

## INCORPORATION OF THE DEPARTMENT OF BIOMATERIALS INTO THE DEPARTMENT OF MOLECULAR PATHOBIOLOGY, NEW YORK UNIVERSITY COLLEGE OF DENTISTRY

### OVERVIEW

This is a proposal to incorporate the Department of Biomaterials as a Division of Biomaterials within the Department of Molecular Pathobiology (MPB) in NYU College of Dentistry. This will create a single, unified basic science department within NYU Dentistry. MPB faculty will engage in scholarly research in the areas of biomedical science and biomedical engineering. They will contribute to teaching in Doctor of Dental Surgery (DDS), Dental Hygiene, Post-graduate Specialty, and MS and PhD Programs.

This document summarizes the current status of both departments, describes the organization and governance of the expanded department, and discusses the impact of the reorganization on research, education, administration, personnel, finances and allocation of research and office space.

### CURRENT STATE OF DEPARTMENTS

#### Department of Molecular Pathobiology

Faculty, staff, fellows and graduate students. There are 25 faculty with primary appointments, 27 adjunct faculty, 6 administrative staff, 36 research fellows and 3 graduate students.

#### Primary Faculty

Baker, Eric	Clinical Associate Professor, Vice Chair for Education
Bromage, Timothy	Professor
Bunnett, Nigel W.	Professor and Chair
Cunningham, Elena	Clinical Associate Professor
Di Gregorio, Anna	Associate Professor
Guttenplan, Joseph	Professor
Jeong, Juhee	Associate Professor
Lacruz, Rodrigo S.	Associate Professor
Levy, David N	Associate Professor
Li, Xin	Associate Professor
Liang, Shuang	Clinical Associate Professor
Lopez, Elisabeth	Clinical Assistant Professor
Partridge, Nicola	Professor
Pavlov, Evgeny	Associate Professor
Saint-Jeannet, Jean-Pierre	Professor, Vice Chair for Research
Saxena, Deepak	Professor
Schiff, Joel	Associate Professor
Sitara, Despina	Associate Professor
Spielman, Andrew	Professor
Stefan, Cristian	Clinical Professor
Terracio, Louis	Professor
Thomsen, Alex	Assistant Professor
Warshaw, Johanna	Clinical Associate Professor
Yakar, Shoshana	Professor
Yan, Wenbo	Clinical Assistant Professor

Staff

Bien, Agata	Grants Administrator
Guo, Xiaoyan (Anna)	Administrative Aide II
Johnson, Joshua	Administrator/Adjunct Assistant Professor
Ng, Patricia	Administrative Aide II
Petrolle, Candy	Department Manager
Tyhovych, Natalia	Laboratory Manager II

Research. There are 16 research groups in MPB: Nigel Bunnett, Timothy Bromage, Anna Di Gregorio, Joseph Guttenplan, Dane Jensen, Juhee Jeong, Rodrigo Lacruz, David Levy, Xin Li, Evgeny Pavlov, Nicola Partridge, Jean-Pierre Saint-Jeannet, Deepak Saxena, Despina Sitara, Alex Thomsen, Shoshana Yakar. There are 4 research-focused faculty of the Bluestone Center with joint appointments in MPB: Donna Albertson, Aditi Bhattacharya, Brain Schmidt, Ye Yi. General areas of research include cell signaling of pain, inflammation and cancer; infection and immunity; skeletal and craniofacial biology; developmental biology; and biological anthropology.

Searches are underway in the areas of pain (2 positions associated with the NYU Pain Center), and cell signaling (1 position). Appointments are projected for Fall 2021. Two additional positions are planned for the NYU Pain Center, pending approval of new faculty requests, with anticipated start dates in 2022.

Teaching. There are 9 faculty with primary responsibility for teaching: Eric Baker, Elena Cunningham, Shuang Liang, Elisabeth Lopez, Joel Schiff, Andrew Spielman, Cristian Stefan, Johanna Warshaw, Wenbo Yan. Faculty teach in the DDS, Dental Hygiene, Post-graduate Specialty, and MS and PhD Programs.

Laboratory and office space. Research laboratories and offices are located on the 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> floors of 345 East 24th Street. Teaching faculty have offices at 137 East 25th Street (5th floor).

**Department of Biomaterials.**

Faculty, staff, fellows and graduate students. There are 5 faculty with primary appointments, 1 adjunct faculty, 6 administrative and research staff, and 4 PhD students.

