



MEMORANDUM

To: Donna E. Shalala, President

From: Richard L. Williamson
Chair, Faculty Senate

A handwritten signature in blue ink, appearing to read 'R. Williamson'.

Date: April 19, 2013

Subject: Faculty Senate Legislation #2012-43 (B) –Establishment of a PhD in Industrial Biochemistry and Molecular Biology, Miller School of Medicine

At its April 17, 2013 meeting, the Faculty Senate – by a vote of 15 in favor and 12 opposed – approved the establishment of a PhD in Industrial Biochemistry and Molecular Biology in the Miller School of Medicine. The degree is designed for full time employees in industry who are already doing biomedical research. It will utilize the elements of the existing graduate program, but much of the program will be carried out by distance learning.

The proposal was approved with the following amendments:

- The rules for chairing a student’s dissertation committee are exactly the same as for the regular PhD program, that is, the chair must be a member of the Graduate School, and must either hold a primary appointment in the department, or hold a secondary or joint appointment with the department.
- The research that is within the scope of the degree program must be entirely open; it shall not be subject to classification, intellectual property or other restrictions. It may not constitute intellectual property owned by the sponsoring company that precludes disclosure. There shall be no external barriers to the publication of the research. This provision does not mean that publication cannot be restricted by our own rules.

Additionally, the Senate unanimously required a progress report, to be sent to the Faculty Senate from the department at the end of three years (no later than fall 2017). The report would cover such issues as the number of participants, the difficulties encountered, the benefits achieved, the interactive technologies that work well or poorly, the number of companies or industries that did not agree to the terms, and other such matters.

The proposal before the Senate (that does not reflect these amendments) is enclosed for your information.

This legislation is now forwarded to you for your action.

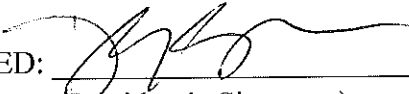
RW/rh

Enclosure

cc: Thomas LeBlanc, Executive Vice President and Provost
Pascal Goldschmidt, Senior Vice President and Dean, Miller School of Medicine
Sylvia Daunert, Professor and Chair, Department of Biochemistry and Molecular Biology
Sapna Deo, Graduate Program Director, Miller School of Medicine

CAPSULE: Faculty Senate Legislation #2012-43 (B) –Establishment of a PhD in Industrial Biochemistry and Molecular Biology, Miller School of Medicine

PRESIDENT'S RESPONSE

APPROVED:  DATE: April 26, 2013
(President's Signature)

OFFICE OR INDIVIDUAL TO IMPLEMENT: DEAN GOLDSCHMIDT

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

NOT APPROVED AND REFERRED TO: _____

REMARKS (IF NOT APPROVED): _____

REQUEST THE FACULTY SENATE FOR THE APPROVAL OF THE PHD DEGREE IN INDUSTRIAL BIOCHEMISTRY AND MOLECULAR BIOLOGY

April 7, 2013

TITLE OF THE DEGREE: Ph. D. in Industrial Biochemistry and Molecular Biology

INTRODUCTION

The Department of Biochemistry and Molecular Biology (BMB) is requesting approval of a new Doctor of Philosophy (PhD) degree program in Industrial Biochemistry and Molecular Biology that will be targeted toward industrial scientists. The most common types of doctoral programs available for full time industrial employees are found in business and management. To our knowledge, there is only one program available in the United States that offers a PhD degree in Biological Sciences to full-time professionals. Thus, the proposed new program will bring the University of Miami to the forefront of educational innovation and it will help to establish ties between industry and the University.

The program will be known as "The Doctor of Philosophy in Industrial Biochemistry and Molecular Biology", and it will utilize the elements of our existing graduate program. This will be the first program nationally that will offer a PhD degree to full-time industrial and/or government laboratory professionals who are working in non-academic fields in the areas of biochemistry, molecular biology, biotechnology, nanotechnology, and medicine. The program is intended to help individuals who are seeking to either move ahead in their field or switch careers altogether. This will also fulfill the lifelong learning desire of industrial professionals who wish to further their education at the graduate level.

The admission process will be rigorous and follow similar guidelines as those of our regular PhD program. Specifically, an Industrial PhD admission committee formed for this program will select the students. Admission into the program will be highly selective, and selection will be based on a number of criteria such as prior publications, undergraduate/Master of Science performance, GRE scores, letters of recommendation, personal statements, and work experience (minimum of three years) in the area of biological sciences, biophysical sciences, environmental sciences, pharmaceutical sciences, nutritional biochemistry, medicine, agricultural sciences, nanotechnology, or chemical sciences. We anticipate offering this program to ~5 new students every year for the first three years; subsequent student admissions will be decided based on the success/demand of the program.

RATIONALE

The discipline of biochemistry is at the center of the basic biomedical sciences, as detailed mechanistic understanding of biochemical pathways and processes are critical in clinical medicine and discovery in both academic and industrial settings. This is reflected by the increased need from industry as well as governmental laboratories for

students trained in molecular biology techniques and protein chemistry. In response to the rising demand for individuals with extensive training in biochemistry and molecular biology, the BMB department is seeking to establish a new PhD degree program in Industrial Biochemistry and Molecular Biology. Many universities are offering executive graduate programs both at the Master of Science and PhD levels in business management, but only one university offers a PhD degree to working professionals in the area of biological sciences in the United States, namely the University of California Davis. Our PhD degree program in Industrial Biochemistry and Molecular Biology will bring the University of Miami Miller School of Medicine to the forefront of educational innovation. The aim of this program is to enhance the knowledge base of individuals who are involved in significant research activities in their current professional careers and ultimately allow them to obtain a degree to help them advance in their career. This program will provide the individuals with outstanding educational opportunities and a broad knowledge base in the various aspects of modern biochemistry and molecular biology. After the successful completion of this program, individuals will have a unique perspective on fundamental biochemical problems, resulting in more career options and increasing the likelihood that they will make important contributions to scientific progress and society. This will be an attractive program for individuals who are contributing significantly to research in biochemistry and molecular biology, but for varied reasons have not been able to give up their industrial careers to fulfill their ultimate goal of obtaining a PhD degree. Furthermore, it is critical to have a PhD degree for professionals working in a scientific research field to advance in their career within a company.

This program will also help the University of Miami and the BMB department to establish ties with industries and develop a stronger alumni base. Our current traditional students in the PhD program will benefit from these interactions, which may open up employment opportunities for them. Further, our students will be exposed to the latest trends in industrial research as well as the latest innovations. This will also serve as the catalyst for curriculum improvements.

ADMISSION REQUIREMENTS

In order to be admitted to this program, eligible students must have a Bachelor's and/or Master of Science degree in a basic science discipline with a minimum of three years of work experience in an industrial setting in the area of biological sciences, biophysical sciences, environmental sciences, pharmaceutical sciences, nutritional biochemistry, medicine, agricultural sciences, nanotechnology, or chemical sciences. The students admitted must be actively involved in research in their industrial jobs. The program will be exclusive in that only highly motivated and advanced scientists from industry will be able to pursue the program. A strong commitment from the employer will be required prior to the admission into the program. This will be manifested in a letter of support from the company on behalf of the candidate indicating acceptance of financial responsibility for the tuition and research infrastructure for the entire duration of the PhD dissertation work, including any travel expenses of the student and his/her industrial co-mentor for visits/meetings to UM. The letter will be required prior to finalization of the admission process. Further, the student will identify and include the name of the co-

mentor on the application, and a statement that the co-mentor agrees to serve will be needed prior to finalization of the admission.

