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MEMORANDUM

To: Donna E. Shalala, President
From: Richard L. Williamson 
Chair, Faculty Senate
Date: October 26, 2012
Subject: Faculty Senate Legislation #2012-15(B) – Establish the University-wide *Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of the University of Miami* (BioNIUM)

At its October 17, 2012 meeting, the Faculty Senate unanimously approved the proposal to establish the University-wide Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of the University of Miami (BioNIUM) for five years and any extensions thereafter.¹ It was announced that the Institute received a naming gift from the Dr. John T. Macdonald Foundation and use the abbreviated name of “Dr. John T. Macdonald Foundation BioNIUM”. The Institute will focus on the application of nanotechnology to medical care at the University of Miami and will be a collaborative venture involving the Miller School of Medicine, the College of Arts and Sciences, and the College of Engineering. The Institute had previously received provisional status in keeping with *Faculty Manual* requirements.

This legislation is now forwarded to you for your action.

RW/rh

Enclosure


cc: Thomas LeBlanc, Executive Vice President and Provost
Pascal Goldschmidt, Senior Vice President and Dean, Miller School of Medicine
Leonidas Bachas, Dean, College of Arts and Sciences
James Tien, Dean, College of Engineering
Richard Cote, Director, Dr. John T. Macdonald Foundation BioNIUM

¹ C18.2.1 If the Faculty Senate approves a UNIVERSITY CENTER or INSTITUTE established under Bylaw 6.5, it may do so for an initial term of up to five years¹. Continued approval by the Faculty Senate for a defined term of up to ten years requires a review of the unit upon receiving such a recommendation, forwarded by the Executive Vice-President and Provost after consultation with the cooperating departments and schools.

C18.2.3 Periodic five year reviews may be conducted on all programs, centers, institutes and similar academic units as deemed appropriate by the Faculty Senate or the Executive Vice-President and Provost.

CAPSULE: #2012-15(B) – Establish the University-wide *Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of the University of Miami* (BioNIUM)

PRESIDENT'S RESPONSE

APPROVED:  DATE: 11/13/12
(President's Signature)

OFFICE OR INDIVIDUAL TO IMPLEMENT: Dr. Richard Cote

EFFECTIVE DATE OF LEGISLATION: Immediately
(if other than June 1 next following)

NOT APPROVED AND REFERRED TO: _____

REMARKS (IF NOT APPROVED): _____

Proposal for the Establishment of the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of University of Miami (BioNIUM)

This proposal seeks to formally establish a University-wide Institute for interdisciplinary science, focused on the application of nanotechnology to medical care at the University of Miami. Because of the recently announced naming gift of \$7.5M to support the Institute, it will be called the "Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of University of Miami" and will be abbreviated as "Dr. John T. Macdonald Foundation BioNIUM".

There is an urgent need for an integrated, interdisciplinary Institute that offers the expertise, infrastructure, and resources necessary to energize fundamental aspects of nanotechnology and facilitate collaborations across disciplines.

Background:

Nanotechnology is the science of manipulating matter on a molecular and subatomic level. This includes building machines and developing new materials and processes within the nanometer scale. Specifically, nanometers are one billionth of a meter - approximately the length of three to six atoms placed side-by-side or about the width of a single strand of DNA. For comparison, the thickness of a human hair is between 50,000 and 100,000 nanometers. Operating at the nanoscale allows for scientists and engineers to take advantage of unique, spatially dependent molecular interactions and results in the creation of materials that can have chemical, physical, and biological properties that differ from those of their larger counterparts.

It is anticipated that nanotechnology will drive major breakthroughs in the field of medicine over the next five to ten years; indeed, this has already been demonstrated. With much greater emphasis on early detection, increased specificity of therapy delivery, and restoration of functional loss, nanotechnologies and nanomedicine promise to provide the tools that will revolutionize patient care within a variety of disciplines including cancer, diabetes, cardiovascular and infectious disease. In addition, the development of processes of micro and nanofabrication and microfluidics are revolutionizing the field of portable and implantable biomedical devices.

In the true spirit of interdisciplinary expansion of scientific knowledge, results from the application of nanotechnology in the fields of physical sciences and chemistry have now matured enough to extend into biology and medicine. The advances in nanotechnology in the past decade have offered novel opportunities for sensing clinically relevant markers in various body fluids, molecular imaging of diseases, tools for highly targeted therapeutic intervention, and devices that can restore lost function, all with a potential to transform the medical field. Therefore, current research in medical nanotechnology requires collaboration among physicists, chemists, engineers, biomedical scientists and clinicians.

The rapid development of the bionanotechnology field dictates also the need for a workforce capable of performing research in this true interdisciplinary field of science and technology. In that regard, the Dr. John T. Macdonald Foundation BioNIUM is uniquely poised to train the next generation of worldwide scientific leaders to perform breakthrough research and create far reaching enabling technologies. The philosophy of service and outreach of the Dr. John T. Macdonald Foundation will be instilled into our students by training them to communicate and disseminate the importance of science to the South Florida community through programs

targeting schools and local centers. Moreover, we anticipate that through our educational programs, the students will understand the importance of community spirit and giving to others in the way they know best and can impact society the most, which is by helping others utilizing their unique knowledge of interdisciplinary science. The achievements of the new generation of leaders emerging as trainees from the Dr. John T. Macdonald Foundation BioNIUM will constitute a clear measure of our success. We envision that our trainees will be our ambassadors to the global scientific community and impact research, education, and policy at universities, industries, professional societies, and the government.

The proposed Dr. John T. Macdonald Foundation Bio-NIUM is intended to encourage interaction among investigators from the biomedical and physical sciences as well as engineers, at the Miller School, School of Engineering and College of Arts & Sciences. Members of the proposed Institute have already developed productive collaborations with important investigators at institutions such as USC, Caltech, UC Berkeley, University of Kentucky, Harvard, the USAF, the Naval Research Laboratories, Memorial Sloan Kettering and European universities, and the Institute is designed to foster and expand these relationships, with the goal to develop strategic long-term partnerships.

With the recent recruitment of bionanotechnology experts within the Miller School, the College of Engineering and the College of Arts & Sciences, now is the time to formalize UM's work in this area into the Dr. John T. Macdonald Foundation BioNIUM. Creation of this Institute will position the University of Miami among the leaders in nanotechnology and nanomedicine.

Mission:

BioNIUM will focus its initial efforts on catalyzing interdisciplinary nanotechnology among all departments, Centers, Institutes, Schools and Colleges involved in education, science and engineering research. BioNIUM will accomplish this by providing the intellectual leadership and resources to support the development and deployment of pioneering nanotechnology resources, including a highly specialized fabrication facility, which will be located at the Life Science and Technology Park. In addition, BioNIUM will catalyze educational efforts amongst the Schools and Colleges and train a new generation of students who will become leaders in the interdisciplinary field of bionanotechnology and in the global scientific community. It is anticipated that, over time, the Dr. John T. Macdonald Foundation BioNIUM will become a locus for the development of fruitful collaboration across other disciplines that might interface with the nanotechnology.

