

AGENDA ITEM

A-7. President's Report on Research and Sponsored Programs Erin Hopper

Situation: Each year, the University of North Carolina centrally reports the research-related funds that flow into the system through grants, contracts, and other sponsored programs. The system also monitors a variety of research-related commercial indicators.

Background: In total, UNC institutions reported \$1,535,428,205 in new awards in FY2016. When adjusted to take into account the \$29 million in sub-awards made between UNC institutions, the FY2016 total was a record \$1,506,130,543. This represents an 11% increase over FY2015 and a 43% increase over FY07. The number of proposals submitted in F2016 is the second largest to date, topping 12,000 for only the second time.

Assessment: UNC made impressive gains in sponsored program activity in FY2016, setting a new record for total sponsored program funding.

Action: This is for information only.

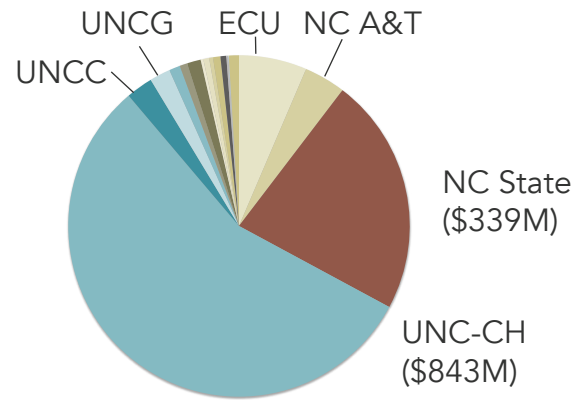
RESEARCH FY16

in the University of North Carolina System

FY16 FUNDING

\$1.5 B
IN FUNDING
RECORD-SETTING HIGH

FUNDING BY CAMPUS



13 campuses reported an annual increase in FY16

FUNDING INCREASES

↑ **11%** over 2015*
↑ **19%** over 2012
↑ **43%** over 2007
↑ **185%** over 1997

*Total includes a \$53M increase attributed to a change in reporting procedures

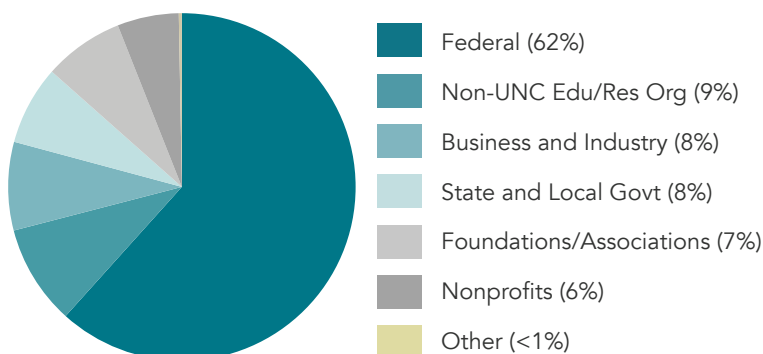
PROPOSALS SUBMITTED

12,014

Comparable to FY15's
record-setting high

ALL CAMPUSES ENGAGE IN
SPONSORED ACTIVITIES

FY16 SPONSORS



COMMERCIALIZATION

Just in the last five years:

\$55 MILLION
IN LICENSE INCOME

140 NEW STARTUPS

2613 INVENTION
DISCLOSURES



**University of North Carolina
Research and Sponsored Programs
Report to the President
FY2016**

**University of North Carolina
General Administration
March 2017**

Executive Summary

This annual report provides a brief snapshot of the sponsored program activity across UNC for FY2016.

In total, UNC institutions reported \$1,535,428,205 in sponsored program funding in FY2016. When adjusted to take into account the \$29 million in sub-awards made between UNC institutions, the FY2016 total was a record \$1,506,130,543. This represents an 11% increase over FY2015¹ and a 43% increase over FY2007.

The number of proposals submitted in FY2016 is the second largest to date, topping 12,000 for only the second time.