A cumulative grade point average of at least 3.0 is generally required; however, students with a lower GPA but compensatory credentials (such as extensive industrial/research experience) may be admitted into the program at the discretion of the Admissions Committee. Applicants must submit scores of their Graduate Record Examination (GRE) and while not required, a good score on a subject test in biology or chemistry can bolster an application. Additionally, the applicants will be required to submit two letters of recommendation and a personal statement. Applicants who have not received a degree from a university in the United States should also satisfy the English proficiency requirements by submitting TOEFL scores.

DEMAND FOR THE PROGRAM

Please find letters of support from industries that indicate interest in our proposed program. The executive PhD programs in business schools are popular and are expanding in number. There is only one PhD program for industrial scientists in the biological sciences at University of California Davis that started only two years ago. This program already has several students enrolled. This program requires students to be physically present on campus for one year while taking coursework, which limits the potential student population to those who are located in the surrounding areas. We expect a high demand for our proposed program since the course work will be offered through distance learning/on-line approaches, making it easier for industrial scientists to fulfill the requirements.

Established PhD Programs for Working Professionals in the USA

- PhD Program in Biochemistry at the University of California Davis: 10 students enrolled in 2 years
- PhD Program in Business at Georgia State University: 38 students enrolled
- PhD Program in Business at Kennesaw State University: 42 students enrolled in 2 years
- PhD Program in Business at Oklahoma State University: 20 students from 600 applicants
- Additional examples of PhD Programs in Business Schools include the following: Case Western Reserve University, University of North Carolina Chapel Hill, Syracuse University, and George Washington University.
- In Europe, the U.K. has at least 16 Executive Doctorate Programs of Business Administration, and at least 20 such programs were created in Australia from 1993 to 2005. These programs are also popular in Germany, where an estimated 58.5% of executives hold doctoral degrees.

http://www.businessweek.com/bschools/content/aug2010/bs20100816_081076.htm#p1

RECRUITMENT

We will devise a recruitment plan that will focus on advertising the program directly to companies as well as to potential students by employing a series of strategies as described below.

- The program will be advertised by directly contacting biotech, chemical, environmental, nanotech, and pharmaceutical companies, especially in South Florida, and inform them about the existence of our program.
- A representative of the program, i.e., Director of Graduate Studies, will also attend and present the program at target conferences that are well attended by industrial scientists, such as the AAPS, PITTCON, ACS, etc.
- The BMB department will inform UM undergraduate academic counselors about the program so that they can inform graduating students prior to starting their new industrial jobs.
- The BMB department will contact current BMB undergraduate students and alumni to inform them about the program to start a word-of-mouth advertising campaign.
- The program will be advertised through the web on the BMB departmental website.
- The BMB department will also prepare, update, and mail out information to potential applicants and industries via e-mail or snail mail.
- The Graduate Program Director will communicate directly with prospective students as well.

PROGRAM ADMINISTRATION, OVERVIEW, AND ACADEMIC DIRECTION

1. PROGRAM DIRECTION AND DAY-TO-DAY COORDINATION

Graduate Program Director, GPD. The administration and direction of the Industrial PhD in Biochemistry and Molecular Biology program will be under BMB's GPD. The GPD will report to the Chair of BMB. The GPD will be part of the Admissions Committee, Steering Committee, and the academic advising of students will be performed by the GPD. Moreover, the progress of the student will be monitored by the GPD in collaboration with the Dissertation Committee of each student. The GPD, with help from the Graduate Coordinator, will organize all other activities stipulated in the program and required for progress of the students, i.e., the annual symposium for the Industrial PhD and BMB graduate students.

Graduate Coordinator. The BMB Graduate Program Coordinator will help with the admission process, functioning of the program, ensuring that students attend courses, complete assignments on time, and perform course evaluations. The Graduate Program Coordinator will ensure that records are properly entered, that students are credited for courses they have completed, and will also help address specific questions that may arise during the course of running the program. He/she will also provide support to the GPD for managing the program and providing support for the overall mission.

BMB PhD Mentor. The student will select from the primary and secondary faculty members of the BMB department a mentor based on common research interests. The students will consult with the GPD in the mentor selection. The BMB PhD mentor will

design a project jointly with the student's industrial co-mentor. All participating faculty in this program will be required to follow the policies regarding conflict of interest and financial disclosures as set by the Office of Research Compliance.

Industrial Scientist PhD Co-Mentor. The industrial scientist who will serve as the co-mentor will be identified by the student at his/her workplace. The co-mentor will be a PhD scientist who typically serves as a permanent supervisor to the student. The qualifications of the co-mentor will be evaluated by the GPD and the Admissions Committee prior to him/her serving on the student's Dissertation Committee. The co-mentor will be involved in supervising the day-to-day research of the student and monitoring thesis progress. He/she will participate in the qualification exam, progress meetings, and the final defense exam of the student but will not have any right to vote on pass/fail. He/she will have weekly meetings with the student and also consult with the BMB mentor. The co-mentor will also visit the UM campus for the annual mini symposium. The travel expense for the co-mentor will be covered by the company. The co-mentor will be invited to give a seminar in the department during their annual visit to UM campus.

2. PROGRAM OVERVIEW

Steering Committee. The Steering Committee will consist of three faculty from BMB including the Graduate Program Director of BMB, and two faculty from other departments at the Medical School. The Steering Committee will oversee the program. The committee will create, maintain, and coordinate curriculum for the program. The committee will also establish and review program policies and conduct yearly evaluation of the program.

3. ADMISSIONS AND ACADEMIC PROGRESS

Industrial PhD Admission Committee. The Industrial PhD Admission Committee will consist of three faculty members from BMB including the GPD and two faculty members from other departments at the Medical School. The Industrial PhD Admissions Committee will evaluate applicants and process the admission into the program.

Dissertation Committee. The Dissertation Committee will be specific for each student depending upon the topic of their dissertation work. The Dissertation Committee will consist of a total of five voting members. Three faculty members will be from the Department of Biochemistry and Molecular Biology and will include the student's mentor from the BMB graduate faculty, two faculty member will come from a UM department outside of the BMB department. The dissertation committee will also include the industrial scientist acting as co-mentor who will not have any voting rights pertaining to pass/fail on student exams. The latter will be selected by the student from the industry where the student is employed and approved as the student's co-mentor as described in the Program Administration section. At least one member from the committee must hold a primary appointment in the BMB department. The UM student mentor will be a member of the primary or secondary faculty of the BMB department. The Dissertation Committee will conduct the qualifying exam, proposal approval, progress meetings, sufficiency meeting, dissertation thesis approval, and dissertation defense. The

Dissertation Committee will meet every six months to evaluate the student's progress. The student will write a progress report and present their data to the Dissertation Committee every six months. The Dissertation Committee members will be chosen such that they do not have any financial conflict of interest with the student's industry or project. Intellectual property stemming from the collaborative UM-industrial project will be handled as per the university regulations. The policy regarding intellectual property is outlined in the University of Miami Sponsored Program Policies and Procedures (<http://www6.miami.edu/controller/policies/text/c7.htm>). The policy letter will be drafted in collaboration with the office of technology transfer and general counsel of the university. This policy letter will be sent to the company sponsoring the student and a designate of the company will be required to sign on this letter prior to the processing of the admission.

Budget

Program Revenue

The courses require full participation of the instructor similar to a traditional classroom setting. Further, BMB faculty will be the research mentors of the PhD students. Therefore the cost per credit hour is similar to the traditional program. The fee per credit hour is in accordance with that of the Graduate School in the School of Medicine because the PhD students of the proposed program will be registered in the graduate program. However, these students will be spared the local living expenses incurred by traditional, on-site students. Students are expected to cover their tuition, travel, and any living expenses incurred during their visit to the university. The University of Miami has set-up a committee to establish policy on distance learning and registration of the university in different states. We will follow the universal policy that will be established by the university.

We anticipate that we will enroll 5 students the first year followed by 5 additional students each year during the first 3 years from the establishment of the program.

