

The Florida Senate
COMMITTEE MEETING EXPANDED AGENDA
APPROPRIATIONS SUBCOMMITTEE ON HEALTH AND
HUMAN SERVICES
Senator Bean, Chair
Senator Harrell, Vice Chair

MEETING DATE: Tuesday, February 12, 2019

TIME: 1:30—3:30 p.m.

PLACE: *Pat Thomas Committee Room*, 412 Knott Building

MEMBERS: Senator Bean, Chair; Senator Harrell, Vice Chair; Senators Book, Diaz, Farmer, Flores, Hooper, Passidomo, Rader, and Rouson

TAB		BILL NO. and INTRODUCER	BILL DESCRIPTION and SENATE COMMITTEE ACTIONS	COMMITTEE ACTION
1		Presentation on Biomedical Research		Presented
Other Related Meeting Documents				

Fiscal Year 2017-2018 Biomedical Research/Cancer Center Funding Summary by Recipient

			Statewide Competitive, Peer-Reviewed Grant Programs				Program-Specific Funding					
Row	Recipient		James and Esther King Biomedical Research Program ¹	Bankhead-Coley Cancer Research Program ²	Live Like Bella Pediatric Cancer Research Initiative ³	Ed and Ethel Moore Alzheimer's Disease Research Program ⁴	Endowed Cancer Research Chair Program ⁵	Florida Consortium of National Cancer Institute Centers Program ⁶	Florida Center for Brain Tumor Research ⁷	State University System - Special Categorical Funding ⁸	Statutory Cigarette Tax Distribution ⁹	Total Fiscal Year 2017-2018 Funding ¹⁰
1	Ava Maria University				100,000							100,000
2	Baptist Health South Florida			700,000								700,000
3	Florida Atlantic University	708,044			100,000							808,044
4	Florida Institute of Technology				100,000							100,000
5	Florida International University			700,000	224,643							924,643
6	Florida State University		815,283		100,000							915,283
7	H. Lee Moffitt Cancer Center	2,068,901	2,445,855				25,374,656		10,576,930	15,524,028		55,990,370
8	Mayo Clinic of Jacksonville		815,283		841,999	2,000,000						3,657,282
9	Mount Sinai Medical Center				96,643							96,643
10	South Florida Veterans Affairs Foundation		57,500									57,500
11	University of Central Florida		815,283	200,000	495,784							1,511,067
12	University of Florida	2,993,885		200,000	938,207		20,259,756	500,000				24,891,848
13	University of Miami	916,513	3,804,653	200,000	1,181,724		16,594,331					22,697,221
14	University of South Florida	816,514			821,000							1,637,514
15	Total	7,503,857	8,753,857	2,000,000	5,000,000	2,000,000	62,228,743	500,000	10,576,930	15,524,028		114,087,415

Notes

- ¹ Sections 215.5602 and 215.5602(2)(b), Florida Statutes; and Chapter 2017-70, at 102, section 3, specific appropriations 449 and 450, Laws of Florida.
- ² Sections 215.5602(2)(b) and 381.922, Florida Statutes; and Chapter 2017-70, at 102, section 3, specific appropriations 449 and 451, Laws of Florida.
- ³ Section 381.922(2)(c), Florida Statutes; and Chapter 2017-70, at 102, section 3, the proviso following specific appropriation 451, Laws of Florida.
- ⁴ Section 381.82, Florida Statutes; and Chapter 2017-70, at 103, section 3, specific appropriation 456, Laws of Florida.
- ⁵ Section 381.922(4), Florida Statutes; and Chapter 2017-70, at 103, section 3, specific appropriation 455, Laws of Florida.
- ⁶ Sections 210.20(2)(c), 215.5602(2)(b), and 381.915, Florida Statutes; and Chapter 2017-70, at 102, section 3, specific appropriation 453, Laws of Florida.
- ⁷ Section 381.853, Florida Statutes; and Chapter 2017-70, at 102, section 3, the proviso following specific appropriation 451, Laws of Florida.
- ⁸ Chapter 2017-70, at 43, section 2, specific appropriation 140, Laws of Florida.
- ⁹ Section 210.20(2)(b), Florida Statutes; and Florida Department of Business and Professional Regulation, Cigarette Tax Collection Trust Fund, *Schedule I: Trust Funds Available, Agency Legislative Budget Request for Fiscal Year 2019-2020*, <http://floridafiscalportal.state.fl.us/Document.aspx?ID=18124&DocType=PDF> (last accessed February 11, 2019).
- ¹⁰ Total does not include additional funding some recipients receive through the Medicaid program for patient care (i.e., Low-Income Pool, Disproportionate Share Hospital Program, and Medicaid Cancer Care Reimbursement).

Ed and Ethel Moore Alzheimer's Disease Research Program Overview



Leilani Doty, PhD

**Chair, Alzheimer's Disease Research Grant Advisory
Board**

Program Purpose

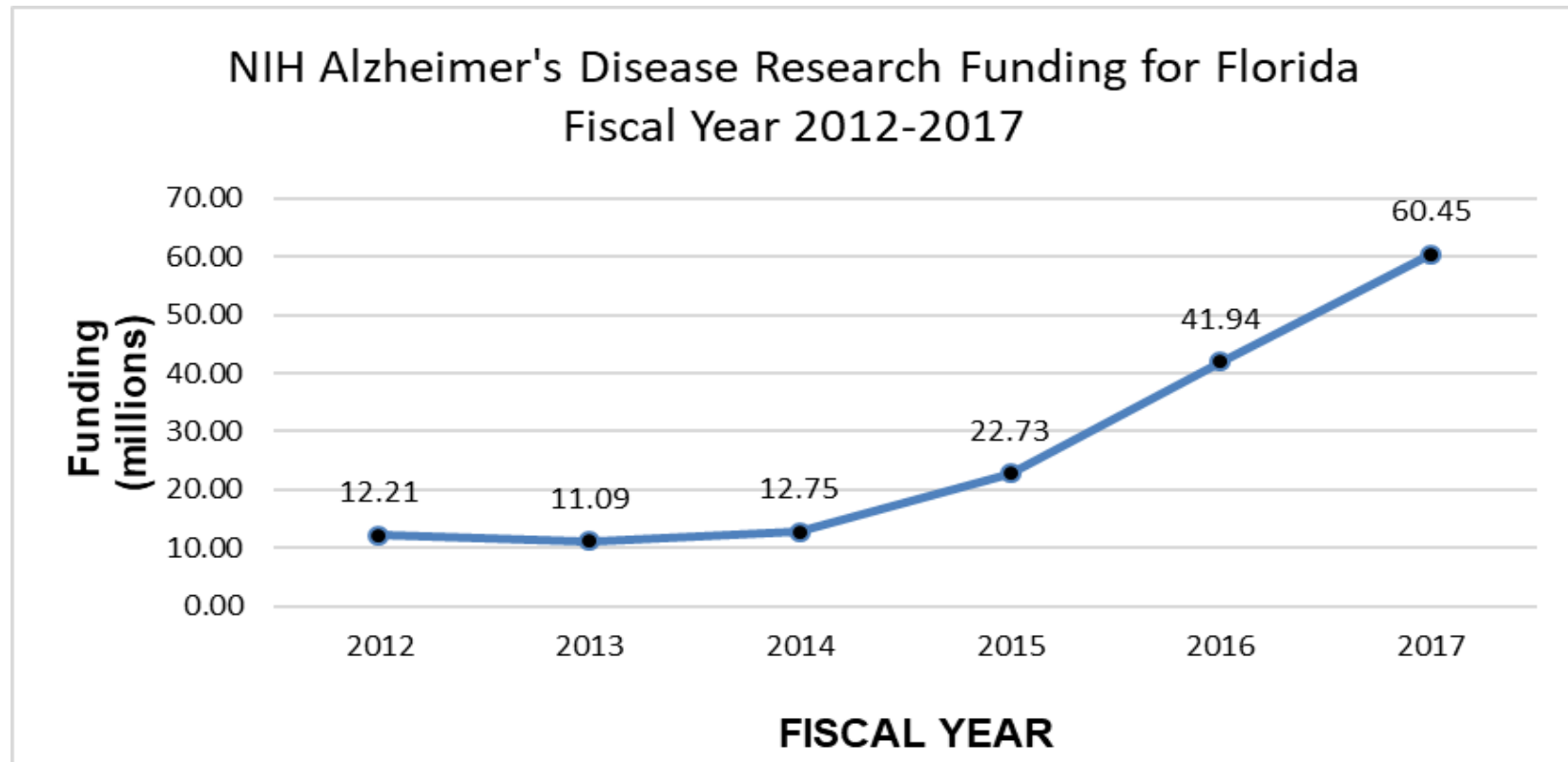
The long term goals are to:

- Improve the health of Floridians by researching improved prevention measures, diagnosis methods, treatments, and cures for Alzheimer's disease.
- Expand the foundation of knowledge relating to the prevention, diagnosis, treatment, and cure of Alzheimer's disease.
- Stimulate economic activity in the state in areas related to Alzheimer's disease research.

Noteworthy Accomplishments

- In 2014, the Florida Legislature initially funded the program \$3 million to award research grants to Florida based research institutions. Funding has now grown to \$5 million for the last 3 years.
- Florida's state ranking for total amount of Alzheimer's disease research funding increased from 12th place (\$12.21 million) in 2012 to 5th place (\$60.45 million) in 2017.
- A total of \$42,972,601.63 has been reported in follow-on funding (private, foundational, and federal) received by grant awardees from 2014-2018.

NIH Research Funding Trends In Florida Fiscal Year 2012 – 2017



Conclusion

- Florida saw the 4th highest growth in new research funding, behind the states of Ohio, Michigan, and Georgia, and saw the highest funding gains of the Top 10 ranked states in 2017, more than doubled the rate of the 2nd ranked state, New York.
- Currently there are 82 active research grants funded by this program to enhance eminent scientific advancements and discoveries in Alzheimer's disease.
- With over 540,000 Floridians over the age of 65 affected by this debilitating disease and as the 6th leading cause of death in Florida, persistent and innovative research performed at Florida based research institutions is pertinent to provide hope for effective and novel treatment for this incapacitating disease.



Florida Cancer Control & Research Advisory Council

Christopher R. Cogle, M.D.

Chairperson

Christopher.Cogle@medicine.ufl.edu

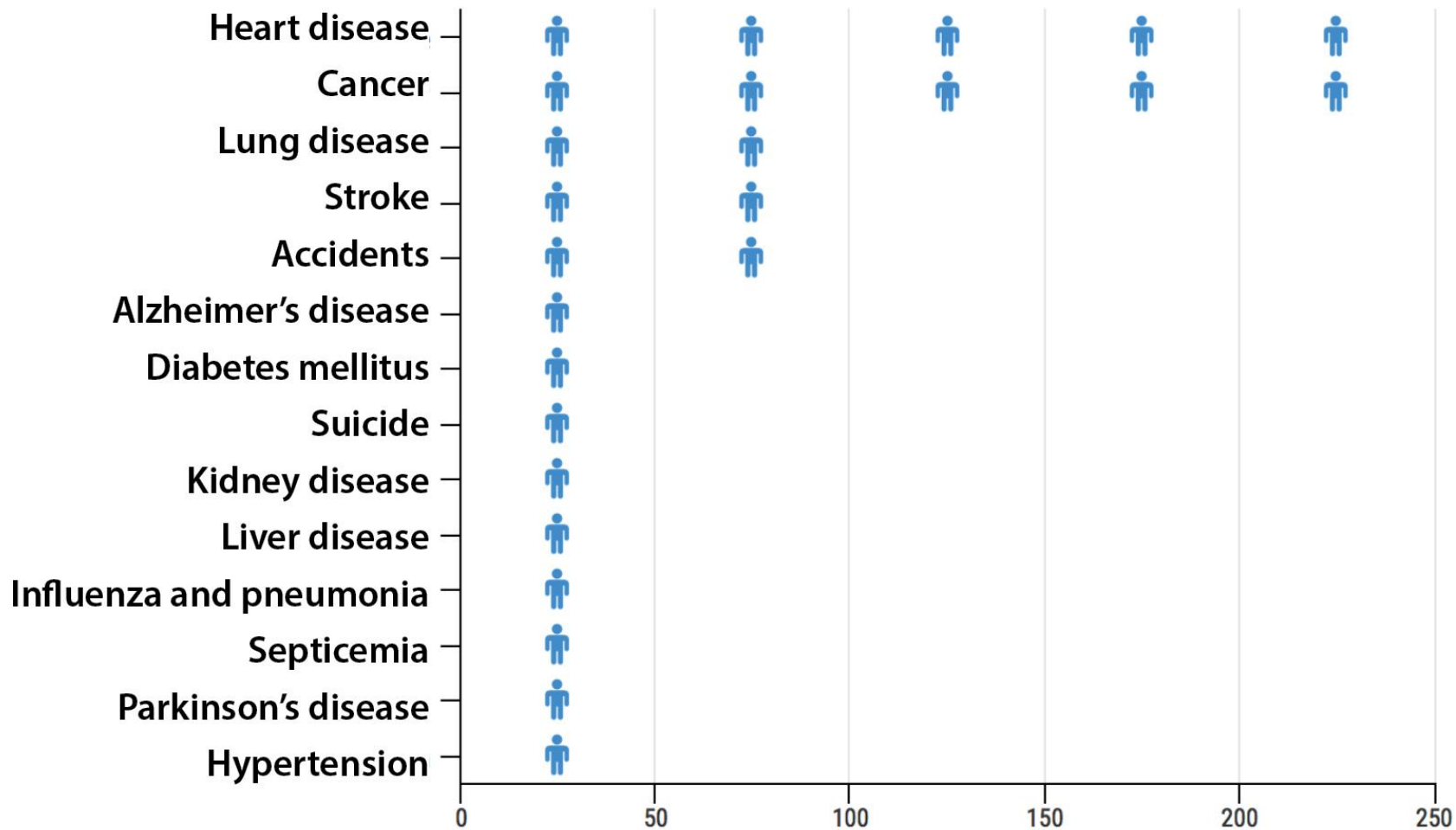
Bobbie McKee, Ph.D.

External Board Manager

Bobbie.Mckee@moffitt.org

1. Cancer in Florida

Leading Causes of Death in Florida



*Source: CDC National
Vital Statistics System,
LCWK9 2015 data.
Based on the
International
Classification of
Diseases, Tenth
Revision.*

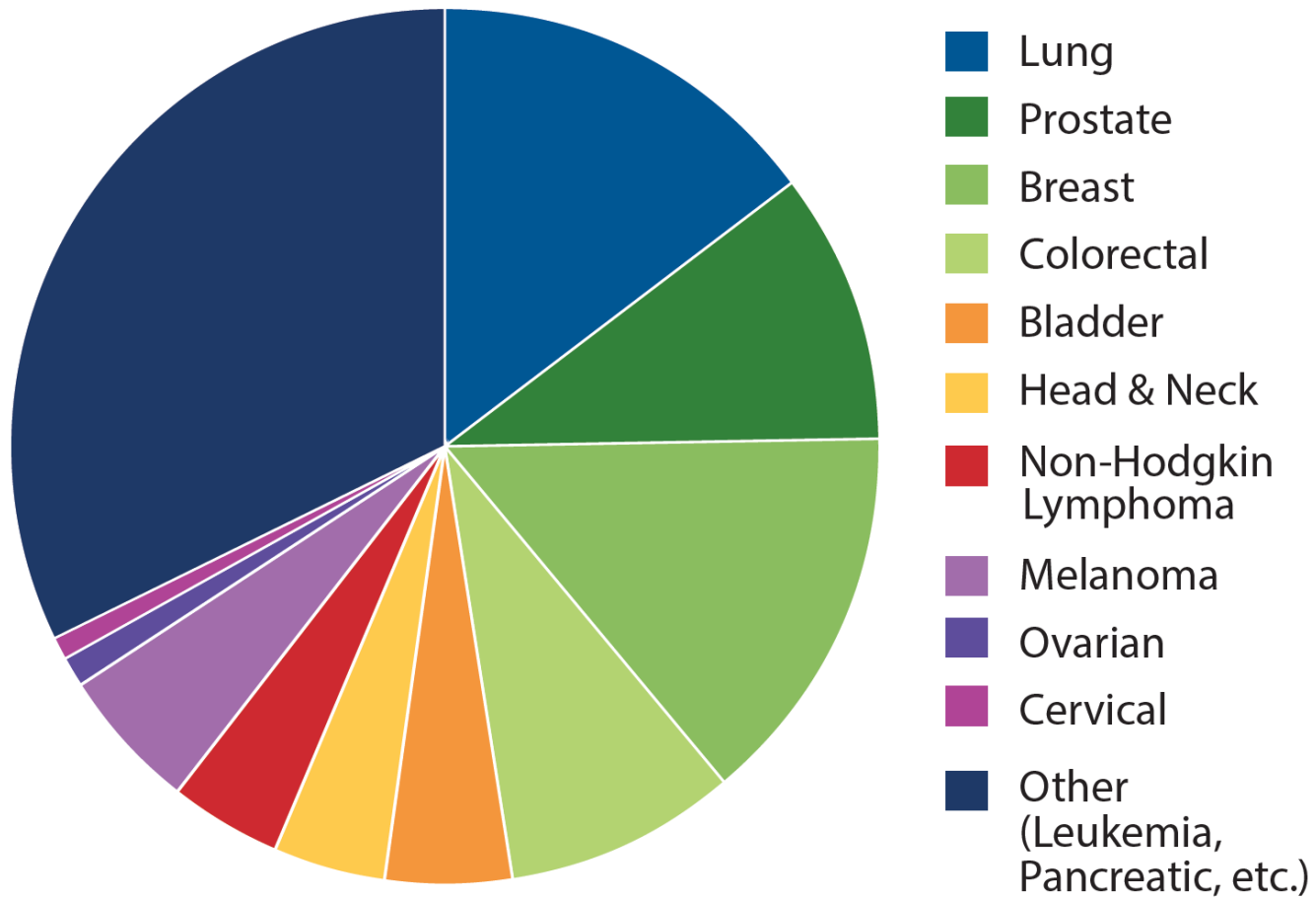
Age-Adjusted Cancer Incidence Rates by County