As has been the trend for several years, the U.S. Federal Government provides approximately two thirds of the total sponsored program funding received by UNC institutions in a given year.

Data on select commercial indicators and activities generated from UNC research show an increase in invention disclosures, a significant uptick in US patents issued and licenses or options executed, and relatively stable numbers of new start-ups compared to previous years. License income declined for the second year in a row.

Introduction

Why do research?

Research is a key component of UNC's three-part mission of teaching, research, and public service. In addition to developing new discoveries and innovations, UNC's engagement in research and its related activities supports student success, provides a platform for training graduate students, attracts funding to our universities, contributes to North Carolina's business climate and reputation, and makes our institutions attractive to top faculty and students. The bullets below describe a few key elements of research.

- Research is an integral part of the UNC mission and takes place at all UNC institutions
- Faculty are key in carrying out fundamental and applied research
- Students (graduate and undergraduate) conduct research and benefit from it
- Research and scholarship enhance instruction for students and engagement with the community, and *vice-versa*
- Research requires and generates resources
- Research benefits society (cures, treatments, products, jobs, new knowledge)

Highlights from FY2016

UNC Chief Research Officers (CROs) convene regularly to share best practices and discuss recent research developments. In 2016, under UNC GA leadership, the CROs formed the CRO Council, a more formal advisory body that will work together to further the collective goals of the group. The group is in the midst of formulating strategic goals, but the goals will be organized around the following themes:

¹ Total includes \$53,134,000 in contracts to East Carolina University Physicians (ECUP) for clinical services. Starting in FY2016, contracts to ECUP were recorded in RAMSeS to provide a more complete accounting of extramural funding to ECU. This change in ECU reporting practices does not account for the full 11% increase in sponsored program funding.

1. **Expanding and developing the research enterprise by fostering a culture of inter-institutional collaboration.** Identify and focus on strategic research areas, especially those that are most relevant to NC. Increase collaboration among UNC institutions (particularly between larger and smaller institutions) to increase success at receiving research funding. Incentivize collaboration among disciplines and foster interaction between STEM fields and arts/humanities.
2. **Broadening public understanding of research by improving research communications.** Support state and federal relations at a system level. Help stakeholders better understand the value of research and the interconnectedness of research with teaching, public service, and economic impact.
3. **Increasing efficiency by collaborating on relevant elements of research administration.** Provide shared services as needed (e.g., electronic research administration) and collaborate on setting relevant institutional research policies instead of duplicating efforts at the institutional level (e.g., policies on drone research, intellectual property, and research misconduct).

The CRO Council is guided by a three-member Steering Committee consisting of one CRO each from three institutions with small, medium, and large research programs. UNC GA staff serves in an advisory role and provides continuity to the group.

UNC Accomplishments in FY2016

Below are a few top research accomplishments from FY2016:

- **ECU's** College of Nursing received a three-year, \$2.1 million award from the Versant Center to develop a world-class, national research hub to advance nursing science.
- The **NC A&T** Center for Outreach in Alzheimer's, Aging, and Community Health (COAACH) received a \$2M grant from the Merck Foundation to expand Alzheimer's and diabetes outreach.
- **NCCU** reached a major milestone by executing its first licensing agreement from research using NCCU's chemical compound libraries. It is anticipated these therapeutic compounds will increase the dose tolerance of anti-cancer drug Irinotecan (Camptosar®).
- **NC State** is leading a Southeast US Regional Manufacturing Center, part of a \$140 million Clean Energy Smart Manufacturing Innovation Institute (CESMII). In June 2016, President Obama announced CESMII as the US Department of Energy's selection for its second national advanced manufacturing institute.
- **UNCA** hosted the 30th annual National Conference on Undergraduate Research that brought around 4000 students and their faculty mentors from 48 states and six foreign countries to share their undergraduate scholarship during a three-day event.
- **UNC-CH's** Highway Safety Research Center has been selected to run one of only five National University Transportation Centers funded by the U.S. Department of Transportation. The University will receive \$2.8 million in the first year, and up to \$15 million in grant funding over five years, to create and manage the Collaborative Sciences Center for Road Safety (CSCRS) – an opportunity for UNC-Chapel Hill to lead and influence the future of transportation safety research for the nation.
- Building on work initiated through funding from the UNC Research Opportunities Initiative, the National Science Foundation has awarded a \$4 million grant to **UNC Charlotte** researchers to develop a multidisciplinary research program called Virtual Information Fabric Infrastructure (VIFI) that will create new ways to manage, use, and share big data and analytics results.
- **UNCG** received an NIH U54 award from the NIH National Center for Complementary and Integrative Health (NCCIH). In a collaborative effort with the University of Washington and Washington State University, the project aims to study a series of herbal remedies to determine how they may affect the metabolism of drugs taken concomitantly. UNCG also received a new

