ 237,720,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2020 | Par amount of refunding: Refunded $248.025M of GOCP CPRIT Series A | Fixed Rate Bonds All-In-True Interest Cost 2.644360% |
| 2020 | | April 23, 2020 | $ 115,000,000 | | G.O. Bonds | Taxable Series 2020 | Par amount of new money | Fixed Rate Bonds All-In-True Interest Cost 2.644360% |
| 2020 | | April 23, 2020 | $ 119,750,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2020 | Par amount of refunding. Refunded $120.525M of Taxable Series 2011 | |
| | | | | $ 231,300,000 | | | | |
| | | | | | | | | |
| 2021 | $300,000,000 | September 11, 2020 | $ 75,000,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2021 | | January 14, 2021 | $ 59,000,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2021 | | April 29, 2021 | $ 68,900,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2021 | | August 12, 2021 | $ 57,400,000 | | Commercial Paper Notes | Series A, Taxable | | |
| | | | | $ 260,300,000 | | | | |
| | | | | | | | | |
| 2022 | $300,000,000 | September 28, 2021 | $ 87,000,000 | | Commercial Paper Notes | Series A, Taxable | | |
| 2022 | | November 18, 2021 | $ 334,745,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2021B | Par amount of refunding: Refunded $347.300M of GOCP CPRIT Series A | Fixed Rate Bonds All-In-True Interest Cost 2.191715% |
| 2022 | | November 18, 2021 | $ 139,565,000 | | G.O. Bonds | Taxable Series 2021B | New money proceeds of $144.800M | Fixed Rate Bonds All-In-True Interest Cost 2.191715% |
| 2022 | | November 18, 2021 | $ 108,005,000 | | G.O. Bonds (Refunding Bonds) | Taxable Series 2021B | Par amount of refunding: Refunded $108.660M of Taxable Series 2014B | Fixed Rate Bonds All-In-True Interest Cost 2.191715% |
| 2022 | | July 14, 2022 | $ 66,300,000 | | Commercial Paper Notes | Series A, Taxable | | Interest rate of 2.30% |
| | | | | $ 298,100,000 | | | | |
| | | | | | | | | |
| 2023 | $300,000,000 | September 20, 2022 | $ 79,500,000 | | Commercial Paper Notes | Series A, Taxable | | Interest rate of 3.15% |
| | | | | $ 79,500,000 | | | | |
| | | | | | | | | |
| **TOTAL ISSUED TO DATE** | | | | **$ 2,592,900,000** | | | | |

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

# MEMORANDUM

| | |
|---|---|
| **TO:** | OVERSIGHT COMMITTEE MEMBERS |
| **FROM:** | MARK DALLAS LOEFFLER |
| **SUBJECT:** | COMMUNICATIONS UPDATE |
| **DATE:** | FEBRUARY 6, 2022 |

These are highlights of CPRIT communications team efforts since the November Oversight Committee meeting.

**Annual Report**

CPRIT released the 2022 Annual Report online on January 31. The Annual Report features grantee highlights and a new, interactive "Mission Map" to illustrate how grantees and grantee institutions are helping CPRIT accomplish our three-part mission in all parts of the state.

**Media Relations**

The communications team posted and distributed three media advisories and press releases related to CPRIT programs and news:

- Media advisory (Nov. 10 and 15, 2022): CPRIT to vote on $12 million to bring cancer researchers to Texas
- Press release (Nov. 16, 2022) : CPRIT approves $12 million to bring top-flight cancer researchers to Lone Star State
- Press release (Nov. 23, 2022): State cancer agency gives thanks for local donation

In addition, we facilitated a news package for the November 16, 2022, Oversight Committee meeting that aired 32 times in 12 television markets (Abilene, Amarillo, Austin, El Paso, Harlingen, Houston, Lubbock, Odessa, Shreveport, Tyler, Waco, and Wichita Falls).

**CPRIT Conference**

We published temporary conference landing page. CPRIT will launch the full site launch soon.

