

# **Life Sciences Research in Northwest Florida**

**October 19, 2007**

**Prepared for the FSU Office of IP  
Development and Commercialization  
by Shannon Callens**

## Table of Contents

<b>Florida State University</b> .....	3
<i>High Performance Materials Institute</i> .....	4
<i>National High Magnetic Field Laboratory</i> .....	4
<b>FAMU</b> .....	6
<i>Public Health Entomology Research and Education Center</i> .....	6
<i>College of Pharmacy and Pharmaceutical Sciences</i> .....	6
<b>University of West Florida</b> .....	7
<b>Northwest Florida</b> .....	8
<i>Taxolog, Inc.</i> .....	8
<i>Avian Biotech International</i> .....	8
<i>Animal Genetics, Inc.</i> .....	8
<i>Avocare</i> .....	8
<i>The Big Bend Regional Healthcare Information Organization</i> .....	9
<i>Regional Health Information Network</i> .....	9
<i>Southeastern Research Group, Inc.</i> .....	9
<i>Tallahassee Orthopedic Clinic</i> .....	10
<i>Northwest Florida Forms Life Sciences Council</i> .....	10
<i>Florida Institute for Human and Machine Cognition</i> .....	10
<i>The Andrews Institute</i> .....	11
<i>Trinity DNA Solutions</i> .....	11
<i>V.A. Super Clinic</i> .....	12
<i>Emerald Coast Technology and Research Campus</i> .....	12
<i>Project Green Circle</i> .....	12
<i>WIRED Northwest Florida Targets Life Sciences</i> .....	13
<i>ActiGraph, LLC</i> .....	13
<i>Pegasus Laboratories</i> .....	14
<i>Pall Corporation</i> .....	14

## Florida State University



Florida State University (FSU) is a major player in Life Sciences research in Florida, with strengths in basic research for the health sciences and in a wide variety of supporting fields, including:

Molecular biology and genetics	Structural biology
Physics and Biophysics	Computational science
Biochemistry and synthetic organic chemistry	Biomedical engineering and nanotechnology
Materials Research	Bio-Nano device fabrication capability
Psychology	Nutrition, Food & Exercise Science

**UNIQUE CAPABILITIES:** FSU has capabilities that are unique in the nation and Florida, such as the National MagLab. It is the size of a large shopping center and serves as an international users facility with over 600 visiting researchers each year with over 35 research magnets available. It has unparalleled facilities for the development of new medical imaging and spectroscopic tools based upon high magnetic fields (NMR, MRI, CAT scans, etc.).

**NEW FACILITIES:** are appearing at an explosive rate. College of Medicine Research building; new Psychology building; new Chemistry building; new Life Sciences Teaching and Research building; new Materials research building; new Dance theater; new Applied superconductivity building; major reconstruction of the Institute of molecular Biophysics building and the MagLab, adding over 500,000 square feet of new laboratory/research space.

**MORE FACULTY HIRES:** FSU has committed over \$100 million of internal money to 200 new, above replacement additional faculty hires over the next five years. This Pathways of Excellence initiative is focused on interdisciplinary cluster hires of 6-8 new faculty with a significant number of senior, Full Professor hires.

The new FSU College of Medicine is undergoing explosive growth, has taken in its sixth incoming class, and developed major research programs in Neuroscience, Developmental Biology & Cancer Research, and the Molecular Basis of Disease with over \$15 million in sponsored research. The school's clinical focus is on neglected populations in rural and urban Florida and all aspects of geriatrics. It is training 25 PhD biomedical researchers and graduates 60 MDs per year, growing to 120 per year.

FSU has made a huge commitment to Life Science research both in terms of new laboratory space and new faculty. Of the \$191 million in research expenditures in FY'05, 40% are life sciences oriented.

FSU has unique competitive advantages in the development and application of powerful analytical tools for biomolecular research.

