



one north carolina
Small Business Program

**FISCAL YEAR 2010 REPORT ON THE COMMITMENT,
DISBURSEMENT, AND USE OF FUNDS**

Citation of Law or Resolution:	S.L. 2009-451
Section Number:	Section 14.5(c)
Due:	September 1, 2010
Submitted:	August 31, 2010

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 and Technology 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), 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 2.5%, resulting in the availability of approximately \$2.5 billion in fiscal year 2010 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 0.3% of their budgets for R&D small businesses and their partners. This set-aside currently results in the availability of approximately \$150 million for fiscal year 2010.

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 2010 commitment and disbursement information for only the Matching Funds Program, as overall Program funding was insufficient to allow for the operation of the Incentive Funds Program during FY 2010. 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 3 and 5, respectively.

PROGRAM IMPACT

In the Program's first five years, 290 grants, totaling more than \$15.5 million, have been issued to North Carolina small businesses.² As of August 31, 2010, 114 federal Phase I projects, receiving more than \$9 million in State Matching Funds support from the Program, have been completed. This support has helped the recipient businesses to:

- Advance innovative commercial technologies in numerous sectors;
- Build company and university collaborations;
- Make an additional \$14 million in internal capital investments;
- Leverage more than \$38.7 million in external capital investments;
- Generate more than \$41.8 million³ in follow-on federal SBIR/STTR funding;⁴
- Create more than 120 additional jobs;
- Position themselves to yield hundreds of patents, licenses, and products.

These impacts will multiply greatly as the grants become fully utilized over time to grow new businesses and enhance existing businesses.

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 and Technology, 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.

² This includes 90 incentive grants, totaling \$263,281.43, and 200 Matching grants, totaling \$15,329,213. Information for commitments and disbursements in previous years is available in previously submitted year-end reports for those years.

³ Fifty three of the 114 small businesses received Phase II awards. This success rate is at least five to 10 percentage points higher than the U.S. average success rate. This higher-than-average level of success is due, in part, to the Matching Funds.

⁴ Combined, the external capital investments and the follow-on federal SBIR/STTR funding represent a nearly 9 to 1 leveraging of the State Matching Funds.

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 2010 Summary

- In the FY 2010 Budget Act, \$700,000 was appropriated to One North Carolina Small Business Program, of which 100 percent was allocated to the Matching Funds Program.
- An additional \$318,940.93 was transferred to the Fund. This amount consisted of unencumbered funds carried forward from the Program's previous four years. These funds were unencumbered because the businesses for which they were originally encumbered were ultimately not able to apply for federal Phase II funding and, as a result, were required under Program Guidelines to forfeit their Stage 2 Matching disbursement (25% of their total Matching Award).
- The FY 2010 Program Solicitation was released on November 15, 2009.
- Award levels were set at 50 percent of a firm's federal SBIR/STTR Program award, up to a maximum amount of \$50,000. In addition, due to the limited funding available under the FY 2010 Solicitation, Award decisions were made using a stochastic process in which each Applicant had a 50 percent probability of receiving an Award.⁵

In FY 2010, 20 NC small businesses received matching grants, as follows:⁶

⁵ Specifically, a single-trial Bernoulli statistical process, using a 50 percent probability of success value, was performed using the random number generator tool in Microsoft Excel. The outcome of a given trial could take the value of either 1 or 0, where 1 represents selection for a Match Award and 0 represents non-selection for a Match Award.

⁶ An additional three small businesses have been selected to receive an award in FY 2010. They are scheduled to receive their stage 1 payments within two weeks of the submission date of this report. At that time, funding will be committed and Stage 1 grant payments will be made.

