one north carolina
Small Business Program

FISCAL YEAR 2019 REPORT ON THE COMMITMENT, DISBURSEMENT, AND USE OF FUNDS

As Required by §143B-437.83 of the
North Carolina General Statutes

Citation of Law or Resolution:	S.L. 2009‑451
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Receiving Entities:
The Joint Legislative Commission on Governmental Operations
The Chairs of the House of Representatives and Senate Finance Committees
The Chairs of the House of Representatives and Senate Appropriations Committees
The Fiscal Research Division of the General Assembly

Submitting Entity:
The Board of Science, Technology & Innovation of the Department of Commerce

BACKGROUND

The federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs grant competitive awards to small businesses for Phase I proof-of-principle research and development (R&D) and Phase II early-stage product development.

The SBIR program is a highly competitive, merit-based award system designed to stimulate technological innovation, strengthen the role of small businesses in meeting federal R&D needs, and increase private sector commercialization of innovations derived from federal R&D. Enacted in 1982 as part of the Small Business Innovation Development Act, (and then reauthorized in 2000 and 2012), the SBIR program requires federal agencies with more than $100 million in extramural R&D to allocate a percentage of their budgets exclusively for small businesses. This set-aside began in 1983 at 0.2% and is currently 3.0%, resulting in the availability of approximately $2.4 billion in fiscal year 2016 to small businesses R&D.

The STTR program is similar to the SBIR program, but its unique feature is its *requirement* that the small business work jointly with a non-profit research institution. A minimum of 40% of the work must be performed by the small business and a minimum of 30% by the non-profit research institution. Such institutions include federally funded research and development centers (FFRDCs), universities, university-affiliated hospitals, and other non-profits. Established by Title II of the Small Business Research and Development Enhancement Act of 1992, Public Law 102-564, the STTR program requires federal agencies with more than $1 billion of extramural R&D to reserve 0.4% of their budgets for R&D small businesses and their partners. This set-aside currently results in the availability of approximately $313 million for fiscal year 2016.

The One North Carolina Small Business Program (hereinafter "the Program")—the subject of this report—entails two State-funded programs: the **SBIR/STTR Phase I Matching Funds Program** and the **SBIR/STTR Phase I Incentive Funds Program.**[1] North Carolina is among a handful of innovative states that have seen the value of leveraging federal SBIR/STTR funds with State support of this type.

This report provides FY 2019 commitment and disbursement information for only the Matching Funds Program, as funds have not been appropriated to allow for the operation of the Incentive Funds Program since FY 2009. Information for previous fiscal years is available in previously submitted year-end reports for those years.

[1] Descriptions of both programs are provided later in this report, on pages 4 and 10, respectively.

PROGRAM IMPACT

Between FY 2006 and FY 2019, 513 grants, totaling more than $26.2 million, were issued to North Carolina small businesses.[2] As measured in a comprehensive evaluation of the Program in 2017,[3] this support has helped enable:

- the creation and retention of nearly 900 private sector jobs statewide – more to come as more companies benefit and grow.
- more than 250 small businesses bring to market biotechnology, nanotechnology, medical technologies, computer software, military/defense technologies, pharmaceuticals, textiles, and other high-tech applications.
- more than 77 percent of the small businesses to remain in operation.
- the small businesses to attract more than $515 million in external investment, including more than $122 million in follow-on federal funds.
- 60 percent of NC matching grant winners to win Phase II federal grant awards, each with a considerably larger average value of $1 million (nationally, 54 percent of Phase I award winners graduate to Phase II awards).
- the small businesses to produce more than $125 million in total sales resulting directly from the technology developed with Program funding.
- significant technology/business-development partnerships among NC universities & businesses.

Most of these companies are small and still growing, albeit rapidly. Thus, these impacts will multiply greatly as the grants become fully utilized over time to grow new businesses and enhance existing businesses. The Program was not funded during FY 2012, FY 2013, FY 2014, and FY 2018.