* This section redacted

Program Expenses

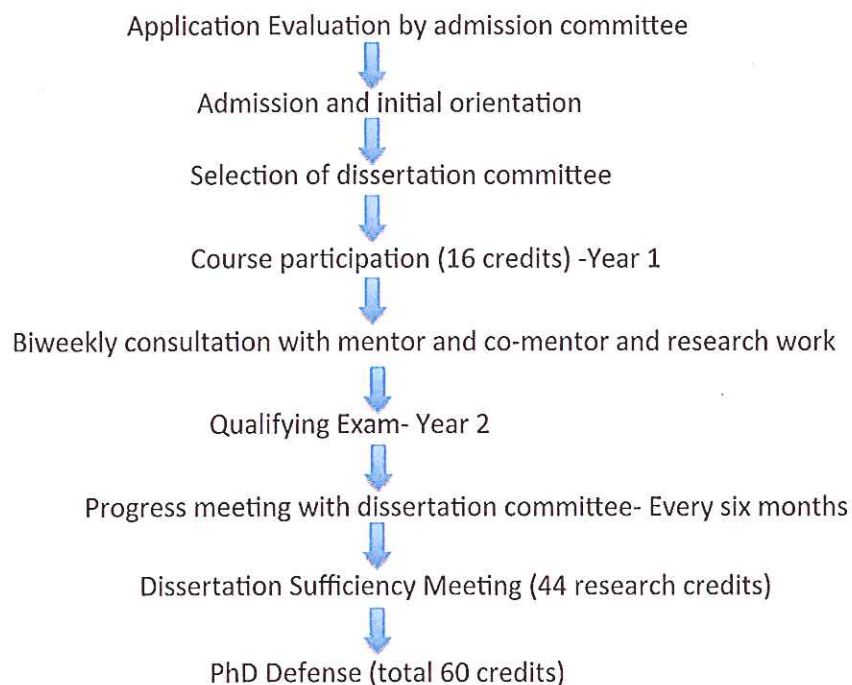
In the first year, expenses will include recruitment efforts that will be covered by the departmental budget. The current Graduate Coordinator in the department and the GPD of the department will be involved in initial implementation of the program. In the subsequent years we will hire a part-time program coordinator using the program income.

Graduation Requirements

The requirements for graduation include the following:

- Successful completion of 16 credit hours of required courses.
- Successful completion of the Qualifying Examination.
- Execution of an original research project facilitated by a dissertation committee that attests to research sufficiency (44 credit hours).
- Submission and defense of a doctoral dissertation.

A flow chart of steps involved in the program can be seen in the figure below.



Name of the University	Rank	Number of Courses
University Of California San Francisco	3	4
University Of Texas Southwest Med Ctr/Dallas	4	6
University Of Chicago	5	4
Harvard University (Medical School)	6	4
University Of North Carolina Chapel Hill	7	5
Yale University	8	7
Albert Einstein Col Of Med Yeshiva University	9	4
Stanford University	11	6
University Of Washington	12	1
University Of Michigan At Ann Arbor	16	2
University Of California Berkley		3
University Of Miami, Department Of Chemistry		6

For the didactic phase of graduate training, students will participate in a set of courses chosen based on their prior experience and the research they perform in their industrial setting. Through these courses, the students obtain a broad, coherent background in basic and advanced aspects of biochemistry, molecular biology, structural biology, and cell biology. This material is supplemented with presentations at research journal clubs. The 16 credit hour requirement is in par with other biochemistry programs offered by other high ranking universities as well as the Department of Chemistry at

the University of Miami (please see the Table).

Participation in Courses

The students will be required to attend a 3-day orientation on campus after their admission. The students in this program will be required to take 16 credit hours of course work. These would be accomplished through participation in the following courses. The company/firm will be required to sign-off on releasing the student during the hours when the student has to participate in the class.

BMB 609 – Advanced Topics in Biochemistry & Molecular Biology – 3 Credits

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BMB 615 – Structural Biology and Applications to Drug Discovery – 2 Credits

BMB 616 – Macromolecules: Physical Biochemistry – 2 Credits

BMB 614 – Molecular Genetics – 2 Credits

BMB 601 – Journal Club – 1 credit each semester – total 4 Credits

These courses are taught as traditional didactic courses. These courses are taught by the primary and secondary BMB faculty (about 50 total members). Since, the students who will be enrolled in this program will be off campus, they will participate in courses through the distance learning platform. The proposed courses will be scheduled at 4:00 PM, which matches with the lunch-time for students from Pacific Standard Time zone and can be the end of the work day for students from the Eastern Standard Time zone. This will allow traditional BMB graduate students who enroll in these courses and the students in the proposed program to take lectures at the same time, allowing for better interactions among students and the instructor. While these lectures are attended by the students on campus, the lectures will be streamed through Skype or WebEx technology to the students in the proposed program. A discussion board will be hosted through Blackboard at the same time for PhD students in the Industrial BMB PhD program, which will be moderated by teaching assistants. These teaching assistants will be available through a program organized by the Office of Postdoctoral studies at the Miller School of Medicine. Through this program, postdoctoral fellows participate in teaching efforts as part of their academic training. The online discussion board moderated by teaching assistants will allow students outside UM to participate in asking questions during class time. A 1-h lecture will be divided in two segments. At the end of each segment there will be questions assigned that the students will need to answer. These answers will be evaluated by the instructor. There will be also a discussion board through which students can post their additional questions. The assignments will be posted at the UM Blackboard. Video-taped lectures will be also linked on the Blackboard. Students will also participate in the Journal Club course, BMB601 – 1 credit, via Skype/videoconferencing. In this course, PhD students in our current program present their research or literature articles. Journal Club meets every Wednesday during Fall and Spring semesters at noon EST. The students of the proposed program will participate in presentations through Skype or WebEx and the existing videoconferencing set-up of our department's smart board(s). They will be able to participate in Journal Club and post their questions through live chat rooms. Students from the proposed program will visit campus every year and will present their

research in the format of a mini-symposium. These students will have progress meetings with their respective Dissertation Committee every six months.

In addition, the students will participate in the following courses organized by the Program in Biomedical Science (PIBS)/library staff. These courses will be scheduled during their initial orientation/annual visit to the campus.

PIBS 680- Research Ethics - (0 credit): The NIH Guide for Grants and Contracts stipulates that institutions receiving research support are required to develop a program in the principles of scientific integrity. This course is given every year and is scheduled for 2 days for 3 h each day.

Advanced Literature Searching and Management – (0 Credit): The Calder Library staff gives a hands-on tutorial covering advanced PubMed, QUOSA, and Scopus searches to graduate students.

Participation in Research Work

The students will perform research at the institution where they are employed. They will have a co-mentor at his/her work place and a PhD dissertation mentor from the BMB department. This mentor selection will be based on the research interests of the student. The student will discuss this research with his/her BMB mentor and industrial co-mentor and will initiate work on research while taking courses similar to the traditional graduate student. The pass/fail in qualifying exam will determine, in part, admission to PhD candidacy for the student. The industrial co-mentor will be included in all of the committee meetings, however will not have right to vote on pass/fail for any exams conducted. The industrial co-mentor will be assigned to a specific industrial student and will not have the right to be on the committees of regular graduate students in the department. The student will have biweekly research consultation with the mentor from the BMB department and regular meetings/consultations with the industrial co-mentor. In August of every year, the BMB Department will host a research forum/mini-symposium in which all the Industrial PhD Program students will participate and present their research in the form of a poster or oral presentation.