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
GreatWall Systems, Inc.	Integrated Scalable Parallel Firewall and Intrusion Detection System for High-Speed Networks	Winston-Salem	FORSYTH	\$38,735.50	2006	\$9,683.87
ArrayXpress, Inc.	Developing a Standardized Array-based Diagnostic Product for Early Identification of Pathogens and Pests of Forest Tree species	Raleigh	WAKE	\$99,949.00	2007	\$24,987.25
Precision Human Biolaboratory Inc./Ridge Diagnostics	Molecular Interaction Measurement System: A Label-Free Detection Platform	Research Triangle Park	DURHAM	\$99,632.00	2008	\$24,908.00
Scribner Associates, Inc.	Hand-Held System for On-Site Trihalomethane Measurement	Southern Pines	MOORE	\$99,953.00	2008	\$24,988.25
Innovation Research and Training, Inc.	Web-Based Mentor Training Program	Durham	DURHAM	\$100,000.00	2008	\$25,000.00
Cytex Therapeutics, Inc.	Hip Joint Resurfacing with Functional Human Cartilage	Durham	DURHAM	\$100,000.00	2008	\$25,000.00
Alditri Technologies, Inc.	Selective Bio-Molecule Filtration Media Formulated Using Vapor-Phase Deposition Technology	Raleigh	WAKE	\$100,000.00	2008	\$25,000.00
3F, LLC	HIGH-STRENGTH LOW-COST FIBER VIA MULTI-COMPONENT NANOFIBER (MCN) SPINNING	Raleigh	WAKE	\$100,000.00	2008	\$25,000.00
The Sandbox Learning Company	Social Software for Teaching Children with Autism Social Skills	Cornelius	MECKLENBURG	\$74,993.00	2008	\$18,748.25

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
Corvid Technologies	Hypervelocity Intercept Modeling with First-Principle, Physics-Based Tools	Mooresville	IREDELL	\$99,451.23	2008	\$24,862.81
Valencell, Inc.	Wearable Photoelectrocatalytic Personal Environmental Exposure Monitor	Raleigh	WAKE	\$100,000.00	2008	\$25,000.00
Endls Optics	Optical Surveillance of Tumor Margins in Patients Undergoing Breast Conserving Surgery	Research Triangle Park	DURHAM	\$100,000.00	2008	\$25,000.00
Auger Communications, Inc.	Teach-with-Stories: Lay Educator Prenatal Outreach Program for Hispanics	Durham	DURHAM	\$100,000.00	2008	\$25,000.00
Premitec, Inc.	Novel Ultra-Flexible Hybrid Circuits for Intraocular Retinal Prostheses	Raleigh	WAKE	\$87,680.00	2008	\$21,920.00
Health Outcomes, Inc.	Comprehensive Patient-Reported Outcomes Tracking Solution for State SPMI Clients	Chapel Hill	ORANGE	\$99,811.00	2008	\$24,952.75
GrassRoots Biotechnology, Inc.	STTR Phase I: Constitutive promoters for crop improvement	Durham	DURHAM	\$100,000.00	2008	\$25,000.00
Virtual Reality Aids, Inc.	Multimedia Tool for Psychology Graduate Student ASD Assessment Training	Raleigh	WAKE	\$100,000.00	2008	\$25,000.00
Vascular Biosciences	Targeting Pulmonary Hypertension with R-Ras	Durham	DURHAM	\$100,000.00	2008	\$25,000.00
MRI Cardiac Services, INC	Comprehensive MR imaging of Elderly Vascular Function	Winston Salem	FORSYTH	\$60,618.00	2008	\$15,154.50

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
AP Solutions, Inc.	Media Free Coatings Removal Technology for Navy Platforms using Atmospheric Plasma	Cary	WAKE	\$69,906.00	2009	\$52,429.50
SoyMeds, Inc.	Novel therapy for treating Multiple Sclerosis	Davidson	MECKLENBURG	\$75,000.00	2009	\$56,250.00
Signal Innovations Group, Inc.	In Situ learning for underwater object recognition	Durham	DURHAM	\$69,934.00	2009	\$52,450.50
InnerOptic Technology, Inc	A Needle Guidance System for Hepatic Tumor Ablation That Fuses Real-Time Ultrasound and Pre-Op CT	Hillsborough	ORANGE	\$75,000.00	2009	\$56,250.00
Vadum Inc	Efficient Wideband Antenna for JTRS Ground Mobile Radio Communications Systems	Raleigh	WAKE	\$68,851.40	2009	\$51,638.55
Advanced Liquid Logic, Inc	Low-cost and Rapid DNA Sequencer for Biometric Applications	Research Triangle Park	DURHAM	\$75,000.00	2009	\$56,250.00
Vortant Technologies, LLC	Self Contained Sensor and Telemetry for Remote Water Quality Monitoring	Weaverville	BUNCOMBE	\$75,000.00	2009	\$56,250.00
Alditri Technologies, Inc.	Nano-enhanced Fibrous Structures for Pathogenic Virus Elimination from Biopharmaceutical Products	Raleigh	WAKE	\$75,000.00	2009	\$56,250.00
SureMilk, LLC	Surfaces Designed for the Quantification of Long Chain Fatty Acids	Durham	DURHAM	\$75,000.00	2009	\$56,250.00
Rivis, Inc.	Electrical power generation for sustained high speed flight	Research Triangle Park	DURHAM	\$53,849.33	2009	\$40,387.00

