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To: Lee L. Huntsman
Provost

April 17, 2001

From: Marsha L. Landolt
Dean and Vice Provost

Re: Department of Microbiology 10-year Review

Summary and recommended action.

The Graduate School Council met with the review team for the Department of Microbiology on January 11, 2001, and with Departmental representatives on April 5, 2001. The Department, which offers BS, MS and PhD degrees, is very highly regarded for its research; it clearly ranks among the top few Departments of Microbiology in the country. However, its educational environment was found to have significant deficiencies. For this reason, the Graduate School Council recommended that the degree programs be continued, but with a review in five years focused specifically on the educational environment. I concur with the Council's recommendation.

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

Background.

The Department consists of 12 tenure track faculty. In addition, there are 4 lecturers who primarily teach undergraduate laboratory courses. There is 1 tenure track faculty opening. There are approximately 30 graduate students. The Department awards about 6 PhD degrees and 1 MS degree annually. There are approximately 135 undergraduate majors, and the department awards about 60 BS degrees annually. Although the Department is housed in the School of Medicine, the BS program is offered through the College of Arts and Sciences. The Department also offers a double major with the Department of Laboratory Medicine, an undergraduate minor and an Honors program. Research encompasses virology and immunology, bacterial pathogenesis and general microbiology (bacterial physiology, biochemistry, microbial diversity and ecology and parasitology). Undergraduates are actively involved in the Department's research activity.

Research program.

The Department is a rare scientific asset. Its work is of increasing importance due to the re-emerging threat to human health posed by infectious disease. Professor Steve Lory, leaving the Department for a position at Harvard, considers the Department one of the best 5 places for the study of microbial genetics. *US News and World Report* has rated the Department number 7 in its last two reviews. The review team strongly endorsed the scientific direction of the Department and complimented the Chair, Professor Jim Mullins, for his vision and for having energized the Department during his brief leadership. Both of the external reviewers had very

high praise for the scientific caliber of the Department. The expansion of faculty afforded by the recent ATI award from the legislature will help the Department to continue at the scientific forefront.

Undergraduate program.

The Bachelor's program has been a finalist for the Brotman Award, and one faculty member received the University Distinguished Teaching Award in 1998. Several lecturers and a few faculty in the professorial ranks were praised for their outstanding teaching.

This outstanding scientific environment and highly regarded undergraduate program would suggest a robust educational environment; however, this does not appear to be the case. With regard to the undergraduate program, the self-study prepared by the Department noted that:

1. A lack of commitment by key faculty to participate in the undergraduate curriculum has limited development and consideration of new courses.
2. An increasing number of courses are taught by faculty with primary appointments outside Microbiology.
3. A shortage of graduate students to serve as TAs has led to advanced undergraduates being considered as a substitute.
4. Retirements of 3 key teachers in the undergraduate program are imminent.

The review team was "very concerned about attitudes concerning teaching within the Department." Comments such as, "teaching is not for winners" and "there is presently an incentive not to teach well" were made by Microbiology faculty to the review team. The external reviewers, from John Hopkins University and MIT, were surprised by the attitude regarding teaching. Each separately wrote a letter stating that the amount of teaching within the UW Department of Microbiology relative to the faculty count was not greater than within their own departments and that, at their institutions, outstanding scientists assume a full share of the departmental teaching responsibility. Indeed, to do otherwise undermines the fundamental premise of a research university.

The review team recommended that the teaching involvement of those who are currently participating only minimally be increased without decreasing the involvement of those who are currently participating more extensively. The team further suggested that the additional effort be devoted to expanding course offerings. The review team applauded the Chair for his commitment to improving the participation in teaching and leading by example. It recommended that prospective faculty be hired with a clear understanding as to teaching expectations and that teaching performance be explicitly considered in promotions. This recommendation has been implemented. Other specific recommendations were that:

1. Professorially-ranked faculty be involved in teaching advanced undergraduate lab courses.
2. Mentoring of undergraduates in a research laboratory not substitute for involvement in classroom teaching.
3. An Associate Chair be appointed to oversee undergraduate teaching activities of the Department.
4. Courses be taught in teams of 2 faculty.