Primary Faculty

Coelho, Paulo	Professor
Hirata, Ronaldo	Clinical Assistant Professor
McDevitt, John T.	Professor
Ricci, John L.	Associate Professor
Witek, Lukasz	Assistant Professor

Staff

Chonzom, Champa	Department Manager
Darjatmoko, Chandra	Grants Administrator
Jalkh, Ernesto B.	Junior Research Scientist
Mijares, Dindo	Laboratory Manager II, Adjunct Assistant Professor
Simmons, Glennon	Laboratory Manager
Warhadpande, Shruti	Assistant Research Scientist

Research. There are 3 research groups in the Department of Biomaterials: Paulo Coelho, John McDevitt, Lukasz Witek. General areas of research include generation of biological scaffolds using 3D printing and biosensors for disease detection.

Teaching. There are 3 faculty with primary responsibility for teaching: Ronaldo Hirata, Dindo Mijares, John Ricci. Lukasz Witek also directs 3 courses. Faculty teach in the DDS, Dental Hygiene, Post-graduate Specialty, and MS and PhD Programs.

Laboratory and office space. Research laboratories and offices are located on the 8<sup>th</sup> floor, 433 1<sup>st</sup> Avenue.

## **ORGANIZATION AND GOVERNANCE OF THE EXPANDED DEPARTMENT**

**Appendix 1** summarizes the proposed organizational structure of the expanded MPB.

**Senior Management Team.** The senior management team will oversee all aspects of departmental management. It will include the Director of the Division of Biomaterials\*.

Professor Nigel. W. Bunnett, PhD, Chair, MPB

Professor Jean-Pierre Saint-Jeannet, PhD, Vice Chair for Research

Associate Professor Eric Baker, MS, Vice Chair for Education

\*Professor Paulo Coelho, DDS, PhD, Director of the Division of Biomaterials

**Departmental Committees.** Committees in MPB advise the chair and senior management team about mentoring, promotion and tenure; research; research training (team science); and education. The committees will include members of the Division of Biomaterials\*. Appointments to committees are usually for two years.

Mentoring, Promotion and Tenure Committee: Jean-Pierre Saint-Jeannet (chair), Deepak Saxena, Cristian Stefan, \*John Ricci

Research Committee: Rodrigo Lacruz (chair), Xin Li, Shoshana Yakar, \*Paulo Coelho

Research Training Committee: Evgeny Pavlov (chair), Shoshana Yakar, Juhee Jeong, \*Lukasz Witek

Education Committee: Elisabeth Lopez (chair), Eric Baker, David Levy, \*Ronaldo Hirata

## **IMPACT ON RESEARCH**

Strengthening research in biomedical science and biomedical engineering is a major impetus for the unification of the Departments of Molecular Pathobiology and Biomaterials. The College of Dentistry will develop a single, unified basic science department in which biomedical scientists and biomedical engineers tackle questions of fundamental societal importance. The Department will house the NYU Pain Center that will seek to understand the mechanisms that initiate and sustain chronic pain and to develop new treatments for chronic pain that avoid the unacceptable side effects of opioids. It will include members of the NYU Center for Skeletal and Craniofacial Biology, which aims to understand bone degenerative and developmental disorders and to implement biomedical engineering approaches for treatment. The department will house researchers studying cell signaling, developmental biology, infectious diseases and disease diagnostics.

The merger will enable reorganization of research laboratories that will foster synergistic interactions and maximize collaborations. Research groups with similar interests will be co-located in a manner that will enhance synergistic interactions amongst biologists, bioengineers and chemists (*e.g.*, co-location of members of the NYU Pain Center with bioengineers using organ-on-chip approaches to model pain in humans and chemical biologists developing tools to analyze pain signaling; co-location of developmental biologists with tissue engineers using stem cells and 3D printing to generate tissues and organs). Such interactions can lead to transformative advances will long lasting impact.

The merger will allow co-location of key technologies that will be shared to foster a culture of collaboration. This will include co-location of high-end instrumentation and provision of technical support that will maximize access and use (*e.g.*, co-location of imaging, mass spectrometry facilities). Such co-location will obviate duplication of resources and infrastructure.