Market Analysis:

The establishment of Dr. John T. Macdonald Foundation BioNIUM at the University of Miami should be examined with due consideration of strengths and weaknesses and the current opportunities.

Strengths

- The science and technology in a variety of disciplines have matured sufficiently to warrant a significant institutional investment in an interdisciplinary institute focused on biomedical nanotechnology. Most notable among these disciplines are medicine, chemistry, physics and engineering.
- There are a number of ongoing studies and faculty members with unique expertise who would benefit from and who would be assets to the proposed Dr. John T. Macdonald Foundation BioNIUM. With access to resources and a framework around which to

organize, the biomedical nanotechnology expertise and research already present would grow and thrive.

- The University libraries have significant journal subscriptions and book holdings to support interdisciplinary work in the biomedical nanotechnology.

Weaknesses

- There is no structure or formal organization that fosters interdisciplinary collaboration and communication in the biomedical nanotechnology.
- There is no coordination of biomedical nanotechnology resources.
- There is a critical lack of infrastructure needed to perform work in biomedical nanotechnology, which inhibits the competitive acquisition of grants, and severely limits recruitment of top scientists.
- We are one of the few research intensive universities in the United States that does not have a research and support unit dedicated to the nanotechnology and/or nanotechnology.
 - In 2010, 10 of the top 10 medical schools by NIH funding had such dedicated research units (Table 1).
 - In FY2009, 10 of the top 10 universities and colleges by R&D expenditures had such a dedicated research unit (Table 2).
 - In 2010, 98% of American Association of Universities (AAU) members (60/61) have such research units (Table 3).

Opportunities

The combination of recent and ongoing recruitment with established and productive University researchers presents an ideal moment for the establishment of the Dr. John T. Macdonald Foundation BioNIUM. The resources provided by the Dr. John T. Macdonald Foundation naming gift establish major programmatic support, and allow for the build-out of critical infrastructure (the nano fabrication and clean room facility). With a critical mass of human and technological resources, the Dr. John T. Macdonald Foundation BioNIUM will facilitate interdisciplinary and pan-institutional collaborations that will accelerate the pace of discovery across disciplines.

Organizational Overview

Dr. John T. Macdonald Foundation BioNIUM will offer expertise in every aspect of biomedical research that involves nanotechnology, provide biomedical nanotechnology resources such as the fabrication facility, and will provide a series of resources and opportunities which could include an annual retreat and other educational activities, and funds for development of new bionanotechnology initiatives. Importantly, the Institute will be used to recruit other leaders in the field. The Institute will be led by a Director. The Director will report to and receive annual reviews from the Provost of University of Miami. There will be an Executive Committee to advise the Director on the various issues related to Institute operations. There will be an Advisory Committee to assess the scientific progress of the Institute and assist the Director in long-term planning. The Institute activities will be initially organized into four Programs (led by Program Directors) and two Resources (each led by a Resource Director). This organization is explained in more detail below.

Dr. John T. Macdonald Foundation BioNIUM Director:

The Dr. John T. Macdonald Foundation BioNIUM Director is responsible for articulating and representing the vision of the Institute as well as its overall leadership and management.

Dr. John T. Macdonald Foundation BioNIUM Executive Committee:

Charge of the Executive Committee:

The Dr. John T. Macdonald Foundation BioNIUM Executive Committee is an advisory board whose purpose is to assist the Director in the management, operations, and governance of the Institute, including project prioritization and allocation of Institute resources. The Executive Committee also reviews and approves applications for Institute appointments. In addition, the Executive Committee will review the Dr. John T. Macdonald Foundation BioNIUM Charter every three years and approve any recommendations for amendments.

Composition of the Executive Committee:

The Executive Committee reflects the interdisciplinary nature of the Dr. John T. Macdonald Foundation BioNIUM, and in addition to the Office of the Provost, will include representation from the Miller School of Medicine, College of Arts and Sciences, and the College of Engineering. The Executive Committee will be comprised of the Institute Director, Co-Director, Associate Director, the Provost of University of Miami, the Dean of Miller School of Medicine, the Dean of College of Engineering, the Dean of the College of Arts and Sciences, the Resource Directors and three at-large Institute members identified by the Executive Committee. The at-large Institute members will be determined by a majority vote of the Executive Committee and will serve for three year terms. Terms of service are renewable at the discretion of the Executive Committee. The at-large Institute members will be University of Miami faculty who are demonstrated leaders in their field, regular Institute shared resource users, and faculty who have established research programs with a strong track record of interdisciplinary research and activities.

At the discretion of the Executive Committee, other members of the University research community may be invited to attend the Executive Committee meetings.

Meetings of the Executive Committee:

The Executive Committee will be chaired by the Dr. John T. Macdonald Foundation BioNIUM Director who will convene the Committee at least quarterly.

Dr. John T. Macdonald Foundation BioNIUM Advisory Committee:

Charge of the Advisory Committee:

The Institute Advisory Committee is an advisory group that evaluates the Institute's scientific progress, technological needs and assists the Institute Director in developing strategic plans for the future of the Dr. John T. Macdonald Foundation BioNIUM.

Composition of the Advisory Committee:

The Advisory Committee is comprised of the BioNIUM Director, the Senior Vice President for Medical Affairs and Dean of the Miller School (or designee), the Dean of the College of Arts and Sciences (or designee), the Dean of the College of Engineering (or designee), the Vice Provost for Research (or designee) and three external luminaries in biomedical nanotechnology research or education. The Institute Director, in conjunction with the Dr. John T. Macdonald Foundation BioNIUM Executive Committee, will identify and invite three internationally renowned senior scholars or industry leaders with a strong track record of

interdisciplinary research and activities. The three year term of service for external luminaries is renewable at the discretion of the BioNIUM Director, in conjunction with the BioNIUM Executive Committee.

At the discretion of the Advisory Committee, other members of the University research community may be invited to attend the Advisory Committee meetings.

Meetings of the Advisory Committee:

The Advisory Committee will be chaired by the Dr. John T. Macdonald Foundation BioNIUM Director who will convene the Committee annually.

Dr. John T. Macdonald Foundation BioNIUM Advisory Board:

Charge of the Advisory Board:

The Dr. John T. Macdonald Foundation BioNIUM Advisory Board shall be involved in the planning and implementation of the Dr. John T. Macdonald Foundation BioNIUM, and is charged with providing insight and recommendations.

Composition of the Advisory Board:

The Advisory Board shall have equal representation from the University and the Dr. John T. Macdonald Foundation, where the University shall be represented by the BioNIUM Director and leadership from the Miller School of Medicine, and the Foundation will appoint two members.

Meetings of the Advisory Board:

The Advisory Board will be chaired by the Dr. John T. Macdonald Foundation BioNIUM Director who will convene the group quarterly.

Dr. John T. Macdonald Foundation BioNIUM Programs and Program Directors:

Dr. John T. Macdonald Foundation BioNIUM Programs:

The Dr. John T. Macdonald Foundation BioNIUM will have 4 scientific Programs as described below. Over time, the Institute expects to expand and develop programs in other areas such as science policy. As the University of Miami is not authorized to support "classified research", the Institute programs do not involve "classified research." All University of Miami faculty members are encouraged to participate in the activities of the Dr. John T. Macdonald Foundation BioNIUM as appropriate for their research needs.