- Ion cyclotron resonance mass spectrometers. Highest mass resolution on earth.
- 900 MHz wide bore NMR spectrometer for liquids, solids and imaging.
- Complete structural biology capabilities including X-ray diffraction (3 X-ray generators), cryoelectron microscopy, NMR and two W-band EPR spectrometers.
- Computational expertise through SuperComputingCenter and IMB for development of data analysis and management tools.
- Computational Structural Biology group in SCS-IMB that has a unique concentration of talent in the area of simulation and modeling using electrostatics and energy calculations.

The FSU Office of IP Development & Commercialization (OIPDC) uses as \$250,000 year GAP program to strengthen licensing opportunities for life science technologies, has handled all aspects of the massive, wildly successful Taxol™ licensing program and is well connected to statewide, national and international life science growth activities.

### High Performance Materials Institute



As a world-class research center and an integral part of higher education, HPMI researchers focus their efforts on the following three major activities: 1. conducting a broad range of research and integration to improve the performance and affordability of advanced composite materials, components, subsystems and structures; 2. expanding the pool of well-trained engineers and scientists for a technology sector of national and global significance; and 3. working with tech transfer and economic development professionals in transferring and commercializing composite technology and increasing economic impact. Materials research, by its very nature, is multidisciplinary, involving basic sciences such as chemistry and physics, as well as chemical engineering, civil engineering, electrical engineering, industrial engineering, manufacturing engineering and mechanical engineering. HPMI program teams consist of researchers with a wide range of technical backgrounds who share the vision of conducting world-class research towards making high-performance composites affordable.

<http://www.eng.fsu.edu/departments/industrial/hpmi/overview.htm>

### National High Magnetic Field Laboratory



The National Science Foundation's Science Board announced approval of a proposal to renew funding for The National High Magnetic Field Laboratory, re-established at Innovation Park in 1990 through 2011.

The Applied Superconductivity Center moved its headquarters from the University of Wisconsin Madison to Innovation Park and set up shop as a materials research division of The National High Magnetic Field Laboratory.

After a year of testing – culminating 13 years of development – a \$16 million, world-record magnet built by the National High Magnetic Field Laboratory was formally commissioned in July 2005, presenting researchers with access to one of the most powerful and versatile analytical tools ever designed.

President T.K. Wetherell announced that a five-year, \$600 million capital campaign that concluded December 31, 2006 drew donations of cash and property worth a total of \$617 million.

The Florida LambdaRail Network, a next-generation internet system linking Florida scientists to a national high-speed network for scientific research, was completed under the direction of Larry Conrad, associate vice president for Technology Integration and chair of a state board tasked with designing and implementing the project.

The Office of Research hosted a blue-ribbon panel discussion featuring national experts in evolution/science education issues stemming from the landmark Dover, Pennsylvania case of December 2005, webcast live from campus on May 17, 2006.

The School of Computational Science was tapped to become the home of MorphBank, an international, National Science Foundation-supported, online database of thousands of digital images of living organisms.

A facility for the development of a methodology for the commercial scale production of “buckypaper” – a super strong, superlight material made of carbon nanotubes and being developed by a team led by Ben Wang, professor of industrial engineering – received a green light for construction near the FAMU/FSU college of Engineering.

[www.fsu.edu](http://www.fsu.edu)

## FAMU



FAMU brings in more than \$54-million annually in research dollars. FAMU received \$5-million last year from the NSF for a new research center in science and technology. FAMU is also the lead institution for an environmental science grant totaling \$62.5-million from National Oceanic and Atmospheric Administration.

<http://www.famu.edu/>

### **Public Health Entomology Research and Education Center (PHEREC)**

The Public Health Entomology Research and Education Center (PHEREC) is the state-funded, public health entomology research center of Florida Agricultural and Mechanical University, a land grant university. PHEREC is located in Panama City, Florida. PHEREC is administered as a research center of the College of Engineering Sciences, Technology and Agriculture (CESTA). PHEREC is perhaps best known as "the insecticide-testing center" for Florida mosquito control. This reputation came as a result of extensive chemical, equipment and procedural evaluations that have been and continue to be conducted on mosquito adulticides and larvicides.

