Report on Follow-up Review of the OSU College of Pharmacy Graduate Program

The Graduate Program within Oregon State University’s College of Pharmacy was reviewed by a committee appointed by the Graduate Council and Dean of the Graduate School. The review took place in May, 2007 and a report detailing the review and its recommendations was submitted to the Graduate School in July, 2007. The committee reported its observations and recommendations to the Graduate Council in the Fall of 2007. The faculty then developed an Action Plan in response to the twenty-one “short term” recommendations and three “long-term” recommendations provided by the review. This plan was subsequently presented to the Graduate Council and the Provost. On May 5, 2010, committee members Shawna Grosskopf (CLA) and Thomas Wolpert (CAS) met with Gary DeLander (Executive Associate Dean and Chair, Department of Pharmaceutical Sciences) and Theresa Filtz (Chair, Graduate Studies Committee) to discuss progress in carrying forward the Action Plan. Of note, after this review was completed, the Provost appointed a new Dean to the College on Sept 1, 2010, Dr. Mark Zabriskie, previously a faculty member in the Department of Pharmaceutical Sciences at OSU.

These are our findings relative to the Action items that address recommendations made by the 2007 Review Team:

**“Short-term” Recommendations:**

1. Hire a faculty member in pharmaceutics in the area of biopharmaceuticals to build toward a critical mass in this area and to relieve a chronic shortage of faculty expertise in this area of concentration.

2. Add an additional faculty in pharmacology.

3. Add an additional faculty in chemical biology whose laboratory is housed within OTRADI’s high throughput screening facility. The faculty member is expected to accelerate natural product lead identification and optimization and to catalyze the Department’s translational studies with OHSU faculty

4. Add senior hires to increase leadership, mentorship, and external funding within the Department.

Recommendations 1, 2, 3 and 5 all suggested additional faculty hires and reflected the college strategic plan but addressing these recommendations is dependent on budgetary opportunities to expand the faculty further, particularly in regards to a senior hire.

Since 2007, the college hired a faculty member, Ganesh Cherala, based in Portland who is a member of the pharmaceutics group doing clinical pharmacokinetics. They also successfully filled a vacancy created last year (2009) due to the departure of a pharmaceutics faculty member and a search for a new Corvallis-based pharmaceutics faculty member is in progress (fall 2010). Finally, the Provost’s divisional faculty hiring initiative resulted in funding for a new faculty member in pharmacogenomics with interdisciplinary research interests to be hired in 2011.

The college is also coordinating with OHSU to occupy a new building on the waterfront with additional capacity for the College in Portland and in close proximity
to the OTRADI facility. The facility is being planned with the expectation of an open, collaborative research floor plan and includes space for expansion of faculty in Portland conducting foundational research.

(Also, see #6 with regards to a “senior hire”.)

(5) Revitalize the College’s presence in the areas of pharmacoeconomics, outcomes, policy, and epidemiology research and pharmacy administration to meet the health needs of the State and the increasing importance of these disciplines.

The college is moving forward with plans, outlined in the self-study, to develop a graduate track in pharmacoeconomics/outcomes/policy/epidemiology with faculty based in Portland and has been successful in attracting two faculty members in this area that have training and capacity to conduct research. An additional hire in this area is in progress (fall 2010). The most direct path to expansion of graduate education in this area may be through collaborative efforts within the new divisional structure. In addition, recent approval by the Graduate Council allowing pursuit of dual degrees will open that door for development of a Pharm.D./MPH program.

(6) Strengthen ties to Chemistry and Microbiology to support program project or training grants consistent with the NIH roadmap and initiatives.

The medicinal chemistry faculty has been meeting with the organic chemistry faculty to build closer ties. Research proposals have been exchanged and further meetings are planned. The college participated in a health sciences division RFP in spring 2010 for pilot project proposals that have an interdisciplinary focus and had one funded. In addition, a joint Natural Products Chemistry position has been approved as part of the Provost’s initiative. This position is intended to be a more senior hire and is to be completed this academic year.

(7) Unify the Medicinal Chemistry and Natural Product unit within one building that is equipped to conduct contemporary research in natural products and permit the development of the full potential of this interactive group (faculty and students).