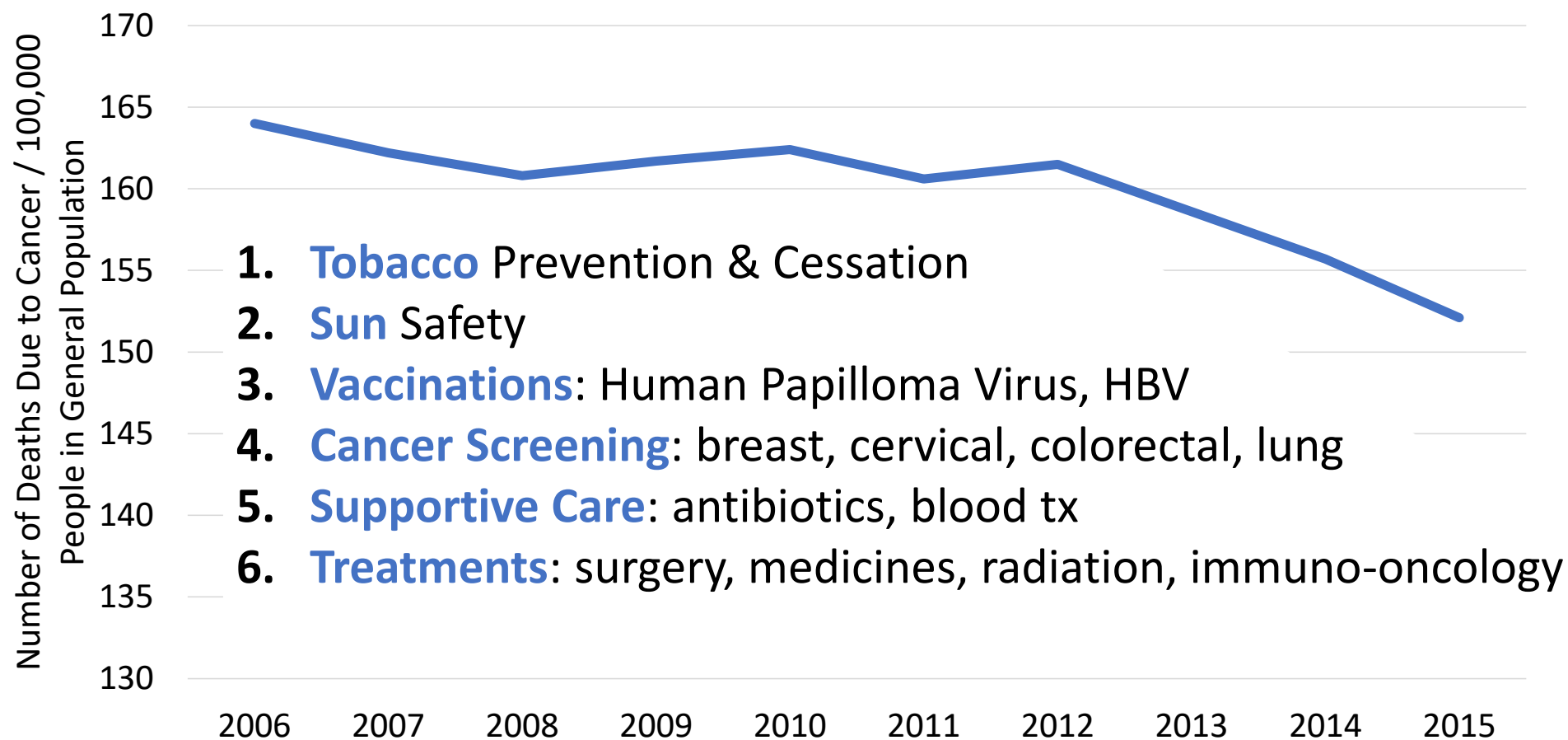
Source: FCDS, 2006-2016

Cancer Cases in Florida

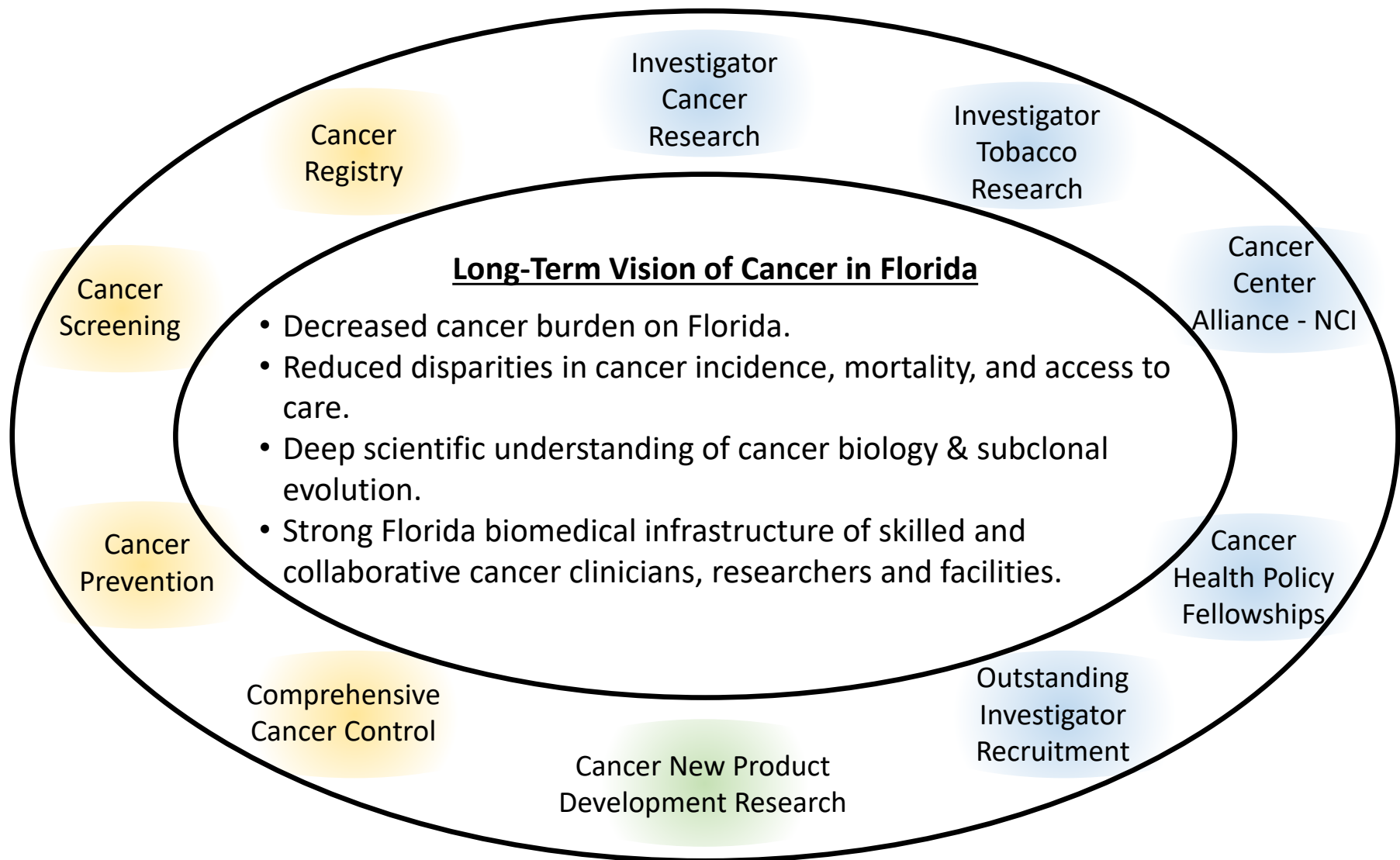
Case Count in 2015



Trend in Cancer Mortality Rate in Florida

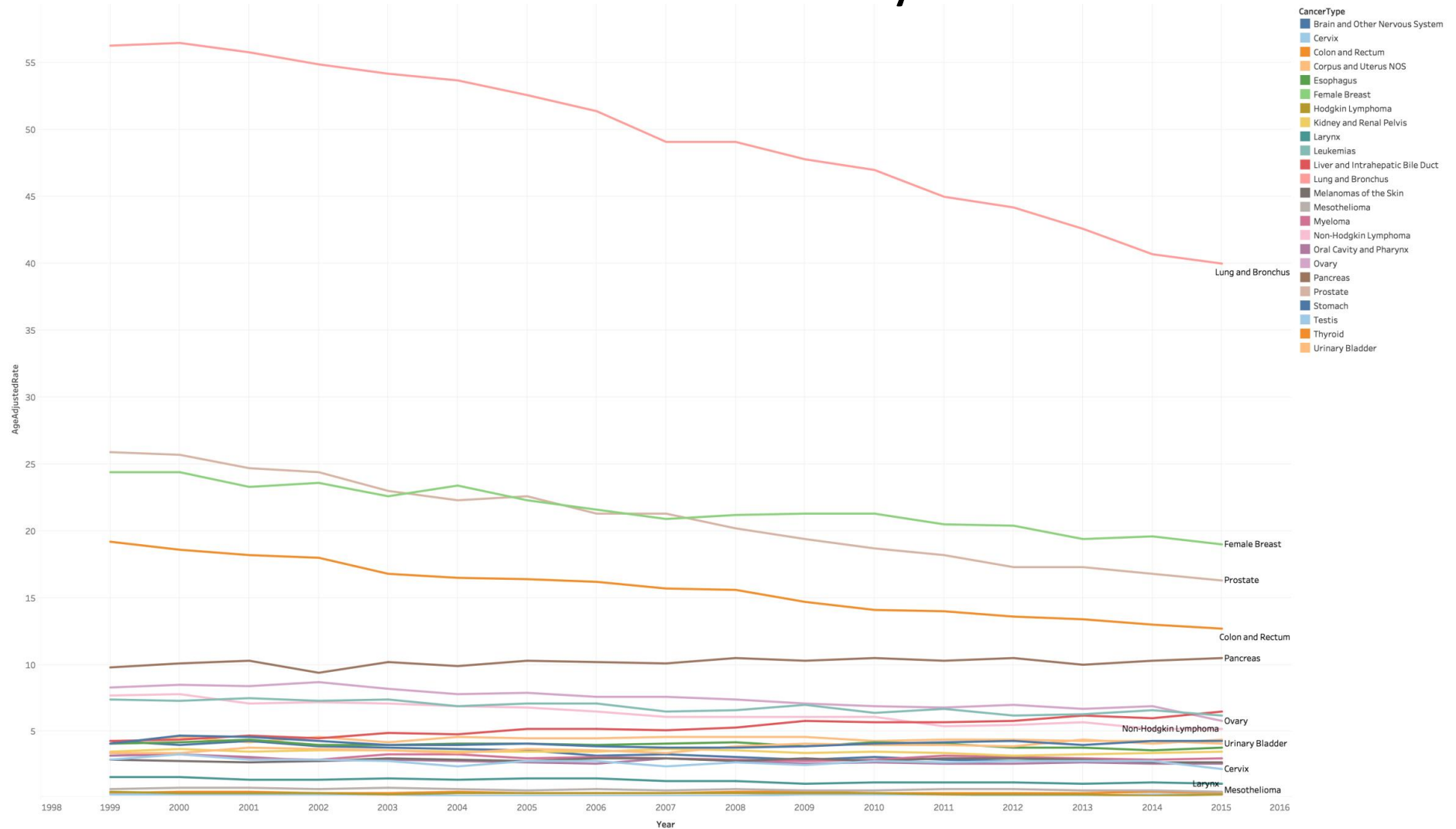


2. Cancer Control in Florida

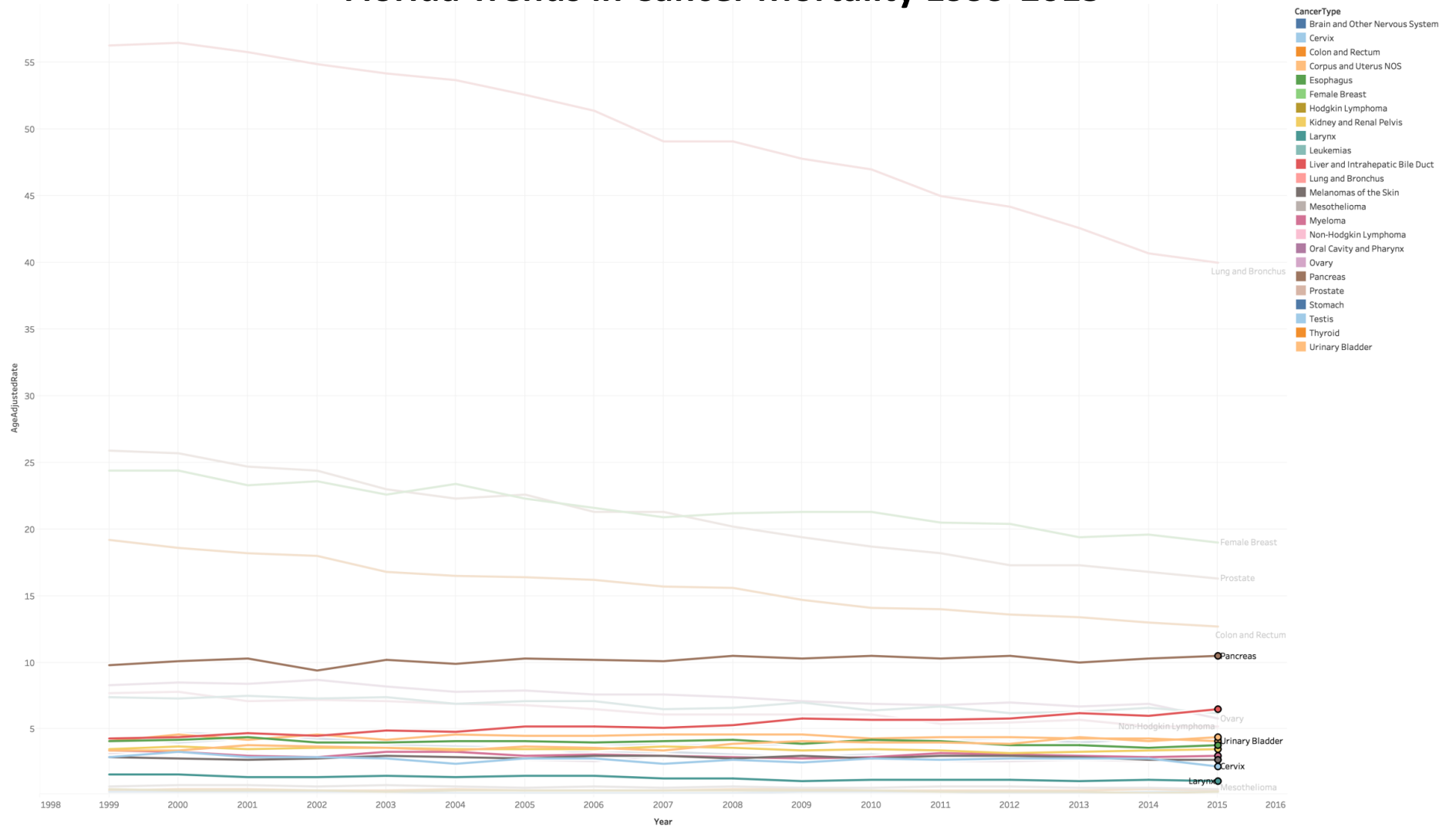


3. Cancer Trends in Florida

Florida Trend in Cancer Mortality 1999-2015

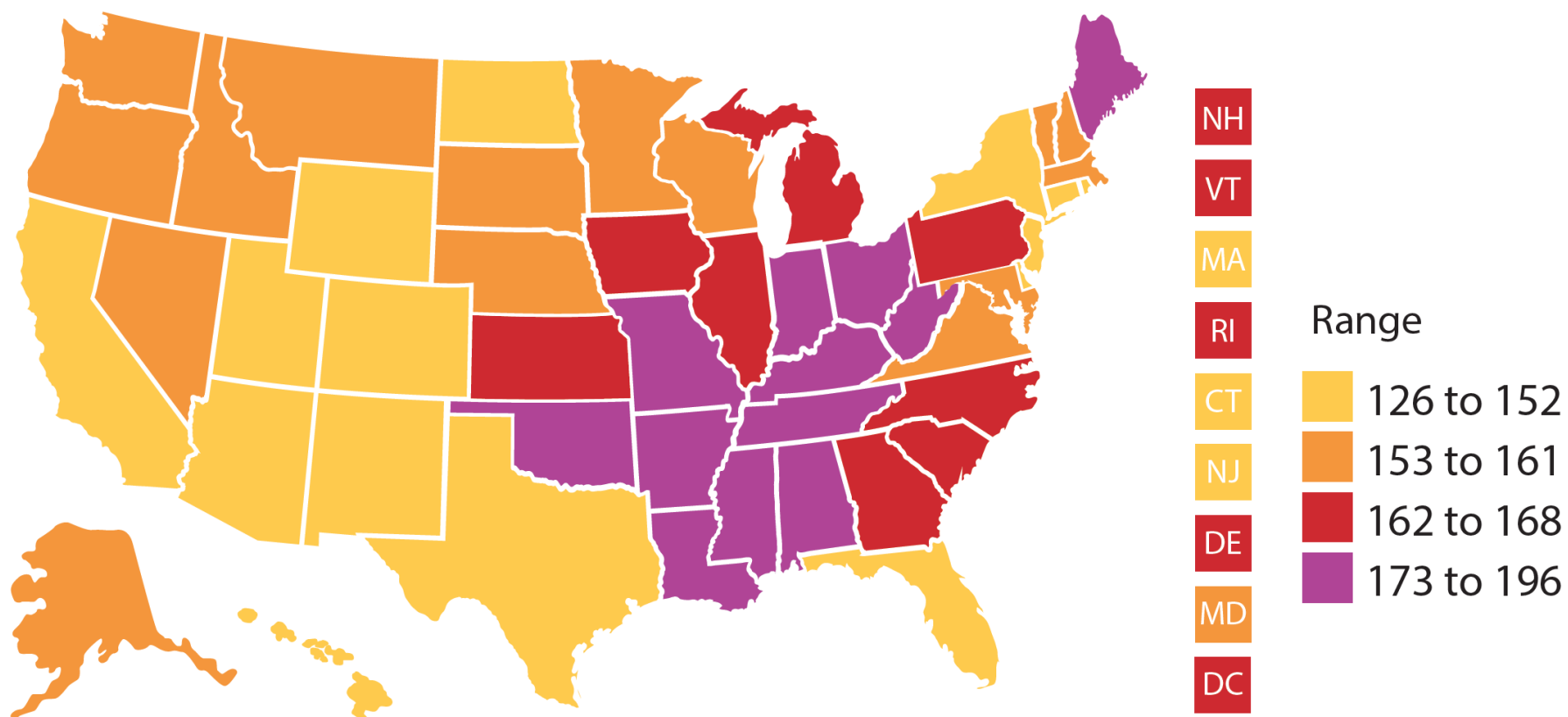


Florida Trends in Cancer Mortality 1999-2015



4. Florida versus U.S.

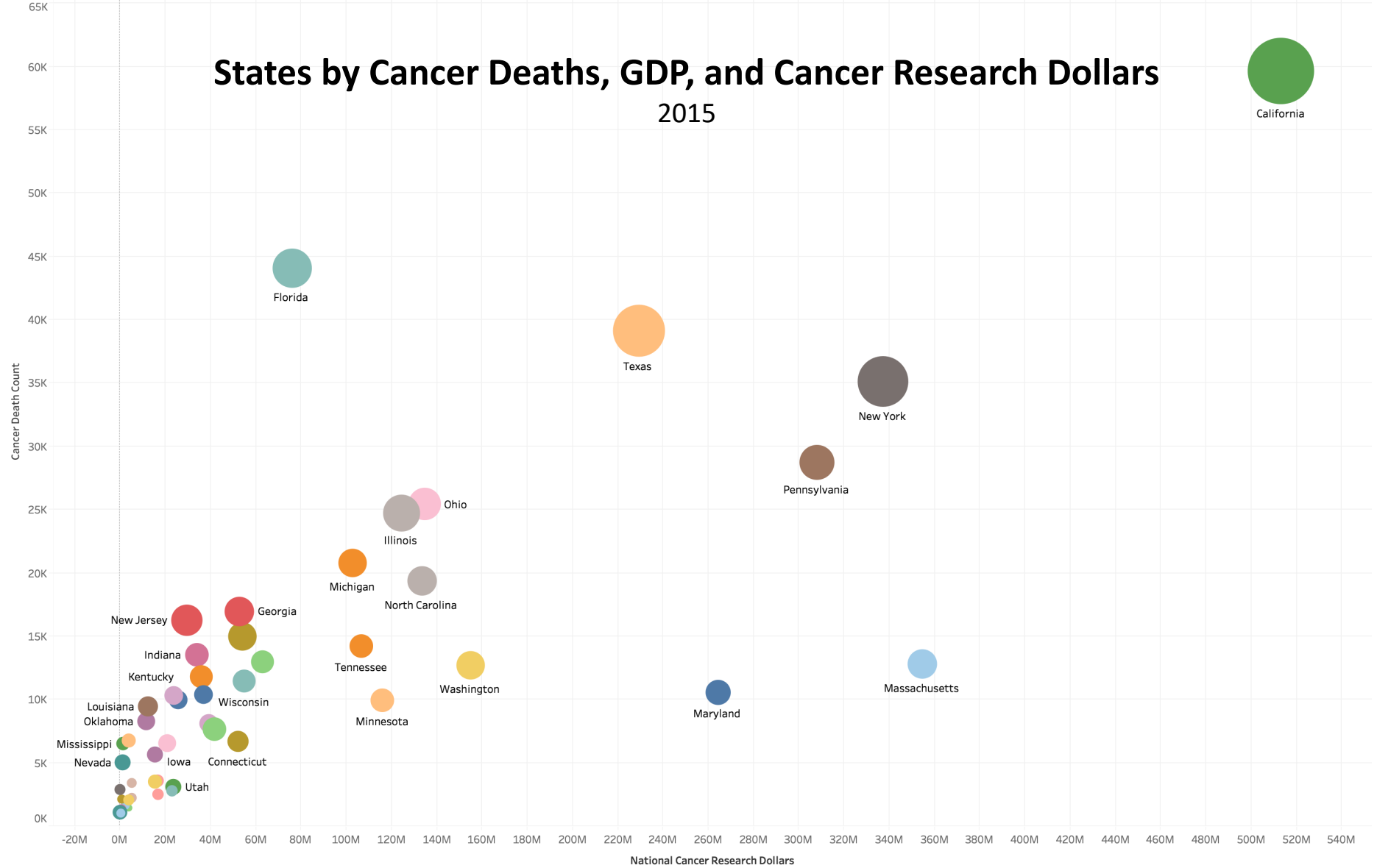
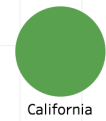
Age-adjusted cancer mortality rates per 100,000