Within the Department of Microbiology, teaching responsibilities have been distributed unevenly to those with less research support. Thus, a two-culture system has developed that is exacerbated by the A/B salary system, which allows the state salary ("A") to be supplemented by money derived from research grants ("B"). In the absence of a forceful statement that every faculty member has the responsibility to teach, the review team observed that the introduction of the A/B component system unavoidably undermines the educational mission. The Graduate School Council strongly recommended that faculty in any department not be eligible for a "B" component unless judged to be faithfully fulfilling their "A" component responsibilities, which include, but are not limited to, teaching.

Graduate program.

The graduate program historically has had a very strong applicant pool, as would be expected for a department with such high scientific standing. In the past the Department had been highly selective in admissions (< 10% of applications) and had maintained an enrollment yield of virtually 100% of offers. The yield has suffered in recent years, although a dividend from greater faculty involvement in teaching is already being seen. Attention to problems in the curriculum uncovered during the review is likely to aid recruitment.

Students feel that they are well tracked and mentored through their first years of graduate work; however, they were dissatisfied with faculty attendance at journal clubs and seminars. The graduate course offerings were found to be "underwhelming" by the review team: There were only two graduate courses offered by faculty of the Department, and they were offered in alternate years. In addition, a virology course is offered in alternate years at the Fred Hutchinson Cancer Research Center. Both faculty and students recognized a need for graduate courses in bacterial genetics and parasitology. As a result of the shortcomings of the formal curriculum, graduate learning has been disproportionately dependent on self-directed efforts. Since the review, two new courses have been introduced, including one in virology. New junior faculty hires have prepared outlines for new courses, which will be offered once their laboratories are established.

The review team recommended that the Department:

1. Revamp the graduate student recruitment process.
2. Improve faculty participation in seminars and journal clubs.
3. Consider allowing adjunct faculty to mentor graduate students. This would increase access to female mentors (see gender issues below).
4. Overhaul the thin graduate curriculum. The review team made several specific suggestions in this regard.

The Department has responded by creating a Graduate Curriculum Committee charged with broadly reviewing the status of the program. It is chaired by Associate Professor Jim Lara, who has also been named Associate Chair of the Department. Professor Lara is a highly regarded teacher. As Associate Chair, he will set teaching responsibilities for the faculty. Three course proposals have been received from faculty currently not engaged in classroom instruction, and these are being implemented. Appointment and promotion criteria have been revised to include more explicit expectations for teaching.

Diversity.

The faculty of the Department is disproportionately male, with 2 women among the 12 faculty in professorial ranks. Moreover, women faculty have been lost to other institutions and a recent search was suspended without a hire at the point where only two finalists, women, remained. By contrast, women are a slight majority in the graduate student population. There seems to be some distrust among graduate students regarding the Department's commitment to attaining a better gender balance. It is recommended that the Chair form a group that includes graduate students to address issues over which distrust has arisen. It is also recommended that women adjunct faculty be invited to actively participate on future faculty search committees. This approach would build upon success. The Chair has begun to meet regularly with faculty in response to observations that some appeared to have been marginalized from the Departmental decision making process. It is hoped that an inclusive approach will work well again.

Conclusion.

Some of the problems reported by the review team were recognized in the self-study. In many cases, the Chair had been addressing them and was commended by the review team for his action. The Graduate School Council also noted and commended the outstanding leadership that Jim Mullins has provided as Chair. However, this scientifically outstanding department must commit to a supportive educational environment that involves all faculty. Should that commitment not be evident at the next review in 5 years, restriction of graduate student enrollment may well be in order. There is no reason to doubt the ability of this faculty to provide an educational environment equal to the research environment and no reason to excuse less.

- c. Richard McCormick, President
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