

## DEPARTMENT OF BIOLOGICAL STRUCTURE PROGRAM REVIEW

### **I. Committee:**

G. Stanley McKnight, Professor, Department of Pharmacology, Box 357750 (Committee Chair)

Robert Steiner, Professor, Department of Physiology and Biophysics and Department of Obstetrics and Gynecology, Box 356460

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Stephen P. Sugrue, Professor and Chairman, University of Florida, Department of Anatomy and Cell Biology, P.O. Box 100235, Gainesville, FL 32610-0235

### **II. Summary of Review Process**

The Review Committee received an extensive Self Study document, prepared by the Department of Biological Structure. The Committee also received the previous review of the department conducted in 1988 and subsequent administrative communications regarding the graduate program. The committee had a preliminary meeting on February 23, 2007, which included Melissa Austin (Associate Dean for Academic Programs), John Slattery (Vice Dean, Office of Research and Graduate Education, School of Medicine) and Augustine McCaffery (Senior Academic Program Specialist, Academic Programs, The Graduate School). David Copenhagen and Stephen Sugrue participated by teleconference. From the initial discussion and review of the Self Study documents, the Committee planned the site visit schedule and requested additional documentation that proved helpful in evaluating the program.

The site visit occurred on March 6-7, 2007. The Committee met with John Clark (Chair of the Department), nearly all of the primary faculty, a group of 8 graduate students, and a group of 6 postdoctoral fellows. The Committee also met with the administrator for the Department, Marcia Knipher, and the Associate Dean for Curriculum at the School of Medicine, Susan Marshall. The site visit concluded with exit interviews, attended by John Slattery and Melissa Austin.

### **III. Biological Structure Graduate Program History**

The previous review of the Department was conducted 19 years ago by a committee chaired by Lee Huntsman. This review concluded that the program had significant strengths, but several weaknesses were also noted:

1. The graduate program was too small, involved only a fraction of the faculty, and was not a high priority.
2. The program lacked an adequate curriculum.
3. The Department lacked interactions among its faculty research groups

4. Student advising was inadequate.

In 1996 the Department decided to stop recruiting students directly into a departmentally-based, Biological Structure Graduate Program. Instead, the Department decided to focus the energy of its faculty on interdepartmental graduate programs, including the Molecular & Cellular Biology program (MCB), Neurobiology & Behavior (Neubeh), the Medical Scientist Training Program, (MSTP), the program in Biomedical and Health Informatics (MEBI), and the program in Biomolecular Structure & Design (BMSD). The only students who currently receive a degree in Biological Structure are those in either BMSD or MSTP since these two programs do not have Ph.D. granting authority. Among the 24 graduate students working with faculty whose primary appointments are in the Department of Biological Structure, only 4 will be receiving a Ph.D. degree in Biological Structure.

Over the past 10 years, the Department of Biological Structure has grappled with the issue of whether to re-initiate its own graduate program for recruiting students directly into the Department or continue the status quo and expand its involvement in the interdepartmental programs.

#### **IV. Findings:**

##### **Strengths of the Department:**

1. The Department has a strong senior faculty with excellent grant support—particularly in consideration of the current funding climate at NIH. This Department may not have quite the international stature in research as some of the other UWSOM basic science departments, but compared with its peers across the country (former anatomy departments), it would rank in the top tier.
2. Recent recruitments, including two assistant professors and a senior faculty member, Rachel Wong, have strengthened the Department's research profile. The Chair was perceived to be a strong mentor, especially for the assistant professors.
3. The Chair has successfully obtained funding for a badly needed remodel of its space, and has brought the department together in planning the extensive renovation.
4. Once the remodeling is completed, recruitment of new faculty could be initiated, since the department will enjoy a substantial increase in space and has unfilled FTEs. This will give the department a tremendous opportunity to further develop its strengths in developmental biology, visual/sensory systems, or other promising areas of research.
5. The Department is successfully managing an enormous teaching load, including many basic service courses in anatomy for professional students and preclinical students on the undergraduate campus. This is a heroic effort, and the Chair received plaudits for his support and active personal involvement in this effort.

6. Graduate training in laboratories of the Department's faculty is first rate. The students were universally enthusiastic and appeared to be thriving. They did not have any substantive criticisms of the Department, and they noted that the Department's administration was helpful in meeting their needs. However, nearly all of students identified strongly (indeed almost exclusively) with their own interdepartmental programs and had little or no perceived interaction with the Department of Biological Structure—beyond the technicalities of their stipends and the administrative support provided by the department. Overall, the faculty in the Department are important players in the interdepartmental programs at the UW. Indeed, two of the members of the Department direct two of the UW's largest and most distinguished interdepartmental programs, MCB and NeuBeh.