<http://pherec.org/>

### **College of Pharmacy and Pharmaceutical Sciences**

The College was established in 1951 with an enrollment of 12 students. It is now one of the nation's largest pharmacy schools with an enrollment of nearly 800 students. There are over 49 full-time educators in the College. Additional faculty include adjuncts, research associates and preceptors for clinical practice training. Since 1996, FAMU has led all schools of pharmacy in the southeast in the receipt of research dollars from the National Institutes of Health. Funding has reached \$10 million annually. The FAMU College of Pharmacy and Pharmaceutical Sciences (COPPS) is now the third largest of all the pharmacy schools in the nation.

## University of West Florida

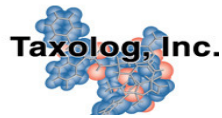


To better serve Northwest Florida's growing life sciences cluster, the University of West Florida has expanded educational programs, certificate programs, workshops and partnering programs to support industry professionals wishing to further expand their knowledge in this important industry. Some of the programs include: Master of Public Health, Clinical Laboratory Sciences Program with a specialty in molecular diagnostics, a Pre-Pharm track in their B.S. program, an on-line Biomedical/Pharmaceutical Track in the Master of Science in Administration program, Nursing Administration Track in the Master of Science in Administration, a Fast-Track Master of Science in Biotechnology, a PhD in Nursing in partnership with the University of Florida, a 2-yr Bachelor of Science in Health Sciences for those holding AA, AS and AAS degrees in the region, a Master of Science in Nursing, certificates in Public Health Preparedness, in Infection Control, Environmental Health, Occupational Safety and Health, and in Medical Informatics. UWF also has a 7-year Medical Program agreement with USF and has a partnership with Okaloosa Schools to create pathways from High School Health Academies to UWF programs in Allied Health.

<http://uwf.edu/sahls>

## Northwest Florida

### **Taxolog, Inc.**



Taxolog's mission is to develop and commercialize unique drugs based on pharmacologically powerful taxanes for the treatment of cancer and other diseases. Taxolog is headquartered in Fairfield, N.J., with an additional state-of-the-art facility in Tallahassee, Fla., employing more than 40 executive and scientific professionals — all of whom contribute their extensive education and experience to one common goal: conquering diseases that have previously been deemed incurable. Taxolog, Inc., has obtained exclusive rights to the entire taxane intellectual-property portfolio of Dr. Holton, whose research at Florida State University has yielded the semi-synthetic process by which Taxol® is commercially manufactured.

<http://www.taxolog.com>

### **Avian Biotech International (ABI)**



Avian Biotech's state-of-the-art laboratory is located in Tallahassee, Florida, with a satellite office, Avian Biotech UK, located in Truro, United Kingdom. Each laboratory is staffed by highly experienced technicians who process thousands of DNA assays from the United States and around the world providing internationally standardized parentage, sex and disease verification through DNA testing. Avian Biotech International (ABI) is dedicated to providing the avian community with the most accurate and reliable testing available, guaranteed results, and affordable prices.

<http://www.avianbiotech.com/Index.htm>



Animal Genetics is the sister company to Avian biotech and provides DNA analysis for birds, canines and equines.

<http://www.animalgenetics.us/>

### **Avocare**



Our focus is to advance healthcare through technology. We reduce the burdens on providers while increasing the quality of care in a cost effective manner to produce a safer and more enjoyable experience for patients. The people at Avocare have been in the healthcare software development business for over fifteen years. We have experience in building custom healthcare solutions and our diverse line of products and services includes everything from mechanical label applicators to robotic circuit boards to electronic prescription writing software to web-based workflow applications.

<http://www.avocarehealth.com/>

## **The Big Bend Regional Healthcare Information Organization (BBRHIO)**



The BBRHIO is a 501.C3 not for profit Florida Corporation that leads the community charge to deliver an enhanced level of patient centered care. Surrounding rural communities will benefit from the improvements and efficiencies created by the BBRHIO efforts. As progress is made, patients will also be able to participate in the benefits of electronic health records. BBRHIO initiatives involve every major component of our local healthcare system from physician's offices to HMO's to hospitals, laboratories and pharmacies. The BBRHIO will put Tallahassee ahead of the curve and on the map in the delivery of safer, more cost-effective healthcare, place our community at the head of the line for federal and state research dollars and make Tallahassee a model for other communities seeking to control the cost and improve the quality of local healthcare.