The college continues to seek sufficient space at OSU to re-unite the medicinal chemistry/natural products group into one building. Neither the pharmacy building nor available space at Oak Creek can accommodate the five faculty and labs. The university space committee has been alerted to our needs and the college persists in its efforts to examine opportunities to pursue this goal. At this time, no specific progress has been made beyond that described.

(8) Upgrade the infrastructure in the Pharmacy Building including the installation of emergency power and expansion of the animal quarters.

The college of pharmacy has been nearly continuously upgrading the plumbing, wiring, HVAC systems, lab space and animal facilities in the Pharmacy building and more recently, Oak Creek building, for at least 10 years. An expansion of rodent housing rooms to double the available space and a complete upgrade to isolated housing for sensitive knock-out mouse strains was completed in 2007 and current plans include further updates of this facility. Emergency power is a next priority. A plan and budget does exist for upgrades, but progress is dependent upon the Research Office for funding.

(9) Initiate a weekly seminar program in the Department of Pharmaceutical Sciences that is a blend of outside (academic, pharmaceutical) and student speakers where students are required to give seminars on a recent, noteworthy publication.
The college of pharmacy has a seminar program scheduled at a consistent day and time that accommodates outside speakers from academia and industry. Instead of expanding the seminar program to include students, the department decided to increase the student presentations at their annual retreat to a requirement that every student present every year.

(10) **Endorse rigorous safety procedures in all laboratories.**

An expanded section on laboratory and chemical safety was added to the graduate student handbook and safety update presentations at the student journal club are now being held on an annual basis.

(11) **Establish a mechanism for the intermittent reviews of the graduate curriculum to insure that course requirements and class objectives are met and updated, and clarify classes recommended for the doctoral program.**

The college has revitalized a medicinal chemistry course, Phar 540, Natural Products Chemistry. They also have two new courses in pharmacology since May 2007, Phar 565, Mammalian Molecular Genetics, crosslisted with MCB, and Phar 563, Cancer and Chemoprevention. Assessment of the Graduate Program has also been incorporated into the overall assessment processes for the College.

(12) **Add a graduate pharmacology class to the graduate curriculum.**

See #11 above.

(13) **Increase TA lines from 7.5 to 10 over the next five-year period to accommodate the increased expansion of the graduate student body.**

The college has agreed to increase funding for the graduate program to 10 GTA lines in the coming academic year (2011) at $23,000 per year plus the health insurance subsidy to maintain national competitiveness.

(14) **Increase the teaching/research graduate stipend and offer competitive fellowships to incoming graduate students.**

At the time of the review, the college was supporting assistantships at $20,000/year. As indicated above, this has been increased to $23,000. Also, it was the perception of the college, based on survey information, that the stipend level was not a factor in decisions to attend graduate school elsewhere. Instead, surveys indicated that the lack of a chance to visit the university was affecting decisions to matriculate. In response, the college elected to participate in the on-campus life sciences graduate recruiting weekend, which has greatly increased recruiting success.

(15) **Increase interaction with international students during recruitment and their graduate studies to assess and augment academic, language, and writing skills.**

Starting 2006, the college began conducting phone (and internet video) interviews with all international students prior to acceptance to gauge language skills and obtain more information about prior academic and research experiences. All admissions require a formal written essay as well as GRE scores including a writing score. In 2006, the department held a faculty development workshop with Vickie Tolar Burton specifically to discuss issues of teaching improved writing skills to international graduate students. Students with language difficulties are provided guidance on obtaining conversation partners through the ELI and attending weekly conversation instruction. Students and postdocs with significant language difficulties that do not improve with time have been directed to classes at the ELI at
department expense. We note the language classes being offered by INTOSU for international graduate student GTAs in fall term, 2010.

(16) Develop a formal procedure to monitor graduate student progression and identify students in need of help.

In 2004, the department implemented a formal procedure whereby all graduate students are required to submit an electronic annual report on oral presentations, publications, date of most recent committee meeting, and accomplishments over the previous year such as completion of preliminary exams. The department currently monitors preliminary exam completion to help students meet the 10-term deadline. E-mails are sent to all students and their major advisors at the completion of the eighth term (usually winter term of their third year) who have not completed their preliminary exams. Students are reminded of the deadline and provided advising as needed. Following completion of the prelim exam, their progression to degree is monitored. In 2010, the department implemented an annual written assessment for each student and advisor to be completed every year after completion of the oral qualifying exam. The graduate studies committee chair checks with advisors of PhD students completing their fifth year of the program to assess progress and plans for timely completion. To address gaps in monitoring of first year rotation students, in 2010 the department implemented a written research rotation evaluation to support the grade for every term in a student’s first year.

