

STATE BOARD OF EDUCATION

March 18, 2003

SUBJECT: University Research Centers of Excellence

PROPOSED BOARD ACTION

Consider recommendations from the Emerging Technology Commission for the creation of three Centers of Excellence; receive any expert testimony per statutory requirement; and direct the Commissioner to submit a final plan.

AUTHORITY FOR STATE BOARD ACTION

Chapter 1004.225, F.S.

BACKGROUND INFORMATION

The 2002 Legislature provided \$30,000,000 in creating the Florida Technology Development Act and the Emerging Technology Commission within the Executive Office of the Governor to guide the establishment of university research Centers of Excellence. The Commission was charged with making recommendations for a minimum of two and up to five Centers of Excellence, the purposes and objectives of which are in consonance with the State Board of Education's Strategic Imperative Eight: "World-class Postsecondary Institutions."

The Board is to consider the recommendations of the Commission and to finalize its own recommendation; to receive any expert testimony per statutory requirement; and to direct the Commissioner to submit a final plan to the Governor, the President of the Senate, and the Speaker of the House of Representatives by March 22, 2003.

The Commission's recommendations for funding at \$10M each are the Center of Excellence for Biomedical and Marine Biotechnology at Florida Atlantic University, the Photonics Center of Excellence at the University of Central Florida, and the Center of Excellence in Regenerative Health Biotechnology at the University of Florida. Backup to this agenda item is provided in the form of programmatic and fiscal summaries for each proposed center, as well as the entirety of the Commission's report to the State Board of Education.

Supporting Documentation Included: Summaries for each proposed center
Emerging Technology Commission Report

Facilitators / Presenters:

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**University of Florida
Center of Excellence in Regenerative Health Biotechnology**

The University of Florida's Center of Excellence in Regenerative Health Biotechnology (CERHB) will position Florida to become the national epicenter for Regenerative Health Biotechnology, including research and commercial programs, within five years. CERHB will stimulate promising research and commercialization that addresses the prevention, cure, and rehabilitation of chronic, genetic, and degenerative diseases, as well as traumatic injuries, microbial infections, and cancer, using breakthrough technologies in gene therapy, tissue replacement, transplantation, biomaterials, and vaccines.

CERHB will renovate two 22,500 square foot buildings in Progress Corporate Park in Alachua in order to produce the quality and quantity of therapeutic products for early stage human clinical trials – a major limitation thus far for both research and company development. The remaining space will house an expanded program in workforce development in biotechnology, bioinformatics, and regulatory affairs in collaboration with Santa Fe Community College and Florida Community College Jacksonville. There is no facility or research and commercialization program comparable to this in the Southeast.

Florida's \$10,000,000 investment in research infrastructure will provide a self-sufficient 45,000 sq.ft. bioprocessing facility which will employ 150 skilled personnel, generate revenue to maintain and expand the facility, catalyze research and commercial development of university technologies, encourage the development of new companies and support the growth of regional biotechnology companies. This investment will also attract world-class faculty and students in emerging research disciplines, provide the research infrastructure for strong collaborations with NASA and other Florida university partners, provide a platform for community colleges to expand their curricula, and initiate new workforce development at various levels of expertise.

The Center will leverage the outstanding research, technology transfer, and business incubation enterprise at the University of Florida, as well as the existing strength of regional companies involved in regenerative health biotechnology. The commitment of the University of Florida will support the Center's success with a matching investment of \$10,301,000 to purchase the \$3.6 million building, and provide ongoing support for five senior faculty in regenerative health and bioprocessing systems engineering, and four professional research support staff in bioinformatics and proteomics.

University of Central Florida
Florida Photonics Center of Excellence

Just as the 20th century was the century of the electron, the 21st century will be the Century of the Photon. Photonics is the key enabling technology for optical fiber communications; data storage; optical memories; lasers in manufacturing, in medicine, and in defense.

The objective of the Center is to develop intellectual capital in photonics and transition this to Florida's private sector. The Center will be a full partner with state and regional efforts to diversify the Florida economy by attracting, retaining and growing wealth-producing industry in, and enabled by, photonics. The Research Philosophy for the Center is to hire excellent people, provide adequate initiation funds, leverage matching funds, involve top talent from throughout Florida through a competitive process, make commercialization and incubation infrastructure available to entrepreneurs, and require collaboration and industry outreach.

The Center will be built on UCF's substantial and sustained investment in its School of Optics/CREOL, recognized as a world leader in optics research and education. The Center will provide resources, together with additional co-investment from UCF, government, and industry partners, needed to expand photonics efforts into the growing areas of nano-photonics, bio-photonics, advanced imaging and 3D displays, and ultra-high bandwidth communications. Five world-leading scholars will be hired to attract top graduate students and grant support for internationally competitive research.

A major goal of the Center is the establishment of a nano-photonics fabrication laboratory in order to move photonics from the vacuum tube to discreet components to integrated systems. The expectation is that this movement to nano-photonics will do for the optics industry what similar advancements did for the semiconductor industry from the 1960's to the present era. This facility will be a major resource for photonics research by all of Florida's universities, available for partnerships with Florida industry, and position UCF to compete nationally for expanding the NSF Nano-Fabrication Network.

The School of Optics Industrial Affiliate program will be expanded and called upon to provide a significant leadership role. University partners in these efforts will be from the University of South Florida, the Florida Institute of Technology, the University of Florida and Florida Atlantic University. In addition, a request for proposals will be issued to attract talent from all of Florida's universities to ensure top talent in the state is involved in the Center. Preference will be given to proposals that are in partnership with Florida industry and/or use Center support as matching funds for proposals to federal agencies.

Florida Atlantic University
Center of Excellence in Biomedical and Marine Biotechnology

The Center of Excellence in Biomedical and Marine Biotechnology is an academic/industry partnership of ocean engineering, marine biotechnology, functional genomics and bioinformatics for the discovery, development and commercialization of new medicines from Florida's natural marine resources. The Center's unique combination of biotechnology basic research, workforce training, and product development will be available from several biotechnology industries as well as Florida Atlantic University, Florida International University, Harbor Branch Oceanographic Institution, Nova Southeastern University, and the Smithsonian Marine Station at Fort Pierce.

Florida Atlantic University's autonomous underwater vehicles and Harbor Branch Oceanographic Institute's manned submersibles will locate and collect samples of marine organisms from a largely untapped marine biodiversity in the waters off Florida's vast coastline. Researchers will screen marine organisms for biological activities related to human diseases. Industry partners will develop the research results into medical drugs, drug production processes, bio-products and medical diagnostics.

To support the results of the Center's Lab-to-Market Process, undergraduate certificate programs in biotechnology are in process, highly skilled post-doctoral fellows and graduates will be trained in well-equipped labs for future jobs in industry or academia, and world-class faculty and researchers will be living and working in South Florida making them easily available to work closely with the biotechnology industry.

In October 2002 Enterprise Florida designated the biomedical industry as a "high impact" sector for the State. Since the Center is designed to work with industry in the beginning of the Lab-to-Market Process, a platform will be in place to develop and launch products that are market driven. The Florida Atlantic University Office of Technology Transfer will take the lead in implementing this industry/economic development centric technology transfer initiative that will be transferable to other industries, markets, and institutions.

The Center's tangible outcomes will be new medicines and novel diagnostics, new technologies to explore the sea, a highly-skilled biotechnology workforce, a sustainable Biotechnology Core Facility for industry and academia research, and a stronger and larger biotechnology industry in Florida.