<http://www.bbrhio.com/about.aspx>

### **Regional Health Information Network (RHIN)**

The BBRHIO has partnered with Avocare to develop a community grown health information exchange that will allow competing healthcare providers to securely share medical information for their patients. The RHIN platform currently connects over seven healthcare providers (ranging from small doctor practices to jumbo hospitals to community health departments) who are providing test data for the pilot program. By June of 2007 the majority of these providers will be sharing live data with more scheduled to come online in the near future. The system has been organically developed with the healthcare community to help address business needs by removing the costs of paper/fax communications. Functionality includes a RHIN Web Portal that allows authorized healthcare providers access to a unified display of patient medical records, scanned and uploaded medical documents, simple ePrescribing, the ability to download or print a new patient registration form, and an electronic referral application. Additionally a Patient Portal has been developed to provide the patients in the community a Personal Health Record (PHR) as well as control if their information is shared within the electronic exchange.

### **Southeastern Research Group, Inc.**



Southeastern Research Group, Inc., is a clinical trials management organization that represents an alliance of private practice physicians conducting trials in multiple specialties. We offer full-service clinical trials management providing high quality services across Phases II – IV drug and device trials. With our headquarters in Tallahassee, Florida and operations throughout the region, we coordinate and manage clinical studies with well-qualified investigators on-site and at private practice centers. We employ an experienced team of researchers dedicated to providing rapid enrollment,

accurate data collection, compliance to regulatory requirements, and complete confidentiality.

<http://www.serginc.com/>

### **Tallahassee Orthopedic Clinic (TOC)**



Tallahassee Orthopedic Clinic (TOC) is one of the nation's premier sports medicine and orthopedic clinics. The exceptionally talented, experienced, and dedicated medical team at TOC provides patients in north Florida and South Georgia with an innovative approach to full-service orthopedic medicine—effective, efficient, timely, one-stop, comprehensive care. Today, the TOC medical team has expanded to include 18 physicians — 16 orthopedists, and two family practice physicians with subspecialties, eight Physician Assistants (PA), four Advanced Registered Nurse Practitioners (ARNP), four Registered Nurses (RN), two certified orthopedic & prosthetic providers and a support team of medical and technical assistants.

[http://www.tlhoc.com/sports\\_medicine.html](http://www.tlhoc.com/sports_medicine.html)

### **Northwest Florida Forms Life Sciences Council**

To provide support to an emerging life sciences cluster in Northwest Florida, Gulf Power Company has helped to develop a regional business council to encourage collaboration and partnerships by focusing on common concerns of companies and support agencies in the region.

“Life sciences companies will have a huge impact on the future of our region.” said Cliff Krut, economic development representative for Gulf Power Company. “The council not only helps our communities address the concerns of this important industry sector, but also provide a forum for dialogue that didn't exist previously.”

The council has been instrumental in helping Northwest Florida communities focus on those attributes needed for continued growth of life science industries; including such areas as workforce development, access to capitol, entrepreneurial support and regulations.

### **Florida Institute for Human and Machine Cognition**



The Florida Institute for Human and Machine Cognition (IHMC) is a not-for-profit research institute of the Florida University System and is affiliated with several Florida universities.

Researchers at IHMC pioneer technologies aimed at leveraging and extending human capabilities. Our human-centered approach often results in systems that can be regarded as cognitive or perceptual prostheses, much as eyeglasses are a sort of ocular prosthesis. These systems fit the human and machine components together in ways that exploit their respective strengths and mitigate their respective weaknesses. The design and fit of computational prostheses require a broader interdisciplinary range than is typically found in one organization, thus IHMC staff includes computer scientists, cognitive

psychologists, neuroscientists, physicians, philosophers, engineers and social scientists of various stripes, as well as some people who resist all attempts to classify them.