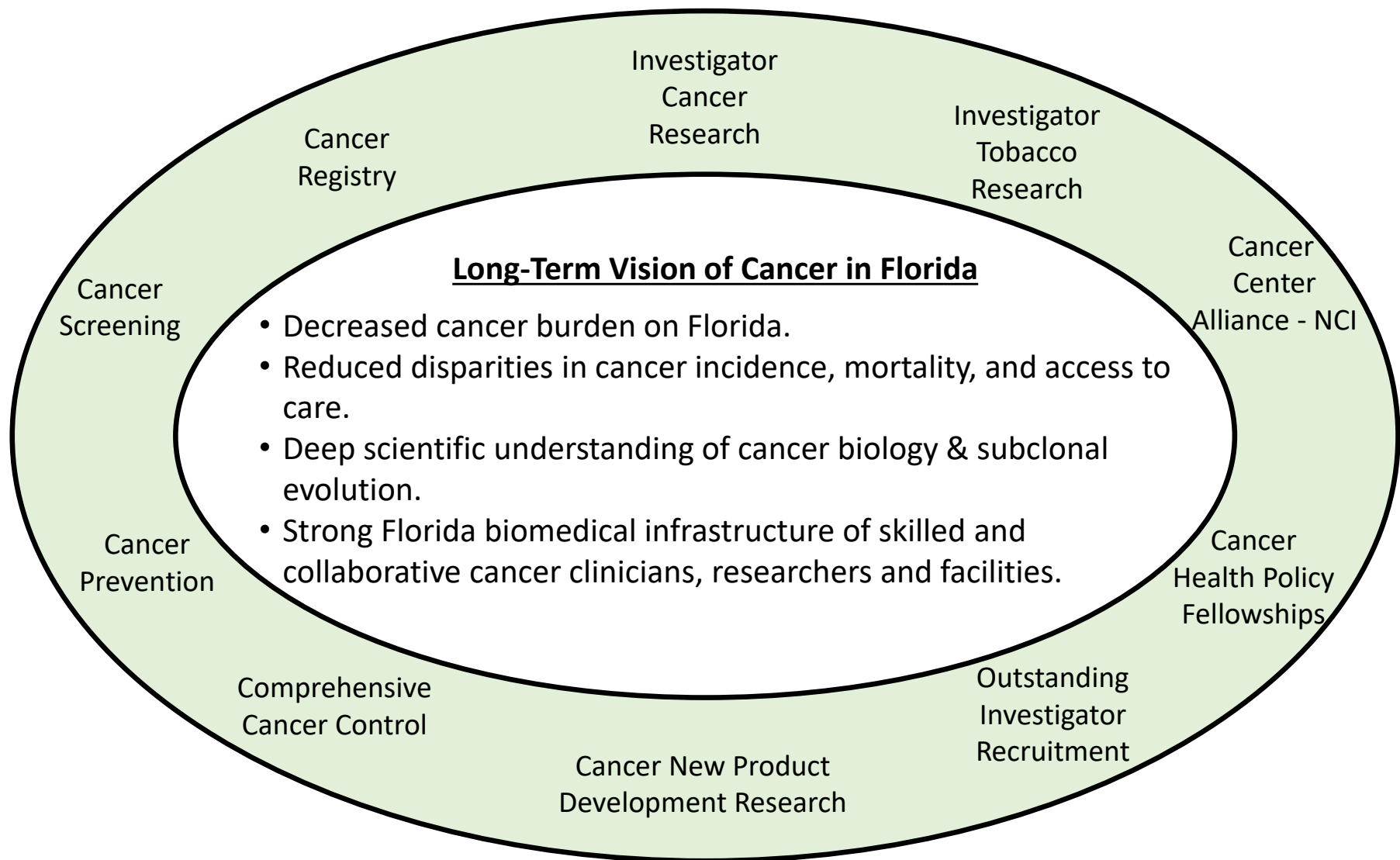


Source: CDC

States by Cancer Deaths, GDP, and Cancer Research Dollars

2015





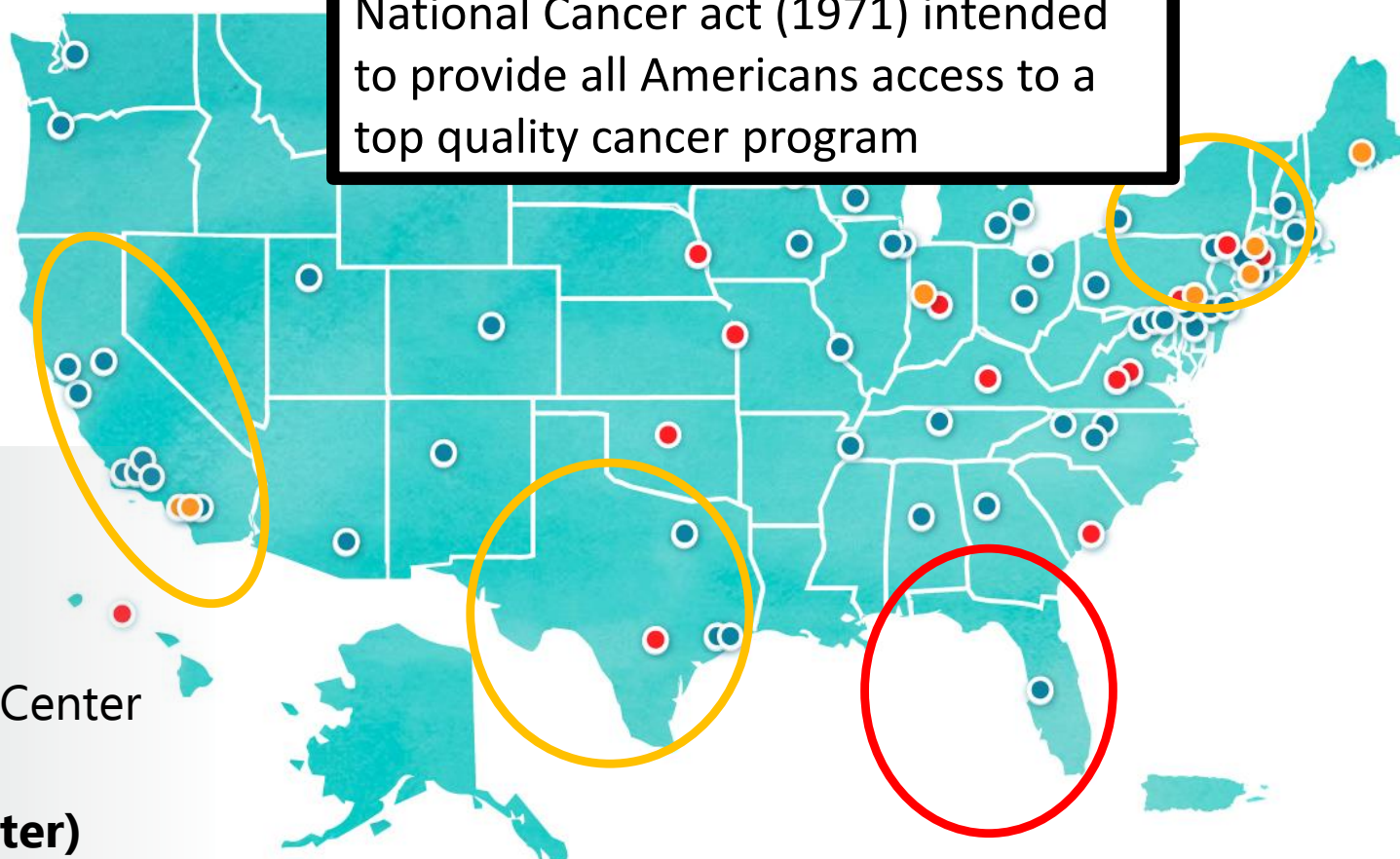
Florida Academic Cancer Center Alliance

Moffitt Cancer Center
Sylvester Comprehensive Cancer Center
UF Health Cancer Center

The Cancer Problem: Florida Not Meeting NCI Goal

NCI-Designated Cancer Centers	
49	Comprehensive
14	(Clinical) Cancer Center
07	Basic
70	Total

National Cancer act (1971) intended to provide all Americans access to a top quality cancer program



Currently Only

1

NCI Designated
Comprehensive Cancer Center
In Florida

(Moffitt Cancer Center)

Map from NCI

● CANCER CENTER

● COMPREHENSIVE CANCER CENTER

● BASIC LABORATORY

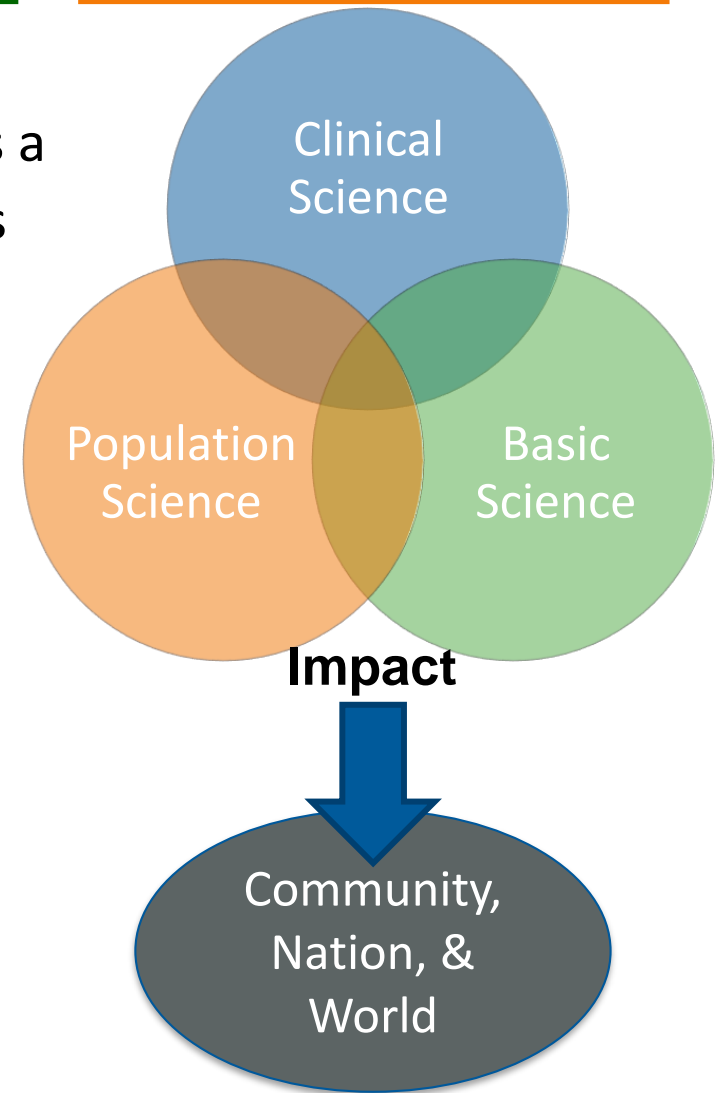
NCI Designation

Purpose

- “...intended to foster excellence in research across a broad spectrum of scientific and medical concerns relevant to cancer.” -NCI

What It Means

- Prestige
- Funding
- Recruitment edge
 - Scientists
 - Physicians
- Provision of tomorrow’s standard of care – today
 - Better patient outcomes



NCI Designation: A High Bar

- Eligibility
 - >**\$10,000,000** in annual peer-reviewed grant funding
 - Pre-meeting with the NCI strongly encouraged
- 6 Essential Characteristics
 - Facilities
 - Organizational Capabilities
 - Transdisciplinary Collaboration
 - Cancer Focus
 - Institutional Commitment
 - Center Director

NCI Designation: Review Process

- Rigorous peer review:
 - NCI Subcommittee A
 - Written application 2,500+ pages
 - Site visit (~ 25 peer reviewers)
- Center must demonstrate:
 - Multi-disciplinary collaboration
 - Contributions to education
 - Benefit to, and inspiration from, the “catchment area”
 - Whole is greater than the sum of the individual parts
 - Impact: Changes in Paradigms, Practice, and Policy

Florida Consortium of National Cancer Institute (NCI) Centers Program

- Created by Florida Statute 381.915, to:
 - Enhance quality/competitiveness of cancer care at Florida based centers
 - Further statewide biomedical research
 - Capitalize on educational opportunities
- Noting additional economic benefits:
 - Economic growth/return to Florida
 - Jobs (high-paying – physicians, researchers)
 - Retain Floridians in-state for care

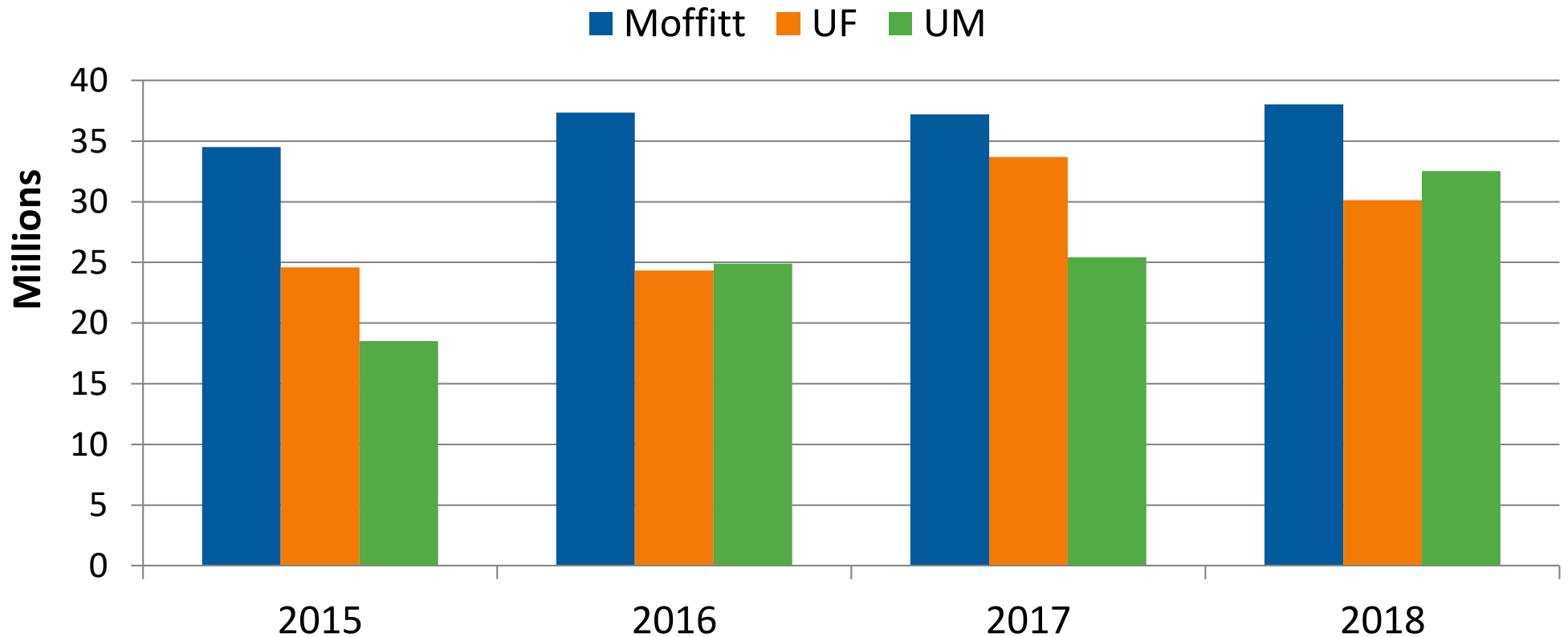
Florida Academic Cancer Center Alliance

FACCA = Collaboration

- Formed by 3 Centers with Creation of State's NCI Program
 - Each center home-grown with long histories of research, academic, training, & cancer patient care excellence
- Bona fide Partnership
 - Directors meet at annual American Association of Cancer Institute
 - Monthly Director & Administrator meetings
- Robust Research Collaborations
 - Annual group retreats
 - Pilot Funding
 - 15 projects over four years
 - Requires investigators from at least two centers
 - Think Tanks - Collaborative research projects in targeted areas

FACCA Key Results

Peer-reviewed Grant Funding (Annual Direct)



Moffitt Cancer Center

Tom Sellers, PhD, MPH

Center Director



TO CONTRIBUTE TO THE PREVENTION AND CURE OF CANCER



Moffitt Cancer Center Today

Business (503c)	Clinical	Research
<ul style="list-style-type: none">• Instrumentality of the State• 6,200+ workforce• \$1B+ annual budget• 74 acres total campus• 2.8M ft²	<ul style="list-style-type: none">• Multidisciplinary teams• 206 inpatient beds• In FY 2018:<ul style="list-style-type: none">▪ 23,199 new patients▪ 406,117 outpatient visits▪ 445 transplants▪ 55 CAR-T	<ul style="list-style-type: none">• >\$77M in grants & contracts (annual direct costs)• 800+ Publications a year• 300+ open treatment trials<ul style="list-style-type: none">▪ ~1200 therapeutic accruals▪ >40% of accruals to IITs