The Programs are the core components of the Institute and are not designed to exist apart from the Dr. John T. Macdonald Foundation BioNIUM. Programs have two primary areas of activity. First, Programs are interdisciplinary research groups focused on specific areas of expertise or methodologies within nanomedicine. Second, Programs provide various shared (core) resources to the University of Miami research community. In fulfilling both of these roles, Programs contain state-of-the-art technologies along with highly-skilled personnel that have experience using these technologies.

Program Directors

Each Program is led by a Program Director who works with the Director to oversee, develop and administer the Program within the mission and vision of the Institute. Program Directors are selected by the Director, in conjunction with the Executive Committee or a designated search committee. Program Directors report to and are reviewed by the Director. Program Directors

hold faculty appointments in an appropriate academic department and are expected to have extramurally funded interdisciplinary research programs.

Sensing & Molecular Diagnostics

The program in Sensing & Molecular Diagnostics brings together biomedical scientists, clinicians, and engineers to address shared problems within diagnostics and detection of small levels of target matter. Biological tests measuring the presence or activity of selected substances become quicker, more sensitive and more flexible when certain nanoscale particles are put to work as tags or labels and the program will develop innovative solutions that extend the limits of molecular diagnostics to the nanoscale. This program will include varied research activity with a range of tools and approaches including magnetic nanoparticles, magnetic immunoassay techniques, gold nanoparticles, quantum dots, nanopore technology, nanoscale biomolecular detectors, and nanobarcodes.

Molecular Assemblies and Characterization of Nanostructures

The program in Molecular Assemblies will concentrate on “bottom up” technologies (including self-assembly) and the development of new polymeric materials for use in biomedical applications. Self assembly takes advantage of self-organizing processes that are common throughout nature (e.g. protein folding). Efforts in this area will focus on using self-assembly as a controlled and directed fabrication process where components are designed such that they self-assemble into desired patterns and functions. Molecular assembly is a related but distinct process involving “factories”, assembly lines and all, scaled down to the nano level. This program will also include development of tailored new biomaterials that do not display the chemical, physical, and biological properties that complicate current polymeric biomaterials used in the clinic (e.g., dialysis tubing, vascular grafts, artificial organs).

Functional Restoration

The program in Functional Restoration will focus on the development of nanostructured materials, interfaces and devices for replacement of tissues and functions that are lost or compromised due to a disease process, such as loss of pancreatic function in diabetes, loss of vision in ophthalmic diseases, loss of neuronal conduction due to paralysis or traumatic brain injury, erosion of bone structure due to a malignant process, etc. The group will address a range of research questions including the creation of biological nanostructures and nanoscale bio-friendly abiotic interfaces that help regain a lost function, and development of new microfabrication and nanofabrication technologies to design and produce functional devices. Examples of applications include engineered tissues and protection of grafts from immune attack and pathogens, and the research areas include development of nanocomposites and scaffolds. Besides experimental techniques of preparation and characterization of these materials, emphasis will also be placed on the fabrication, followed by testing and validation of these devices in various animal models of the human disease that mimic the functional loss.

Biomaterials, Targeting, Delivery and Imaging Using Nanocarriers

The program in Targeting and Delivery will focus on developing nanoscale particles or molecules to improve target specificity and bioavailability of a drug by maximizing the amount of active drug at specific places in the body over a period of time. This program will investigate the delivery of imaging agents to target locations in the body by employing biologically-inspired imaging proteins and compounds in conjunction with recognition molecules and nanocarriers. Also, drug delivery systems such as polymer-based nanoparticles are designed to improve the pharmacological and therapeutic properties of drugs. Finally, using nanoparticle contrasting

agents, ultrasound and MRI images can be dramatically improved leading to earlier and more sensitive detection of disease.

Dr. John T. Macdonald Foundation BioNIUM Resources:

Institute resources are led by Resource Directors and are defined as resources that support the Programs and are available to the University research community. The Director, in consultation with the Executive Committee, selects the Resource Directors. The Resource Directors report to and are reviewed by the Director. Resource Directors need not hold faculty positions.

BioNIUM initially will have one resource – the Nanofabrication facility.

Nanofabrication Facility

The Nanofabrication facility will be a key component of the microfabrication and nanofabrication infrastructure. It will include class 10, class 100 and class 1000 clean rooms, and a microfabrication facility incorporating nanolithography, plasma etching and E-beam etching equipments. This facility will provide the critical capability to produce nanoscale component structures for devices and microfluidic systems that create functional devices, both critical aspects in development of in vitro and eventual in vivo diagnostic and therapeutic systems.

The Nanofabrication facility will be led by a Resource Director who is an expert in creating and managing clean room environments with significant experience in project management as it relates to nanofabrication and nanotechnologies.

Educational Resource

Nanotechnology research efforts can be enhanced by creating excitement and awareness among the new generation of students through cross-disciplinary training. The Dr. John T. Macdonald Foundation BioNIUM will establish a cross-disciplinary education and research training program aimed at investigating and controlling biological systems through nanotechnology. The program will establish a series of activities integrating research and innovation in a team-oriented structure to promote professional development and strong leadership skills while endowing the next generation of students with a broader understanding of international perspectives and ethical issues. In addition to educating and training graduate, undergraduate, and medical students at the cutting edge of bionanotechnology research, local school students will also be trained to appreciate the importance of communicating and disseminating science to the community through outreach programs and educational activities. To achieve the educational goals set by the institute the following activities will be undertaken; (i) The research performed by the members of the institute will form the basis for the training of the students in bionanotechnology area, (ii) Students will participate in cross-disciplinary education through course work developed by the institute members, (iii) Student participation will be encouraged in workshops and symposiums organized by the institute members which will enhance their experience beyond traditional training, (iv) Activities will be designed that train students in problem-based learning, team-work skills, professional ethics, and responsible conduct of research, (v) The institute will encourage student trainees to develop strong faculty and student interactions with both US and international industrial/governmental scientists through seminars, short-term visits, and student internships (vi) A certificate program in the area of bionanotechnology will be established. We envision that our trainees will be uniquely poised to be the next leaders in the field of bionanotechnology and in the global scientific community.

Dr. John T. Macdonald Foundation BioNIUM Appointments

Faculty members are invited to request and maintain appointments in the Dr. John T. Macdonald Foundation BioNIUM through a formal application and review process. All BioNIUM members must have a faculty appointment in an academic department. Membership categories are independent of academic rank. Any interested faculty from the University of Miami or affiliated institutions are eligible for appointment to the BioNIUM according to the criteria listed below. Faculty appointments within the Institute are for a three year term and are renewable.