Current active research areas include: knowledge modeling and sharing, adjustable autonomy, robotics, advanced interfaces and displays, communication and collaboration, computer-mediated learning systems, intelligent data understanding, software agents, expertise studies, work practice simulation, knowledge representation, and other related areas.

IHMC faculty and staff collaborate extensively with industry and government to develop science and technology that can be enabling with respect to society's broader goals. IHMC researchers receive funding (current funding in force exceeds \$22,000,000) from a wide range of government and private sources. IHMC research partners have included: DARPA, NSF, NASA, Army, Navy, Air Force, NIMA, NIH, DOT, IDEO, Nokia, Sun Microsystems, Fujitsu, Procter & Gamble, Boeing, Lockheed, SAIC, and IBM among others.

<http://www.coginst.uwf.edu/>

### **The Andrews Institute**



Baptist Hospital and the famed sports medicine specialist and surgeon Dr. James Andrews have created a world-class institute for orthopedics and sports medicine in Gulf Breeze, Florida, just across the bay from Pensacola. The first phase of the Andrews Institute opened in April 2007. The \$50 million 127,000 sq. ft. facility includes a clinical facility, athletic performance center, Partnering with Athletes' Performance, a Hydroworx performance pool, and The Andrews research and Education Institute. On March 9, 2007, James R. Andrews, M.D. – the renowned orthopedic surgeon for whom the Andrews Institute is named – inaugurated the Institute's Ambulatory Surgery Center by operating on its first patients, residents of northwest Florida and south Alabama. Although Dr. Andrews is famed for prolonging the careers of some of sports' greatest superstars, the Institute does not limit this expertise to athletes. People from all walks of life have access to the same level of care. "Life sciences will be our big growth area for the next 20 years -- it plays off the strengths that are already here," says Al Wenstrand, executive director of Florida's Great Northwest, a Destin-based 16-county economic development agency. "Most of what we will see deals with medical device manufacturing or with the software side of medical technology, areas supported by what's going on in the aerospace industry."

<http://www.theandrewsinstitute.com/>

### **Trinity DNA Solutions**



Trinity DNA Solutions, a forensic laboratory located in Milton, Florida is one of only a dozen accredited private forensic laboratories nationwide. Specializing in criminal forensic testing, civil paternity testing, and identity testing, Trinity DNA processes case backlogs of state and local crime labs, traces paternity and is developing a children's DNA collection kit. Trinity DNA Solutions also provides expert witness testimony, consultation, and case file review. It is the first in Florida and one of only a dozen private, forensically accredited laboratories nationwide.

<http://trinitydna.com/>

### **V.A. Super Clinic**

Opening later this year, the new Veterans Administration /Department of Defense Joint Ambulatory Care Clinic, commonly referred to as the "super-clinic" is a joint venture, with the Navy donating 25 acres for the site onboard Corry Station near Pensacola Naval Hospital, and the VA donating \$45 million for the construction of the 200,000-square-foot clinic. The health clinic will become the largest clinic of the VA Gulf Coast Veterans Health Care System and should provide improved medical services for veterans throughout Northwest Florida and South Alabama.

### **Emerald Coast Technology and Research Campus**

Okaloosa County business and military leaders unveiled plans in January for the 98-acre Emerald Coast Technology & Research Campus just outside the west gate of Eglin Air Force Base. "This is our little Silicon Valley", says Okaloosa-Walton College Vice President David Goetsch. The EDC, Okaloosa County and Eglin AFB are currently developing an Enhanced Use Lease for a new research campus to be located adjacent to the University of Florida's Research, Engineering and Education Facility, REEF. This collaborative campus will enhance the ability of Eglin AFB to carry out its vital national defense mission by creating powerful synergistic relationships between public research facilities, and private-sector manufacturing and research-based businesses.

The idea of a new technology park was first introduced in a 1991 concept paper prepared by the Okaloosa-Walton Community College and the Economic Development Council (EDC) of Okaloosa County. Sixteen years later the original concept is still on target and is coming to fruition. The ECTRC will benefit Eglin Air Force Base, the region's military and university laboratories, local defense contractors, and the Okaloosa County and regional economy!