Moffitt Funding & Use

Moffitt Investments Leveraged with FACCA funds

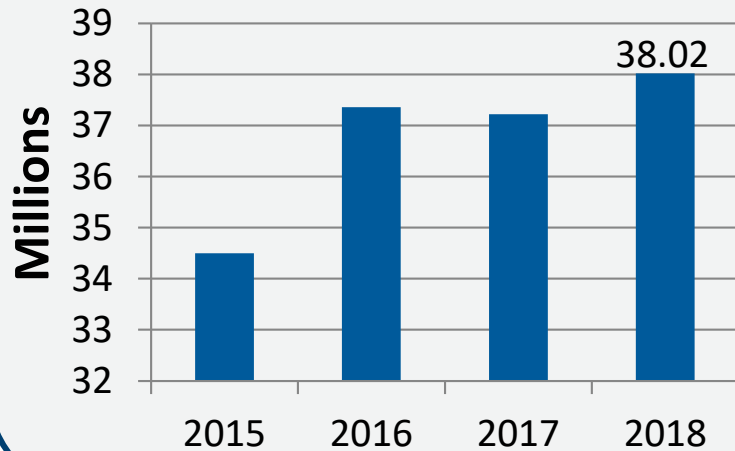
Category	2014-2015	2015-2016	2016-2017	2017-2018
Faculty Recruitment & Support	\$15.1M	\$16.3M	\$16.7M	\$20.9M
Research/Clinical Support	\$3.3M	\$6.2M	\$6.4M	\$11.0M
Laboratory Supplies/Staffing	\$3.4M	\$3.6M	\$3.8M	\$3.8M
Biostatistical Support	\$0.9M	\$1.0M	\$2.6M	\$1.3M
Clinical Trials Support	\$2.1M	\$1.2M	\$7.7M	\$3.9M
Research Equipment	\$1.0M	\$3.0M		
Total	\$25.8M	\$31.3M	\$37.2M	\$40.9M

Moffitt Key Results

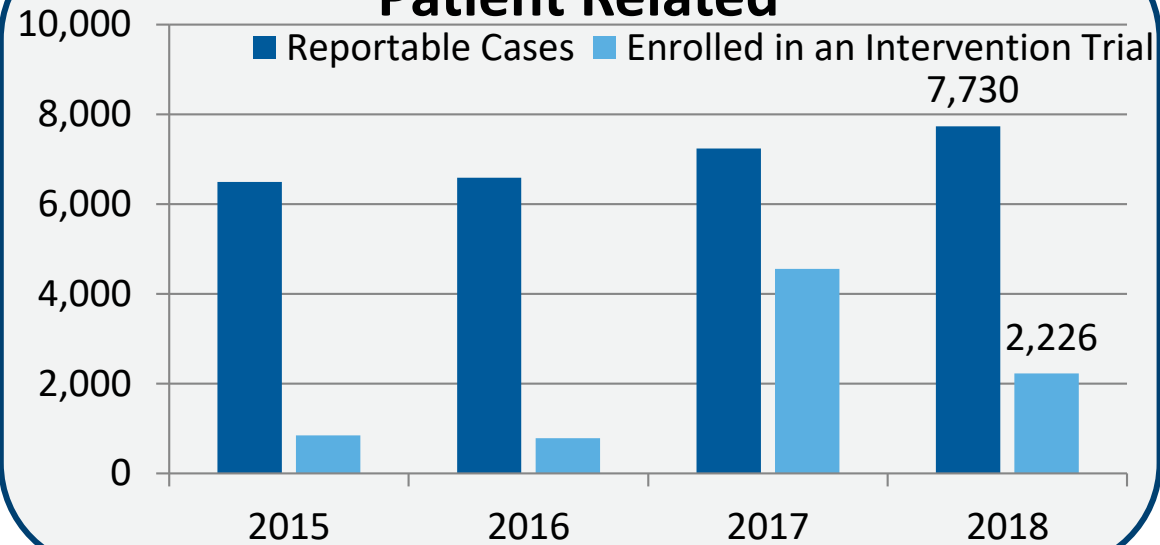


Moffitt Key Results

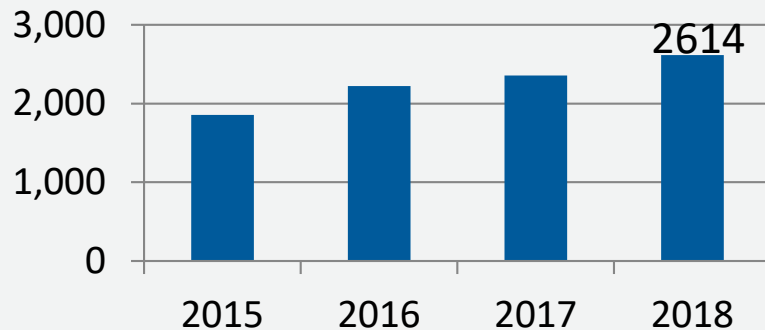
Peer-Reviewed Funding



Patient Related



Trainees

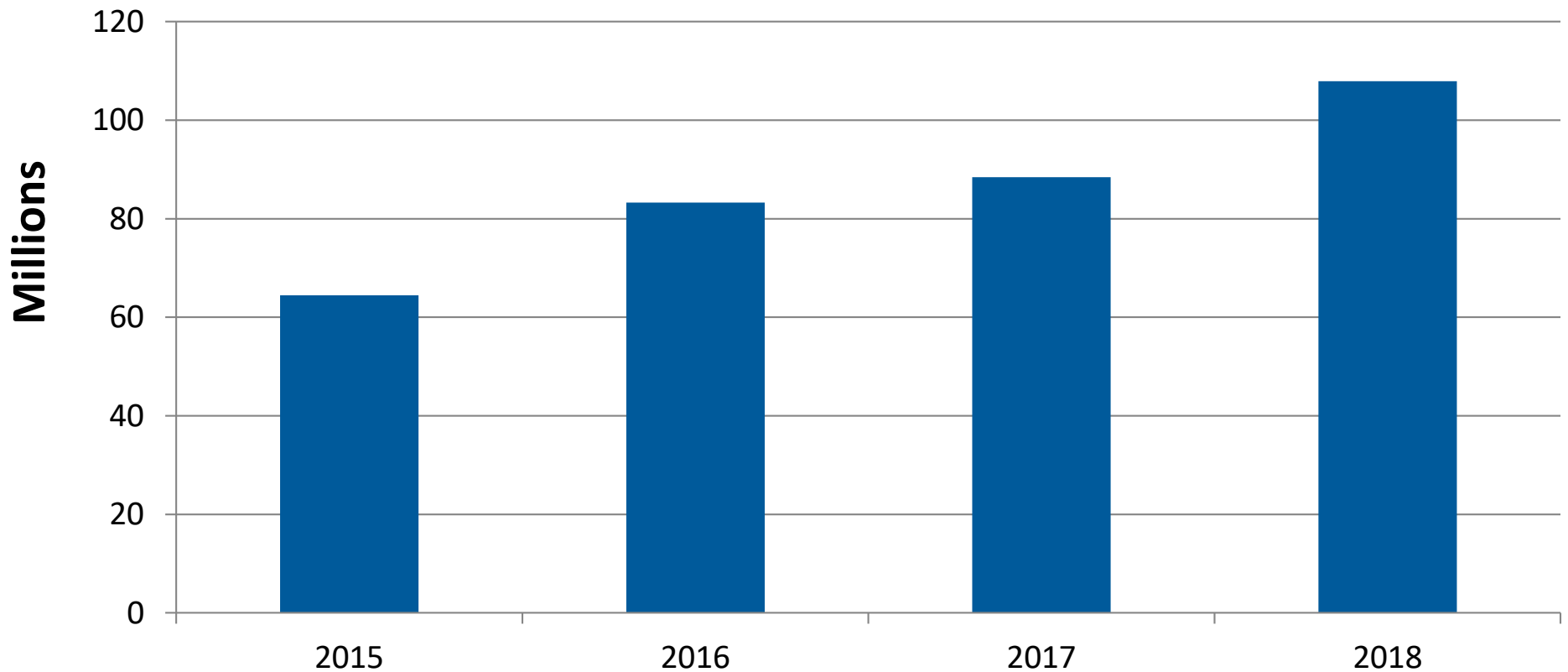


Patents & Contracting

	Intellectual Property Disclosures	U.S. Patents Issued	License Agreements
FY18	36	26	14
2003-2018	555	112	190

Funding Growth

Research Funding Per Fiscal Year (Grants, Clinical Trials)



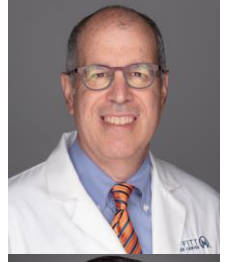
Notable Moffitt Recruitment Success



- 186 new faculty since 2015

- 1700 new staff since 2015

- — From Wistar Institute, Philadelphia
- Michael Vogelbaum, MD, PhD
 - From Cleveland Clinic
- Manish Kohli, MD
 - From Mayo Clinic, Rochester, MN
- J. Ross Mitchell, PhD
 - From Mayo Clinic, Scottsdale, AZ



Moffitt Grant Success

The Florida pancreas cancer collaborative:
a partnership dedicated to the prevention and early
detection of pancreatic cancer



- FACCA Funded Pilot Project
- Led by Dr. Permuth with UF & UM collaborations
- Successfully led to additional funding:
 - Florida Biomedical (\$1.3M)
 - NCI R01 (pending, \$4.2M)
 - NCI U54 (resubmission later this year; \$1.6M)



Sylvester Comprehensive Cancer Center Impact of State Funds

Stephen D. Nimer, MD
Director

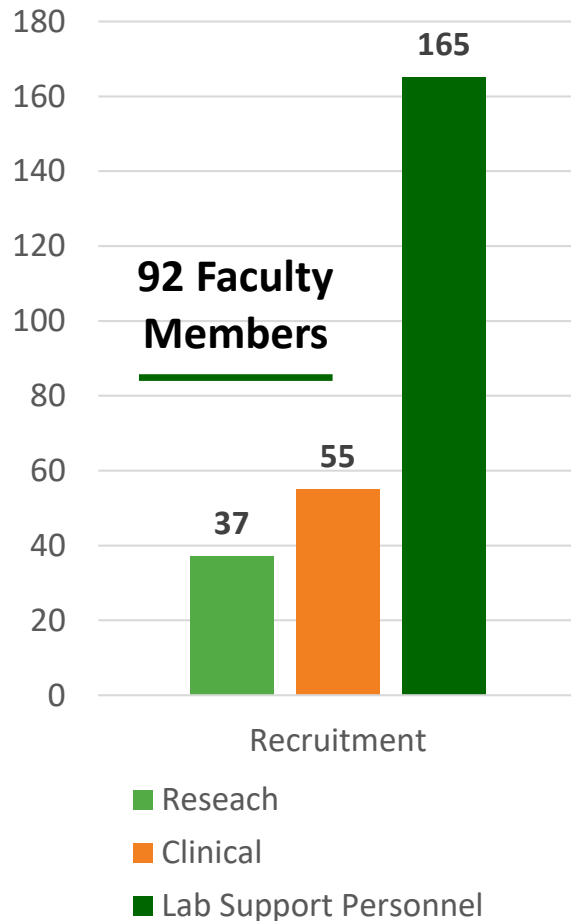
**Florida Academic
Cancer Center Alliance**

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Sylvester Comprehensive Cancer Center
University of Florida Health Cancer Center



Sylvester Research: Recruitment Impact

Recruitment



**2017
NIH Director's
Pioneer
Award**



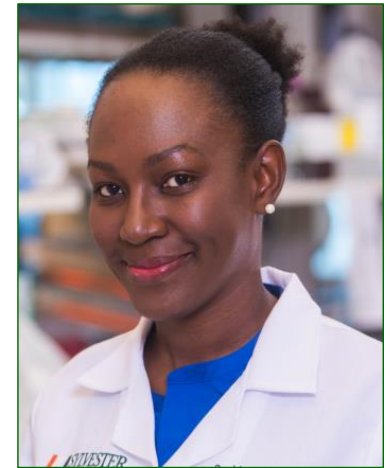
Ramin Shiekhatter, PhD

**Leukemia &
Lymphoma
Society Scholar
Award**



Maria Figueroa, MD

**Department of
Defense Career
Development
Award**



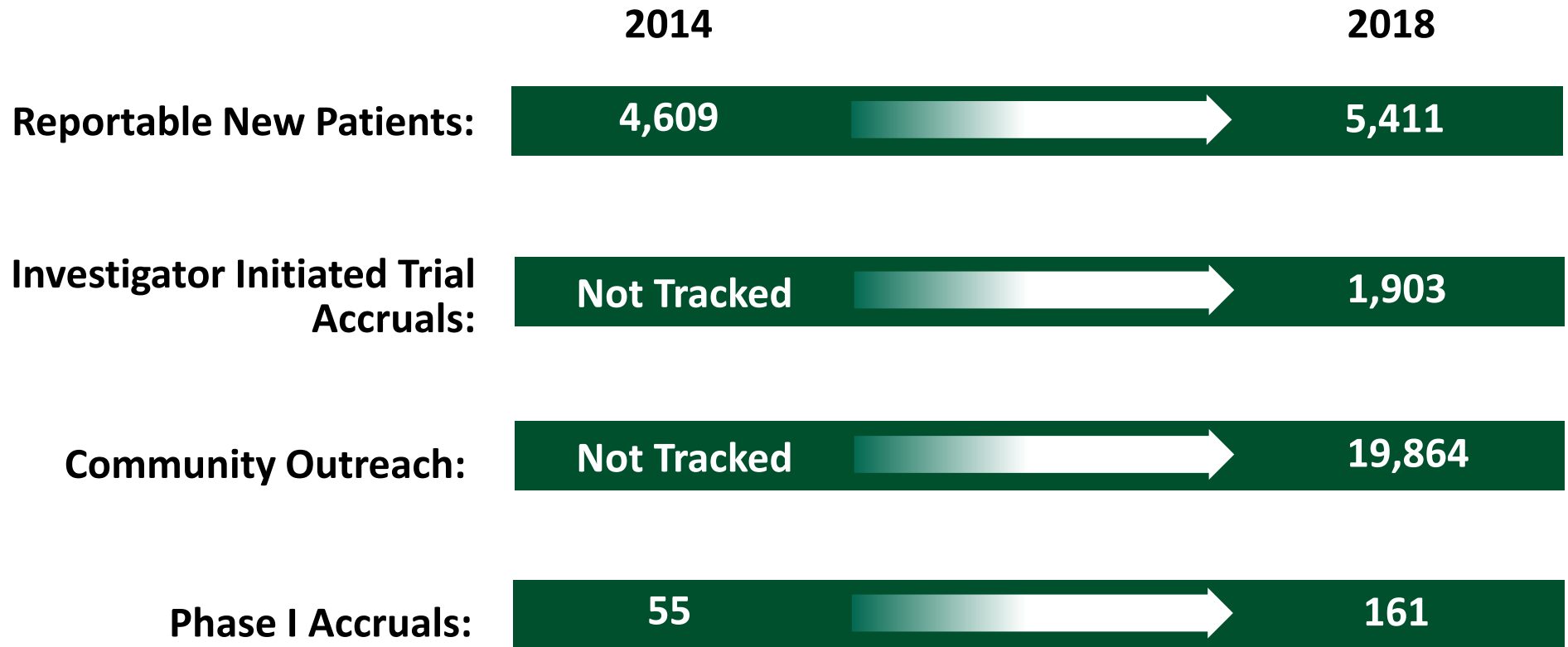
Sophia George, MD

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Sylvester Research: Clinical Impact



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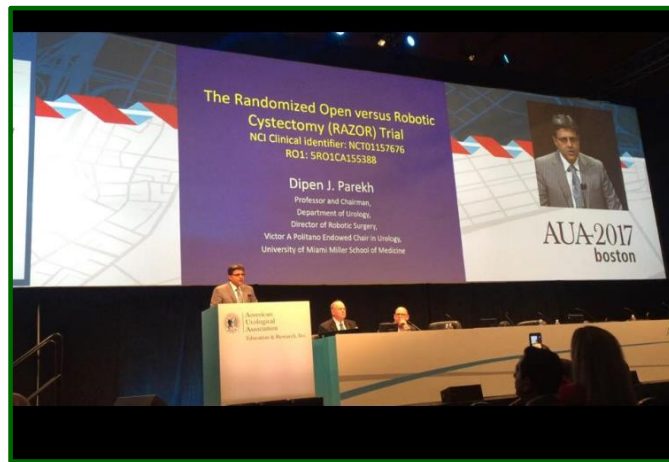
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Sylvester Research: Changing Medical Practice

American Urological Association

2017 Annual Meeting



**Bladder Cancer:
Robotic Surgery**

D. Parekh

American Society of Clinical Oncology

2018 Annual Meeting



**Lung Cancer:
Immunotherapy vs. Chemotherapy**

G. Lopes

American Society for Radiation Oncology

2018 Annual Meeting



**Recurrent Prostate Cancer:
Radiotherapy +/- ADT**

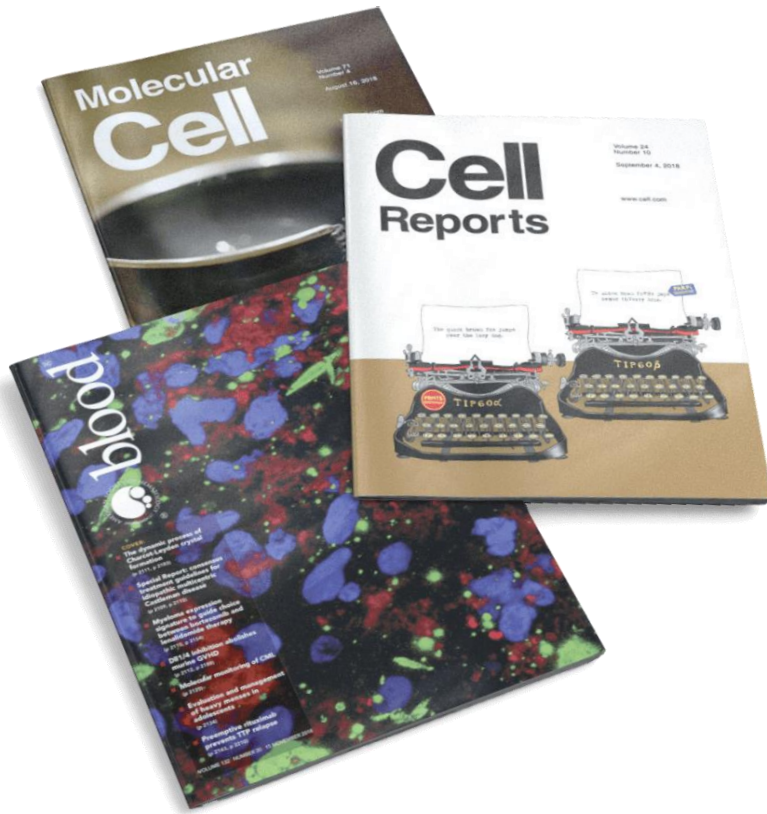
A. Pollack

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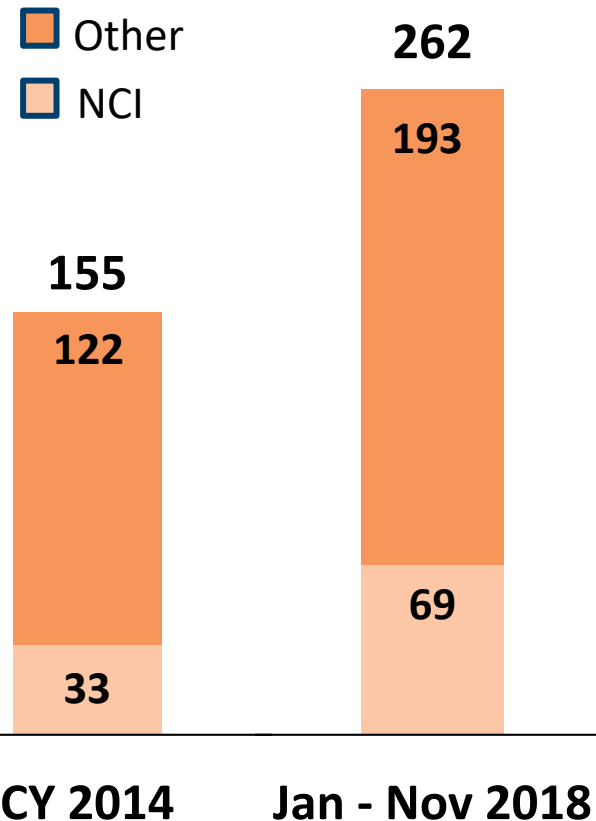
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Sylvester Research: Impactful Publications