Criteria for BioNIUM appointment (all are not required for consideration)

1. Demonstrated interest or scientific activities in the biomedical nanotechnology
2. Demonstrated research activity in any of the Institute programs.
3. Active/Proposed funding in research with a biomedical nanotechnology component or relevance
4. Biomedical nanotechnology -focused publications

Dr. John T. Macdonald Foundation BioNIUM Appointment Process

To be considered for an appointment within the Institute, an interested faculty member must submit the following information to the Executive Committee:

- Description of research interest and statement of research focus
- Current CV (NIH or NSF Biosketch will also suffice)
- Current research funding information

Prospective members are asked to select one of the Institute Programs for alignment and request a letter of support from the coordinating Program Director. This information is then reviewed by the BioNIUM Executive Committee.

Should an applicant be denied membership, the applicant can appeal in writing directly to the Institute Director for re-consideration. The Director can grant the appeal or refer the matter to the Provost for final decision.

Dr. John T. Macdonald Foundation BioNIUM Membership

The following are benefits of Institute membership:

1. Access to shared resources.
2. Eligible to receive developmental funding for innovative ideas.

Dr. John T. Macdonald Foundation BioNIUM Member Responsibilities

All Institute members are expected to contribute to the mission and growth of the BioNIUM through support of Institute activities, including:

1. Willingness to work collaboratively with other scientists and clinical researchers on problems related to biomedical nanotechnology.
2. Active participation in Institute activities including research programs and disease oriented working groups.
3. Active participation in the Institute education and visibility raising efforts, including appropriate symposia and community education.
4. Where applicable, willingness to provide mentoring to junior faculty and other Institute members.
5. All Institute members will be responsible to provide information updates as required, and must be willing to share this information for the purpose of reporting requirements.
6. All Institute members are required to report all funding to the Director, and allow this funding to be listed in the Dr. John T. Macdonald Foundation BioNIUM reports
7. All Institute members will update publications on at least a yearly basis, along with participation in local national and international meetings and other activities, for the purposes of reporting requirements.
8. All Institute members are expected to use resources provided by the Institute, in particular the nanofabrication facility, when such resources are needed. In the use of these resources, members are expected to pay facilities charges, and to contribute appropriate direct and indirect costs from grants to the facilities and resources. The level of contribution will be negotiated with the Resource Director, and approved by the Institute Director, based on use. The appropriate use and contributions to the resources are an essential component of the sustainability of the Institute, its programs and resources.

Review of the Dr. John T. Macdonald Foundation BioNIUM Members

The Executive committee will meet yearly for a review of the appropriate Institute members (as determined by the three year cycle). Each member is discussed on the basis of evidence for:

- Scientific activities in the biomedical nanotechnology
- Demonstrated collaborative research efforts
 - Publications with other Institute members.
 - Service as a PI or Co-investigator on grant/grant proposal(s) with other members.
 - Service as a PI or Co-investigator on clinical protocol with other members.
 - Participation as a mentor to junior members.
- Participation in Institute activities
 - Research retreat.
 - Committees, special initiatives and meetings.
 - Educational efforts.
- Demonstrated use of Institute shared resources

Members not meeting these criteria are counseled. An Institute appointment is withdrawn if progress is not demonstrated in the 12 month period following counseling.

Should an appointment be rescinded, the member can appeal in writing directly to the Institute Director for re-consideration. The Director can grant the appeal or refer the matter to the Provost for final decision.

Space:

The research activities of the Dr. John T. Macdonald Foundation BioNIUM require a well-equipped fabrication facility, and office and administrative space. The Institute will have space on the Coral Gables and Miller School campuses. Initially the main offices of the Institute will reside in the Biomedical Research Building on the Miller Campus. The state-of-the-art nanofabrication facility will be located at the Life Science and Technology Park.

Funding Sources and Projections:

The Dr. John T. Macdonald Foundation BioNIUM is being supported by a naming gift of \$7.5 Million by the Dr. John T. Macdonald Foundation, and additional cost-sharing commitments totaling to \$7.6 Million from the Office of the Provost (to support the nanofabrication equipment and staffing) and the Deans of the Miller School of Medicine and the Colleges of Engineering and the Arts and Sciences in support of recruitment. These funds are to be expended over a five year period and will be used to create the infrastructure necessary to support the Institute and support the programs and resources described above. All members will be expected to seek external funding for their research from Federal and State Agencies, as well as Foundations; thus there are high expectations for significant growth in sponsored funding. A complete record of past expenditures and future commitments will be available at each annual review of the BioNIUM.

The table below illustrates the five-year financial projections for the Dr. John T. Macdonald Foundation BioNIUM. (All numbers are in 000's)

* Financial Information Intentionally Redacted

Appendix A.

Table 1. Top ten NIH-funded medical schools in the country (FY 2011)

1. Johns Hopkins University
2. UC, San Francisco
3. University of Pennsylvania
4. Washington University
5. Yale University
6. University of Michigan
7. University of Pittsburgh
8. UC, San Diego
9. University of Washington
10. Vanderbilt University

Table 2. Top Ten R&D expenditures (FY 2009) (National Science Foundation fiscal year 2009 Survey of Research and Development Expenditures at Universities and Colleges.)

1. Johns Hopkins University
2. University of Michigan (all campuses)
3. University of Wisconsin, Madison
4. UC, San Francisco
5. UC, Los Angeles
6. UC, San Diego
7. Duke University
8. University of Washington
9. Pennsylvania State University (all campuses)
10. University of Minnesota (all campuses)

Table 3. American Association of Universities (AAU) Members with Institutes, Centers, Programs, or Initiatives in the Nanotechnology.

- Brandeis University
- Brown University
- California Institute of Technology
- Carnegie Mellon University
- Case Western Reserve University
- Columbia University
- Cornell University
- Duke University
- Emory University
- Harvard University
- Indiana University
- Iowa State University
- The Johns Hopkins University
- Massachusetts Institute of Technology
- McGill University
- Michigan State University
- New York University
- Northwestern University
- The Ohio State University

- The Pennsylvania State University
- Princeton University
- Purdue University
- Rice University
- Rutgers, The State University of New Jersey
- Stanford University
- Stony Brook University-State University of New York
- Syracuse University
- Texas A&M University
- Tulane University
- The University of Arizona
- University at Buffalo, The State University of New York
- University of California, Berkeley
- University of California, Davis
- University of California, Irvine
- University of California, Los Angeles
- University of California, San Diego
- University of California, Santa Barbara
- The University of Chicago
- University of Colorado at Boulder
- University of Florida
- University of Illinois at Urbana-Champaign
- The University of Iowa
- The University of Kansas
- University of Maryland, College Park
- University of Michigan
- University of Minnesota, Twin Cities
- University of Missouri-Columbia
- University of Nebraska-Lincoln
- The University of North Carolina at Chapel Hill
- University of Oregon
- University of Pennsylvania
- University of Pittsburgh
- University of Rochester
- University of Southern California
- The University of Texas at Austin
- University of Toronto
- University of Virginia
- University of Washington
- The University of Wisconsin-Madison
- Vanderbilt University
- Washington University in St. Louis
- Yale University

Appendix B. Biographical information

Proposed Dr. John T. Macdonald Foundation BioNIUM Director: The proposed Institute Director is Dr. Richard J. Cote.