T32 training grant in which doctoral students receive training while participating in the U54 work as well as the work of the Natural Products and Drug Discovery Center.

- **NC Research Campus** growth includes the newly opened Kannapolis City Hall and the addition of EnDev Laboratories and BioArmor. More than \$60 million in private investment has been secured for development of the downtown area immediately adjacent to NCRC. Support to the US armed forces is expanding with joint projects planned regarding traumatic brain injury, improving physical performance, and enhanced nutrition.

Goals for FY2017

The CRO Council is further developing a set of strategic goals and associated metrics for UNC research. These goals and metrics will be aligned with the system-wide UNC Strategic Plan and will be centered on the themes described above: 1) expand and develop the research enterprise by fostering a culture of inter-institutional collaboration; 2) broaden public understanding of research by improving research communications; and 3) increase efficiency by collaborating on relevant elements of research administration.

FY2016 Sponsored Program Funding for UNC

At \$1.51 billion, the adjusted total FY2016 funding showed an 11% increase over the previous fiscal year. Adjusted award dollars exclude any subawards made between UNC institutions. Adjusted annual totals increased in FY2016 for thirteen institutions (ASU, ECSU, ECU, FSU, NCA&T, NCCU, NC State, UNC-CH, UNCG, UNCP, UNCSA, WCU, and WSSU).

Table 1. FY2016 Sponsored Program Activity¹⁻⁴

	Total Proposals Dollars	Total Awards Dollars (includes inter-institutional awards)	Inter-institutional Award Dollars	Adjusted Total Award Dollars (minus inter-institutional awards)
Doctoral Granting Institutions				
ECU ²	\$259,068,807.26	\$102,982,501.59	\$6,079,435.00	\$96,903,066.59
NCA&T	\$181,153,506.31	\$60,228,197.80	\$976,648.00	\$59,251,549.80
NCSU	\$1,032,546,483.00	\$348,603,425.00	\$9,658,274.00	\$338,945,151.00
UNCCH	\$3,418,610,482.85	\$846,680,025.47	\$4,030,569.47	\$842,649,456.00
UNCC	\$228,639,429.00	\$40,316,483.00	\$2,209,468.00	\$38,107,015.00
UNCG	\$84,118,244.93	\$30,735,737.86	\$1,147,241.00	\$29,588,496.86
Master's Institutions				
ASU	\$48,620,608.85	\$16,270,359.38	\$490,695.00	\$15,779,664.38
ECSU	\$19,976,447.71	\$8,535,953.33	\$252,187.00	\$8,283,766.33
FSU	\$27,573,860.54	\$11,734,533.90	\$804,173.00	\$10,930,360.90
NCCU	\$75,024,418.43	\$20,332,484.00	\$721,758.00	\$19,610,726.00
UNCP	\$7,226,440.72	\$4,161,003.00	\$312,075.00	\$3,848,928.00
UNCW	\$47,788,292.31	\$9,463,116.15	\$1,206,551.00	\$8,256,565.15
WCU	\$20,421,007.97	\$6,040,387.97	\$501,987.00	\$5,538,400.97
WSSU	\$27,973,163.99	\$11,211,713.00	\$698,009.00	\$10,513,704.00
Baccalaureate Institutions				
UNCA	\$3,490,989.24	\$3,128,076.86	\$176,591.00	\$2,951,485.86
Special Focus Institutions				
UNCSA	\$613,716.25	\$513,716.25	\$0.00	\$513,716.25
NCSSM	\$10,781,132.91	\$109,500.00	\$12,000.00	\$97,500.00
System Office				
UNCGA	\$11,782,950.59	\$14,380,990.00	\$20,000.00	\$14,360,990.00
Totals				
	\$5,505,409,982.86	\$1,535,428,204.56	\$29,297,661.47	\$1,506,130,543.09

¹ UNC fiscal year runs July 1 through June 30.