Qualifying Examination

In the second year, students will be evaluated on the basis of their academic performance and by completion of the Qualifying Examination (QE). Students will complete and submit the form entitled "Request for permission to take qualifying examination" for the approval of the Dissertation Committee. This form will be available at the BMB website under "Academics – BMB graduate program – forms." The format of this examination includes the definition of a novel research problem, the development of a proposal to address the stated problem, and a hypothesis. The significance, feasibility, and the relationship of the proposal to the literature will be important criteria for evaluation. The Qualifying Examination determines, in part, the student's eligibility for admission to candidacy for the Ph.D. degree. The examination is designed to test the student's basic knowledge of biochemistry and molecular biology, as well as assess the creativity and rationality of the proposed research design.

The Qualifying Examination is comprised of two parts:

1. Submission and oral presentation of dissertation proposal
2. Oral defense of the proposal

Dissertation Proposal

Students should submit a 12-page NIH style grant proposal on their dissertation research topic. The proposal should include:

- 1. Face Page:** Face page should include: Name, Title of Proposal, Mentor, Co-Mentor, Dissertation Committee Members, Date of Oral Qualifying Exam, and Mentor and Co-Mentor Signature stating that the document was written entirely by the student.
- 2. Abstract:** State the broad, long-term objectives and goals of the research proposal, making reference to the health-relatedness of the project (if such exists). Describe concisely the research design and methods for achieving these goals. (250 words)
- 3. Specific Aims:** State the specific purpose(s) of the research proposal, the hypothesis to be tested and significance. (One page only)
- 4. Background, Significance and Novelty:** Provide the background to the proposal. State concisely the importance and novelty of the research described in this application by relating the specific aims to broad, long-term objectives. (Two-three pages)
- 5. Preliminary Results:** Provide the preliminary data that support your hypothesis. (One-two pages)
- 6. Research Design, Methods and Expected Outcome:** Provide a description of the research design of the experiments proposed and the procedures to be used to accomplish the specific aims. Normally, this section is laid out in the order of the specific aims. For each specific aim, describe the proposed experiments including controls. Describe the major experimental techniques and methodologies you plan to use. Do not provide detailed descriptions of standard models. Describe the rationale for the choice of methods as well as potential problems or limitations. Explain how problems and limitations will be dealt with for each specific aim. Discuss the anticipated results of the proposed experiments (include alternative possibilities), and how they will be interpreted. How will the anticipated results support or disprove your hypothesis? Include any statistical methods by which the data will be analyzed. You may want to include expected outcomes and a tentative time-table for the proposed experiments. (Five-seven pages)
- 7. Literature Citation:** Insert these at the end of the research proposal. Each citation MUST include names of all authors, the complete title, book or journal, volume number, page numbers (beginning and end), and year of publication. The citations are not part of the 12-page limit.

The proposal should be submitted to the student's Dissertation Committee, BMB Graduate Program Director, and Coordinator two weeks prior to the oral examination. The proposal presentation and oral examination is the student's defense of the proposal and normally lasts from two to three hours. The grading of the qualifying exam is equally weighted between the written research proposal, presentation and the student's oral defense, and is pass/fail. In order to be admitted to candidacy, the student should maintain a grade point average of 3.0 or better and must pass the qualifying

examination. All BMB students should bring the qualifying/proposal form to the meeting for committee members to sign along with the signed data verification form. These forms are available at the BMB website under Academics – BMB graduate program – forms.

Progress Reports and Meetings:

The students are required to meet with their Dissertation Committee every six months and present progress reports both in written and oral format. The progress report should be a 3-page summary of the work performed. The student should highlight recent research progress and any changes made to the project since the Qualifying Examination and previous progress meeting. The proposal should be submitted to the committee one week prior to the meeting. **It is the responsibility of the student to ensure that the dissertation proposal and progress meetings are held every six months (or less if stipulated by the Dissertation Committee).** Students are required to bring the progress evaluation form to the meeting for committee members to sign along with the signed data verification form. These forms are available at the BMB website under Academics – BMB graduate program – forms. In addition, students are required to present their research in the mini-symposium organized on a yearly basis.

If the Dissertation Committee determines that the student is not making satisfactory progress or that there is a consistent lack of progress, the Dissertation Committee will take appropriate action. If the student's progress remains unsatisfactory for more than one six months, the Dissertation Committee must decide whether the student should change his/her research project. Consistent lack of progress for more than a year may result in dismissal from the BMB graduate program.

The students who are in the BMB program for 5 years or more will meet with their Dissertation Committee every three months. The Committee will make a determination whether or not adequate progress is being made.

The mentor can visit the industry where the student will perform the work to monitor the research work if he/she wishes. The expenses will be paid by the program to avoid any conflict of interest. The company must grant the mentor permission to visit the facility.

Sufficiency Requirements

1. Grade point average of 3.0 or better.
2. Completion of 16 credit hours of required courses.
3. Successful completion of research work with at least one first author published and/or accepted manuscript (not review article) or filing of a patent. However, the student's Dissertation Committee can waive this rule if the Committee feels that the student has done scholarly work and made significant progress.
4. Students have 4 months to write and defend the dissertation work starting from sufficiency date.

Submitting The Dissertation To The Graduate School

In order for the student to graduate, the Graduate School must accept the dissertation. The Office of the Graduate School has extremely detailed rules regarding the format of dissertations. The student should obtain these guidelines when beginning to write the

dissertation. Note that the Graduate School sets extremely detailed guidelines.
http://www.miami.edu/index.php/graduate_school/current_students/electronic_theses_dissertations

Dissertation Defense

Students are required to present a public seminar where they can formally defend their written document in front of Dissertation Committee and an external examiner. The Graduate School requires that all members of the Dissertation Committee and external examiner must attend the seminar and private defense and must sign off on the final document. In the case of emergencies the Graduate Program Director can consult with the mentor to allow a single individual to be absent from the defense. The defense involves the review of all experimental data and the entire written dissertation. During the defense, the mentor is responsible for allotting appropriate time for questions by all participants. Students are expected to understand the significance of their findings, display adequate knowledge of the relevant literature and know the theory and limitations of methods employed. Candidates must demonstrate the ability to independently design, execute and interpret original experiments. *The written dissertation and the oral defense must be approved by all Dissertation Committee members.* This group, with the exception of the co-mentor, is empowered to pass or fail a student's dissertation document and/or the oral defense. The signed forms will be submitted to the Graduate School unless revisions are required. If revisions are necessary, signatures will be held until the document is revised and approved.

Graduation

The academic calendar has specific deadlines for graduation. It is the student's responsibility to be aware of the exact dates and to coordinate the dissertation defense accordingly after submission of a final dissertation is accepted by the Graduate School. Questions regarding deadlines, graduation fees and other requirements or regulations concerning the details of preparation and submission of the dissertation should be directed to:

Doreen Yamamoto, Dissertation Editor; Ph: (305) 284-4154, Email:
dyamamoto@miami.edu

Plagiarism

Plagiarism is explicitly outlawed at University of Miami Miller School of Medicine. The BMB Graduate Program will not tolerate plagiarism. Students who are found to have plagiarized may be asked to withdraw from the Program. Plagiarism is not always easy to define; students who are unsure whether a particular practice is acceptable are urged to discuss the issue with the faculty instructor or mentor.

Dismissal And Appeals

Students can be dismissed by the Program for academic or professional reasons. Decisions on dismissal are made by majority vote of the Steering Committee. To appeal a major programmatic decision (e.g., dismissal, denial of degree), students should first present their reasons for appealing to the Graduate Program Director and Steering Committee. This appeal will be given a fair and impartial hearing, followed by a decision

made by majority vote. If the student remains dissatisfied with the result of this appeal, the student may appeal the program decision, in writing, to the Associate Dean for Graduate Studies, within 30 days of the program's final decision. Decisions by the Associate Dean are appealable to the Dean of the Graduate School through the filing of a formal Graduate School Grievance.

http://www.miami.edu/index.php/graduate_school/current_students/

Conflict of Interest Policy.