The merger will facilitate future recruitments at the interface of biomedical science, bioengineering and chemical biology. Recruitment will provide a critical mass of investigators in key areas, enhance existing programs, and develop new areas of research of emerging importance. The intent will be to recruit outstanding scientists that bridge between biologists, engineers and chemists in MPB and Division of Biomaterials. Areas of recruitment will include Bioengineering (regenerative medicine, organoids, organ-on-chip) and Chemical Biology (nanomedicines, cellular biosensors).

MPB expansion will enhance interactions between the NYU College of Dentistry and the NYU Tandon School of Engineering. Collaborative research programs will be developed between MPB in Dentistry and the Department of Biomedical Engineering and the Department of Chemical and Biomolecular Engineering in the Tandon School. The intent will be to develop a group of collaborating laboratories through a combination of joint recruitment and relocation of existing faculty, all housed in contiguous laboratory space (433 1<sup>st</sup> Avenue). The Deans of Dentistry and Engineering, and the Chairs of MPB, Biomedical Engineering and Chemical support this initiative. They are currently preparing a blueprint for this initiative at the request of President Hamilton.

## **IMPACT ON EDUCATION**

A detailed analysis of the effects of the proposed merger on all courses within DDS, Dental Hygiene, Post-graduate Specialty, and MS and PhD Programs in MPB and the Department of Biomaterials is provided in **Appendix 2 and 3**. The conclusion of this analysis is that the impact of the merger is only positive, with benefits to the educational missions in both departments.

The major benefits of the merger to the educational mission of MPB will include the provision of additional expertise by faculty of the Department of Biomaterials in areas of dental biomaterials, clinical dentistry, gross anatomy, immunology and bone biology. The major benefits of the merger to the educational mission of the Department of Biomaterials will include the provision of additional expertise by MPB faculty in multiple aspects on biomedical science.

## **IMPACT ON FACULTY**

All faculty in the Department of Biomaterials will be appointed in MPB.

All adjunct faculty in the Department of Biomaterials will be appointed in MPB.

All faculty will retain current titles and ranks.

There will be no impact on tenure track faculty or tenured faculty.

MPB guidelines for mentoring, promotion and tenure will be applied to the Division of Biomaterials. The Mentoring, Promotion and Tenure Committee will establish formal mentorship committees for assistant professors in the Division of Biomaterials (Hirata, Witek). Mentorship committees meet with mentees biannually to guide career development. The Mentoring, Promotion and Tenure Committee will review applications for promotion and tenure and present candidates to MPB faculty for discussion and vote.

#### **IMPACT ON STAFF**

All staff in the Department of Biomaterials will be appointed in MPB.

All staff will retain current titles, ranks and position descriptions.

With guidance from Human Resources of NYU Dentistry, the responsibilities of staff will be adjusted within existing position descriptions to provide the most efficient administrative support to the expanded department. The merger will enhance administrative efficiency for education, research, grants management, and faculty affairs.

#### **IMPACT ON FINANCES**

MPB will be a single financial unit. There will be no separate budget for the Division of Biomaterials.

All faculty and staff will retain current salaries.

All faculty and staff salaries will be charged to the MPB.

Discretionary funds will be administered by the senior management team, according to the policy established by the Deans' office, with advice from the Research Committee regarding the allocation of funds to support research and education.

#### **IMPACT ON RESEARCH AND OFFICE SPACE**

In the short-term (1 year), the allocation of research and office space will be unaffected by the merger.

The expected provision of new or renovated laboratory space at 433 1<sup>st</sup> Avenue or 345 East 24th Street will allow colocation of research groups with complementary and synergistic research interests.

MPB guidelines for the allocation of research and office space will be applied to the Division of Biomaterials.

#### **FACULTY CONSULTATION**

The proposal has been presented to the senior leadership of NYU Dentistry and faculty of the Department of Molecular Pathobiology and the Department of Biomaterials for discussion and vote. The results of the votes are as follows.

**NYU Dentistry Senior Leadership (Deans and Department Chairs):** Unanimously in favor of the proposal.

*27<sup>th</sup> January, 2021*

**Faculty of Department of Molecular Pathobiology:** Unanimously in favor of the proposal (25/25 yes votes).

**Faculty of Department of Biomaterials:** Unanimously in favor of the proposal (6/6 yes votes).

**Appendix 4** is a Memo of Understanding between the Department of Molecular Pathobiology and the Department of Biomaterials regarding the proposed merger.