² Total includes \$53,134,000 in contracts to East Carolina University Physicians (ECUP) for clinical services. Starting in FY2016, contracts to ECUP were recorded in RAMSeS to provide a more complete accounting of extramural funding to ECU.

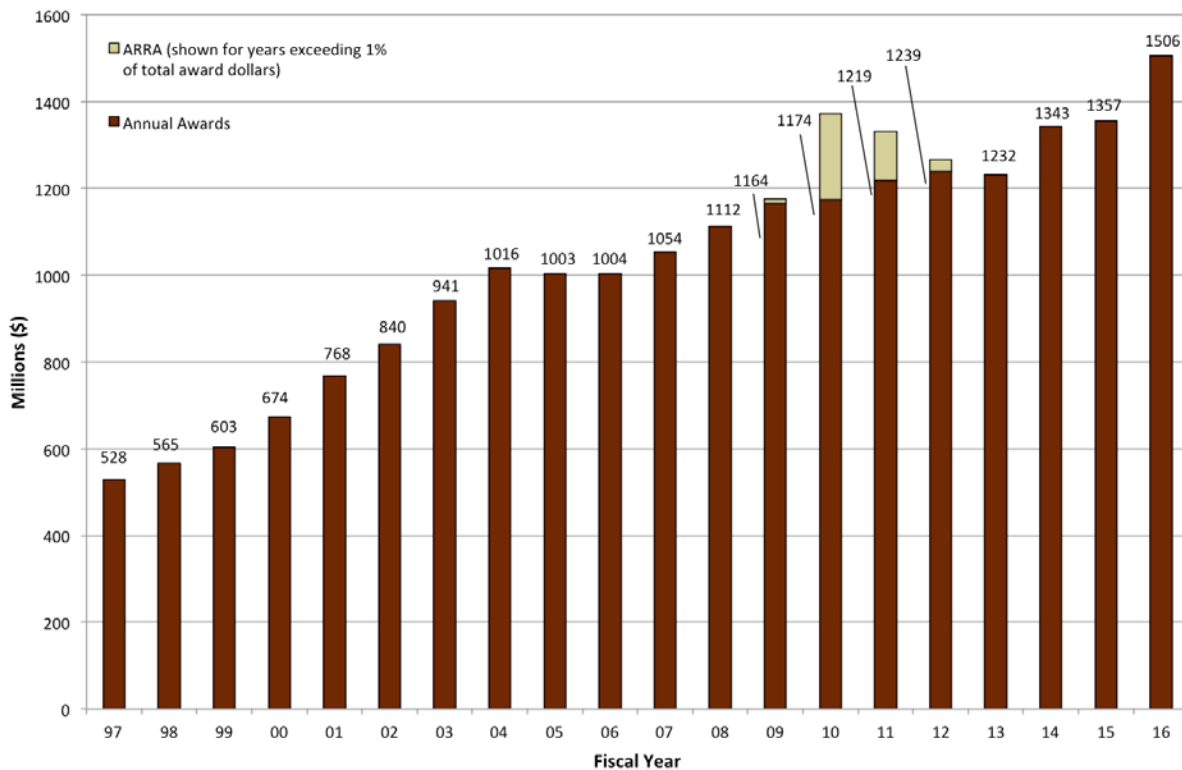
³ Not all current fiscal year submissions are funded in the same fiscal year. Additionally, FY Total Proposed Dollars includes some non-competing renewal proposals (primarily associated with NIH funding).