We will follow and enforce the stringent standard conflict of interest policies that are currently in place at UM for the BMB personnel involved in the program.

PhD in Industrial Biochemistry and Molecular Biology Graduate Program Review.

This program will be reviewed every five years as per the Graduate School regulation. A self-study report will be prepared for the review process. Typically, three UM graduate faculty members from outside the Program will form an Internal Review Committee who will review the self-study report prior to sending the report to external reviewers. Members that form the internal and external committees will be selected by the Dean of the Graduate School. The External Review Committee will submit their report following a site visit. The report from the external reviewers, the Internal Review Committee memo of response and the Program response will be presented to the Graduate Council. If the Graduate Council accepts the reports, the program review will be considered accepted. The Dean of the Medical School, Chair of the Department of Biochemistry and Molecular Biology, Graduate Program Director, and Dean of the Graduate School meet with the Provost to discuss the program review. After the Provost's approval, the documents will then be forwarded to the SACS office. The Graduate School will send a memo to the Faculty Senate and the Graduate Program indicating whether the program review was approved. This steps and the guidelines established by the University of Miami Graduate School will be followed. These guidelines are available at the following website.

https://www6.miami.edu/grad/pdf/guidelines_grad_prog_reviews_2012.pdf

Bylaws

Bylaws of the Graduate School that will be followed by the proposed program are available at the following website,

http://www.miami.edu/gs/index.php/graduate_school/graduate_council/bylaws_of_the_graduate_school/

Additional bylaws pertaining to the Industrial PhD program in the Department of Biochemistry and Molecular Biology are listed below.

I. Committee Structure

- A. Industrial PhD Steering Committee

Functions

i) The Steering Committee will oversee the Industrial PhD program. The committee will establish and review program policies, oversee the curriculum for the program, and conduct yearly evaluation of the program. The committee will create, maintain, and coordinate curriculum for the program.

B. Industrial PhD Admissions Committee. The committee will meet twice a year and help in implementing the program policies developed by the Steering Committee. The committee will advise students in their program specific course work. The committee will also evaluate and conduct the admission process.

Selection and term of the members and Chair

- i) Both committees will be comprised of 5 members, each serving a 4-year term. Both committees will consist of three faculty from BMB and two faculty from other departments at the Medical School.
- ii) The Steering Committee will choose the new member from the graduate faculty of the program. All members of the graduate faculty of the program will serve on the Steering Committee on a rotating basis.
- iv) The Chair will be a tenured member of the graduate program faculty. The Chair's term will be for a minimum of two years with a possible reappointment for a third year upon mutual agreement of the Chair and the Steering Committee members. When needed, a new Chair will be selected by the Steering Committee members. Faculty members will not be appointed as Chair during their first year of service on the Steering Committee.
- v) The Chair of the Department of Biochemistry and Molecular Biology is an *ex officio* member of the Steering Committee.

II. Procedures for selection of a dissertation mentor by first-year graduate students

The Admission Committee will help a student to choose the dissertation mentor in consultation with the student and the student's industrial co-mentor based on the topic of dissertation.

III. Requirements for admission to candidacy for the PhD

- i) The student must successfully complete formal coursework and have a B or better average.
- ii) The student must successfully complete the written and oral qualifying examination in the second year of their graduate study.

IV. Procedures for completion of the PhD

The student must convene the Dissertation Committee on a regular basis as outlined below.

- i) The students should have 6-month progress meetings with the Dissertation Committee.
- ii) Shortly before the final dissertation defense, the student will convene their committee for a sufficiency meeting. The requirements for sufficiency meeting are as follows,
 1. Grade point average of 3.0 or better.
 2. Completion of 16 credit hours of required courses.
 3. Successful completion of research work with at least one first author published and/or accepted manuscript (not review article) or filing of a patent. However, the student's Dissertation Committee can waive this rule if the committee feels that the student has done scholarly work and made significant progress.
 4. Students have 4 months to write and defend the dissertation work starting from sufficiency date.
- iii) The dissertation defense will consist of: the written dissertation, a public seminar, and an oral defense of the dissertation before the Dissertation Committee.
- iv) The requirements for graduation include the following:
 - a. Successful completion of 16 credit hours of required courses and electives.
 - b. Successful completion of the Qualifying Examination.
 - c. Execution of an original research project facilitated by a Dissertation Committee that attests to research sufficiency (44 credit hours).
 - d. Submission and defense of a doctoral dissertation.

V. Participating Faculty

- i) Faculty in the Industrial PhD program in the Department of Biochemistry and Molecular Biology must have appointments in the Graduate Faculty of the University of Miami Miller School of Medicine.
- ii) Members of the Graduate Faculty with primary appointments in the Department of Biochemistry and Molecular Biology are members of the Industrial PhD program.
- iii) Faculty members with secondary appointments in the Department of Biochemistry and Molecular Biology are eligible to become members of the Biochemistry and Molecular Biology Industrial PhD program. Their inclusion will

be decided on an individual basis by the program faculty.

- iv) Faculty members of the University of Miami are eligible to become members of the Biochemistry and Molecular Biology Industrial PhD program. Their inclusion will be decided on an individual basis by the program faculty.

VI. Changes to the Bylaws

Changes to these bylaws requires a 2/3 vote from the Steering Committee which will take into consideration the recommendation from full faculty.

1. LIST OF GRADUATE COURSES OFFERED BY THE BMB DEPARTMENT

BMB 601 – Journal Club
BMB 609 – Advanced Biochemistry & Molecular Biology
BMB 610 – Advanced Topics in Biochemistry & Molecular Biology
BMB 614 – Molecular Genetics
BMB 615 – Structural Biology and Applications to Drug Discovery
BMB 616 – Macromolecules: Physical Biochemistry
BMB 631 – Special Work
BMB 730 – Doctoral Dissertation

1. BMB 601- Journal Club

All registered BMB graduate students must participate in the Research Journal Club/Seminar. Junior students are required to critically review published paper(s) of their choice and describe in detail the findings described therein. Senior students are required to present their research finding in an open forum.

2. BMB 609- Advanced Biochemistry & Molecular Biology

This course is offered every fall. This course brings the student to the forefront of research in biochemistry, molecular biology, and molecular genetics. The course covers several fundamental and advanced topics in biochemistry through lectures. Based on this experience, students are required to propose experimental approaches to biological problems and defend them.

3. BMB 610- Advanced Topics in Biochemistry & Molecular Biology

This course is offered by various faculty members in the department on a rotating basis depending upon their expertise. For example, an advanced topic course in bionanotechnology and biosensing offered by Dr. Deo covers these topics through lectures. Another advanced course topic taught by Dr. Zhang is DNA repair.

4. BMB 614- Molecular Genetics

This course deals with fundamental genetic concepts and their application to biomedical research. The objective is to provide students with the tools of molecular genetics and an understanding of how genetic principles apply to organisms at various levels of complexity. The course is divided into two parts, with an exam following each module. The first module is devoted to fundamental genetic mechanisms including complementation, recombination, suppression, and gene regulation as established by experiments with bacteria and bacteriophages. The second module deals with genetic mechanisms in eukaryotic systems including yeast, mice, and humans. Problem solving is emphasized in

homework and exams. Since the focus is on understanding the biological consequences of underlying genetic mechanisms, this course will provide valuable insights for students interested in molecular mechanisms encountered in such diverse areas of biomedical research as molecular biology, microbiology, cell biology, cancer biology, pharmacology, and human genomics.

5. BMB 615- Structural Biology and Applications to Drug Discovery

This course provides an introduction to structural biology and illustrates how understanding the relationship between structure and function of biological macromolecules drives drug discovery. The course is taught in three parts, with the first covering experimental and computational tools of structural biology: X-ray crystallography, cryo-electron microscopy and molecular modeling. The second part of the course will look at two examples demonstrating where structural biology has influenced drug design – traditional enzyme inhibitor type drugs and channel blocker drugs. The final part of this course will look at structures of nucleic acid (DNA and RNA) binding proteins and how they inform drug discovery.