Richard J. Cote, M.D., FRCPATH, FCAP, is an internationally recognized expert on molecular pathways of tumor progression, response to therapy, and novel technology development. Dr. Cote has been a pioneer in the application of nanotechnology to medical problems, an effort he started well over a decade ago. Dr. Cote was responsible for assembling the team that responded to the first Center for Cancer Nanotechnology Excellence (CCNE) RFA in 2004, and he founded and directed the USC Biomedical Nanotechnology Initiative in 2005. As a result of these efforts and the Initiative, Dr. Cote and his colleagues have been successful in attracting \$ * in NIH/NCI, DOD and Foundation funding in the area of cancer nanotechnology, including \$ * in funding where Dr. Cote is PI, and which have included major collaborative efforts across disciplines. Dr. Cote is currently Professor and Joseph R. Coulter Jr. Chair of the Department of Pathology at the University of Miami Miller School of Medicine. Along with Drs. Ram Datar and Sylvia Daunert, Dr. Cote has led the development of the Dr. John T. Macdonald Foundation BioNIUM, which was recently awarded a 5-year \$ * grant by the Foundation. In the area of cancer nanotechnology, Cote and his collaborators have developed novel technologies including microfilters for circulating tumor cell capture and characterization, and novel multiplexed nanosensors for detection of serum tumor markers. He has authored over 250 publications, and has 9 patents and patent applications in the field of cancer nanotechnology. Dr. Cote has lead and directed multi-project and multi-institutional research efforts, including program projects, multi-center clinical trials, the Genitourinary Cancer Programs at both USC and UMMSOM, and started the USC Biomedical Nanotechnology Program. He is an advisor to the NCI, where he served on the Translational Research Working Group. His experience has included translation of technologies to commercial applications, and he has started several successful companies based on work from his lab, including Impath, Clariant, Filtini, and Sensitini.

Proposed Dr. John T. Macdonald Foundation BioNIUM Co-Director: The proposed Institute Co-Director is Dr. Ram H. Datar.

Ram H. Datar, M. Phil, Ph. D. is a cancer molecular biologist who serves as a co-director of Biomedical Nanotechnology Program and Associate Professor of Pathology. He was previously a faculty member in Pathology at the University of Southern California and a Senior Scientist in the Nanoscale Sciences and Devices Group at the Oak Ridge National Laboratory of the US Department of Energy. At USC he coordinated the Biomedical Nanoscience Initiative, which established long-term collaborative projects with institutions across the country that have received significant extramural research funding. Besides major research interests in the area of molecular prognostic marker analysis and expression profiling in cancers, Dr. Datar has developed novel technologies including microfilters for circulating tumor cell capture and characterization and nanosensors for serum markers in association with his collaborators.

Proposed Dr. John T. Macdonald Foundation BioNIUM Associate Director: The proposed Institute Associate Director is Dr. Sylvia Daunert.

Sylvia Daunert, Pharm. D., Ph.D., is Professor and Lucille P. Mackey Chair of the Department of Biochemistry and Molecular Biology at University of Miami. Daunert, who was a Fulbright Scholar, also serves on several scientific advisory boards and has been part of National Institutes of Health study sections, NSF, NIH, DOE, NASA, special review panels and is a member now of the NIH College of Reviewers. Her publications include more than 250 journal articles, books, and book chapters, and she serves as Editor, Executive Editor and on editorial boards of top journals in the field. A recipient of numerous awards from the NSF, NIH, the American Chemical Society, and others, Dr. Daunert has research interests in the area of employing recombinant DNA technology to design new molecular diagnostic tools and biosensors based on genetically engineered proteins. Additionally, her research focuses on the design of sensing arrays for the detection of molecules in small volumes and microfluidic platforms and in the development of smart biomaterials for targeted and responsive drug delivery systems.

Proposed BioNIUM Program Director for Sensing & Molecular Diagnostics:

The proposed Program Director for the Program is Dr. Ram H. Datar.

Proposed BioNIUM Program Director for Biomaterials and Targeted Imaging and Delivery:

The proposed Program Director for the Program is Dr. Sylvia Daunert.

Proposed BioNIUM Program Director for Functional Restoration:

The proposed Program Director for the Program is Dr. Jeffrey Goldberg.

Proposed BioNIUM Program Director for Molecular Assemblies and Characterization of Nanostructures:

The proposed Program Director for the Program is Dr. Angel Kaifer.

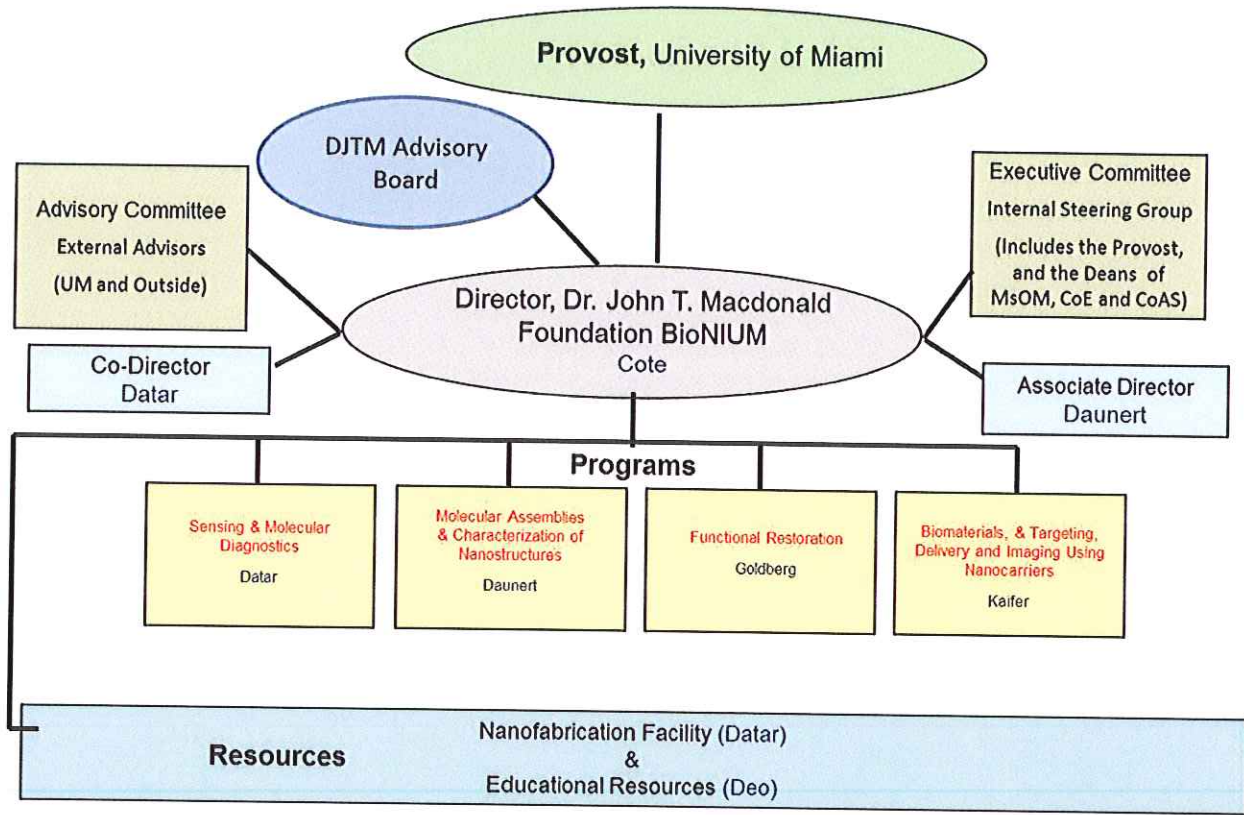
Proposed BioNIUM Nanofabrication Resource Director:

The proposed Resource Director for the Nanofabrication Facility is Dr. Ram H. Datar.