⁴ Some current fiscal year awards are prior fiscal year submissions.

Trends in Sponsored Program Funding, FY1997-2016

In the last 19 years, UNC sponsored program activity has more than doubled, even without the boost from the American Recovery and Reinvestment Act (ARRA or “stimulus,” shown in tan). A significant factor in this sustained growth is the wise use of facilities and administrative (F&A) receipts to help institutions cover the costs of supporting the research enterprise. UNC institutions utilize F&A receipts to, among other things, maintain and upgrade research infrastructure; invest in new research through matching funds, seed grants and “start up” packages for new faculty; support library holdings; provide cost share funding needed to attract new research projects and jobs to the state; and ensure compliance with federal and other regulations.

Figure 1. Trends in Sponsored Program Funding, FY1997-2016*

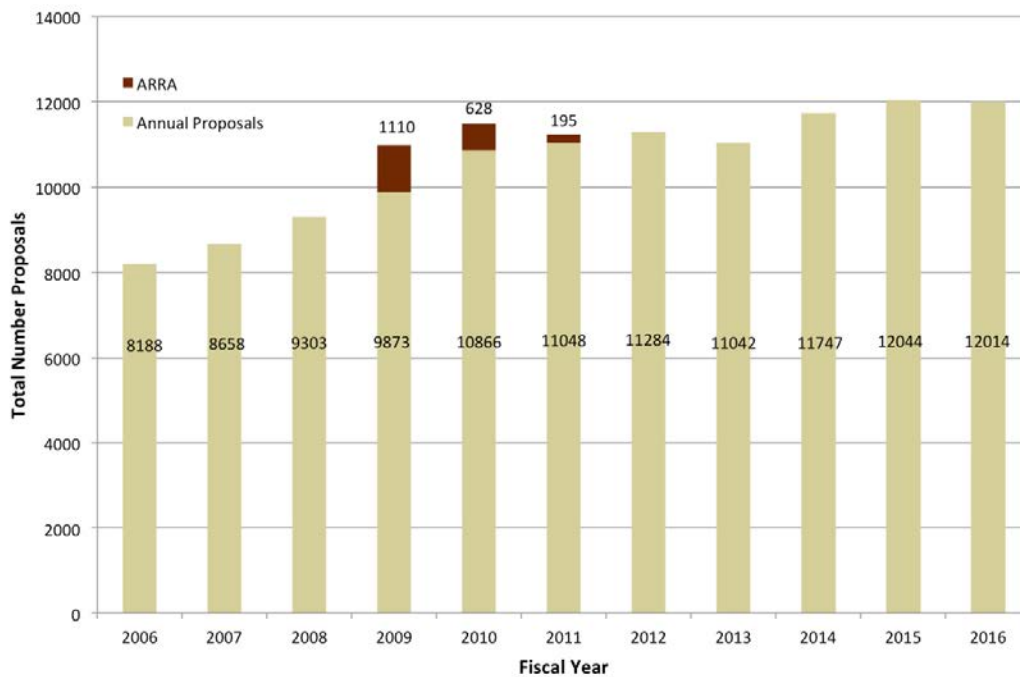


*To avoid double counting, inter-institutional subagreements are not included in annual sponsored program funding.

Trends in Proposal Submissions

In FY2016, the number of proposals was comparable to the previous year and again exceeded the high water mark seen during the American Recovery and Reinvestment Act (“stimulus”) period. The growth in proposal submissions over nearly a decade underscores the important contributions made by campus research faculty, administrators, and staff.

Figure 2. Trends in Proposal Submissions, FY2006-2016*



*Inter-institutional subagreements require staff effort and are included in annual proposals.