SAMPLE TESTIMONIALS

"This program has been great and the funds essential for the results we have achieved."
~ Intelli-Products, Asheville

"This program delivers significant impact for my company and others. Expansion of the program will offer job growth and continued enhancement of North Carolina on the National and Global level."
~PrimeNeuro, Inc., Durham

[2] This includes 90 incentive grants, totaling $263,281.43, and 398 Matching grants, totaling $24,781,413. Information grants in previous years is available in previously submitted year-end reports.

[3] The Board of Science, Technology & Innovation conducts a comprehensive, in-depth evaluation of the Program every five years. The latest evaluation of this type was conducted in calendar year 2017; the next evaluation is scheduled for calendar year 2022.

"The program has been a game-changer for our business. Mention of the funding has helped grant us entry with other collaborators, entrepreneurs, and college and university resources in NC that have enriched our business and improved our products."
~Haw River Mushrooms, LLC., Graham

"The process of application for this Matching Fund is streamlined and decisions are fast. Overall, I think this program is amazing and genuinely hope that it continues along the current path and even expands to allow for greater contributions into our local community."
~SinnovaTek, Raleigh

"Perfect. It really helped us provide a hands-on demo that had a huge impact in our success."
~Vigilant Cyber Systems, Inc., Mount Airy

MATCHING FUNDS PROGRAM

Overview

The North Carolina SBIR/STTR Phase I Matching Funds Program awards matching funds to North Carolina-based small businesses that have received a federal SBIR or STTR Program Phase I award. The North Carolina Board of Science, Technology & Innovation, a division of the North Carolina Department of Commerce, administers the Program.

Under the Program, awards can be made to eligible businesses for up to 100 percent of a firm's federal Phase I SBIR/STTR Program award, up to a maximum amount of $100,000, until funds available for the Program have been exhausted. Applicants who receive Matching Awards receive 75 percent of the award amount upon receipt of an SBIR/STTR Phase I award, and receive the remaining 25 percent of the award if their Phase I report is accepted by the funding agency and they submit a related Phase II application to the funding agency. Phase II SBIR/STTR awards can exceed $1million.

Purpose

The purpose of the Matching Program is to foster job creation and economic development in North Carolina by increasing the competitive position of North Carolina small businesses in attracting SBIR and STTR grant funding, and to provide an incentive for Phase I award-winning firms to participate in the more substantial Phase II program. The goals of the Matching Program are to:

1. Increase the amount of federal research dollars received by North Carolina small businesses;
2. Increase the intensity of the research conducted under Phase I, making North Carolina small businesses more competitive for Phase II funds;
3. Help North Carolina businesses bridge the funding gap period between the final Phase I payment and the first Phase II payment in the federal SBIR/STTR Program; and

4. Encourage the establishment and growth of high-quality, advanced technology firms in the State of North Carolina.

FY 2019 Summary

- In the FY 2019 Budget Act, $1.0 million was appropriated to One North Carolina Small Business Program. Individual grants were capped at 50 percent of the federal Phase I award, up $50,000.
- The Program committed $1,201,989.50 in funding via 25 grants during FY 2019, and disbursed slightly more than ¾ of it during FY 2019.[4] The remaining amount will be disbursed as companies meet milestones in future FYs.
- Recognizing the need to foster greater innovative activity in all parts of the state, the North Carolina Board of Science, Technology & Innovation implemented criteria prioritizing new companies and companies outside of the state's most prosperous counties. The result was that the FY 2019 cohort of grantees was the most geographically diverse in the program's history.

The following table provides information, including amounts committed and disbursed during FY 2019.

[4] The reason more funding was available than the FY 2019 appropriation of $1.0 million was because $201,990 in de-obligated funds were "recycled" and carried forward from previous years, when some grantees did not meet requirements for receiving their Stage 2 payments.