<http://www.florida-edc.org/techcampus.html>

### **Project Green Circle**



In February 2007, Green Circle Bio Energy, a Florida-based subsidiary of Swedish corporation JCE Group, announced it's building a \$100-million wood pellet plant in Northwest Florida for generating electricity in Europe. The plant will produce wood pellets for European power generation plants. TSI will play a key role in the project by supplying two large single pass drying systems for drying of the raw biomass prior to pressing into pellets. The pellets, when made, will be shipped in bulk from the port of

Panama City and will ultimately be mixed with coal prior to burning. The carbon dioxide (CO<sub>2</sub>) emitted as a result of burning is the major “Greenhouse” Gas by volume but, in this case, is part of the natural carbon cycle (Tree grows – absorbs CO<sub>2</sub>/ Tree dies – releases CO<sub>2</sub>) and therefore does not add to the net amount of carbon dioxide in the atmosphere so long as the wood is harvested from sustainable and regenerated forest resources.

### **WIRED Northwest Florida**



WIRED Northwest Florida is a \$30 million initiative to encourage the development of quality jobs and investment in life sciences and other target industries. As one of only 13 WIRED (Workforce Innovation in Regional Economic Development) initiatives funded through the Department of Labor, Northwest Florida is now positioned to provide a unique competitive advantage to life sciences companies. This performance-based grant program includes:

- Grants enabling job training for businesses in target industries;
- Secondary education geared to entry-level employment in targeted industries, or accelerated college preparation in the areas of math and science;
- Post-secondary training and education programs that develop workforce skills needed by target industries; and
- A strategic development component to ensure workforce investment programs are developing the skills necessary to meet target industry needs.

Northwest Florida has always been a great place to live and work. Now it's an even better location for life sciences companies.

<http://www.floridasgreatnorthwest.com/WIRED.htm>

### **ActiGraph, LLC**



ActiGraph, LLC has become the industry leader in the design, manufacture and sales of actigraphy monitors, which objectively determine physical activity levels by measuring the body's acceleration against gravity. Utilizing a technology first developed for the Army Rangers to measure the performance levels of troops, ActiGraph's products are currently being used by scientists and researchers in over 40 countries, as well as by the National Institute of Health and the Centers for Disease Control.

Based in historic downtown Pensacola, Florida, ActiGraph has recently witnessed dramatic market expansion as the applications for the science of actigraphy have grown to include not only physical activity research, but also sleep diagnostics, rehabilitation monitoring, obesity and diabetes research, sports medicine, pharmaceutical drug testing, and veterinary science. In May of 2006, ActiGraph, LLC was the recipient of an Entrepreneurship Grant Award from the WIRED initiative.

[www.theactigraph.com](http://www.theactigraph.com)

[www.actitrainer.com](http://www.actitrainer.com)

### **Pegasus Laboratories, Inc.**



Pegasus Laboratories is a manufacturer of pharmaceutical products. We are committed to the development and manufacture of a wide range of prescription and OTC products to meet the contract manufacturing & private label needs of our customers who provide distribution and service to the pharmaceutical marketplace.

Our Mission is to continually improve our manufacturing capabilities and services to provide our customers – our partners in business – with competitive strategies that support their ultimate goals from the first idea to the finished product.

<http://pegasuslabs.com/>

### **Pall Corporation**



Pall Corporation is the global leader in the rapidly growing field of filtration, separation and purification. Pall is organized into two businesses: Life Sciences and Industrial. These businesses provide leading-edge products to meet the demanding needs of customers in biotechnology, pharmaceutical, transfusion medicine, energy, electronics, municipal and industrial water purification, aerospace, transportation and broad industrial markets. Total revenues for fiscal year 2006 were \$2.0 billion. The Company headquarters is in East Hills, New York with extensive operations throughout the world, including Pensacola, Deland and Ft. Myers, Florida.

<http://www.pall.com/>