FY2016 Sponsors

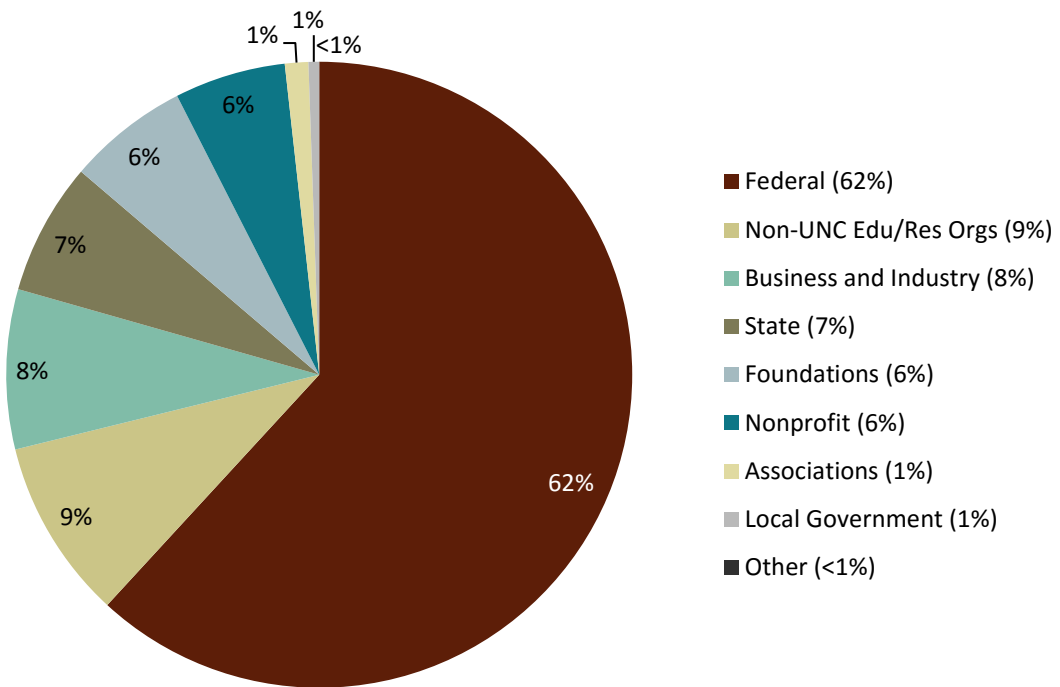
The relative contribution of federal dollars has remained steady over several years, at approximately two thirds of the total sponsored program funding each year. Sponsored award funding from several different sectors grew in FY2016 over the previous fiscal year. Dollars from nonprofit organizations grew by 137%, dollars from business and industry grew by 32%, and dollars from state governments (including states outside NC) grew by 28%.

Table 2. FY2016 Sponsors by category

Unites States Federal Government	
5771 - National Aeronautics and Space Administration (NASA)	\$4,335,674.03
5764 - National Foundation for the Arts and Humanities (NFAH)	\$606,474.00
5738 - National Science Foundation (NSF)	\$125,222,081.00
5845 - US Small Business Administration (SBA)	\$6,343,122.00
5670 - US Department of Agriculture (USDA)	\$50,920,656.63
5634 - Department of Commerce (DOC)	\$5,766,902.42
5522 - Department of Defense (DOD)	\$45,379,419.78
5500 - US Department of Education (DOED)	\$80,790,769.00
5453 - Department of Energy (DOE)	\$26,638,279.37
5285 - Department of Health and Human Services (DHHS)	\$47,071,438.46
5332 - National Institutes of Health (NIH)	\$439,950,764.68
5446 - Department of Homeland Security (DHS)	\$8,766,772.00
5442 - Department of Housing and Urban Development (HUD)	\$15,608.00
5393 - US Department of the Interior (DOI)	\$4,299,466.09
5430 - US Department of Justice (DOJ)	\$2,570,268.81
5424 - Department of Labor (DOL)	\$50,000.00
5409 - US Department of State (DOS)	\$2,783,051.00
5375 - US Department of Transportation (DOT)	\$2,067,277.59
5368 - Department of Veterans Affairs (VA)	\$596,567.00
5269 - United States Environmental Protection Agency (EPA)	\$8,965,049.90
5262 - Agency for International Development (USAID)	\$53,449,727.06
5803 - Corporation for National and Community Service (CNCS)	\$890,957.00
5807 - All Other Federal Agencies	\$1,432,440.40
5809 - Executive Office of the President (EOP)	\$0.00
18425 - U.S. Commission on Civil Rights	\$0.00
22001 - National Academy of Education	\$0.00
25130 - President of the United States	\$0.00
25131 - Administrative Office of the United States Courts	\$0.00
Confidential	\$27,736,706.00
Total Funding from Federal Government	\$946,649,472.22
Nonprofit Organizations	
State of North Carolina	\$59,372,478.89
All other states	\$28,325,247.78
Total Funding from Nonprofit Organizations	\$87,697,726.67