Peer-Reviewed Publications



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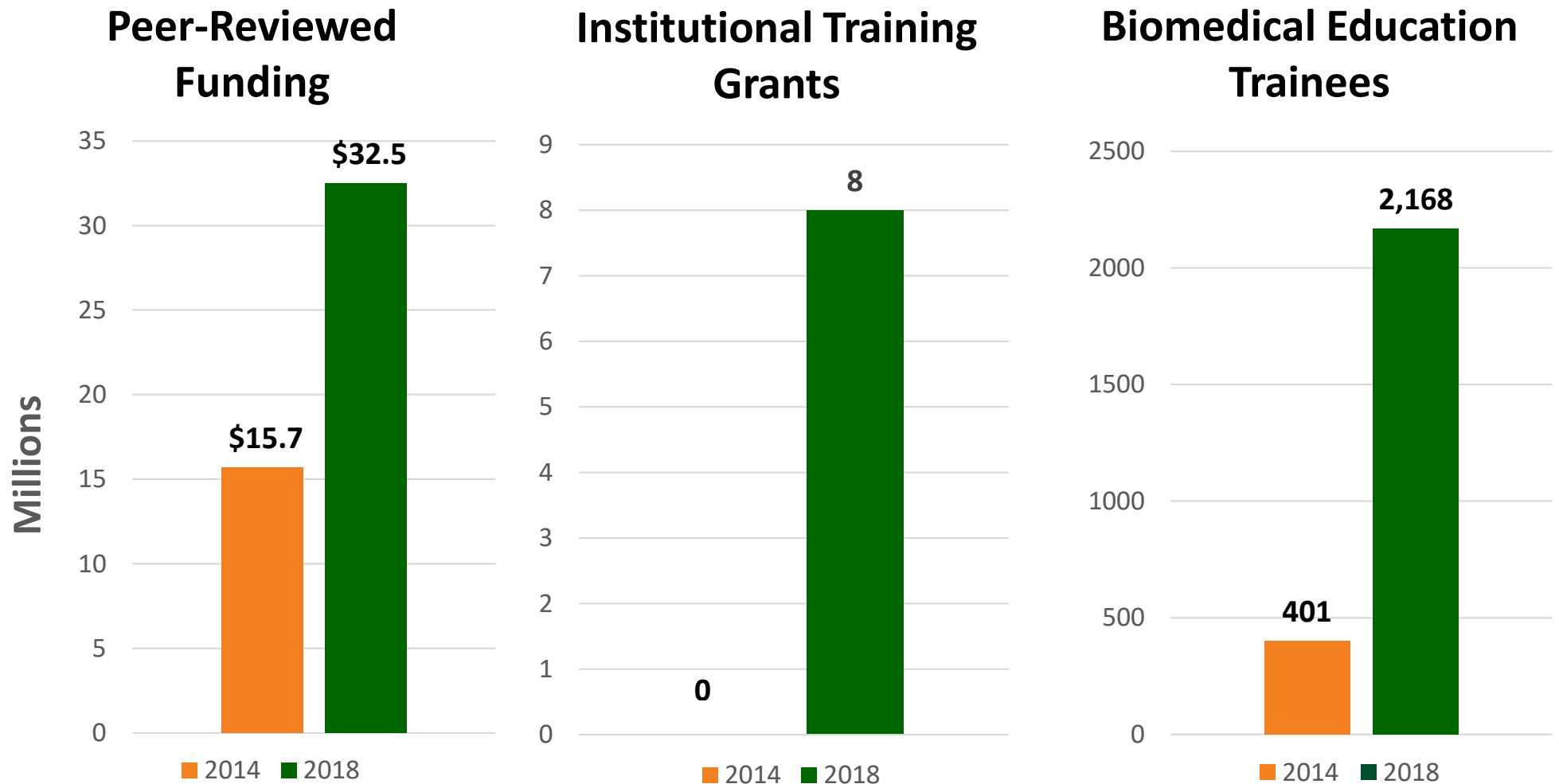
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MOFFITT
CANCER CENTER

SYLVESTER
COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

UFHealth
CANCER CENTER

Sylvester Research: Funding Impact



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Sylvester Research: Saving Lives



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University of Florida Health Cancer Center



Sylvester Research: CCSG Application

Application for
NCI Designation Submitted
September 25, 2018

APPLICATION FOR FEDERAL ASSISTANCE
SF 424 (R&R)

1. TYPE OF SUBMISSION*
☐ Pre-application ☒ Application ☐ Change/Correction
Application

2. DATE SUBMITTED
2018-09-25

3. DATE RECEIVED BY STATE
State Application Identifier

4. Federal Identifier

5. Agency Routing Number

6. Previous Grants.gov Tracking Number

7. APPLICANT INFORMATION
Legal Name*: UNIVERSITY OF MIAMI SCHOOL OF MEDICINE
Department: Office of Research Administration
Division: 1325 S. Dixie Highway
Street 1*: Gables One Tower, Suite 880
Street 2: CORAL GABLES
City*: Miami-Dade
County*: FL, Florida
State*: USA, UNITED STATES
ZIP / Postal Code*: 33146-2626
Organizational DUNS#: 0527809160000

8. TYPE OF APPLICATION*
☒ New ☐ Resubmission
☐ Renewal ☐ Continuation ☐ Revision
Is this application being submitted to other agencies? ☐ Yes ☒ No What other Agencies?

9. NAME OF FEDERAL AGENCY*
National Institutes of Health

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER
TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT*
The Sylvester Cancer Center Core Support Grant

12. PROPOSED PROJECT
Start Date* 07/01/2019 Ending Date* 06/30/2024

13. CONGRESSIONAL DISTRICTS OF APPLICANT
FL-024

Tracking Number: Page 1 Funding Opportunity Number: PAR-17-095 Received Date:

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University of Florida Health Cancer Center

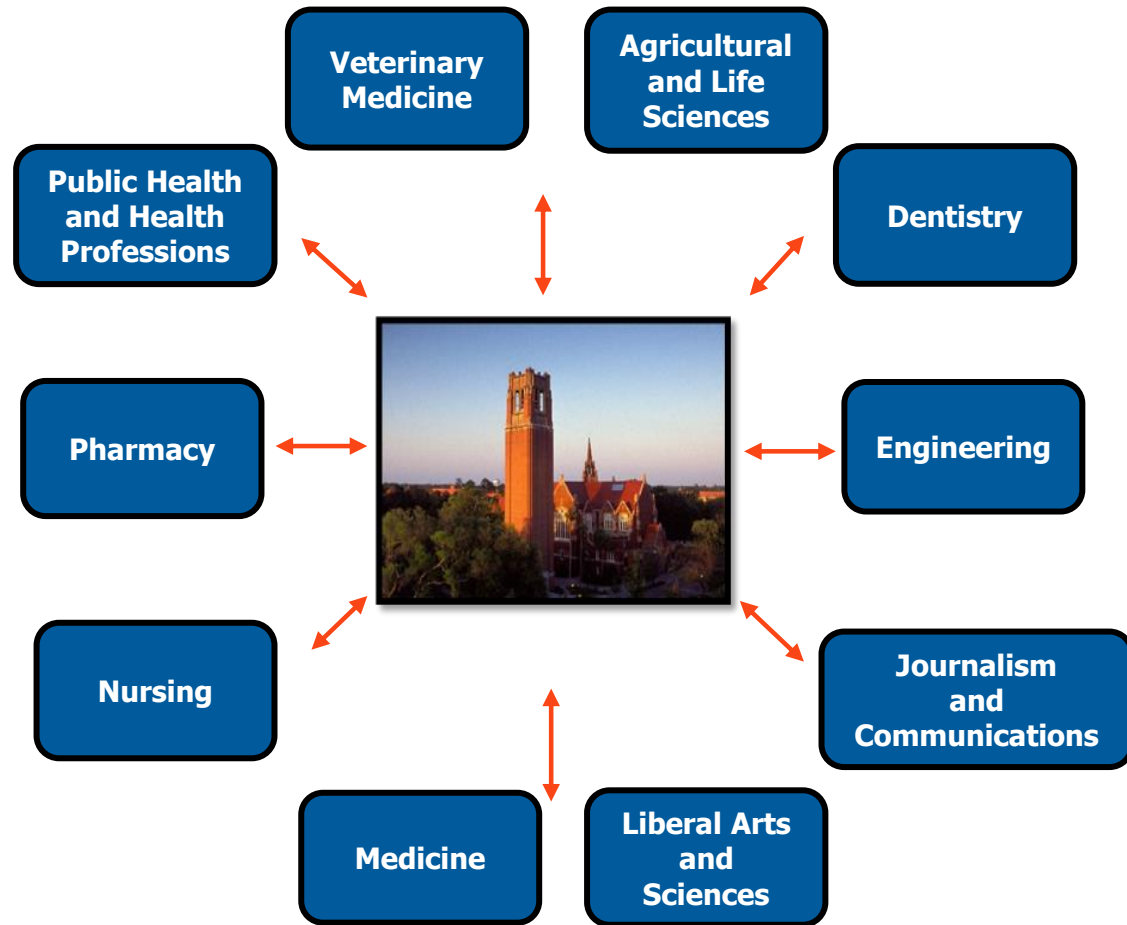
Jonathan D. Licht, MD
Director

Center Overview

Mission:

To prevent, detect, treat, & ultimately cure cancer while addressing the unique challenges of the cancer burden faced by the population we serve

Mechanisms of Oncogenesis	37 Members
Cancer Population Sciences	39 Members
Cancer Therapeutics & Host Response	63 Members
Total Membership	142

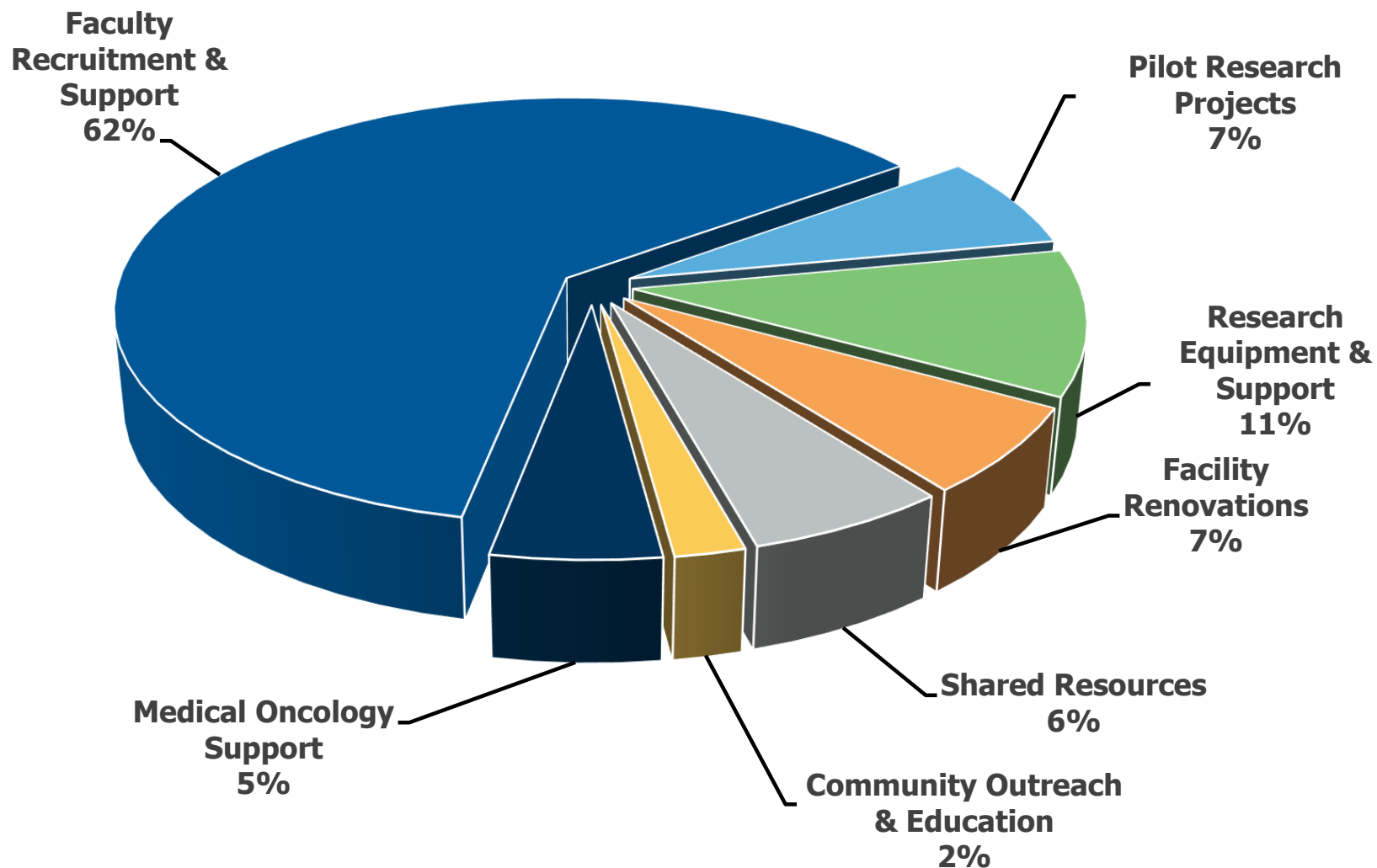


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UFHCC State Funding



\$96,234,000 Total

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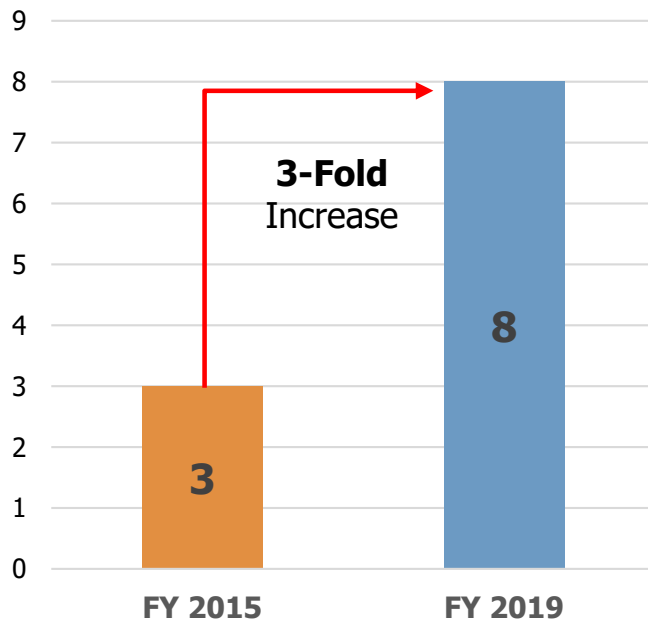
Recruitment

- 38 New Research Faculty Recruits

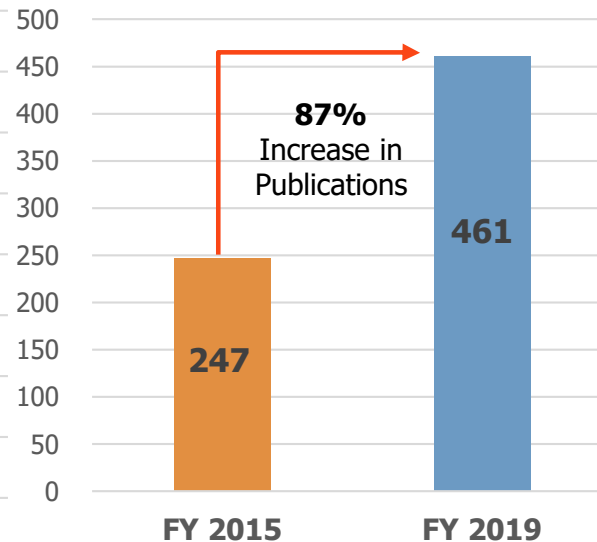
- 7 Colleges 22 Departments
- 16 Early Stage Investigators
- \$12M Spent Yielded \$52.5M Total New Research ROI 4.3
- 25 Patents Issued

	Cancer Population Sciences	Cancer Therapeutics & Host Response	Mechanisms of Oncogenesis	Total
FY 15	2	3	0	5
FY 16	0	2	3	5
FY 17	4	6	5	15
FY 18	3	3	3	9
FY 19	1	3	0	4
Totals	10	17	11	38