6. BMB 616- Macromolecules: Physical Biochemistry

The Physical Biochemistry course is designed to introduce essential theoretical concepts associated with a variety of physical methods and to illustrate how these techniques can be used to explore macromolecular structure and function. The course material is composed of 4 main topics: X-ray crystallography, spectroscopic methods, hydrodynamic methods, and mechanisms of catalysis.

7. BMB 631- Special Work

This course covers special work, either lecture or laboratory or a combination of these, as determined by a student's advisor in accord with the student's individual interest. Prerequisite: approval of the Operating Committee.

8. BMB 730- Doctoral Dissertation

Required for all PhD candidates. The student will enroll for credits as determined by the Office of Graduate Studies but not less than a total of 24 and no more than 6 in the summer. If a student has A) passed the qualifying exam(s) and (B) is engaged in an assistantship, he/she may still take the maximum allowable credits.

BMB RESEARCH PROGRAMS

The BMB graduate faculty consists of 24 primary faculty members and 25 secondary faculty members. Some of the BMB faculty members are also affiliated with other departments in the university, including the VA hospital, the Sylvester Comprehensive Cancer Research Center, and the Braman Family Breast Cancer Institute. Thus, research facilities for a large variety of specialties are available to our students. The BMB department has established a record of scientific contributions and collaborative activities in the following areas:

1. **RNA structure and metabolism:** The BMB department has been at the forefront in understanding the enzymology of RNA modification and RNA degradation. Crystal structures of several RNA modifying enzymes and exoribonucleases have been determined. The recent discovery of regulatory functions of small RNAs in both prokaryotes and eukaryotes has highlighted the importance of basic research on RNA structure and stability for future progress in both the basic and clinical sciences. At the University of Miami, expertise in RNA metabolism is uniquely situated in the Department of Biochemistry and Molecular Biology.
2. **DNA replication, repair, recombination, and eukaryotic chromosome maintenance:** The BMB department has established a strong contingent of investigators in DNA repair and recombination and the related areas of chromatin structure and function. A central theme of this program involves research that covers repair of DNA damage and characterization of the multicomponent nucleoprotein complexes involved in DNA repair, recombination and chromatin structure. DNA cross-link repair is of special interest because it plays a major role in the activity of many cancer chemotherapeutic agents.
3. **Molecular biophysics and structure of protein-ligand interactions:** The BMB department has recognized the importance of obtaining fundamental information about enzyme catalysis and small molecule interaction with proteins that are involved in basic cellular signaling including DNA replication and repair, RNA biology, translation and cell cycle regulation. The faculties involved in this program characterize protein-ligand interactions at the atomic level using kinetic and thermodynamic methods as well as crystallization and characterization of protein-ligand conformation.
4. **Molecular mechanisms of development, differentiation and signal transduction:** The faculties of the BMB department have also directed their research efforts at elucidating mechanisms of cellular response to extracellular stimuli and regulation of cell function during development and differentiation. The objectives of this program are to understand regulatory mechanisms at a molecular level using cultured human cells, genetically modified mice lines, and yeast systems.

5. **Molecular mechanisms involved in genetic disease and cancer:** The BMB department has a critical mass of investigators who study molecular mechanisms in the development of cancer. This range from biophysical and functional analysis of proteins involved in signal transduction and includes the study of single gene perturbation of evolutionarily conserved metabolic pathways that produce human disease.
6. **Biomolecules and bionanotechnology:** The BMB department has recently established a new research program in the area of biomolecules and biotechnology. The focus of this program is to design and develop new natural and semi-synthetic biomolecules, as well as molecular-based devices that can be employed in translational medicine and other bionanotechnology applications.
7. **Nutritional Biochemistry:** The BMB department is actively developing a new area of research emphasis in nutritional biochemistry. Nutritional biochemistry research involves understanding the chemical properties of nutrients and their role in biochemical, metabolic, physiological, and epigenetic functions. Understanding nutrition-related biochemical and cellular processes and pathways help in designing nutrition-based public health interventions. Nutritional biochemistry research is interdisciplinary in nature such that it involves disciplines of basic biochemistry, physical sciences, and biomedical sciences. For example, chemistry principles are employed to determine the structures of nutrients, biochemistry knowledge is applied to identify the metabolic pathways that are regulated, and genetics studies are performed to study the gene expression changes ultimately leading to studying the effect of nutrients on human health.
8. **Medicinal Chemistry:** The BMB department is also looking to establish an active research program in medicinal chemistry, a multi-disciplinary area of research that focuses on the design and synthesis of therapeutically-active drugs. The research questions asked in this area target identification of biological mechanisms of action, metabolism studies, the development of techniques, and rational design and synthesis. Medicinal chemistry research requires collaborative efforts from many disciplines such as chemistry, biochemistry, pharmacology, pharmaceutical sciences, toxicology, microbiology, and molecular biology to identify, synthesize, and evaluate therapeutic effectiveness of the drug produced. An integrated approach combining design, synthesis, as well as pharmacological and biochemical characterization is essential in drug discovery. Detailed molecular insights enable efficient drug discovery approaches. In that regard, expertise of the current BMB faculty in biochemical characterization, biomarker discovery, and drug delivery combined with new faculty recruitment in synthetic medicinal chemistry would prove ideal for transitioning into medicinal chemistry research.

Data Verification Form:

The student will be required to sign the data verification form attesting that the data generated is original and the studies are performed by him/her. This form will be signed as part of the dissertation submission.

**VERIFICATION OF MATERIAL PRESENTED TO
DISSERTATION COMMITTEE**

VERIFICATION OF DATA

The images, graphs, figures, and tables presented to the committee fully and accurately represent the original data obtained in the experiments I have performed.

_____ (Student name)
(Date)

EXAMINATION OF ORIGINAL DATA

I have examined the original data of _____ and, in good faith, believe that the data support the images, graphs, figures, and tables that have been presented.

_____ (Advisor name)
(Date)

**Louis Calder Memorial Library
Miller School of Medicine
University of Miami**

The Louis Calder Memorial Library at the University of Miami Miller School of Medicine provides access to 152 databases and over 13,000 electronic journals, accessible from the Library's homepage (<http://calder.med.miami.edu>). All databases, with the exception of a few clinical products, are available both on-site and remotely to UM students, faculty and staff, and all electronic journals are available remotely.

Services include interlibrary loan and document delivery, classes and personal instruction on database use and searching skills, expert searches provided by experienced librarians, and frequent blog postings to keep the UM community apprised of new products, services, mobile apps for databases, etc. The Calder Librarians maintain a variety of portals on the Library's Website, including the Health Sciences Researchers Portal (<http://calder.med.miami.edu/portals/researchers/>).

Calder Library is open 102.5 hours per week, including five evenings until midnight.

1/2013

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 ♦

October 2, 2012

Dr. Richard Williamson
Chair, Faculty Senate
325 Ashe Building
Coral Gables, Florida 33146

Dear Dr. Williamson:

This letter is in support of the petition for approval of the proposed Executive Ph.D. Program in Biochemistry and Molecular Biology. As part of the educational mission of our Department, we strive to provide innovative and timely curriculum opportunities to students while delivering high quality of teaching and service. The Executive Ph.D. Program is unique and timely since it will be one of the first programs nationally that will offer a Ph.D. degree to full time industrial/government laboratory professionals, who are working in discovery biomedical research.