Associations	
State of North Carolina	\$1,969,224.00
All other states	\$16,540,160.60
Total Funding from Associations	\$18,509,384.60
Foundations	
State of North Carolina	\$20,837,391.00
All other states	\$74,803,523.58
Total Funding from Foundations	\$95,640,914.58
Local Government	
State of North Carolina	\$8,390,984.46
All other states	\$31,292.00
Total Funding from Local Government	\$8,422,276.46
Educational and Research Institutions	
State of North Carolina	\$42,044,203.82
All other states	\$100,627,311.21
Total Funding from Educational and Research Institutions	\$142,671,515.03
State Government	
State of North Carolina	\$99,139,692.54
All other states	\$5,443,835.38
Total Funding from State Government (NC)	\$104,583,527.92
Business and Industry	
State of North Carolina	\$39,068,194.25
All other states	\$87,187,933.43
Total Funding from Business and Industry	\$126,256,127.68
Other Sponsors	
State of North Carolina	\$1,303,020.00
All other states	\$460,581.75
Foreign Sponsors	\$2,610,441.40
Total Funding from Other Sponsors	\$4,374,043.15

Figure 3. FY2016 Sponsors by category



FY2016 Commercial Activity

UNC institutions possess a wide array of existing and emerging strengths in research and related commercial activities. Some institutions are developing inputs and activities (e.g. strategic faculty hires, sponsored awards, entrepreneurship programs) while others are focused on realizing greater outputs, outcomes, or impacts from the assets already in place.

A number of indicators can be used to assess commercial success, and care should be taken when interpreting these data, as not all research activities are intended or appropriate for moving toward commercialization. UNC institutions with the largest research programs estimate that approximately 10% of their faculty is engaged in research with commercial potential.

Invention disclosures are one output and a first step in a pathway towards the realization of commercial applications from university discoveries. Outcomes can include, but are not limited to, patents issued, licenses executed, start-ups, and license income. New business startups may also emerge that do not involve specific intellectual property or commercialized technology. Startups of that nature are not reflected in the numbers below.

The Association of University Technology Managers (AUTM) Annual Licensing Survey is a leading source of information on university commercial activity and indicators of potential in this area. With occasional exception, UNC's doctoral granting institutions report their activities in the annual AUTM survey. Data from all other institutions are self-reported.

Table 3. Commercialization in FY2016

	Invention Disclosures	US Patents Issued	Licenses or Options Executed	Start-ups	License Income
Doctoral Granting Institutions					
ECU	12	5	7	3	\$102,349.00
NCA&TSU	10	6	0	0	\$23,000.00
NCSU	290	53	164	12	\$3,844,823.11
UNCCH	196	47	53	8	\$4,039,704.00
UNCC	41	17	8	5	\$61,828.00
UNCG	10	2	3	0	\$37,479.67
All other Institutions (ASU/NCCU/UNCW/WSSU)					
	25	3	2	3	\$109,022.19

Table 4. Trends in Commercialization, FY2012-2016

	Invention Disclosures	US Patents Issued	Licenses or Options Executed	Start-ups	License Income
FY2016 Totals	584	133	237	31	\$8,218,205.97
FY2015 Totals	581	90	218	31	\$10,886,254.50
FY2014 Totals	467	97	212	31	\$15,927,896.60
FY2013 Totals	449	85	197	30	\$10,735,866.79
FY2012 Totals	532	91	149	17	\$8,977,264.00