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	Amount Disbursed in FY 2019
Adamas Nanotechnologies, Inc	Fluorescent Nanodiamonds for Multiplexed Imaging and Diagnostics	Raleigh	WAKE	$50,000.00	2019	$37,500.00
Altis Biosystems, Inc.	Co-culture cassette for anaerobes and primary human intestinal epithelium	Chapel Hill	ORANGE	$50,000.00	2019	$37,500.00
Arcato Laboratories Inc	Non-Opiate Topical Formulations for Treating Pain Associated with Molar Extractions	Greenville	PITT	$34,986.50	2019	$26,240.00
Arrevus	Development of a predictive moderate throughput assay to screen novel Designer Proline-rich antimicrobial peptide Chaperone protein inhibitors (DPCs) against multi-drug resistant pathogen	Raleigh	WAKE	$50,000.00	2019	$50,000
AxNano, LLC	Controlled Release Polymer Structures for In Situ Chemical Oxidation of Contaminated Groundwater	Greensboro	GUILFORD	$62,196.00	2017	$15,549.00
Cell Microsystems	High throughput CRISPR/Cas9 cell line generation using the CellRaft Array platform	Durham	DURHAM	$65,000.00	2017	$16,250.00
Creative Scientist, Inc.	New Endothelial Cell-Based Assay to Assess Variability of Nitric Oxide Production in Humans	Durham	DURHAM	$65,000.00	2017	$16,250.00
EnergyXchain, LLC	Transforming Complex Utility Transaction Management	Huntersville	MECKLENBURG	$50,000.00	2019	$37,500.00

Fokuslabs Behavioral Solutions, Inc.	The First Intelligent Wearable Device to Enhance Student Attention Through Personalized Self-Monitoring and Reinforcement	Wake Forest	WAKE	$65,000.00	2017	$16,250.00
Goldfinch Sensor Technologies and Analytics LLC	Metamaterial Void Sensor for Fast Transient Testing	Cary	WAKE	$50,000.00	2019	$37,500.00
Haw River Mushrooms, LLC	Off Grid High Value Crop System: Harnessing Mushroom Farm Bi-Products for Soil and CO2 Enrichment to Produce Additional Specialty Crops	Graham	ALAMANCE	$50,000.00	2019	$37,500.00
HepatoSys, Inc.	Enhanced production of human hepatocytes from livers declined for transplant	Cornelius	MECKLENBURG	$65,000.00	2017	$16,250.00
IngateyGen LLC	Progeny Analysis of a Chimera-free Hypoallergenic Peanut	Elizabeth City	PASQUOTANK	$50,000.00	2019	$37,500.00
Innovation Research and Training, Inc.	Web-based High School Media Literacy for Healthy Relationships	Durham	DURHAM	$65,000.00	2017	$16,250.00
Intelli-Products Inc.	Fully Automated PV Array Assembly System	Asheville	BUNCOMBE	$50,000.00	2019	$37,500.00
Isolere Bio, Inc	Chromatography-Free Antibody Purification by Affinity-Phase Separation	Durham	DURHAM	$50,000.00	2019	$37,500.00
Kepley Biosystems Inc	A Novel Horseshoe Crab Device and Approach for a Sustainable Endotoxin Testing Resource	Greensboro	GUILFORD	$50,000.00	2019	$37,500.00

Mucommune, LLC	Delivery of pathogen-trapping antibodies for vaginal protection	Carrboro	ORANGE	$50,000.00	2016	$12,500.00
Multi3D LLC	Additive Manufacturing of Radio Frequency and Microwave Components from a Highly Conductive 3D Printing Filament	Cary	WAKE	$65,000.00	2017	$16,250.00
Praetego Inc	Development of novel Amadorins for Diabetic Neuropathy	Durham	DURHAM	$50,000.00	2019	$37,500.00
PrimeNeuro, Inc.	Objective, MRI biomarkers for pre-symptomatic detection of autism spectrum disorder at 6 months old: commercial software development and optimization	Durham	DURHAM	$50,000.00	2019	$37,500.00
Qatch Technologies LLC	Microfluidic quartz resonator-based blood plasma coagulation monitors	Chapel Hill	ORANGE	$65,000.00	2017	$16,250.00
Rescindo Therapeutics Inc	Developing a new therapeutic agent for Kabuki Syndrome	Cary	WAKE	$50,000.00	2019	$37,500.00
Secmation, LLC	SoCrypt - High Assurance Software Cryptography for Small Satellites	Raleigh	WAKE	$50,000.00	2019	$37,500.00
SinnovaTek	Advanced Portable Processing Platform	Raleigh	WAKE	$48,958.50	2019	$36,719.00
SonoVol	A noninvasive method for tissue stiffness quantification in small animals with shear wave elastography	Research Triangle Park	DURHAM	$65,000.00	2017	$16,250.00