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
Polyglot Systems, Inc	TDARS: Translated Document Assembly and Retrieval System	Morrisville	WAKE	\$75,000.00	2009	\$18,750.00
Algaen Corporation	Developing Innovative Photobioreactor and Extraction Technology For Production Of Biodiesel Feedstock Using Microalgae	Clemmons	FORSYTH	\$56,052.67	2009	\$42,039.50
GrassRoots Biotechnology, Inc.	Improving Root Architecture in Energy Crops	Durham	DURHAM	\$75,000.00	2009	\$56,250.00
Tec-Cel, Inc.	Cell Targeting Tools	Raleigh	WAKE	\$75,000.00	2009	\$18,750.00
InnovaTech, Inc.	Retrofit Air Pollution Control Filter for Restaurant UnderFired Charbroilers	Research Triangle Park	DURHAM	\$70,000.00	2009	\$17,500.00
Horizon Performance	Behavior Tracking Software Enhancement and Integration of a Feedback Module	Cary	WAKE	\$75,000.00	2009	\$18,750.00
Brighton Development, LLC	Permanent Antimicrobial Medical Plastic	Cary	WAKE	\$75,000.00	2009	\$18,750.00
Firebird Advanced Materials, Inc.	Technologies for the Rapid Curing of Composite Parts	Raleigh	WAKE	\$75,000.00	2009	\$18,750.00
Zen-Bio, Inc	Commercialization of Human Mammary Basal / Luminal Cell System for Research	RTP	DURHAM	\$75,000.00	2009	\$18,750.00
LifeSciTech, LLC	A Novel Approach to the Treatment of Cardiac Arrhythmia: A Robotic Catheter for Epicardial Pacing Lead Placement	Research Triangle Park	DURHAM	\$75,000.00	2009	\$18,750.00

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
Signal Innovations Group, Inc.	In Situ learning for underwater object recognition	Durham	DURHAM	\$69,934.00	2009	\$17,483.50
Physcient, Inc.	Work Softening and Dynamic Mechanical Analysis to Reduce Tissue Trauma During Surgical Retraction	Durham	DURHAM	\$75,000.00	2009	\$18,750.00
3-C Institute for Social Development, Inc.	Cuentos de la Vida: Exploring Cultural Heritage through Storytelling	Cary	WAKE	\$75,000.00	2009	\$18,750.00
Bennett Aerospace LLC	Accelerated Learning Through Serious Game Technology	Cary	WAKE	\$75,000.00	2009	\$18,750.00
PhotonTech	Advanced Polymer Resists for Extreme Ultraviolet (EUV) Nanolithography	Research Triangle Park	DURHAM	\$75,000.00	2009	\$18,750.00
Triangle Polymer Technologies, Inc	Adhesives for Rapid Outfitting and Insulation Attachment	Cary	WAKE	\$69,999.04	2009	\$17,499.76
BioMedomics, Inc.	Highly Sensitive Hand-Held Device for Quantitative Multiplex Protein Analysis Using Time-Resolved Assay	Research Triangle Park	DURHAM	\$69,996.25	2009	\$17,499.06
3F, LLC	STTR Phase I: Light-Weight Bio-Based Nano-Enhanced SMC Formulations	Raleigh	WAKE	\$75,000.00	2009	\$18,750.00
STRAD Corporation	Robust Wideband Aircraft Altitude Estimation for Over-the-Horizon Radar	Durham	DURHAM	\$75,000.00	2009	\$18,750.00
Virtual Reality Aids, Inc.	Web-Delivered Assessment for Stroke Survivors Using Multimedia Technology	Raleigh	WAKE	\$75,000.00	2009	\$56,250.00