**Direct Communication**

In addition to sending out notifications to the CPRIT legislative list serve and general public list serve about CPRIT's FY 2022 Annual Report release on January 31, the communications teams distributed list serve notifications regarding new Prevention and Academic Research RFAs. We also sent numerous announcements in support of partner institutions and organizations.



PO Box 12097 | Austin, Texas 78711 | PH: 512-463-3190 | F: 512-475-2563 | cprit.texas.gov

**Audio /Video**

The communications team added the video of American Cancer Society forum for CPRIT's 15th Anniversary to the CPRIT home page. https://www.youtube.com/watch?v=_oWyPBP9H1k. We completed and released a new video highlight of grantee OncoNano. You may view the video on our YouTube channel. https://www.youtube.com/watch?v=UZxzTqvJPlQ. We are working on a new video highlight featuring the CPRIT-funded HPV vaccination efforts of UT Health San Antonio and UT Health Houston.

**Newsclips**

We shared 443 articles and social media posts through CPRIT ENews from November 17, 2022 and February 2, 2023.

**Social Media Statistics**

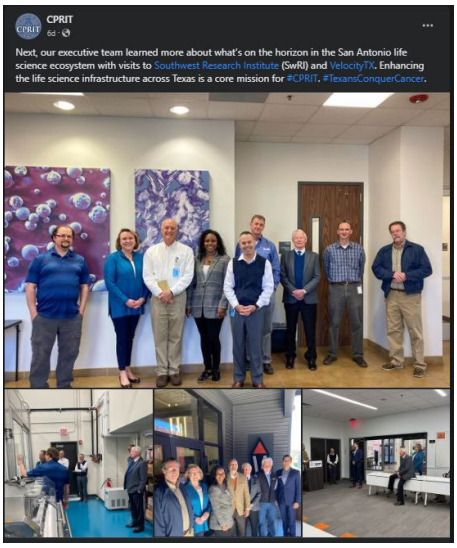
*Social Media from November 16, 2022 – February 2, 2023*

| Facebook | Twitter | LinkedIn |
|---|---|---|
| **6.78%** post engagement rate | **3.27%** engagement rate | **6.01%** engagement rate |
| 1,221 Fans | 3,412 followers | 2,454 followers |
| Top Post: **13.84%** engagement (1/27) | Top Tweet: **5,450** impressions (11/16) | Top Post: **6,668** impressions (11/16) |

*Website Hits and Visitors November 16 to February 2, 2023*

| Users | New Users | Sessions (Visits) | Pageviews | Pages / Session |
|---|---|---|---|---|
| **16,784** | **15,837** | **22,388** | **46,756** | **2.09** |

**Top Performing Posts**




Facebook: January 27, 2023
*"Next, our executive team learned more about what's on the horizon in the San Antonio life science ecosystem with visits to Southwest Research Institute (SwRI) and VelocityTX. Enhancing the life science infrastructure across Texas is a core mission for #CPRIT. #TexansConquerCancer."*


Twitter and LinkedIn: November 16, 2022
*BREAKING NEWS: CPRIT approved $12 million in recruitment grants at the Texas Capitol today. The grants will bring 2 CPRIT Scholars from out-of-state to Texas to add to the state's growing cancer research prowess. #TexansConquerCancer*
*Read more:*
http://ow.ly/wuCn50LG7sf

## CPRIT Related Social


Jaime A. Varela
@jvarela42

$20 million for a new Cancer Innovation Fund to boost research for promising innovative cancer therapies. Florida continues to lead when it comes to cancer research and patient support through Florida Cancer Connect (http://flcancerconnect.com)

*Casey DeSantis*
*@CaseyDeSantis*
*Feb 2*
*@GovRonDeSantis proposed $166 million for cancer research and care in his Framework for Freedom Budget.*

*I could not be more grateful for the hope and support this funding will give those in the fight.*

Andrew Barlow
@barlandrew

Replying to @jvarela42 and @christinapushaw
Check out @CPRITTexas