

Biomedical Engineering Institute
Biomedical Engineering Partnership Program
4th Advisory Board Meeting Minutes

Date: October 15, 2002

Location & Time: Miami Cardiac and Vascular Institute; 9:30 am

Industry Attendees *: William M. Abraham – Mount Sinai Medical Center
Michael Christie – Cordis Corp. *
Barbara A. Duffy – Miami Children’s Hospital *
Simon J. Fuger – Medtronic Peripheral Vascular *
Prasanna Jayakar – Miami Children’s Hospital *
Barry T. Katzen – Miami Cardiac & Vascular Institute *
Margaret Kovacs – Miami Cardiac & Vascular Institute *
Howard J. Leonhardt – Bioheart, Inc. *
Ernie Manzano – Scion Cardio-Vascular
Mario J. Martinez – TechGeorgia Nexus *
Suzana Otano-Lata – Boston Scientific Corp.
Leonard Pinchuk – Innovia *
John Roche – IDEXX
Pierre-Henri Rolland – Universite de Marseilles
Lori Ann Santamaria – Cordis Corp. *
Hamid Shahrestani – Boston Scientific Corp. *
Josephine Shallo-Hoffman – Nova Southeastern University *
Michael J. Switzer – Beckman Coulter, Inc. *
Jack A. Ziffer – Baptist Health Systems

BMEI/FIU Attendees: Malek Adjouadi
Ofer Amit
Thomas Breslin
Megh Goyal
Diana Oliva
Richard T. Schoepfoerster

Minutes by: Rosy Verona

Welcome

Dr. Richard Schoephoerster began by welcoming everyone to the 4th Advisory Board Meeting. The Biomedical Engineering Partnership Program was originally established 1 ½ years ago. In addition, he thanked Dr. Margaret Kovacs and her staff for hosting this meeting. Dr. Schoephoerster also introduced the following new members:

Leonard Pinchuk – Innovia
Barbara A. Duffy – Miami Children’s Hospital
Josephine Shallo-Hoffman – Nova Southeastern University
Fernando Sanchez - MD International Inc.
Ernie Manzano – Scion Cardio-Vascular
Lori Ann Santamaria – Cordis Corp.

Dr. Schoephoerster added a special introduction for Dr. Megh Goyal (currently on sabbatical at BMEI) and Dr. Malek Adjouadi (Electrical Engineering faculty). In addition, Dr. Barry Katzen gave a brief introduction on MCVI.

In recognition for their time and effort in hosting this meeting, certificates were presented to Dr. Kovacs, Dr. Katzen, and Dr. Becker.

Dr. Schoephoerster announced that he is currently scheduling lunch meetings with each individual Advisory Board Member. In addition, FIU’s football team homecoming game will be held on October 26, 2002 and all members are invited to attend including a Presidential Reception prior to game.

Adoption of Agenda

Dr. Schoephoerster set the motion to approve the agenda, moved and seconded it, and all were in favor.

Adoption of 2/26/02 Minutes

Dr. Schoephoerster asked for motion, moved and seconded it, and all were in favor.

State of the Program Review

Dr. Schoephoerster reviewed the mission statement for the Partnership Program, and announced the program expansion. The Bachelor’s program has been implemented and began this fall, and the PhD program is currently in process. The Internship Program with Boston Scientific and Medtronic has received good feedback. All Board Members are encouraged to participate in the lectures at FIU.

Dr. Schoephoerster announced that both faculty positions have been filled. Dr. Venkatesan Renugopalakrishnan accepted the Eminent Scholars Chair position. He was previously from Harvard University and owner of Biofold, Inc. Dr. Renugopalakrishnan

will be on board soon, as he is in the process of moving. His research area is based on using proteins as nanodevices. Dr. Jeffrey Price filled the second position, Professorship in Bioinstrumentation and Biomeasurement. He was previously from the University of California San Diego and owner of his own company, Q3DM. Dr. Price's research area is focused on microscopy, instrumentation, and drug screening. He is scheduled to begin at FIU in January.

Last year, the Research Initiation Program funded 5 projects, which are almost complete. Phase II, the 2nd year project, will be announced where the best of the previous 5 projects will be funded at a higher level to help continue the process of moving towards commercialization.

BMEI is currently developing an entrepreneurial environment by creating a joint project with the College of Business.

An Executive Committee is to be initiated and comprised of a small number of members, where someone would speak on behalf of the Board Members. Dr. Schoephoerster previously spoke to Hamid Shahrestani, Prasanna Jayakar, and Leonard Pinchuk who have volunteered as representatives on this committee. Mario Martinez motioned to accept the three representatives for the Executive Committee. Simon Fuger and Michael Switzer seconded the motion, and all approved.

Dr. Schoephoerster stated that overall he is very pleased with everyone's contributions to the Partnership Program and hopes that all of the Members feel equally invested. In addition, he asked for feedback from the members in reference to the fairness of their contributions. Additionally, FIU/BMEI keeps a record of all of the accounting and how funds are being used and can provide this information to the members if requested.

Invoices for memberships due in January will be sent out by the end of September. All agreed with sending invoices and a statement of purpose to each company. Members were asked if they would like their expenditures tracked (cash/equipment and time/productivity). Dr. Schoephoerster concluded by maintaining status quo, and sending member invoices by the end of September. He also asked that members help by tracking the productivity time spent on projects.

Academic Programs

The Master's Degree Program began in 1999. We currently have 30 fulltime students, have had 5 students graduate (2 are working and 3 continued on to their PhD), and another 3 students will graduate this term.

The Mechanical Engineering and Electrical Engineering major with a minor in Biomedical Engineering (program began in 1999) currently have 47 students and 4 have graduated.