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
Cognosci, Inc.	Novel Targeted Therapy for CLL	Research Triangle Park	DURHAM	\$75,000.00	2009	\$18,750.00
Novan, Inc.	STTR Phase 1: Nitric Oxide-Releasing Antibacterial Wound Dressing	Research Triangle Park	DURHAM	\$75,000.00	2009	\$18,750.00
A-B-Sea Research	GPS Reference While Submerged	Raleigh	WAKE	\$34,928.20	2010	\$26,196.15
Advanced TeleCare, LLC	Enhancing Group Identity May Improve Effectiveness of Diabetes Self-Management Education	Durham	DURHAM	\$50,000.00	2010	\$37,500.00
Allotropica Technologies, Inc.	"SBIR Phase I: Mesoporous Graphene Electrodes for Supercapacitors.	Chapel Hill	ORANGE	\$50,000.00	2010	\$37,500.00
Arctic, Inc.	Non-Polluting Method of Weed Control	Clemmons	FORSYTH	\$50,000.00	2010	\$37,500.00
Broad Digital LLC	Intelligible Speech Communications with Robust Voice Operated Switch (VOX) Operation for High Noise Environments	Cary	WAKE	\$49,272.00	2010	\$36,954.00
Creative Bioreactor Designs, Inc.	"Development of Novel Bioreactor for Engineered Skeletal Muscle"	Winston Salem	FORSYTH	\$49,999.12	2010	\$37,499.34
Gigabeam Acquisition Corporation	SBIR Phase I: 256 QAM Modem Supporting 10 Gb/s Radio.	Durham	DURHAM	\$50,000.00	2010	\$37,500.00
Humacyte, Inc.	Novel Manufacturing Processes for Tissue Engineered Vascular Grafts	Durham	DURHAM	\$50,000.00	2010	\$37,500.00
Identizyme Defense	Low/No Power detector for Organophosphate Nerve	Chapel Hill	ORANGE	\$34,994.50	2010	\$26,245.88

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
Technologies, Inc.	Agents					
Inanovate, Inc	A Nanotechnology Enabled Point of Care Diagnostic Platform for Early Stage Cancer Detection	Durham	DURHAM	\$50,000.00	2010	\$37,500.00
Integrated Oncology Solutions, Inc.	Identification of Novel Androgen Receptor Antagonists for the Treatment of Hormon	Research Triangle Park	DURHAM	\$50,000.00	2010	\$37,500.00
KeraNetics, LLC	Keratin biomaterial-based fluid for trauma resuscitation	Winston Salem	FORSYTH	\$50,000.00	2010	\$37,500.00
MoveableCode, inc.	Realtime Markerless Scene Tracking on a Smartphone	Raleigh	WAKE	\$50,000.00	2010	\$37,500.00
Parion Sciences	The Development Epithelial Sodium Channel Blockers for Chronic Dry Eye	Durham	DURHAM	\$50,000.00	2010	\$37,500.00
Piedmont Biofuels Industrial	Utilization of Immobilized Lipase System for Waste Water Reduction in the Bioenergy Industry	Pittsboro	CHATHAM	\$50,000.00	2010	\$37,500.00
QuarTek Corporation	Specially Functionalized Nanomagnetic Particles & Ionic Liquids for Harvesting, Dewatering & Extraction of Lipids & Carbohydrates from Algae	Greensboro	GUILFORD	\$50,000.00	2010	\$37,500.00
Tensive Controls, Inc	Melanocortin Ligands in Disease Cachexia	Greensboro	GUILFORD	\$50,000.00	2010	\$37,500.00

Organization Legal Name	Project Title	Organization City	Organization County	Total Grant Amount Committed	Committed Fiscal Year	FY 2010 Grant Amount Disbursed
United Protective Technologies, LLC	Advanced Canopy Window Materials for Improved Helicopter and Aircrew Survivability	Locust	STANLY	\$39,743.67	2010	\$29,807.75
Wave Computation Technologies, Inc.	Discontinuous Galerkin Modeling of Electromagnetic Propagation Through Novel Materials and Configurations	Durham	DURHAM	\$34,999.96	2010	\$26,249.97
Xintek Inc.	High-Performance Polymer Nanocomposites Containing Functionalized Few-Walled Carbon Nanotubes	Durham	DURHAM	\$50,000.00	2010	\$37,500.00
			Total	\$5,028,282.87		\$2,188,336.14

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 2010 Summary

- Overall Program funding was insufficient to allow for the operation of the Incentive Funds Program during FY 2010.

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.