Proposed BioNIUM Education and Training Resource Director:

The proposed Resource Director for the Educational Resource is Dr. Sapna Deo.

Appendix C. Organizational Chart for the BioNIUM



Appendix D:

BioNIUM Affiliate Members: Multidisciplinary Participation

Richard J. Cote, MD.	Professor and Joseph R. Coulter Jr. Chair of Pathology
Ram Datar, M.Phil., Ph.D.	Associate Professor of Pathology and Biochemistry and Molecular Biology
Sylvia Daunert, Ph.D., Pharm. D.	Professor and the Lucille P. Markey Chair of Biochemistry and Molecular Biology
James M. Tien, Ph.D., Deng, NAE	Dean School of Engineering
Richard Awdeh, MD.	Assistant Professor of Clinical Ophthalmology, Bascom Palmer Eye Institute
Leonidas Bachas, Ph.D.	Dean College of Arts and Sciences
Pirouz Daftarian, Ph.D.	Research Assistant Professor of Microbiology and Immunology
Sapna Deo, Ph.D.	Associate Professor of Biochemistry and Molecular Biology
Jeffrey Goldberg, MD., Ph.D.	Associate Professor of Ophthalmology
Angel Kaifer, Ph.D.	Professor of Chemistry
Sung Jin Kim, Ph.D.	Assistant Professor of Electrical and Computer Engineering
Marc Knecht, Ph.D.	Associate Professor of Chemistry
Vincent Moy, Ph.D.	Associate Professor of Physiology and Biophysics
Francisco Raymo, Ph.D.	Professor of Chemistry
Paolo Serafini, Ph.D.	Research Assistant Professor of Microbiology and Immunology
Cherie Stabler, Ph.D.	Associate Professor of Biomedical Engineering and Director of the Tissue Engineering Program at the Diabetes Research Institute
Onur Tigli, Ph.D.	Assistant Professor of Electrical and Computer Engineering
Adam Braunschweig , Ph.D.	Assistant Professor of Chemistry
Amy Scott , Ph.D.	Assistant Professor of Chemistry

* Names in Bold represent faculty specifically recruited in support of the BioNano Program

There are 19 members in the above list as of October 2012. This membership list will be updated annually to reflect addition of new members.



September 5, 2012

Richard J. Cote, M.D., FRCPath, FCAP
Professor and Joseph R. Coulter Jr. Chair, Department of Pathology
Chief of Pathology, Jackson Memorial Hospital
Director, Dr. John T. Macdonald Foundation
Biomedical Nanotechnology Institute
University of Miami Miller School of Medicine
Suite 1416 Clinical Research Building
1120 Northwest 14th Street
Miami, Florida 33136

Dear Richard:

I am pleased to express my strong endorsement of the plan to establish and develop the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of University of Miami (BioNIUM). Founded with the generous philanthropic support of \$ * by the Dr. John T. Macdonald Foundation, with additional supporting commitment of \$ * from the Provost's Office and commitments of \$ * each from the Deans of the Miller School of Medicine and the College of Engineering over the next 5 years, as well as a formula for transfer to BioNIUM of a small portion of the indirect funds from BioNIUM related grants that originate at the Miller School in order to support the nanofabrication facility.

Indeed, the Miller School of Medicine and College of Engineering have already begun their investment. I believe that the truly interdisciplinary program of BioNIUM and the establishment of a unique nanofabrication facility are poised to place University of Miami in a leadership role in the area of biomedical nanotechnology in the country. Establishing the Dr. John T. Macdonald Foundation BioNIUM will capture the essence of collaboration and shared growth across multiple disciplines.

Your efforts to establish the Dr. John T. Macdonald Foundation BioNIUM, therefore, have my strongest support and my deepest gratitude for all the Foundation has done to support the University of Miami and the advancement of transformative science in our region and beyond.

Sincerely,

Donna E. Shalala

DES:vc



August 21, 2012

Richard J. Cote, MD, FRCPATH, FCAP
Professor and Joseph R. Coulter Jr. Chair, Department of Pathology
Chief of Pathology, Jackson Memorial Hospital Director
Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute
University of Miami Miller School of Medicine

Dear Richard,

I am pleased to state my strong support and endorsement of the plan to establish and develop the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of University of Miami (BioNIUM). Acknowledging the generous philanthropic support of \$ * by the Dr. John T. Macdonald Foundation, it is my pleasure to further augment this funding through a commitment of \$ * over the next 5 years from the Provost's Office, including \$ * in capital support, and an additional \$ * to support ongoing nanofabrication facility costs.

This decision is natural next step in the progression of the University, and the one which I firmly believe will benefit many component schools, institutes, Centers and Colleges through interdisciplinary programs and establishment of a unique nanofabrication facility. Together with the additional commitments from the Deans of Miller School of Medicine and the College of Engineering, I am confident that you and your colleagues will be successful in establishing a leadership role for University of Miami in area of biomedical nanotechnology in South Florida, and indeed, the country. Your efforts to establish the Dr. John T. Macdonald Foundation BioNIUM have my strongest support.

Sincerely,

Thomas J. LeBlanc

Pascal J. Goldschmidt, M.D.
*Senior Vice President for Medical Affairs and Dean
Chief Executive Officer, University of Miami Health System*

August 29, 2012

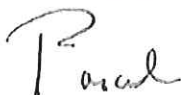
Richard J. Cote, M.D., FRCPath, FCAP
Professor and Joseph R. Coulter Jr. Chair, Department of Pathology
Chief of Pathology, Jackson Memorial Hospital
Director, Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute
University of Miami Leonard M. Miller School of Medicine
Clinical Research Building, Suite 1416
Miami, FL 33136

Dear Richard,

I am writing to enthusiastically endorse the establishment of the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute of the University of Miami (BioNIUM). As communicated earlier, the Miller School of Medicine has committed \$ 500,000 over five years to support, among other activities, the recruitment of faculty who will engage in active research in the area of biomedical nanotechnology at the BioNIUM, an investment we have already begun. I also want to emphasize that the development of the nanofabrication facility will provide a much-needed infrastructural resource at the University of Miami, which is critical to place us in a competitive position nationally in the field of biomedical nanotechnology. In this regard, the Miller School has agreed to a formula for transfer to BioNIUM of a small portion of the indirect funds from BioNIUM-related grants that originate at the Miller School in order to support the nanofabrication facility.