(17) Clarify expectations required for graduation (i.e., publications) within the Department.

This recommendation has generated discussion among the graduate faculty. Establishing a uniform number of publications for graduation is not practical given the diversity of research conducted by faculty in the department. A single large publication as a result of the creation and analysis of a new mutant mouse over several years would be sufficient in pharmacology for a PhD project in some cases. However, a student in natural products would be expected to accumulate several first author publications over four years on multiple isolations. Nevertheless, the recommendation has highlighted our need for major advisors to be more explicit with graduate students in their programs regarding expectations for graduation, clearly explaining disciplinary differences and providing examples of previous graduate student accomplishments.

(18) Expand outreach to alumnae from the graduate program, both in industry and academia. Seminars from alumnae would provide excellent opportunities for current students to learn first hand how to make the transition from graduate school to a professional career.

Immediately following the review, the department sent an annual report to graduate program alumni. Annual reports to graduate student alumni have continued. Alumni of the graduate program have been added to the College Advisory Council and the department continues to host alumni meetings, when possible, at regional or national meetings.

(19) Consider contacting pharmaceutical companies with intern programs to see if non-pharmaceutics students (i.e., medicinal chemistry and natural products, pharmacology) could spend 3-6 months in an industrial setting.

Unfortunately, funding for these internships is an issue given that the pharmaceutical companies may provide a stipend but seldom a tuition remission. Students who have always been covered by GRA or GTA fellowships are generally
not interested in interning when they are not eligible for a tuition remission under those circumstances.

(20) *Facilitate greater translational research projects through shared lab meetings, additional contact between faculty and students at the Corvallis and Portland campuses, and in active recruitment of new faculty with interdisciplinary interests.*

The recommendation was viewed as completely in line with the department’s long term goals and relates to comments given for recommendations 1, 2, 3 and 5 (above).

(21) *Maintain and upgrade the College’s instrumentation to sustain and augment its contemporary research programs.*

Since 2007, the college has invested to upgrade the 300MHz NMR in the Oak Creek facility. Ongoing contributions to the Mass Spec facility have resulted in the addition of four new instruments including a Waters LC-T Premier, an Applied Biosystems 3200 Q Trap LC-MS/MS, a Thermo LTZ-FT-MS Ultra with ECD and an Agilent NanoLC system, and a Waters Ion Mobility Time-of-Flight Mass Spectrometry SYNAPT HDMS System equipped with a Waters NanoAcquity LC system.

**“Long-term” Objectives:**

(1) *Move the College to the OHSU site thereby providing a one-stop program for the professional students and unifying the College’s faculty.*

This objective has long been part of the college strategic plan. However, space in Portland is at an even greater premium than in Corvallis and poses a significant limitation for unification. At last estimate (proceeding the 2007 review), approximately $40M to $60M would be required to purchase laboratory and office space in Portland sufficient to accommodate all faculty. Such an investment would require a major capital campaign. A feasibility study conducted a few years previous to the 2007 review revealed that the college donor base was grossly insufficient to support such a venture. The university did not prioritize such a move in its current capital campaign.

Renting equivalent space in Portland could cost $1M per year or more considering that the department would require a vivarium and major instrumentation rooms for NMR and mass spectrometers and centrifuges, in addition to standard laboratories, a dark room, tissue culture facilities, an aquaculture facility, a histology room, and a cold room to replicate facilities in Corvallis.

Given the significant expense of faculty unification in Portland, the college does not anticipate such a move in the foreseeable future. However, the college agrees that creating an opportunity for such a move should remain a priority for both the college and the university.

(2) *Expand the graduate faculty in all current areas of concentration and add expertise in drug target analysis, toxicology, and proteomics (system biology).*

(3) *Increase graduate enrollments concomitant with increased external funding.* Long-term objectives 2 and 3 are also part of the college plan.