UNIVERSITY OF WASHINGTON
The Graduate School
200 Gerberding Hall
Box 351240
Seattle, Washington 98195-1240

Telephone: (206) 543-5900
Fax: (206) 685-3234

To: Lee L. Huntsman
Provost

April 17, 2001

From: Marsha L. Landolt
Dean and Vice Provost

Re: Interdisciplinary Program in Molecular and Cellular Biology Review

Summary and recommendation.

The Graduate School Council considered the review of the Interdisciplinary Program in Molecular and Cellular Biology (MCB) on April 5, 2001. The Council enthusiastically endorsed the very complimentary report submitted by the review team and recommended granting continuing status to the PhD program. The Council further endorsed the recommendation of the review team to expand enrollment in the program by 20%, which will require additional institutional support for students in the first year of the program. I concur with the recommendations.

The self-study, report of the review team and the Department's response are attached.

Background.

The MCB program includes approximately 100 graduate students, 120 faculty from the University of Washington, and 45 faculty from the Fred Hutchinson Cancer Research Center. Participating faculty hold primary appointments in the Schools of Medicine, Engineering, Public Health and Community Medicine, College of Arts and Sciences and two Divisions of the FHCRC. Roughly an equal number of students conduct their dissertation research in UW and FHCRC labs. The program became degree granting in the 1993-1994 academic year and has since graduated 14 PhDs and 3 MS recipients. The UW supports the program with office space and administrative staff. In addition, the UW and the FHCRC each contribute ten student stipends (including tuition) to the program to support students in their first year. In subsequent years, students are supported either by individual fellowships, training grants or by the laboratory in which they conduct their research.

Acceptance into the program is highly competitive and the diversity record is strong. The average GPA for entering students is 3.7, and average GRE scores are 647V, 742Q and 731A. Among the current students, 82% have been awarded individual training fellowships or positions on training grants. The review team characterized the students as independent, motivated, and self-starting.

Approximately 20 students enroll annually, about 30% of those accepted. These outstanding students have many options among top programs. Students choose MCB for its interdisciplinarity and the extraordinary breadth offered by the 165 participating faculty at the two institutions. Departmental chairs and the MCB review team both observed that the MCB program actually assists departmental programs in recruiting graduate students in that some of the students denied admission to MCB enroll in departmental programs instead.

The program has been innovative in many ways. To gain teaching experience, MCB students may either select a traditional TA position or work with local schools to improve their

science programs. MCB has an active Biotechnology Externship program with local companies. The program offers a joint degree with Business and conjoint degrees in Epidemiology and Medicine. It has also established formal ties with the Program in Entrepreneurship and Innovation. It prepares students for traditional academic and research careers, as well as careers in industry and in nontraditional sectors. The FHCRC sponsors a scientific competition and program, the Weintraub Memorial Symposium, for which students in the MCB program review graduate student entries from around the country to select those to be invited to Seattle to present their work at the Symposium. This is a tremendously empowering activity in which students organize a national meeting of their peers. Moreover, it brings outstanding prospective postdoctoral fellows to Seattle.

Students are well mentored, an especially important activity in a large program that depends so much on the students to identify and follow the coursework and research paths that best serve their individual purposes. The core of the curriculum consists of a series of 5-week "conjoint" classes taught by UW and FHCRC faculty. Although the conjoint serves departmentally based students as well as those from MCB, the MCB steering group has recently been asked to assume responsibility for it. Departmental classes supplement the interdisciplinary conjoint core as electives. The interdisciplinary program and departmental programs are thus mutually supportive through complimentary coursework.

The intellectual diversity of the MCB program is best illustrated by the list of formal research focus areas from which students can choose mentors. These include (listed by the titles under which they hold their periodic research meetings):

AIDS Research, Alzheimer's Disease,
Backbone Club,
Biology of Aging, Biomechanics Meeting,
Biomineralization, Cancer Biology,
Cell Cycle,
Club Nucleus,
Cytoskeleton,
Development Club,
Fly Club,
Hematopoiesis, Interdisciplinary Club,
Malaria and Parisitology,
Marine Bioremediation, Mice, Flies, Frogs & Fish,
NCI Drug Discovery Project,
Notch Club, Orthopaedic Research,
Parasitology Interest Group,
Parasitology and Microbial Killing,
Papillomavirus,
Plant Molecular Integration and Function,
Protein Crystallography,
Retrovirus/Oncogene,
Seattle Area Genetics,
Seattle Area Yeast Group,
Signal Transduction,
Structural Biology,
Technology Resource Center for Exploiting the Yeast Genome, Translational Control,
X-Ray Diffraction, Virology,
Yeast Meeting,
Zebrafish Journal Club.

Students in the program are highly sought by participating faculty, although the low ratio of students to participating faculty (about 0.6) means faculty who want to work with MCB students often go without. This relatively low success rate in attracting students dampens faculty enthusiasm for participation in program-wide activities. The odds of faculty success would improve with a larger program.

The review team strongly endorsed the MCB program as an outstanding success. Clearly it is a very important asset in many ways. It attracts an outstanding caliber of student and aids in recruitment of students to departmental graduate programs. It involves a large number of faculty from two institutions, uniting them in their shared interest. The program and its students have become an important interdisciplinary force both by design, *e.g.*, interactions in the classroom, and through the informal contacts among students that disseminate information among laboratories, departments, schools, colleges and institutions.

Increasing the enrollment of the program, as the review group and Graduate School Council recommended, should be viewed as an investment not only in graduate education but also in the interdisciplinary research infrastructure. Support of these students not only aids the student and the specific program, but facilitates information exchange across a broad swath of departments and activities. If the program were increased by 20%, the UW and the FHCRC

would each add support for two first-year students; the program would have no problem supporting them in subsequent years. The FHCRC appears to be willing to take this step.

c. Richard McCormick, President
Lee Hartwell, President and Director, FHCRC
Debra Friedman, Associate Provost for Academic Planning
Randall T. Moon, Director, Interdisciplinary Molecular and Cellular Biology Group
Dr. Leland Hartwell, President and Director, Fred Hutchinson Cancer Research Center
Dr. Barry Stoddard, Fred Hutchinson Cancer Research Center
John Slattery, Associate Dean for Academic Programs
David Hodge, Dean, College of Arts and Sciences
Paul G. Ramsey, Dean, School of Medicine
Daniel M. Dorsa, Associate Dean, School of Medicine
Gary Christian, Divisional Dean, Natural Sciences
Frederick Campbell, Dean and Vice Provost, Undergraduate Education
George Bridges, Associate Dean, Undergraduate Education
Members of the Review Committee:
Barbara Jo Trask (Chair), Martin Kushmerick, David Raulet (UC-Berkeley), Susan Taylor (UC-San Diego)
Graduate School Council
Gorkem Kuterdem, President, GPSS
Augustine McCaffery, Assistant to the Dean
Danielle LaVaque-Manty, Assistant to the Dean