I strongly support the efforts by you and your colleagues, Drs. Ram Datar and Sylvia Daunert, in establishing the Dr. John T. Macdonald Foundation BioNIUM and wish you all the best as you move forward.

With warmest regards,



Pascal J. Goldschmidt, M.D.
Senior Vice President for Medical Affairs and Dean
Chief Executive Officer, University of Miami Health System

UNIVERSITY OF MIAMI
COLLEGE of ENGINEERING



James M. Tien, Ph.D., DEng (h.c.), NAE
Distinguished Professor and Dean

1251 Memorial Drive
MEB Room 255
Coral Gables, FL 33146

Ph: 305-284-6035
Fax: 305-284-2885
jmtien@miami.edu

August 27, 2012

Richard J. Cote, M.D., FRCPATH, FCAP
Professor and Joseph R. Coulter Jr. Chair, Department of Pathology
Chief of Pathology, Jackson Memorial Hospital
Director, Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute
University of Miami Miller School of Medicine

Dear Dr. Cote,

I am writing to enthusiastically endorse and express my strong support for the establishment of the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami (BioNIUM).

Indeed, ever since your arrival on campus, you, Dean Pascal Goldschmidt and I have collaborated to make BioNIUM and its associated clean room-based, nanofabrication facility a reality, culminating with the generous \$ ~~100,000~~ gift by the Dr. John T. Macdonald Foundation. The College of Engineering – through its leadership, faculty and students – has been actively involved at every stage of the BioNIUM establishment. We intend to continue this mutually beneficial involvement with your Department of Pathology by committing to a \$ ~~100,000~~ expenditure over the next 5 years for, among other activities, the support of current and new engineering faculty and students who wish to become actively engaged in BioNIUM and related nanotechnology research.

As you know, I am especially excited about the creation of the nanofabrication facility, a much needed core resource, the absence of which in the past has resulted in the University of Miami losing exceptional faculty recruits to other competing institutions which have access to such facilities. I would also like to note here that when proposed, BioNIUM received a unanimous endorsement by our faculty.

In conclusion, I would like to assure you that the College of Engineering will continue to support engineering faculty – including Drs. Sung Jin Kim, Cherie Stabler and Onur Tigli – and students who would like to work with BioNIUM, under your and Drs. Ram Datar and Sylvia Daunert's leadership.

Sincerely,

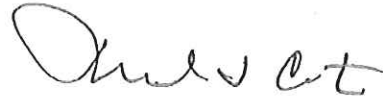
James M. Tien

TO: Robyn Hardeman
Secretary of the Faculty Senate

FROM: Richard J. Cote, MD, FRCPath, FCAP
Professor and Joseph R. Coulter Jr., Chair, Department of Pathology
Chief of Pathology, Jackson Memorial Hospital
Director, Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute (Provisional)

DATE: October 1, 2012

SUBJECT: Support for the *Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute*



As Chairman of the Department of Pathology at the University of Miami Leonard M. Miller School of Medicine, I am writing to support the proposal to formally establish the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute. As Director of the Institute, as well as Chairman of the Department, I can attest that the Institute's goal (to establish novel nanotechnological approaches to human health through highly interdisciplinary collaborations and education) strategically complements the Department's vision: to contribute to education, patient care and research through laboratory medicine and to engage new approaches to patient service.

One of the most comprehensive programs of its kind in the country, the Department of Pathology has an annual budget of \$45 million and supports over 148 full-time and part-time staff, as well as 50 full-time and 41 voluntary faculty members. Our clinical practice activity includes professional, technical and global pathology and laboratory medicine services provided at the four major hospitals within the Medical Center Complex.

In addition to sharing the diagnostic expertise of the molecular histopathology and clinical pathology laboratory, Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute also benefits from other resources within The Department of Pathology, which is exemplified by the active, federally funded nanobiotechnology research interest of pathology faculty including myself, Dr. Ram Datar and the two faculty members Dr. Onur Tigli and Dr. Sung Jin Kim, who were recently jointly recruited between the College of Engineering and Department of Pathology.

The faculty of the Department enthusiastically supports formalizing the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute. We are committed to supporting the creation of a highly translatable program and to develop better and more effective approaches to disease diagnosis, treatment and restoration of functions

SYLVIA DAUNERT
PROFESSOR AND LUCILLE P. MARKEY CHAIR



UNIVERSITY OF MIAMI
MILLER SCHOOL
of MEDICINE

Department of Biochemistry and Molecular Biology ♦ R. Bunn Gautier Bldg. ♦ 1011 NW 15th Street
Miller School of Medicine ♦ University of Miami ♦ Miami, FL 33136 ♦ (305) 243-4005 ♦

MEMORANDUM

To: Robyn Hardeman
Secretary of the Faculty Senate

From: Sylvia Daunert, Ph.D. *SD*
Professor and Lucille P. Markey Chair, Department of Biochemistry and Molecular Biology
Associate Director, Dr. JT Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami

Date: October 1, 2012

Subject: Support for the Dr. JT Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami

I am writing to support the proposal to formally establish the Dr. JT Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami. As Associate Director of the Institute, as well as Chair of the Department of Biochemistry and Molecular Biology (BMB), I can attest that the Institute's goal to create research and educational programs for interdisciplinary science focused on the application of nanotechnology to medical problems at the University of Miami, strategically complements the discovery mission of the BMB Department and our university. There is no doubt that there is an urgent need for an integrated, interdisciplinary Institute that offers the expertise, infrastructure, and resources necessary to energize fundamental aspects of nanotechnology and facilitate collaborations across disciplines.

The last decade has witnessed the emergence of nanotechnology-based enabling technologies that have revolutionized science and engineering. The benefits of nanotechnology have already been realized in a variety of fields, including medicine. It is expected that research in the area of biomedical nanotechnology will lead to other paradigm shifting discoveries and major breakthroughs in the near future. The University of Miami is uniquely positioned to be a major player in this field of science and technology given the critical number and high profile of faculty in nanotechnology. The interdisciplinary nature of the field dictates that such research programs need to be established across departments and colleges. Thus, the creation of an Institute at the University of Miami that fosters such interdisciplinary collaborations and is the vehicle for educating the next generation of scientists, physician scientists, and engineers is of critical importance.

The faculty of the Department of Biochemistry and Molecular Biology enthusiastically supports formally establishing the Dr. JT Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami. We are committed to contribute to the Institute through state-of-the-art research and educational efforts, as well as outreach programs. In summary, I enthusiastically support the creation of the Dr. JT Macdonald Foundation Biomedical Nanotechnology Institute and pledge full commitment and support as Chair of BMB and as part of the leadership of the Institute.