The Bachelor's Degree Program was implemented in fall of 2002 with focus on Tissue Engineering, Bio Pharmaceutical, and pre-med (currently have approximately 30 students).

The Clinical Rotations Course is associated with the Partnership Program and Internship Program at the BS level.

Dr. Schoephoerster announced the National Internship Alliance initiated by the University of Tennessee at Memphis and funded by the Whitaker Foundation. FIU will be joining that alliance this year. This will make a pipeline (clearing house) for placing students in internships across the country. This will give our graduates opportunities locally as well as nationally, and will give us interns from other states as well. More details will be discussed at the next meeting.

A proposal for a Ph.D. Program is currently in process. The goal is to have this program implemented by the Fall of 2003. Dr. Schoephoerster asked the members to read and approve a recommendation letter in support of the Ph.D. program.

An update on the Whitaker proposal; we should be receiving an update in approximately one month. Part of this proposal included some new activities at the Ph.D. level. As an expansion of the BS Internship and Partnership programs, Dr. Schoephoerster proposed that Ph.D. students take a Clinical Research Experience. Ph.D. students, early in their program, would be matched with a single clinical physician to “shadow” them over the length of the semester. This will help establish the student’s area of study for their dissertation.

Research Themes

As the Ph.D. program is put together, specific research themes are being developed. The overall theme is Micro and Nano (Engineering Living Systems at the cellular and molecular level). The five areas of specialty are: Mechanics, Materials and Devices, Instrumentation and Image/Signal Processing, Drug Delivery/Tissue Engineering, Medical Physics/Nuclear Medicine, Cytomics (new area to biomedical engineering). Dr. Schoephoerster asked for feedback from the members. Overall, everyone agreed with these areas of specialty.

Dr. Malek Adjouadi, from the Electrical Engineering Department, gave a presentation on Instrumentation and Signal Processing. Dr. Adjouadi oversees the Center for Advanced Technology (CATE), which was established in September 1993. His vision is to foster a cross-disciplinary research and education program. He has been working closely with Miami Children’s Hospital, in the neuroscience area, with an Electrical Source Imaging machine that electronically measures brain activity/waves and brain disorder (such as epilepsy). With 3D software, one of Dr. Adjouadi’s students was able to pinpoint the location of the epileptic seizure in the brain to be able to cure/target the cause. He is also involved with a device called HCI (Human Computer Interaction), which aides those with motor disabilities to be able to use the computer, in addition to an Eye-Gaze-Tracking device for hands off HCI for those visually impaired.

Center for Technology Entrepreneurial and Innovation

Dr. Schoephoerster announced that FIU/BME has received funding from the National Science Foundation to continue the collaboration of entrepreneurship and engineering education. Three separate programs would be set-up:

- Technology Entrepreneurial Competition.
 - With the College of Business and support from Howard Leonhardt, we began the Business Plan Competition. BME students would enter their Senior Design Projects and form a team with Business students to develop a business plan.
- Collaborative Technology Innovation Program
 - 2nd year funding (\$50K) for best of the RIP projects described above to continue developing that idea towards commercialization or clinical instrumentation.
- Technology Entrepreneurship and Innovation Center
 - Currently searching for someone to Direct this Center and entrepreneurial activities.

Economic Development in South Florida

A task force was formed at our last discussion. The task force met and discussed marketing issues in addition to putting together a summit for a marketing campaign separately from the College of Engineering with other colleges and companies.

Dr. Schoephoerster read the following book and highly recommends it. Rise of the Creative Class: by Richard Florida, from Carnegie Mellon. In this book, the author discusses how to build up a local economy. His philosophy is that he has defined a new class of the working class (the creative class). The people in this creative class are in Science and Engineering, Education and Training, all types of Arts and Entertainment, Management, Sales, Business and Legal, and Healthcare Practitioners.

The book also talks about the 3 T's of Economic Development:

- Technology
- Talent
- Tolerance

The author believes that a major research University brings all 3 components together. Dr. Schoephoerster suggests inviting the author for a visit and talk. All agreed.

Closing of Meeting

Dr. Schoephoerster thanked everyone for their participation and presented members a Partnership Program poster. The next Advisory Board Meeting will be held at Cordis, as Michael Christie volunteered.

Dr. Schoephoerster then introduced Dr. Thomas Breslin, FIU's Vice President for Research, who expressed his gratitude to MCVI for their hospitality.

Dr. Breslin, who has been with FIU since January 1976 and has been in the Research side since 1982, discussed several aspects regarding the university. Among the topics covered were:

- Where Biomedical Engineering is headed
- FIU's vision is to have a top urban public research university. FIU currently has a student body of 34,000 students with 25 Ph.D. programs (averaging 15 graduates per year)
- FIU is ranked as a Carnegie Research Institution
- Gave brief overview of FIU and discussed that the university has reached almost \$100 million research funds. Since 1989, Dr. Breslin has been planning for FIU to make the transition from a predominately undergraduate oriented institution to one that has a strong undergraduate program and a very large graduate program (strong in engineering and sciences).
- One of the characteristics of a top rated urban research institution is a Medical School. For the past 1 ½ year a feasibility study is being developed with the following partners: Mount Sinai Hospital, Mercy Hospital, Miami Children's Hospital, and Baptist Hospital.
 - Looking very closely at the cost of student training at each of these local hospitals. Expected completion date of January 1 in order to present to the Board of Trustees in February.
 - Dr. Breslin visited NIH and spoke about setting up a large animal care research facility. University Park Campus labs will be refurbished within the next 12 months. On the Engineering side expectations to continue developing the Biomedical Engineering Institute (expanding in the Materials Science area) with support from NIH.

Dr. Breslin concluded with stating that FIU's Administration is committed to continue supporting the Biomedical Engineering Institute, and he is looking forward to working with all the board members.