Studio Hagler LLC	Development of the Couplet Care Bassinet to support safe implementation of skinto- skin contact and rooming-in on postnatal units	Chapel Hill	ORANGE	$50,000.00	2019	$37,500.00
Treadwell Corporation	A momentum-enabled treadling methodology to improve gait and enhance mobility in patients with peripheral arterial disease	Wilmington	NEW HANOVER	$43,260.00	2019	$32,445.00
Triangle Biotechnology, Inc	Towards commercialization of cavitation-enhancing nanodroplets for DNA sample fragmentation in NGS applications	Chapel Hill	ORANGE	$50,000.00	2019	$37,500.00
United Protective Technologies, LLC	Advanced Nano Composite Coating for Gear Applications	Locust	STANLY	$24,784.50	2019	$18,588.00
Video Collaboratory, LLC	Team-Based Learning and Collaboration with Video Documents	Charlotte	MECKLENBURG	$65,000.00	2017	$16,250.00
Vigilant Cyber Systems, Inc.	Electromagnetic Battle Damage Assessment Toolkit	Mount Airy	SURRY	$50,000.00	2019	$37,500.00
Voxel Innovations	Heat-Free, Stress-Free Surface Finishing of Additive Components Using Oscillatory PECM	Raleigh	WAKE	$50,000.00	2019	$50,000
Zymeron Corporation	Targeted and Sustained Release Microparticles for Colon Cancer Chemoprevention	Durham	DURHAM	$50,000.00	2019	$37,500.00
Total				**$1,799,185.50**		**$1,025,791.00**

NOTE: Committed and disbursed amounts in the table above differ because businesses receive 75 percent of the committed grant amount upon award, and the remaining 25 percent after certain Program performance/completion criteria are met. The remaining 25 percent disbursement often occurs in a different fiscal year from the original commitment fiscal year.

INCENTIVE FUNDS PROGRAM

Overview

The North Carolina SBIR/STTR Phase I Incentive Funds Program reimburses qualified North Carolina businesses for a portion of the costs incurred in preparing and submitting Phase I proposals for the U.S. Government's SBIR and STTR Programs. Under the Incentive Funds Program, the State issues qualified applicants a grant in the amount equal to 50 percent of their approved Phase I Proposal preparation costs, up to $3,000. These grants are awarded to qualified applicants on a first-come, first-served basis, up to the limits of available funding. The North Carolina Board of Science and Technology, a division of the North Carolina Department of Commerce, administers the Program.

Purpose

The purpose of the Incentive Program is to foster job creation and economic development in North Carolina by encouraging North Carolina small businesses to compete for federal SBIR and STTR awards. The goal of the Incentive Program is to increase the number of North Carolina applications for federal SBIR and STTR Phase I awards.

FY 2017 Summary

- Funding was not appropriated to allow for the operation of the Incentive Funds Program during FY 2019.

CONCLUSION

A handful of innovative states, including North Carolina, have seen the value of leveraging federal SBIR/STTR funds with State support. North Carolina's entrepreneurial community has enthusiastically heralded the One North Carolina Small Business Program's creation for its impact on growing the state's entrepreneurial economy, and for the fact that it reflects a substantial recognition by lawmakers of the importance of innovation and entrepreneurship to the economic health of the state. As the impact measures above indicate, the Program enables North Carolina's small businesses to generate the kinds of innovation critical for making the state a leader in the global economy.