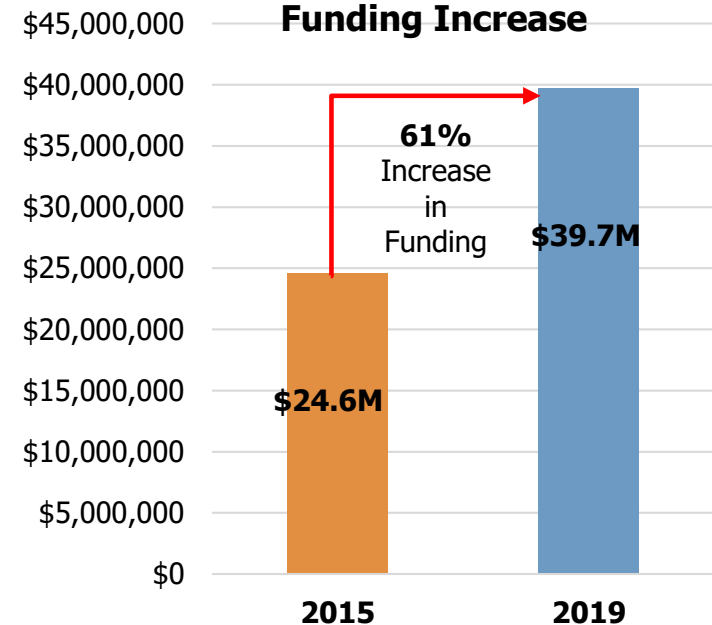
Patents Issued



Increase in Peer-Reviewed Publications



Fiscal Year Peer-Reviewed Funding Increase

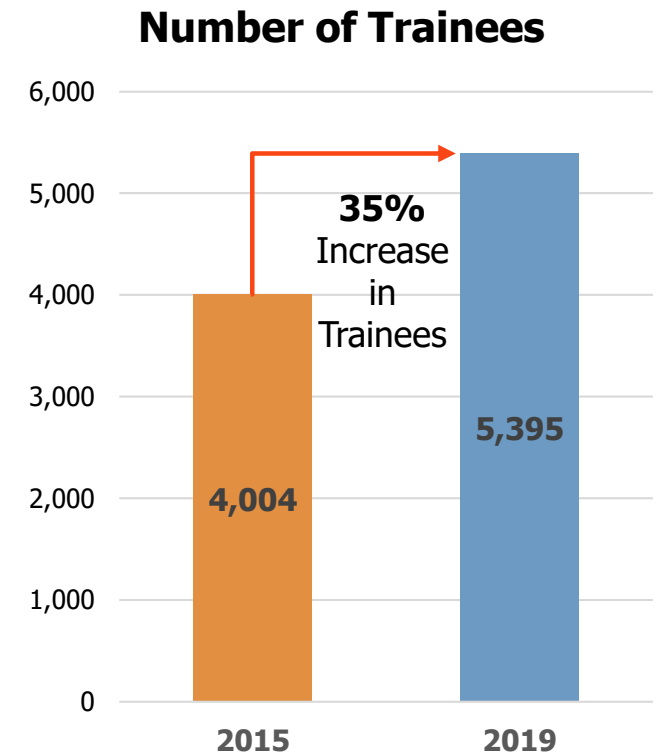
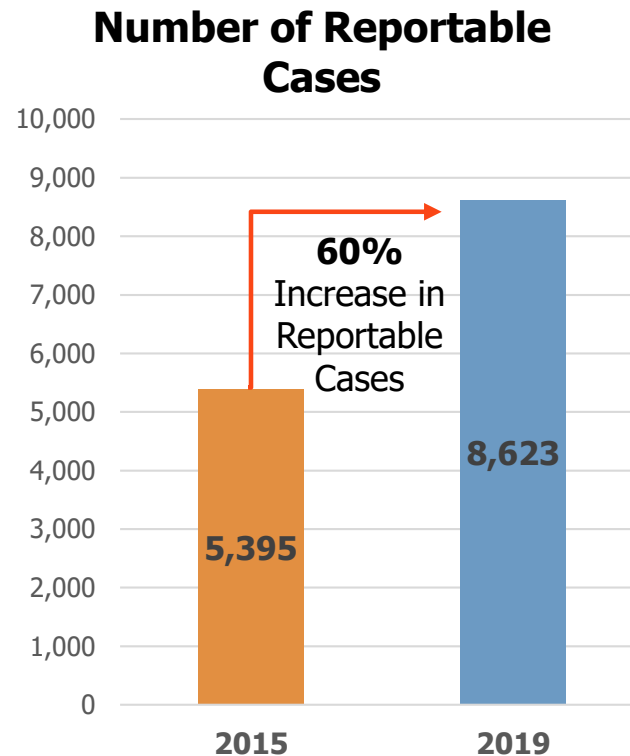
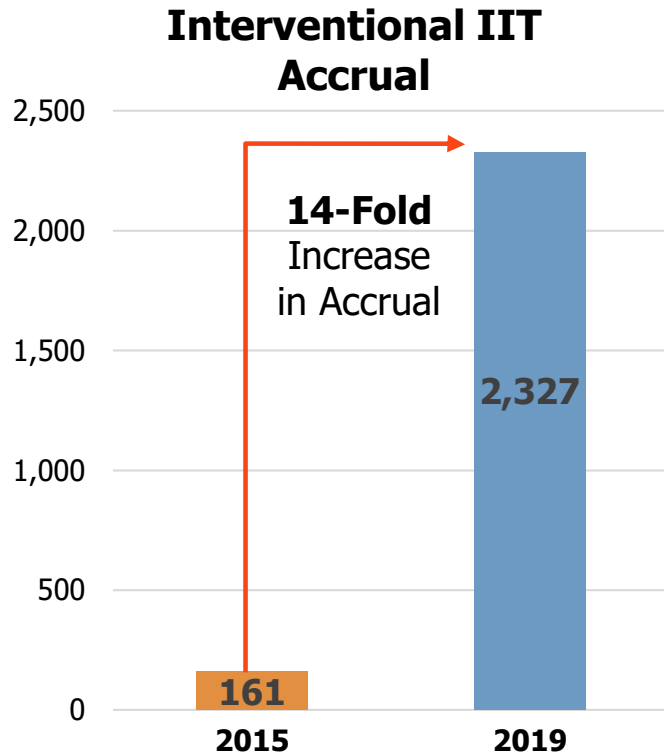


Florida Academic Cancer Center Alliance

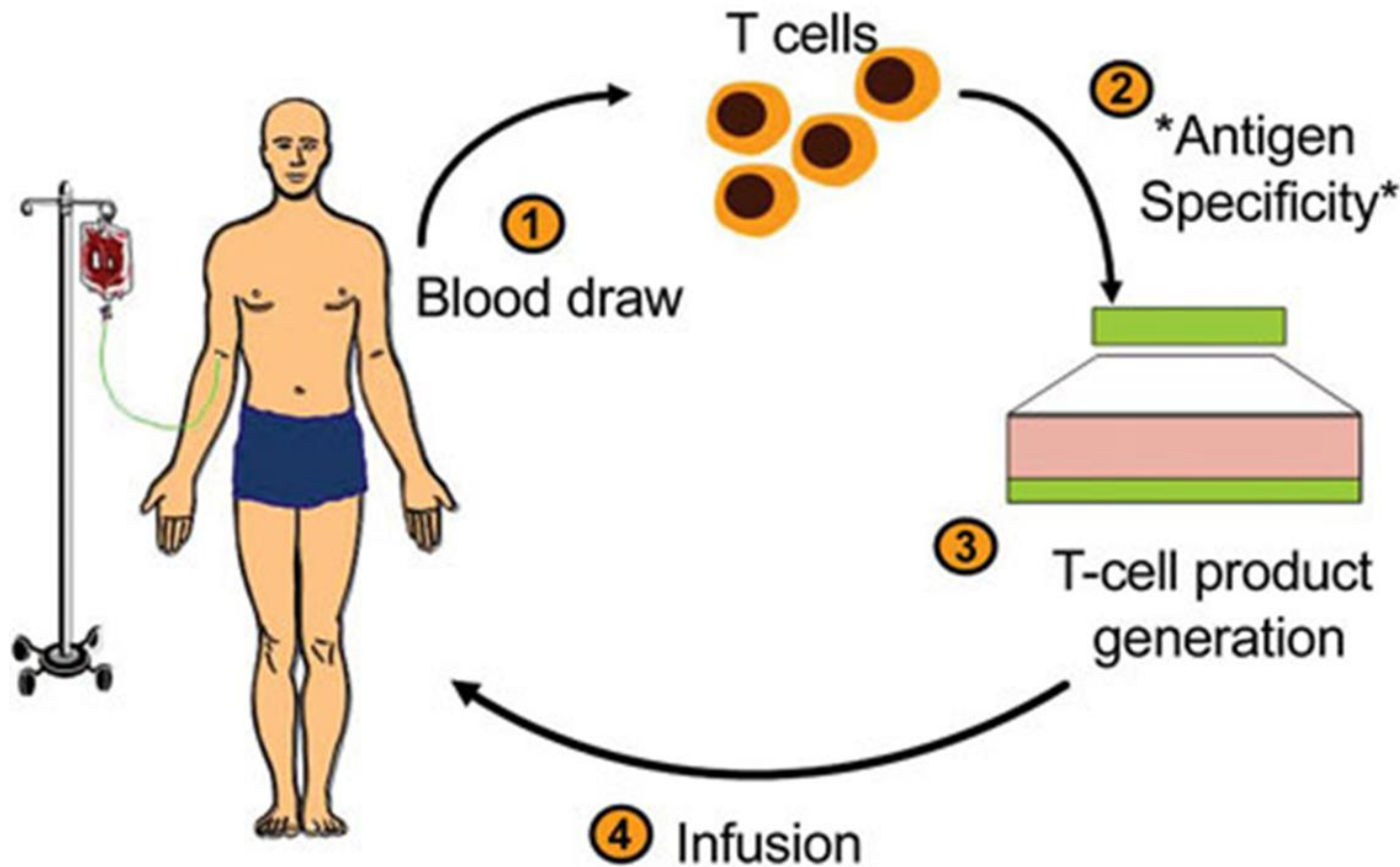
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Clinical Research, Patients, Trainees



Personalized Immunotherapy @UFHCC



Adapted from Ronald Levy, MD



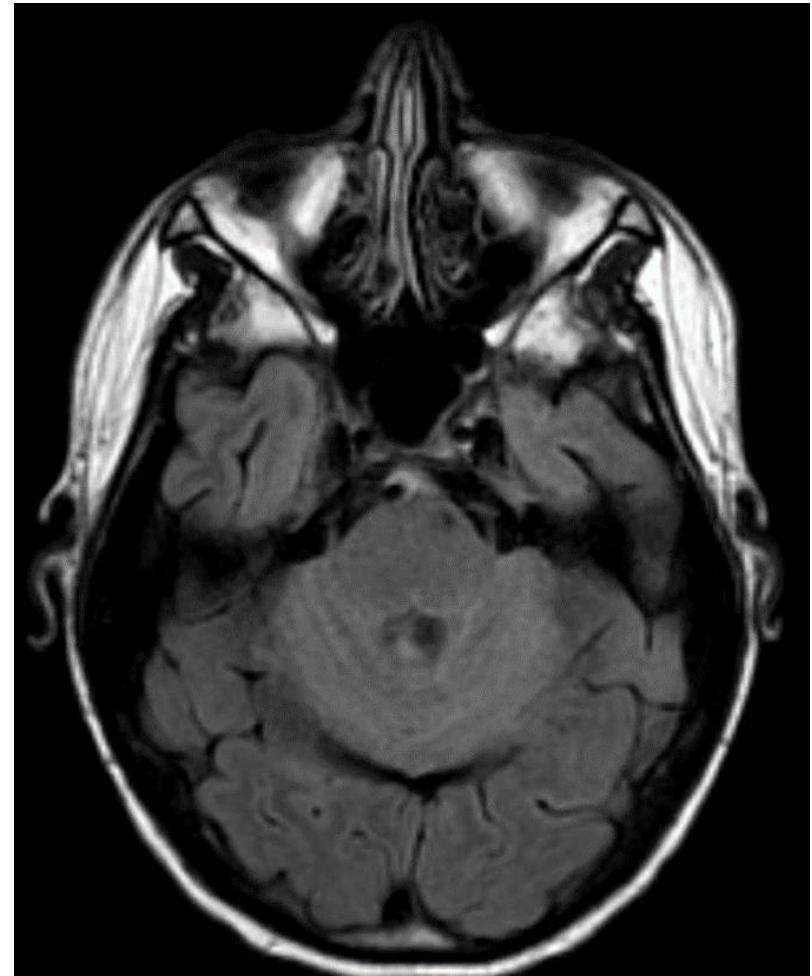
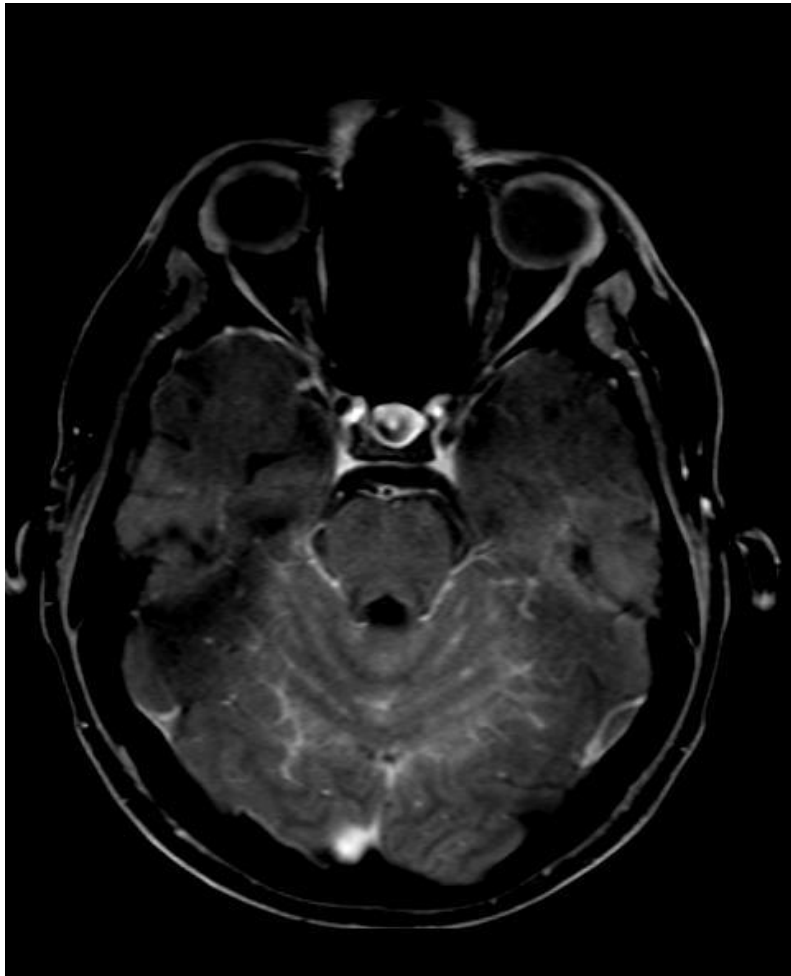
Duane A. Mitchell, MD, PhD
Recruited from Duke University

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University of Florida Health Cancer Center



Near CR after cellular Immunotherapy for Medulloblastoma



Re-MATCH Trial - FDA IND BB-14058 (NCT01326104) Accrual to date: 28
PI: Duane A. Mitchell, MD, PhD

**Florida Academic
Cancer Center Alliance**

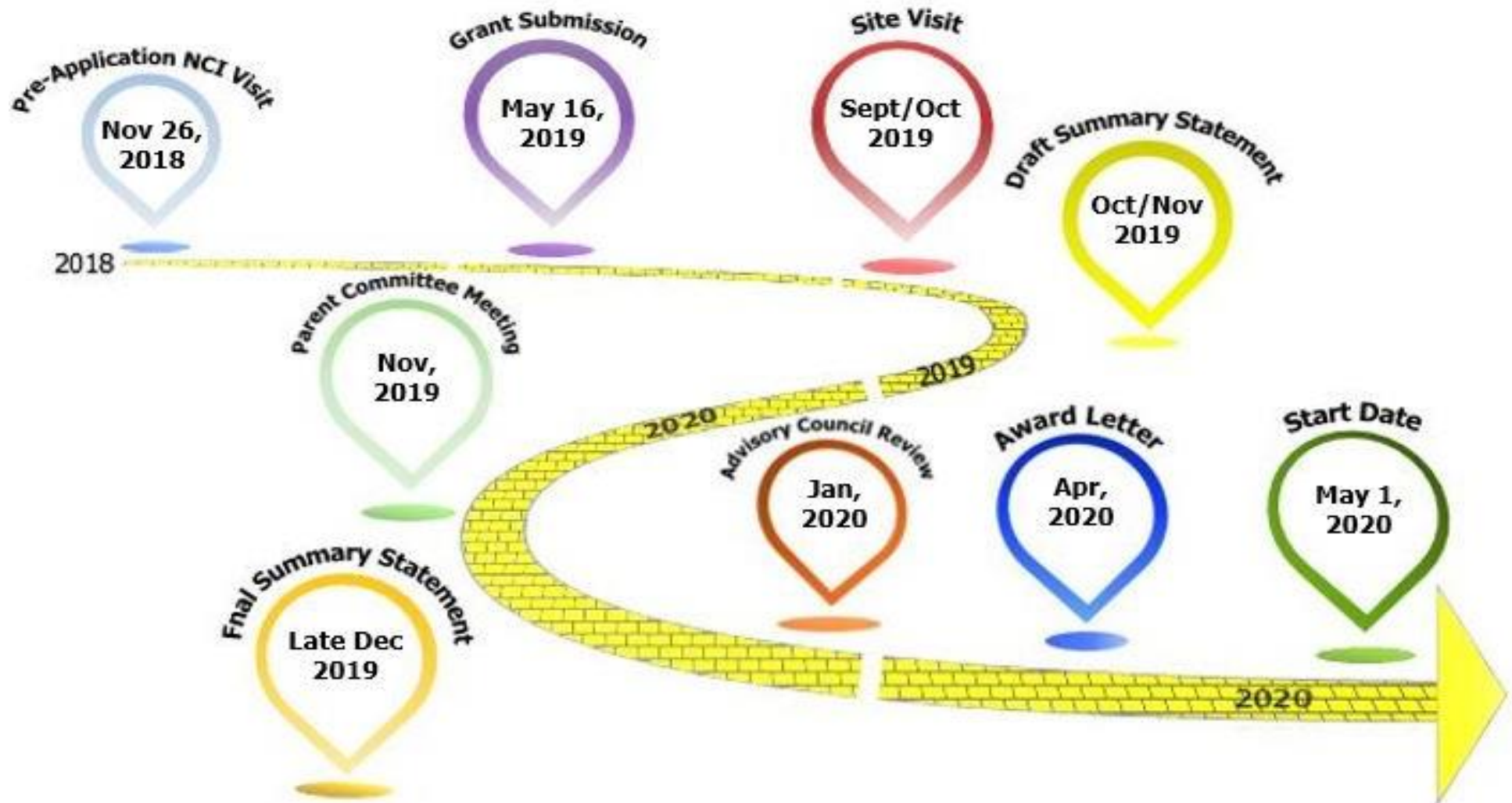
Moffitt Cancer Center
Sylvester Comprehensive Cancer Center
University of Florida Health Cancer Center

MOFFITT
CANCER CENTER

SYLVESTER
COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

UFHealth
CANCER CENTER

UFHCC NCI-Designation Timeline



**Florida Academic
Cancer Center Alliance**

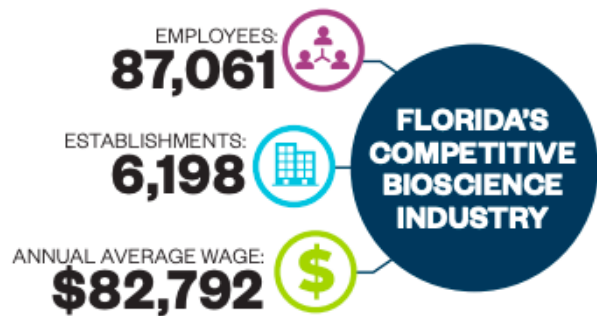
Moffitt Cancer Center
Sylvester Comprehensive Cancer Center
University of Florida Health Cancer Center



Questions & Discussion

Florida is a leading life science destination, with an impressive base of biopharmaceutical and medical technology companies, world-class research universities and hospitals and some of the nation's most highly regarded research institutes, incubators, and accelerators.