Eduardo C. Alfonso, M.D.
Professor of Ophthalmology
Kathleen and Stanley J. Glaser Chair in Ophthalmology
Chairman, Bascom Palmer Eye Institute

www.bascompalmer.org
Phone: 305-326-6303
Fax: 305-326-6308
Email: ealfonso@med.miami.edu

Memorandum

Please respond to: P.O. Box 016880, Miami, FL 33101-6880

To: Robyn Hardeman
Secretary of the Faculty Senate

From: Eduardo Alfonso, M.D.
*Professor and Chair, Department of Ophthalmology
Kathleen and Stanley J. Chair in Ophthalmology
Director, Bascom Palmer Eye Institute*

Date: October 1, 2012

Subject: Support for the BioNIUM



As the Kathleen and Stanley J. Glaser Chair in Ophthalmology, Chairman of the Department of Ophthalmology, and Director of the Bascom Palmer Eye Institute at the University of Miami Leonard M. Miller School of Medicine, I am writing to support the proposal to formally establish the Biomedical Nanotechnology Institute of the University of Miami (BioNIUM).

The faculty of the Department enthusiastically supports the establishment of the Institute and the proposal of Jeffrey L. Goldberg, M.D., Ph.D., as the Program Director for Functional Restoration. This particular program, with its focus on the development of nanostructured materials, interfaces and devices for replacement of tissues and functions that are lost or compromised due to a disease process, such as: loss of pancreatic function in diabetes; loss of vision in ophthalmic diseases; loss of neuronal conduction due to paralysis or traumatic brain injury; or erosion of bone structure due to a malignant process, are aligned with the Department's vision and mission.

Bascom Palmer Eye Institute is currently ranked #1 in ophthalmology by *US News & World Report*, an honor it has achieved for nine consecutive years. Since its founding in 1962, Bascom Palmer has had a long and impressive history developing novel technologies and medical treatments. Our medical and research teams have advanced patient care around the world with innovation and invention.

BioNIUM will be an integrated, interdisciplinary institute that offers the expertise, infrastructure, and resources needed to energize fundamental aspects of nanotechnology. This will stimulate interaction and facilitate collaborations among clinicians, scientists and researchers working in different disciplines throughout the University. The faculty of the Department of Ophthalmology fully supports establishing BioNIUM as an approved University-level Institute by the Faculty Senate and we are committed to its immediate and long-term success.

UNIVERSITY OF MIAMI
COLLEGE of
ARTS & SCIENCES



Department of Chemistry

P.O. Box 249118

Ph: 305-284-2174

Coral Gables, Florida 33124-0431

Fax: 305-284-4571

Cox Science Building

1301 Memorial Drive, Room 315

Coral Gables, Florida 33146-0431

October 2, 2012

Richard J. Cote, M.D., FRCPath, FCAP
Professor and Joseph R. Coulter Jr. Chair, Department of Pathology
Chief of Pathology, Jackson Memorial Hospital
Director, Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute
University of Miami Miller School of Medicine

Dear Dr. Cote,

I am writing to formally provide my strong endorsement of the Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami (BioNIUM).

As you know several faculty members of the Department of Chemistry already play significant roles in the research teams that are starting to form within BioNIUM. More specifically, Leonidas Bachas, Dean of the College of Arts and Sciences, Angel Kaifer, Marc Knecht and Francisco Raymo are strongly interested on research topics within nanoscience and are active and in some cases collaborate with other BioNIUM researchers. The Department of Chemistry and the College of Arts and Sciences are supporting BioNIUM through investment on new faculty members, such as Marc Knecht who joined our department in the fall of 2011, Adam Braunschweig and Amy Scott, who will join the department during calendar 2013 and are also expected to play significant roles in BioNIUM. I understand that the College of Arts and Sciences' overall investment in new faculty will exceed \$2.8 million over the next five years, without taking into account laboratory renovation costs.

We are also extremely excited about the new nanofabrication facility, a core instrumentation facility that will have a strong effect, making nanoscience research possible and more accessible within the University of Miami community.

In summary, I would like to conclude by reassuring you that the Department of Chemistry will continue its support of Chemistry faculty, graduate and undergraduate students interested in nanoscience research.

I would appreciate if you could provide me some details about how interested faculty members could become a part of the BioNIUM center.

With my best regards,

A handwritten signature in black ink, appearing to read 'V. Ramamurthy', with a long horizontal flourish extending to the right.

V. Ramamurthy
Professor and Chair, Department of Chemistry

September 11, 2012

Professor Richard Williamson
Chair, Faculty Senate
University of Miami

Dear Professor Williamson,

This is to inform the Faculty Senate that the Medical School Faculty Council met on September 11th, 2012 to review the Dr. John T. MacDonald Foundation Biomedical Nanotechnology Institute at the University of Miami (BioNIUM).

This proposal seeks to formally establish an Institute for interdisciplinary science, focused on the application of nanotechnology to medical care at the University of Miami. Because of the recently announced naming gift of \$ *... to support the Institute, it will be called the "Dr. John T. Macdonald Foundation Biomedical Nanotechnology Institute at the University of Miami" (abbreviated as "Dr. John T. Macdonald Foundation BioNIUM"). This institute will respond to an urgent need for an integrated resource that offers the expertise and infrastructure necessary to energize fundamental aspects of nanotechnology and facilitate multi-disciplinary collaborations.

Research activities of the Dr. John T. Macdonald Foundation BioNIUM require a well-equipped fabrication facility, and the office and administrative space. Initially the main offices of the Institute will reside in the Biomedical Research Building on the Miller Campus. The state-of-the-art nanofabrication facility will be located at the Life Science and Technology Park. Through its affiliate's membership laboratories, the Institute will have space on the Coral Gables and Miller School Campuses.

The Foundation is led by a Director who will be responsible for articulating and representing the vision of the Institute, its overall leadership and management. The Director will report to and receive annual reviews from the Senior Vice President for Medical Affairs and the Dean of the Miller School.

Dr. John T. Macdonald Foundation **BioNIUM** will have four scientific programs, being: (1) Sensing and Molecular Diagnostics (2) Molecular Assemblies and Characterization of Nanostructures (3) Functional Restoration and Biomaterials and (4) Targeting, Delivery and Imaging Using Nanocarriers. The BioNIUM resources will be primarily nanofabrication facility and interdisciplinary educational resources.

The Medical Faculty Council members discussed the new institute in detail and voted to unanimously approve it.

Respectfully submitted,

A handwritten signature in black ink, reading "Norman Altman". The signature is written in a cursive style with a large, sweeping initial "N" and a long, horizontal flourish extending to the right.


Norman H. Altman, V.M.D.
Speaker, Medical School Faculty Council



MEMORANDUM

Date: October 23, 2012

To: Rick Williamson
Chair, Faculty Senate

From: Thomas J. LeBlanc, Ph.D. 
Executive Vice President and Provost

Subject: Biomedical Nanotechnology Institute at UM (BioNIUM)

I write to confirm that the proposal for the Biomedical Nanotechnology Institute at UM (BioNIUM) was presented to the Deans at the October 2nd meeting of the Academic Deans' Policy Council and is being forwarded to the senate without objection.

TL/bf

Cc: Dr. Richard Cote- Director
Irene Hung
Daru Ransford