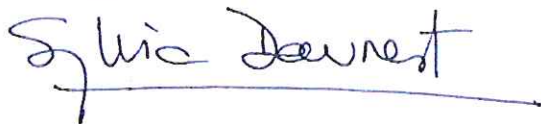
The proposed Executive Ph.D. Program will, through coursework and research, provide highly motivated and deserving individuals with outstanding educational opportunities to broaden their knowledge and enhance their skills in biomedical discovery. The program will use on-line coursework and elements of our graduate programs and, therefore, there is minimal need for investment of funds; these funds will be fully covered by BMB and administrative support will be provided by BMB. The students will have a mentor in their industry and a mentor of their choice within BMB. We will ensure that the industrial mentor is an accomplished researcher of high scientific standing. This will be determined by following the guidelines developed by the BMB Director of Graduate Studies and overseen by the Graduate Program Committee. We anticipate that our proposed Executive Ph.D. program will be an attractive program for a population of students, who are academically advanced with respect to their peers given their years of experience and significant contributions to research in Biochemistry and Molecular Biology, but that, for a number of varied reasons, could not give up their industrial careers to fulfill their dreams of obtaining a Ph.D. degree. The program is also ideal for individuals (1) seeking to either move ahead in their field, (2) switch careers altogether, (3) executives with lifelong desire to continue their education to the highest level.

We envision that upon graduation, the students will have acquired a unique perspective on fundamental biochemical problems, preparing them to contribute to scientific breakthroughs while advancing in their own careers. Additional benefits of the proposed program are (1) enrichment the quality of our undergraduate and graduate programs in BMB by attracting a class of exceptional students, the Executive Ph.D. Program, (2) strengthen the alumni base and establishing ties with industries of BMB, the MSOM and the University of Miami as a whole, (3) traditional Ph.D. students will be exposed to the latest industrial innovation in discovery science, (4) ability of our traditional Ph.D. students to network, which may lead to employment opportunities upon graduation.

There is no doubt in my mind that this new program will bring the Miller School of Medicine of the University of Miami to the forefront of innovative biomedical educational. Given all of the

above, I am strongly in favor of the creation of the Executive Ph.D. Program in Biochemistry and Molecular Biology and urge you to support it as well.

Sincerely,

A handwritten signature in blue ink that reads "Sylvia Daunert". The signature is written in a cursive style with a long horizontal line extending to the right from the end of the name.

Sylvia Daunert
Professor and Lucille P. Markey Chair
Associate Director, Dr. JT Macdonald Biomedical Nanotechnology Institute
Editor, Analytical and Bioanalytical Chemistry
Executive Editor, Analytical Biochemistry

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

November 6, 2012

Richard L. Williamson, Ph.D.
Chair, Faculty Senate
University of Miami
325 Ashe Building
Coral Gables, Florida 33146

Dear Dr. Williamson,

On behalf of the University of Miami Miller School of Medicine (UMMSM), I wish to express my strong support for the development of an Executive Ph.D. Program in Biochemistry and Molecular Biology.

As part of its educational mission, the Department of Biochemistry and Molecular Biology strives to provide innovative and timely curriculum opportunities while delivering high-quality teaching and service. This pioneering program that borrows from executive graduate business programs allows full-time working professionals to pursue a Ph.D., making this the second program of its kind after University of California Davis. The proposed program will provide an opportunity to meet the growing demand for individuals trained in this area.

I am strongly in favor of the establishment of the Executive Ph.D. Program in Biochemistry and Molecular Biology and believe it will be an asset to the Miller School of Medicine and the entire University of Miami. Thank you for considering its creation.

With warm 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
MILLER SCHOOL
of MEDICINE



Zafar Nawaz, PhD

Professor, Biochemistry & Molecular Biology

Senior Associate Dean for Graduate and Postdoctoral Studies

Associate Research Director, Braman Family Breast Cancer Institute

October 18, 2012

Dr. Richard Williamson
Chair, Faculty Senate
325 Ashe Building
Coral Gables, Florida 33146

Dear Dr. Williamson,

I am pleased to present to the Faculty Senate a proposal to create a new Executive PhD degree program in Biochemistry and Molecular Biology. In my role as Sr. Associate Dean for Graduate & Postdoctoral Studies, I strongly support this proposal.

The Provost's Strategic Plan calls for continued strengthening of our undergraduate student credentials and the growth and strengthening of our university's PhD programs (prominently including the programs at the Miller School of Medicine). Innovative programs such as the Executive PhD will be one of the first programs nationally that will offer a Ph.D. degree to full time industrial/government laboratory professionals, who are working in translational and discovery biomedical research. This new program will not only enrich the quality of our undergraduate and graduate programs, it will also be helpful in establishing ties with industries and the University of Miami. This proposed program is therefore fully aligned with each of the above goals.

The new PhD program has obtained the explicit support of the Chair of Biochemistry and Molecular Biology and myself. Please let me know if the Senate requires any additional information. Dr. Sapna Deo and I look forward to meeting with the Senate to discuss any suggestions or concerns that might arise.

Yours Sincerely,

Zafar Nawaz, Ph.D.



UNIVERSITY OF MIAMI
MILLER SCHOOL
of MEDICINE

January 8, 2013

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 January 8, 2013 to review the *Executive PhD Degree in Biochemistry and Molecular Biology*.

The Department of Biochemistry and Molecular Biology (BMB) is requesting approval of a new Executive Doctor of Philosophy (PhD) degree program in the area of Biochemistry and Molecular Biology. The most common types of executive doctoral programs available are found in business and management. To our knowledge, there is only one program available in the United States that offers a PhD degree in Biological Sciences to full time professionals. Thus, the proposed new program will bring the University of Miami to the forefront of educational innovation and it will help to establish ties between industry and the University.

The program will be known as "The Executive Doctor of Philosophy in Biochemistry and Molecular Biology", and it will utilize the elements of our existing graduate program. This will be the first program nationally that will offer a PhD degree to full-time industrial and/or government laboratory professionals who are working in non-academic fields in the area of biochemistry, molecular biology, biotechnology, nanotechnology, and medicine. The program is intended to help individuals who are seeking to either move ahead in their field or switch careers altogether. This will also fulfill the lifelong learning desire of executives who have and/or wish to continue their education to the highest level.

In the last decade, the discipline of Biochemistry has undergone a revolution as detailed mechanistic understanding of biochemical pathways and processes becomes increasingly necessary in academic and industrial discovery as well as in clinical medicine. Moreover, students trained in molecular biology techniques and protein chemistry studies are sought after for industrial positions. In response to the rising demand for individuals with extensive training in the area of Biochemistry and Molecular Biology, the BMB department is seeking to establish

Office of Faculty Affairs

1611 NW 12th Avenue, Suite J (D2-6), First Floor, Park Plaza West Garage | Miami, FL 33136
Ph: 305-243-6551 | Fax: 305-243-5574

a new executive PhD degree program in the area of Biochemistry and Molecular Biology. Many universities are offering executive graduate programs both at the master and PhD levels in business management, but only one university offers a PhD degree to working professionals in the area of biological sciences in the United States, namely the University of California Davis.

The executive PhD degree program in Biochemistry and Molecular Biology will bring the University Of Miami Miller School Of Medicine at the forefront of educational innovation. The aim of this program is to enhance the knowledge base of individuals who are involved in significant research activities in their current professional careers for future growth in the area of biochemistry and molecular biology. This program will provide the individuals with outstanding educational opportunities and a broad knowledge in the various aspects of modern biochemistry and molecular biology.

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

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Norman H. Altman".