The industry is strong, growing, and a major economic driver in the state. It consists of nearly 6,200 establishments and research organizations that collectively employ 87,000 Floridians with an average salary of \$82,792. Jobs in the industry show significant growth at rates that outpace the nation.



The ecosystem has been built to foster research and innovation that will lead to tomorrow's treatment advancements and cures – ensuring continued growth in the industry. Florida areas of strength are diverse and include oncology, neuroscience, Alzheimer's, regenerative medicine, medical technology, diabetes, cardiovascular disease and marine biotechnology. State universities have conducted more than \$1.3 billion on bioscience-related R&D in 2016. State inventors are associated with 5,100 patents awarded from 2014 through 2017 in bioscience-related technology classes, a volume that places Florida in the top tier of states in patent activity.

LEADING MARKETS

- **Biopharmaceutical:** Florida's 290+ pharmaceutical and medicine manufacturing companies specialize in the development and manufacturing of novel treatments, generics, nutraceuticals and OTC drugs. They employ 5,700 researchers, engineers, technicians, and workers.
- **Medical Technology:** Florida is ranked 2nd among states for FDA registered medical device manufacturing facilities. Nearly 16,500 Floridians work in this industry, with a majority of companies located along the I-4 Corridor in Central Florida, Jacksonville, Tampa, Gainesville, and South Florida.
- **Biotechnology:** The number of companies in Florida's biotechnology industry grew 14.7% in 2017 alone, making it one of the stronger growth years since 2008. Florida's growth for 2017 has exceeded the nation's biotechnology sector which showed a much slower growth rate at less than 5% over the same period according to Ernst & Young and Nature Biotechnology. Around 75% of Florida's biotech companies are involved in therapeutics, medical devices or diagnostics with 38% located in Southeast Florida, 23% in greater Tampa Bay, 19% in Gainesville, and 13% in Orlando—all remaining stable. Over the last decade, Florida's biotech companies have increased by 152%; whereas US biotech company growth over the past decade has been approximately 57%.
- **Hospitals:** Florida has one of the most sophisticated health care systems in the country. Our hospitals and healthcare workers engage in a broad range of research and clinical trials, with strength in Alzheimer's, cancer, diabetes, heart disease, and more.

WORLD CLASS TALENT

Nothing is more important to a company's success than its workforce. More than 87,000 Floridians work in research, testing, and medical laboratories, biotechnology, pharmaceutical manufacturing, medical device manufacturing, and bioagricultural industries. Florida ranks 1st in high-tech employment in the southeast and our universities are among the nation's top producers of STEM graduates.

GLOBAL ACCESS

Success today requires global access, and with 20 commercial service airports, 2 spaceports, 15 deepwater seaports, 3,000 miles of freight rail tracks, and 122,000 miles of highway Florida offers one of the most extensive transportation systems in the world.

HOME TO LEADING HOSPITALS, RESEARCH INSTITUTIONS & INCUBATORS

With world-renowned research centers, universities, incubators, accelerators, and top hospitals specializing in therapeutics, diagnostics, industrial/ag biotech, and other areas, Florida has the science, talent, and support structure necessary to succeed.

Research Centers & Universities:

Florida Atlantic University
 Florida International University
 Florida State University
 Moffitt Cancer Center & Research Institute
 Lions Eye Institute for Transplant & Research
 Max Planck Institute for Neuroscience
 Mayo Clinic Florida
 Nova Southeastern University
 Scripps Research
 University of Central Florida
 University of Florida
 University of Miami
 University of South Florida

Incubators & Accelerators:

Cambridge Innovation Center (CIC) Miami
 GuideWell Innovation Center
 IQ Florida
 Kennedy Space Center Innovation Incubator
 Life Sciences Incubator at Mayo Clinic Florida
 Nova Southeastern University's Technology Incubator
 StartUP FIU
 Tampa Bay Technology Incubator (TBTI)
 Tampa Bay Innovation Center / TEC Garage
 Tech Runway – Florida Atlantic University
 UCF Life Sciences Incubator - Lake Nona
 UF Innovate | The Hub
 UF Innovate | Sid Martin Biotech
 USF CONNECT

Top Hospitals:

AdventHealth
 Baptist Hospital of Miami
 Baptist Medical Center
 BayCare
 Cleveland Clinic Florida
 Johns Hopkins All Children's Hospital
 Jupiter Medical Center
 Mayo Clinic
 Moffitt Cancer Center & Research Institute
 Nemours Children's Hospital
 Nicklaus Children's Hospital
 Orlando Health
 Sarasota Memorial Health Care
 Shriners' Hospital for Children
 Tampa General
 UF Health Shands Hospital

FLORIDA IS A HUB FOR CLINICAL TRIALS

It takes about 10 years to develop one new medicine. Clinical trials are the most time- and resource-intensive part of the research and development (R&D) process for a new medicine, and biopharmaceutical companies support and conduct the lion's share of this work. Yet without clinical trials, new medicines could not be approved and made available to the patients who need them. Beyond the profound value that biopharmaceutical industry R&D brings patients in the form of new treatments and potential cures for society's most devastating and costly diseases are the significant economic impacts resulting from clinical trials conducted in communities across the country.

Please see below for an overview of the **2,571 total** biopharmaceutical industry-sponsored clinical trial activity across the state of Florida in 2013, including the estimated number of trials active during the year, the number of trial participants, the annual direct investments of biopharmaceutical companies to operate clinical trial sites in the state, and the total economic impact resulting from that investment, including the indirect economic effects that ripple through local economies.



FLORIDA'S BIOMEDICAL RESEARCH ADVISORY COUNCIL UPDATE

February 12, 2019



Daniel Armstrong, PhD
**Chair, Florida Biomedical Research Advisory
Council**

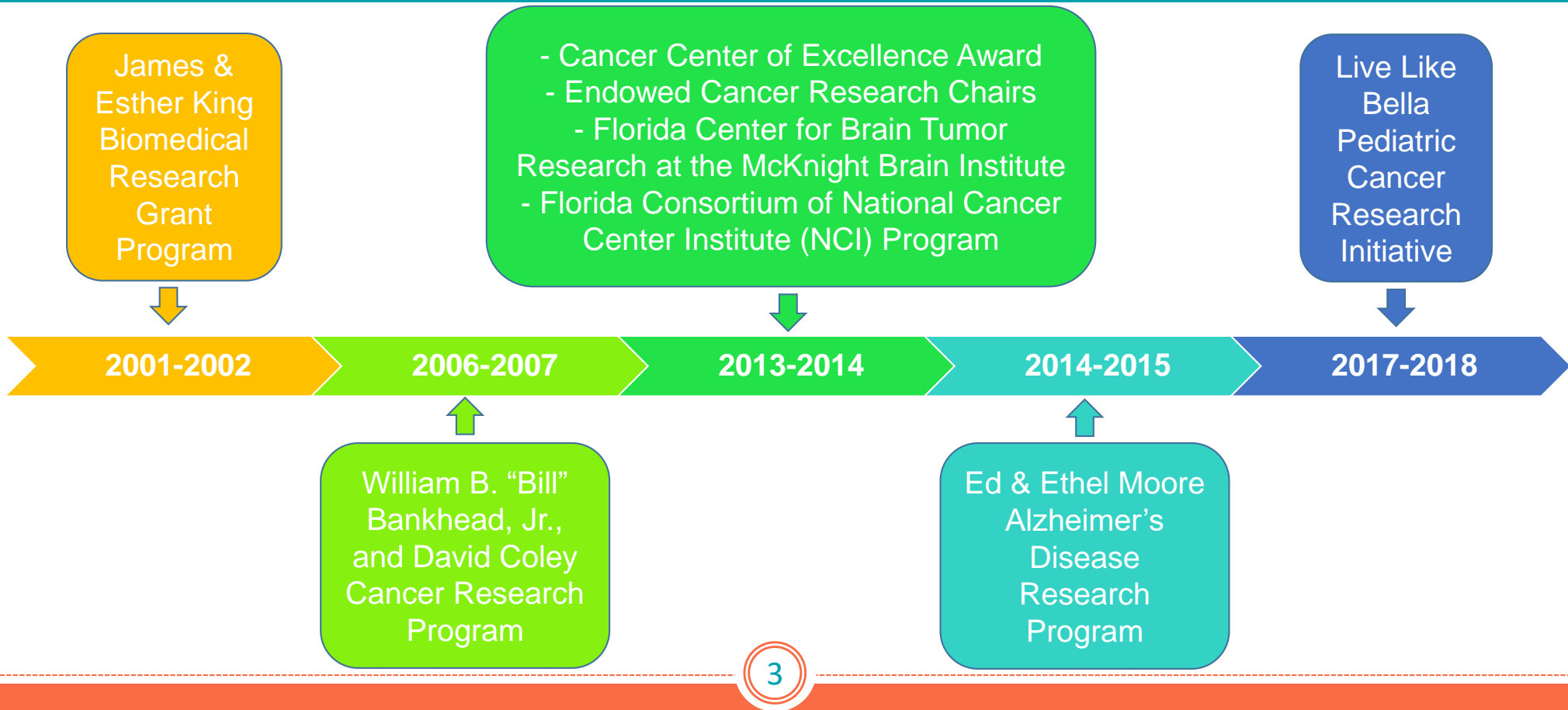
Affiliations

Affiliations

- Department of Pediatrics and Sylvester Cancer Center, University of Miami Miller School of Medicine
- Holtz Children's Hospital at UM/Jackson Memorial Medical Center
- American Cancer Society (Board and representative to the Biomedical Research Advisory Council (BRAC))



Historical Timeline- Biomedical Research Initiatives



State Biomedical Research Strategic Goals

- Decrease cancer deaths
- Decrease cancer deaths resulting from health disparities
- Increase early detection of cancer or preventable cancer
- Reduce tobacco use
- Improve scientific understanding of causes and impacts of cancer/cancer-treatment related morbidities in other systems
- Establish Investigational New Drug (IND)/Investigational Device Exemption (IDE)s that result in multi-center collaborative clinical trials
- Design research protocols that lead to academic-industry development of new biotechnology products/companies that subsequently obtain incremental commercial funding (beyond Florida funding)
- Enhance understanding of the relationship between obesity, healthy weight, and cancer

Tactics to be Considered in Implementation of Strategic Plan

- Peer-reviewed grants for shared research infrastructure
- Grants for targeted investigator recruitment and training
- Grants for investigator-initiated projects with high potential impact
- Grants that optimize public-private partnerships in discovery science and health services research

Driving Principles For Research Grant Awards

- Intentionally create “Critical Mass” of research to address Strategic Goals
- Create synergy among Florida investigators to more rapidly advance progress toward Strategic Goals
- Use the biomedical research grant program to drive collaboration between investigators across Florida’s cancer research institutions

Program Priorities for Research Grants

- Advance knowledge of prevention, diagnoses, treatments, and cures
- Build research infrastructure in the state of Florida
- Secure external funding
- Stimulate economic activity

Current Funding and Active Grants

- James and Esther King Biomedical Research Program
 - \$10 million available to award research grants in FY 2018-2019
 - 27 active research grants
- Bankhead-Coley Cancer Research Program
 - \$9.5 million available to award research grants in FY 2018-2019
 - \$500,000 appropriated annually to the McKnight Brain Institute
 - 28 active research grants
- Live Like Bella Pediatric Cancer Research Initiative
 - \$3 million available to award research grants in FY 2018-2019
 - 5 active research grants

Note: FY 18-19 grants will be awarded by 2/28.

Endowed Chair of Cancer Research

- Dr. Dev Mukhopadhyay (FY 14/15) – recruited in 2015
 - Translational nanomedicine in cancer
 - 5 active grants, 39 publications
 - 9 lab employees, 1 junior investigator
 - Nanomaterial production facility & zebrafish lab
- Dr. Alfredo Quinones – Hinojosa (FY 15/16) – recruited in 2016
 - Neuro-oncology
 - 6 active grants, 85 publications
 - 19 lab employees, 2 junior investigators
 - Focus is on brain and spinal tumors
- Dr. Roxana Dronca (FY 16/17) – recruited in Rochester in 2017
 - Hematology/Oncology
 - 2 active grants, 7 publications
 - 4 lab employees
 - New clinical trials unit to open in 2019 for Phase 1 trials

Collaborations with University of Central Florida, Florida Institute of Technology, University of North Florida, MIT, Karolinska, Institute, George Tech & others.

\$2 million is appropriated annually to support the endowed chairs.

Economic Impact of Biomedical Research Grants



Florida's Investment

Economic Impact of Public Health Research

NIH Grants

- Basic Research: \$1 = \$8.38 in Industry Research and Development after 8 years
- Clinical Research: \$1 = \$2.35 in Industry Research and Development after 3 years

In Florida:

- 2007 NIH investment = \$346 million
 - 5,828 high-wage jobs
 - \$745 million in new business activity, a multiplier of 2.15
- 2015 NIH investment = \$521 million
 - 11,727 high-wage jobs
 - \$1.6 billion in new business activity, a multiplier of 3.14

Biomedical Research Incubator

Funded Projects Aimed at Creating Biobanks:

Year Awarded	Project Goal
2015	Share advanced genomics and bioinformatic data.
2016	Created a statewide prostate biobank.
2018	Purchased technology to create an imaging center that is open to all cancer investigators in Florida.
2018	Created a pancreatic biobank that contains viable tissues, biofluids, medical images, and clinical/lab data.

Awarded Institutions from 2006 through 2018

Ave Maria University	Haley VA Hospital	Saneron CCEL Therapeutics
Bay Pines VA Health Care System	M.D. Anderson Cancer Center	Sanford-Burnham
Edward Waters College	Mayo Clinic	The Scripps Research Institute
Florida Agricultural and Mechanical University	Miami Cancer Institute, Baptist Health South Florida	Torrey Pines Institute
Florida Atlantic University	Miami VA	University of Central Florida
Florida Hospital Cancer Institute	Moffitt Cancer Center	University of Florida
Florida Institute of Technology	Nano Discovery Inc.	University of Miami
Florida International University	Nemours Childrens Clinic	University of South Florida
Florida State University	Roskamp Institute	University of West Florida

Biomedical Research Funding Program: Long-term Effects Survey

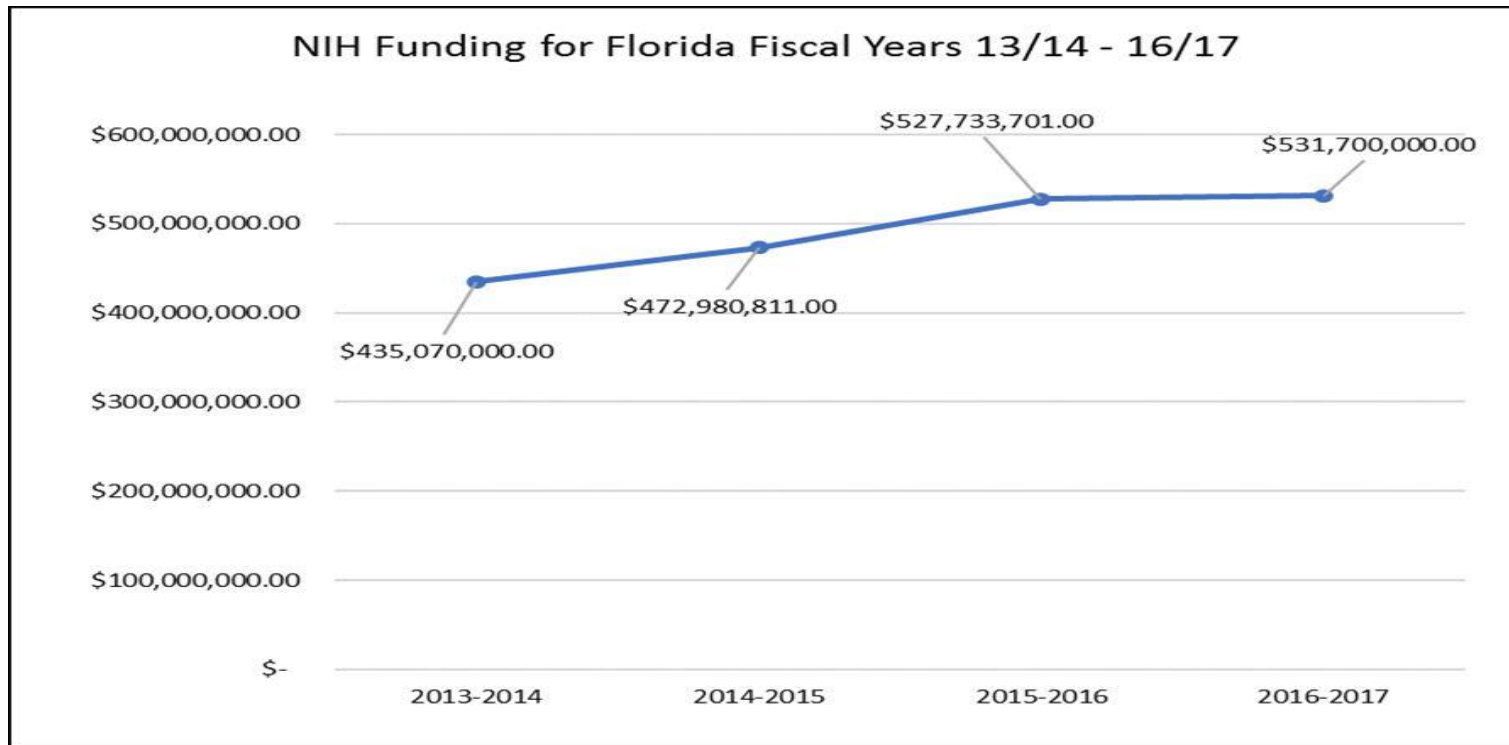
Direct Impact of Grant Awards: Follow-on Funding

- More than 50% reported receiving additional funding, totaling over \$108 million
- Most federal awards averaged over \$1.2 million
- Between 2001 and 2016, \$250.92 million in grants generated \$260.94 million in follow-on funding
- Every \$1 in grant awards generated \$1.04 in follow-on funding

Analysis of preliminary results from re-release of the survey in FY 2018-2019 (response rate 55%)

- 38% of Principal Investigators (PIs) reported that these grants assisted them in receiving tenure
- 28% of the PIs recruited other out of state researchers for their grants
- 72% of the PIs reported that a permanent position was created as a result of their state of Florida grant