#### **Weaknesses of the Department:**

1. Graduate training as a formal, departmental activity is not viewed as a high priority by the Department.
2. The Department is a collection of rather isolated individual research laboratories, and another small corps of dedicated teachers (some with tenured FTEs and others who are either instructors or faculty WOT). However, there is little sense of cohesion, collaboration, or community among the faculty. The absence of a cooperative research environment is highlighted by the paucity of departmental scientific interactions, such as retreats, journal clubs, or until recently, a Departmental seminar series.
3. There is no substantive and ongoing discussion about the Department's mission— either scientific or teaching— as it relates to faculty recruitment, graduate student training, or service responsibilities. The Department lacks a coherent plan to focus its research efforts (and new faculty recruitment) and implement a long-term solution to the problem of teaching anatomy to students in the health sciences at UWSOM.
4. Access to graduate students is more limited in the Department Biological Structure compared to other departments in the UWSOM, since most other departments have their own graduate programs in addition to participating in the interdepartmental programs. This is likely to mean that new assistant professors will have more difficulty getting their research programs underway since many will not benefit from graduate student participation.
5. Although the Department appears to be successful in meeting its professional school teaching obligations (and does so with high praise from the professional schools)— it has come at a great cost to the Department and is unsustainable. To date, the solution has been to assemble a patchwork of talented and dedicated teachers, instructors and more senior FTE faculty (some with tenure and some WOT), who for the most part do not lead major research programs. These faculty are underpaid and under-appreciated— yet are vital to the mission of the UWSOM. There is a dichotomy between the obligations of the Department

to deliver a successful teaching program in anatomy, physiology and histology (and all of the attendant difficulties in developing, finding, recruiting, and keeping qualified teachers) and conducting a successful research program. This creates a certain incoherence (and perhaps incompatibility) concerning the Department's multiple missions, which are proving difficult to achieve. The research mission of the Department is critical to the success of the graduate program(s), yet teaching anatomy, physiology and histology are also part of the Department's responsibilities in the UWSOM. It has proved difficult to reconcile these competing demands, with a common philosophy, a common funding pool, and a common strategy for faculty renewal. The Committee was concerned that the great talents and skills of the teaching faculty would be lost in the next generation. This problem is not a new one and was recognized in the Departmental review 19 years ago. No long-term solution has emerged either at the Departmental or UWSOM level. This problem is also evident in other basic science departments— but is clearly exaggerated in the Department of Biological Structure— and a solution will require addressing this problem within the administration at the UWSOM as well as within the Department of Biological Structure itself.

6. Mentoring for young faculty, particularly by the Chair and the leadership of research interest groups, was evident; however, the Committee felt that the new faculty should be given more encouragement to seek extramural funding in a timely manner upon their arrival at UWSOM. The Committee was also concerned about the adequacy of plans for helping new faculty become good teachers— finding venues where these young faculty can exercise their teaching skills and participate in the important teaching mission(s) of the Department, including meeting service obligations. Developing a teaching portfolio— marked by excellence— is essential for promotion and tenure, and the assistant professors need to be fully prepared to meet their responsibilities.

### **Recommendations:**

1. The Ph.D. Program in Biological Structure should be continued. The Committee believes that the Ph.D. Program in Biological Structure serves a useful purpose and is essential for participation of the Department's faculty in the non degree-granting, interdepartmental programs, such as BMSD and MSTP. Continuation of the Ph.D. program will allow the faculty in the Department of Biological Structure to participate in new interdepartmental/interdisciplinary programs that are emerging here at the UW, including the newly forming Molecular Medicine Training Program, which is likely to be non degree-granting at its outset. Continuing the Ph.D. program in Biological Structure also gives the Department an opportunity to reconsider whether it may be judicious and advisable to rekindle their own graduate training in the

- Department — perhaps with an emphasis in developmental biology or vision science, where the faculty clearly has expertise and excellence.
2. The UWSOM should recognize that the Department of Biological Structure is unique in the extent and nature of its teaching mission. Anatomy, physiology and histology are at the core of education in the health professions. The Committee concludes that the mission of teaching anatomy— which is a special skill and demands extraordinary time and one-on-one instruction— is likely to be accomplished only by talented, full-time teachers. It seems unlikely that optimal development of the scientific mission of the Department can be achieved, while at the same time fulfilling the heavy teaching responsibilities of the Department unless the UWSOM addresses this problem. The UWSOM needs to develop a comprehensive, long-term plan, with appropriate fiscal mechanisms, to support the continuation of this critical teaching responsibility. The current arrangement seems inadequate, piecemeal, and short-sighted.
  3. The Department should develop a comprehensive 10-year Strategic Plan that addresses their service and professional teaching responsibilities, their role in graduate training within the UWSOM, and their vision for a more cohesive and collaborative scientific community. The entire faculty—including its junior members—should work together to develop this Strategic Plan, which should be adopted in a timely manner. As the Strategic Plan relates to the teaching mission of the Department, it would seem advisable to include participation from the leadership within the School of Medicine (in Academic Affairs) as part of a subcommittee to find practical and long-term solutions to the problem of teaching anatomy among the various Schools and colleges at the UW and in the WWAMI region. This is critical, since we are about to experience a major expansion of enrollment in the medical school class. With strong leadership and commitment among the faculty, Departments with diverse research and teaching activities can accomplish common goals, as well as foster interactions that strengthen the *esprit de corps*, which will help the Institution achieve its missions of education, research, and service.
  4. The Department should implement a formalized mentoring program for younger faculty members, with annual meetings and written summary statements. This program should draw on the expertise and wisdom of senior faculty and serve as a means by which the newer faculty receive guidance in fulfilling their responsibilities as scientists and teachers (i.e., teaching, graduate student and postdoctoral mentoring, grant writing, lab management and publishing).