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

Attachments:

1. Letters of support from industries that indicate interest in our proposed program.
2. All graduate courses offered by the Department of Biochemistry & Molecular Biology.
3. The proposal for the Executive Ph.D. Program in Biochemistry and Molecular Biology



M. Brian Blake, Ph.D.
Vice Provost for Academic Affairs
& Dean of the Graduate School


Graduate School
P.O. Box 248125
Coral Gables, FL 33124-3220

Phone: 305-284-4154
Fax: 305-284-5441
graduateschool@miami.edu

MEMORANDUM

DATE: January 28, 2013

TO: Richard Williamson
Chair, Faculty Senate

FROM: M. Brian Blake 
Dean, The Graduate School

SUBJECT: New Program – Executive Ph.D. in Biochemistry and Molecular Biology

The Department of Biochemistry and Molecular Biology has submitted a proposal for a new Executive Ph.D. program in Biochemistry and Molecular Biology. The proposal for the new Executive Ph.D. program was discussed at the meeting of the Graduate Council on Thursday, January 17, 2013, and was approved by those present. The second reading was waived.

cc: Pascal Goldschmidt, Dean
Dr. Zafar Nawaz, Senior Associate Dean
Dr. Sapna Deo, Graduate Program Director
Office of Planning, Institutional Research and Assessment



Enzo Life Sciences, Inc.
10 Executive Boulevard
Farmingdale, NY 11735
631.694.7070

Sapna Deo
Associate Professor
Graduate Program Director
Department of Biochemistry and Molecular Biology
R. Bunn Gautier Bldg.
1011 NW 15th Street
Miller School of Medicine
University of Miami

Dear Dr. Deo,

This letter supports the executive PhD program proposed by the Department of Biochemistry and Molecular Biology of the Miller School of Medicine at the University of Miami. This program is created to give an opportunity for industrial scientist to continue their higher education. Many industrial scientists who are involved in research do not have a PhD degree. However, many such scientists would like to advance their careers by getting a higher degree. Getting a traditional PhD degree would mean giving up their jobs, which may not be feasible in this economy. I have few acquaintances in Long Island, NY area that are taking advantage of such a program and have only praise for such a platform. The executive PhD program that will be offered by the Department of Biochemistry and Molecular Biology is structured in such a way that the scientist do not have to leave their jobs. The course work will be also conducted through an online system, which provides flexibility. The research part will be performed at the industrial site with a co-mentoring by the University of Miami faculty and industrial mentor. I anticipate that many industrial scientists will take advantage of this opportunity to advance their careers. I am very excited about this program and would like to learn more about it once it is implemented.

Sincerely,

A handwritten signature in cursive script that reads "Praveen Pande".

(Praveen Pande, Ph.D., Director of Chemistry)

ppande@enzolifesciences.com, 631-694-7070 x392.

biogen idec

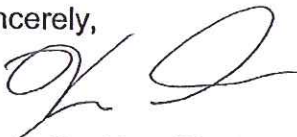
Biogen idec Inc.
14 Cambridge Center
Cambridge, MA 02142
October 2, 2012

Sapna Deo
Associate Professor
Graduate Program Director
Department of Biochemistry and Molecular Biology
R. Bunn Gautier Bldg.
1011 NW 15th Street
Miller School of Medicine
University of Miami

Dear Dr. Deo,

The executive PhD program proposed by the Department of Biochemistry and Molecular Biology of the Miller School of Medicine is an interesting idea. This program is designed to attract industrial scientists who are involved in research in their jobs however do not have a Ph. D. degree. The proposed program allows for the necessary course work to be done online and research will be also performed on-site at the work place. This allows tremendous flexibility to the industrial scientists who have a strong desire to continue higher education. This will help them advance their careers and provide an opportunity to change the career path if desired. Co-mentoring by an industrial scientist and faculty mentor in planning and execution of the thesis will be beneficial to the students in this program. I believe that many industrial scientists will be interested in joining this type of program. Through this letter I support this initiative and give my best wishes.

Sincerely,



Kevin Guckian, Ph. D.
Principal Scientist, Medicinal Chemistry
Biogen Idec



September 19, 2012

Sapna Deo, PhD
Associate Professor
Graduate Program Director
Dept. of Biochemistry and Molecular Biology
R. Bunn Gautier Bldg.
1011 NW 15th Street
Miller School of Medicine
University of Miami
Miami, FL 33136

Dear Dr. Deo,

This letter is in support of the "executive PhD program in Biochemistry and Molecular Biology" proposed by the Department of Biochemistry and Molecular Biology at Miller School of Medicine, University of Miami. The proposed program is targeted at industrial scientists who would continue their education towards obtaining a PhD degree. Scientists with research experience in industry, but without a PhD, will be attracted to this program since it gives them an opportunity to get a higher degree while working. The opportunity to take courses online and continue research at their work location will make it feasible for industrial researchers to obtain a PhD. We expect that a number of people will be interested in joining this program. This is a new concept and a novel idea. We support this idea and would be excited to see it come to fruition.

Sincerely,

A handwritten signature in black ink, appearing to read 'Enrique M. Rabellino'.

Enrique M. Rabellino, MD
Director of Medical Affairs
Beckman Coulter, Inc.
Tel: (305) 380-3009
enrique.rabellino@beckman.com

September 12, 2012

Sapna Deo
Associate Professor
Graduate Program Director
Department of Biochemistry and Molecular Biology
R. Bunn Gautier Bldg.
1011 NW 15th Street
Miller School of Medicine
University of Miami

Dear Dr. Deo:

I am pleased to submit this letter in support of The Department of Biochemistry and Molecular Biology (BMB) is planning to offer an Executive Doctor of Philosophy (PhD) degree program in the area of Biochemistry and Molecular Biology. The most common types of executive doctoral programs available are found in business and management areas. I strongly believe in the need of this type of program, it will be the first program nationally that will offer PhD degree to full time industrial/ government lab professionals who are working in the area of biochemistry, molecular biology, biotechnology, and medicine. The program is intended to help individuals who are seeking to either move ahead in their field or switch careers altogether. This will also fulfill the need of executives that have lifelong learning desire and wish to continue their education to the highest level which has a need in the market.

I am delighted to support this initiative. I wish you success in your efforts and look forward to hearing from you as you move forward with your plans.



Sincerely,

Claudia Zylberberg, PhD.
President & CEO
Email czylberberg@akronbiotech.com
www.akronbiotech.com

November 13, 2012

Sapna Deo
Associate Professor
Graduate Program Director
Department of Biochemistry and Molecular Biology
R. Bunn Gautier Bldg.
1011 NW 15th Street
Miller School of Medicine
University of Miami

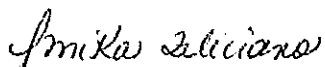
Dear Dr. Deo,

I am excited to write this letter in support of the executive Ph.D. program proposed by the Department of Biochemistry and Molecular Biology of the Miller School of Medicine at the University of Miami. This program is designed for industrial scientists to pursue a Ph.D. degree while continue working in their industrial career. Several industrial scientists do not have a Ph.D. degree; however, they are involved in significant research that solves real problems as part of their daily jobs. Many of these people would appreciate this opportunity to continue their education to the highest level without giving up their current careers. The proposed program is designed such that industrial scientists can fulfill the course requirement through online courses without the need to relocate.

From a research perspective, this executive Ph.D. program will bridge the 'knowing-doing gap' between industry and academia. Industrial scientists are currently facing problems that academics may not be aware of; nevertheless academics possess a breadth of knowledge that can positively impact industry. The executive Ph.D. will arm the industrial scientist with superior credentials required in higher roles and advanced knowledge of industry frameworks and tools through understanding basic research and using it to be better industrial scientists.

Not only will this program benefit industrial scientists, but will also be beneficial to the university. The program will foster networking with all industries across the nation that will lead to joint research programs between industries and the university. The traditional student in the program will be exposed to the state-of-the art technologies available at the industry and learn from the industrial scientist. This program is highly innovative and will be successful. I strongly support this program and wish the best for the rapid implementation of the program.

Sincerely,



Jessika Feliciano, Ph.D.

Senior Scientist

GE Healthcare, Life Sciences