NIH Funding Trends



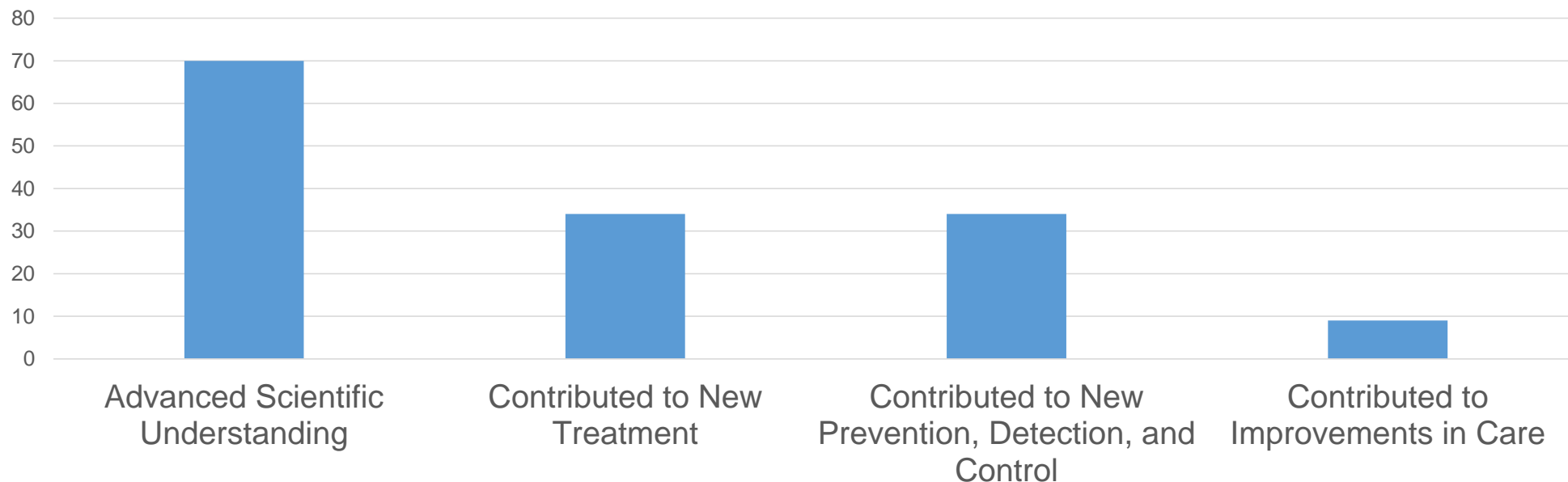
Biomedical Research Funding Program: Long-term Effects Survey

Innovation

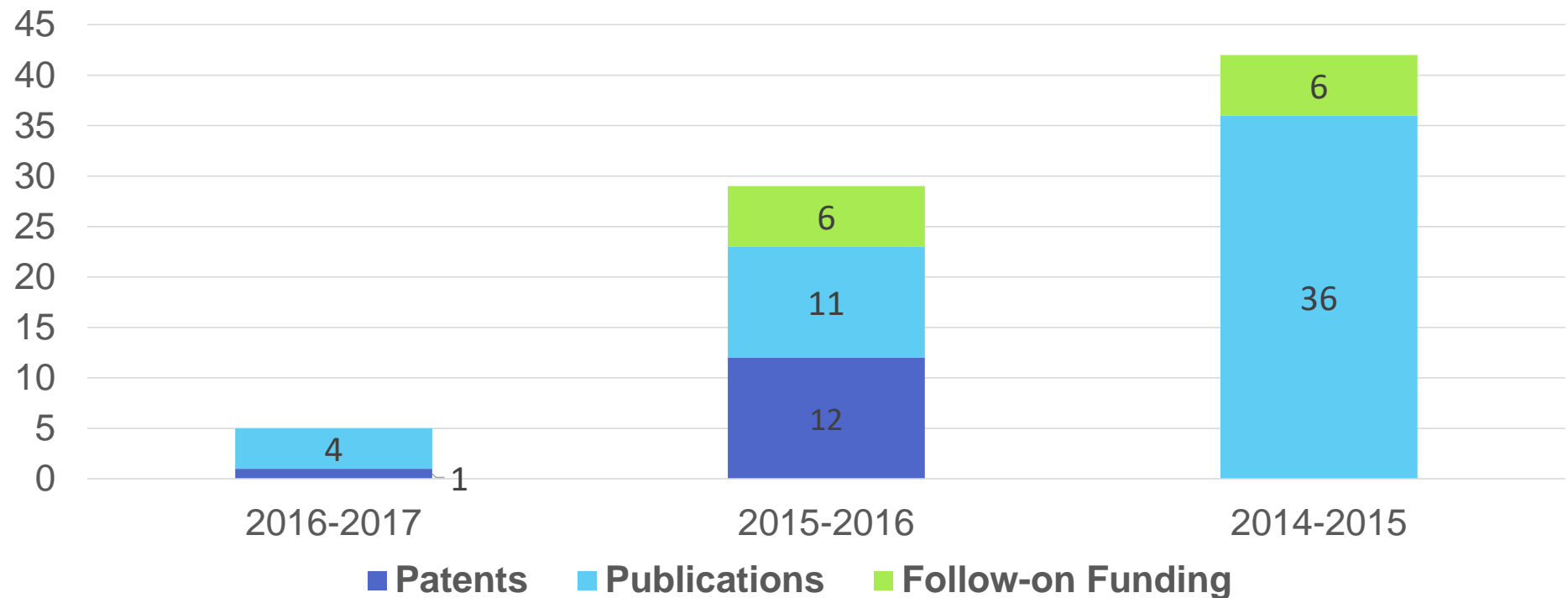
- About 30% of respondents reported either filing for patents or acquiring intellectual properties
- About 10% of respondents reported the development of new drugs or devices
- More than 80% of respondents reported publications of grant funded research in prestigious scientific journals

Long-Term Outcomes of State of Florida Cancer and Tobacco-Related Research Grant Funding

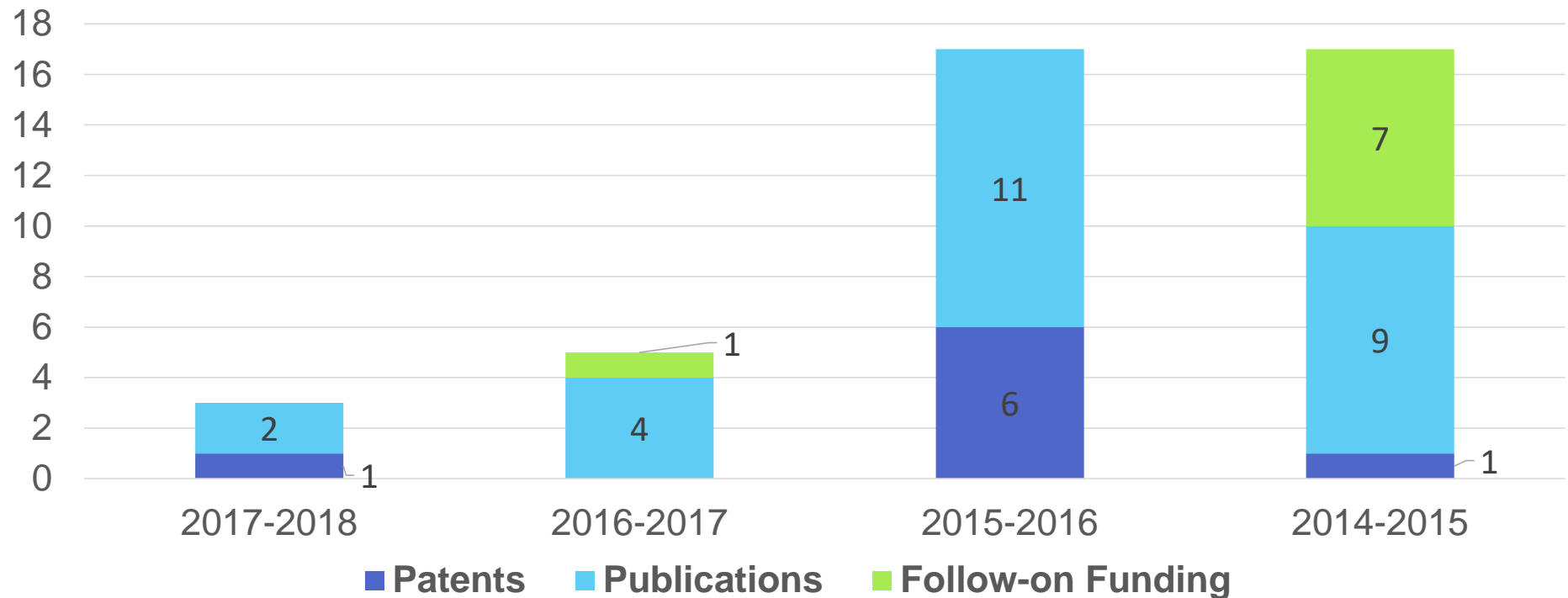
Percent of Prior Florida DOH Grant Recipients Reporting Outcomes of Their Research (122 Respondents)



Bankhead-Coley Long-Term Outcomes



James and Esther King Long-Term Outcomes



FY 2018-2019 Biomedical Research/Cancer Funding

Program	General Revenue	Trust Fund	Total
James and Esther King Biomedical Research Program		\$10,000,000	\$10,000,000
William G. 'Bill' Bankhead, Jr., and David Coley Cancer Research Program		\$9,500,000	\$9,500,000
Live Like Bella Pediatric Cancer Research Initiative		\$3,000,000	\$3,000,000
Ed and Ethel Moore Alzheimer's Research Program	\$5,000,000		\$5,000,000
Endowed Cancer Research - Mayo Clinic Jacksonville	\$2,000,000		\$2,000,000
Florida Consortium of National Cancer Institute Centers Program (Moffitt, UF Shands, and UM Sylvester)	\$45,000,000	\$17,228,743	\$62,228,743
Brain Tumor Registry Program at the McKnight Brain Institute		\$500,000	\$500,000
State University System - Moffitt Cancer Center	\$10,576,930		\$10,576,930
Cigarette Tax Distribution - Moffitt Cancer Center		\$15,600,000	\$15,600,000
Total	\$62,576,930	\$55,828,743	\$118,405,673

THE FLORIDA SENATE

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

February 12, 2019

Meeting Date

Bill Number (if applicable)

Topic Florida's Biomedical Research Advisory Council Update

Amendment Barcode (if applicable)

Name Daniel Armstrong, Ph.D.

Job Title Professor of Pediatrics & Sr. Associate Dean for Faculty Aff

Address 1601 NW 12th Avenue, Ste 3036A

Phone 305-243-6801

Street

Miami

FL

33136

Email darmstrong@miami.edu

City

State

Zip

Speaking: ☐ For ☐ Against ☒ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Florida Biomedical Research Advisory Council (BRAC)

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☒ No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

This form is part of the public record for this meeting.

S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

2/12/19
Meeting Date

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

Bill Number (if applicable)

Topic Dept. of Health Ed & Ethel Moore
Name Alzheimer's Disease Research Grant Program
Leilani Doty, PhD

Amendment Barcode (if applicable)

Job Title Chair, Advisory Board Ed & Ethel Moore Alzheimer's
Research Program

Address 4813 NW 19 Place
Street

Phone (H) 352-376-0542

City

Gainesville, FL

State

Zip

32605

Cell 352-256-0890

Email Leilani@mangerian.com

Speaking: ☒ For ☐ Against ☒ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing FL Dept. of Health Ed & Ethel Moore Alzheimer's Disease
Research Grant Program

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☒ No

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S-001 (10/14/14)

THE FLORIDA SENATE
APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

2/12/19

Meeting Date

Bill Number (if applicable)

Topic

Biomedical Research (Cogle)

Amendment Barcode (if applicable)

Name

Christopher R. Cogle, MD

Job Title

Chair, Florida Cancer Control and Research Advisory Council

Address

1600 SW Archer Road

Phone

Street

Gainesville, FL

State

32610

Zip

Email

c@ufh.edu

Speaking:

☐

For

☐

Against

☒

Information

Waive Speaking:

☐

In Support

☐

Against

(The Chair will read this information into the record.)

Representing

Florida Cancer Council

Appearing at request of Chair:

☒

Yes

☐

No

Lobbyist registered with Legislature:

☐

Yes

☒

No

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S-001 (10/14/14)

THE FLORIDA SENATE
APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

2/12/19

Meeting Date

Bill Number (if applicable)

Topic Biomedical Research

Amendment Barcode (if applicable)

Name Tom Sellers, PhD

Job Title Center Director, Moffitt Cancer Center

Address 12902 Magnolia Dr.

Phone 813-745-1520

Street

Tampa, FL

33602

City

State

Zip

Email tom.sellers@moffitt.org

Speaking: ☐ For ☐ Against ☒ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Moffitt Cancer Center

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☒ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

2/12/19

Meeting Date

Bill Number (if applicable)

Topic

Biomedical Research

Amendment Barcode (if applicable)

Name

Stephen Nimer MD

Job Title

Director, Sylvester Comp. Cancer Center

Address

1120 14th Street

Phone

305-243-1775

Street

Miami

FL

33136

Email

snimer@med.miami.edu

City

State

Zip

Speaking:

☐

For

☐

Against

☒

Information

Waive Speaking:

☐

In Support

☐

Against

(The Chair will read this information into the record.)

Representing

Sylvester Comprehensive Cancer Center at U. Miami

Appearing at request of Chair:

☒

Yes

☐

No

Lobbyist registered with Legislature:

☐

Yes

☒

No

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S-001 (10/14/14)

THE FLORIDA SENATE
APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

2/12/19
Meeting Date

Bill Number (if applicable)

Topic Biomedical Research

Amendment Barcode (if applicable)

Name Jonathan D. Licht

Job Title Director - U of Florida Health Cancer Center

Address 2033 Mowry Rd

Phone 352-273-8143

Gainesville FL 32610
City State Zip

Email jdllicht@ufl.edu

Speaking: ☐ For ☐ Against ☒ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☒ No

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S-001 (10/14/14)

THE FLORIDA SENATE
APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

02/12/19

Meeting Date

Bill Number (if applicable)

Topic Biomedical research and the life sciences industry

Amendment Barcode (if applicable)

Name Nancy Bryan

Job Title President and CEO, BioFlorida

Address 6742 Forest Hill Blvd. Suite 256

Phone (561) 653-3839

Street

West Palm Beach

FL

33413

Email NBryan@BioFlorida.com

City

State

Zip

Speaking: ☐ For ☐ Against ☒ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing BioFlorida

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☒ No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

This form is part of the public record for this meeting.

S-001 (10/14/14)

CourtSmart Tag Report

Room: KN 412

Case No.:

Type:

Caption: Senate Appropriations Subcommittee on Health and Human Services Committee

Judge:

Started: 2/12/2019 1:31:53 PM

Ends: 2/12/2019 2:50:01 PM

Length: 01:18:09

1:32:00 PM	Sen. Bean (Chair)
1:32:01 PM	Tab 1 Presentation on Biomedical Research
1:35:37 PM	Dr. Danial Armstrong, PhD, Chair, Florida Biomedical Research Advisory Council (BRAC)
1:43:11 PM	Sen. Bean
1:43:36 PM	D. Armstrong
1:45:14 PM	Sen. Bean
1:45:30 PM	Sen. Flores
1:45:38 PM	D. Armstrong
1:45:56 PM	Sen. Flores
1:46:09 PM	D. Armstrong
1:46:46 PM	Sen. Bean
1:46:53 PM	D. Armstrong
1:47:01 PM	Sen. Bean
1:47:28 PM	D. Armstrong
1:47:55 PM	Sen. Bean
1:48:08 PM	Sen. Flores
1:48:23 PM	D. Armstrong
1:48:57 PM	Sen. Flores
1:49:24 PM	D. Armstrong
1:49:38 PM	Sen. Bean
1:49:46 PM	D. Armstrong
1:50:12 PM	Sen. Bean
1:50:18 PM	Sen. Rader
1:50:35 PM	Sen. Bean
1:50:43 PM	Sen. Rader
1:51:30 PM	D. Armstrong
1:51:34 PM	Sen. Rader
1:51:37 PM	D. Armstrong
1:51:41 PM	Sen. Rader
1:51:53 PM	D. Armstrong
1:52:01 PM	Sen. rader
1:52:06 PM	D. Armstrong
1:52:16 PM	Sen. Rader
1:52:21 PM	D. Armstrong
1:52:31 PM	Sen. Rader
1:53:13 PM	D. Armstrong
1:53:16 PM	Sen. Bean
1:54:18 PM	Dr. Leilani Doty, PhD, Chair Advisory Board, Ed and Ethel Moore Alzheimer's Disease Research Program
1:54:38 PM	Sen. Bean
1:54:42 PM	L. Doty
1:58:58 PM	Sen. Bean
1:59:02 PM	L. Doty
1:59:30 PM	Sen. Bean
1:59:58 PM	L. Doty
2:00:07 PM	Sen. Bean
2:00:10 PM	L. Doty

2:00:13 PM	Sen. Bean
2:00:18 PM	L. Doty
2:00:22 PM	Sen. Bean
2:00:40 PM	L. Doty
2:00:54 PM	Sen. Bean
2:01:09 PM	L. Doty
2:01:18 PM	Sen. Bean
2:01:28 PM	L. Doty
2:01:54 PM	Sen. Bean
2:02:19 PM	L. Doty
2:02:21 PM	Sen. Bean
2:02:30 PM	L. Doty
2:02:34 PM	Sen. Bean
2:02:41 PM	L. Doty
2:03:47 PM	Dr. Christopher R. Cogle M. D., Chair, Florida Cancer Control and Research Advisory Council
2:08:31 PM	Sen. Bean
2:09:32 PM	C. Cogle
2:09:42 PM	Sen. Bean
2:09:47 PM	C. Cogle
2:10:39 PM	Sen. Bean
2:11:42 PM	Sen. Harrell
2:11:46 PM	C. Cogle
2:11:52 PM	Sen. Rouson
2:12:01 PM	C. Cogle
2:12:46 PM	Sen. Bean
2:14:26 PM	Dr. Tom Sellers, PhD, Center Director, MPH Moffitt Cancer Center
2:16:20 PM	Sen. Bean
2:17:50 PM	T. Sellers
2:18:01 PM	Sen. Bean
2:18:48 PM	T. Sellers
2:18:54 PM	Sen. Bean
2:18:58 PM	T. Sellers
2:20:05 PM	Sen. Bean
2:21:05 PM	T. Sellers
2:21:11 PM	Sen. Bean
2:21:22 PM	T. Sellers
2:21:26 PM	Sen. Bean
2:22:06 PM	Dr. Stephen D. Nimer, MD, Director - Sylvester Cancer Center
2:24:38 PM	Sen. Bean
2:25:39 PM	S. Nimer
2:26:13 PM	Sen. Bean
2:27:12 PM	S. Nimer
2:27:39 PM	Sen. Book
2:28:23 PM	Sen. Bean
2:28:28 PM	Dr. Jonathan D. Licht, MD, Director - University of Florida Health Cancer Center
2:32:46 PM	Sen. Bean
2:33:45 PM	J. Licht
2:33:51 PM	Sen. Harrell
2:34:19 PM	Sen. Bean
2:34:20 PM	S. Nimer
2:34:59 PM	Sen. Bean
2:35:49 PM	Nancy Bryan, President and CEO - BioFlorida
2:37:05 PM	Sen. Bean
2:38:05 PM	N. Bryan
2:39:12 PM	Sen. Bean
2:40:08 PM	N. Bryan

2:42:56 PM	Sen. Bean
2:43:56 PM	Sen. Harrell
2:44:22 PM	Sen. Bean
2:45:22 PM	N. Bryan
2:45:36 PM	Sen. Harrell
2:46:56 PM	N. Bryan
2:47:56 PM	Sen. Bean