

**Internal Academic Review 2006-2007
Department of Pathology and Molecular Medicine
Internal Academic Review Committee Report to Senate**

The Internal Academic Review (IAR) of the Department of Pathology and Molecular Medicine is now complete. The Internal Academic Review Committee (IARC) has taken into consideration all of the submissions related to the IAR of the Department of Pathology and Molecular Medicine and respectfully submits the following report. The IARC Report to Senate is intended to supplement the findings of the attached Review Team Report and to provide a mechanism for the Head of the Department and the Dean of the Faculty of Health Sciences to jointly report on the progress in addressing the Review Team recommendations (please see the “Outcomes” section of this report).

Summary of the Internal Academic Review of the Department of Pathology and Molecular Medicine

The Internal Academic Review Committee (IARC) is unanimous in its endorsement of the reviewers’ positive assessments of the Department of Pathology and Molecular Medicine (DPMM) and agrees with the reviewers’ comments that strong leadership and a clear academic and research plan contribute significantly to the Department’s success.

The IARC notes that research is an area of core strength within the DPMM and applauds the faculty members’ efforts to establish international reputations and significant research funding. The IARC commends the DPMM for managing the considerable graduate expansion within the Department and efficiently overseeing the resources required to maintain this growth. The IARC recognizes the efforts of the Department to build graduate growth in the Ph.D. program and encourages continued research productivity and collaborative research opportunities with colleagues in the Department, and in other areas of the University.

The IARC joins reviewers in their recommendation to continue to enhance the Department’s visibility of graduate studies among undergraduate students by: generating interest with students earlier in their undergraduate studies through increased pathology course offerings at an earlier stage; exploring the possibility of increasing the number of Path 499 thesis projects as a means of generating internal graduate student interest; and

continuing to actively recruit the best students externally to maintain a balanced student population at the graduate level.

The IARC agrees with the reviewers' recommendation that a resolution is required on the decision to consolidate the Mini-M.Sc. Defence and the Ph.D. comprehensive examinations. The Department has re-evaluated this process and has developed an accepted practice with clearly defined steps approved by the School of Graduate Studies and Research (SGSR). The IARC commends the Department for its diligence and attention to this matter, and for developing a process that is effective and in the best interest of academic practice.

The DPMM's strong contribution to research and teaching is acknowledged by the reviewers as a "model for the institution". The IARC fully supports the Department's effort, in collaboration with the Faculty of Health Sciences and the SGSR, to explore new ways to address the recommendations outlined in the Review Team Report.

Outcomes of the Internal Academic Review of the Department of Pathology and Molecular Medicine

*Joint response submitted by the
Dean of the Faculty of Health Sciences and the
Head of the Department of Pathology and Molecular Medicine*

Recommendation 1: *The Department should increase its profile within the Life Sciences Program.*

Departmental Action:

1. A new third-year course on Molecular Medicine (PATH 310) has been established for the Life Sciences Program and will be offered in the 2009/10 academic year.
2. A new fourth-year on Cancer Biology and Genetics (CANC 440) has been established in the Life Sciences Program and will be offered in 2009/10.
3. The Department has formulated a plan to establish a cancer stream in the Life Sciences Program, the implementation of which is targeted for 2010/11.
4. Departmental faculty members now teach in a second-year course in the Life Sciences curriculum (MBIO 218).

Recommendation 2: *The Department should increase enrolment in PATH 499, its research project course in the Life Sciences Program.*

Departmental Action:

1. Two new clinician scientists have been recruited and their research programs are anticipated to increase the number of potential PATH 499 slots.

Recommendation 3: *The Department should ensure adequate resources, especially wet lab space, for graduate students.*

Departmental Action:

1. Renovations are underway to increase the departmental wet lab space for principal investigators and their graduate students by 700 square feet. The renovated space will house one of the two newly recruited clinician scientists and he has recruited two graduate students.
2. The second of the two new clinician scientists currently supervises two graduate students and has recruited a third.

Recommendation 4: *In addition to increasing avenues for recruitment of graduate students from the Life Sciences Program, the Department should continue to actively recruit students from other universities.*

Departmental Action:

1. Increasing enrolment in the Graduate Program through recruitment of external students is a departmental objective.
2. Between 2005/06 and 2007/08 the number of our graduate students who originated from undergraduate programs outside Queen's increased from 18 to 27; this represents an increase from 48 percent to 60 percent of total enrolment in the program.

Recommendation 5: *The department must make available more TA positions to graduate students.*

Departmental Action:

1. Four new TA positions have been created for departmental graduate students through the establishment of the new third-year Molecular Medicine course.

Recommendation 6: *need for clinicians who are doing subspecialty work to increase their academic productivity.*

Departmental Action:

1. The department has recruited two new clinical researchers with very active research profiles. The first is Dr. Victor Tron who is already on site being productive. The second is Dr. Jeremy Squires who will join the department in July 2008.

Follow-up on these recommendations and issues will take place during the annual academic planning and budget process between the Dean of the Faculty of Health Sciences and the Vice-Principal (Academic).

Attachment:

Review Team Report

Internal Academic Review
Department of Pathology and Molecular Medicine
Report of the Internal Academic Review Team
March 2007

Introduction

This report has been prepared by the Internal Academic Review Team (IART) for the Department of Pathology and Molecular Medicine. The IART consisted of the following members:

Ms. Eileen Cheung (Department of Microbiology and Immunology)
Dr. Charles Graham, Chair (Department of Anatomy and Cell Biology)
Dr. Robert Lemieux (Department of Chemistry)
Ms. Michele Richards (Department of Microbiology and Immunology)
Dr. Laurent Seroude (Department of Biology)
Ms. Joanne Surette (Department of Biology)
Dr. Dean Van Vugt (Department of Obstetrics and Gynaecology)

The IART based this review primarily on the Self Study prepared by the Department of Pathology and Molecular Medicine as well as on the written report submitted by the external consultants, Drs. James Crawford and Avrum Gotlieb. The IART met with the external consultants to share information. For the most part, the IART agrees with the recommendations of the external consultants. Therefore, to avoid unnecessary duplication, a copy of the report by the external consultants is appended.

Executive Summary

The Department of Pathology and Molecular Medicine is a strong and well-respected department in the Faculty of Health Sciences at Queen's University. As such, the Department provides important services to the clinical and basic science sectors of Queen's University. The external consultants described the Department of Pathology and Molecular Medicine as a model for the institution, "in its citizenship with the main university, and its willing contributions to the teaching and research missions of the Health Science Center". It was clearly identified by the external consultants and the IAR Team that the high quality of this department is in large part the result of the leadership and managerial skills of its head, Dr. Iain Young. The IAR Team agrees with the statement by the external consultants that the "faculty is under strong leadership with the determination to see the academic mission remain strong and grow to accommodate the changing university environment".

Research is clearly a major strength of the Department. While the teaching contributions of the Department are also highly valued, a recurrent theme of the IAR process was the need to expand the Department's involvement in undergraduate teaching. A need to increase the number of PATH499 students was also noted. The Department has a well-administered graduate program and a highly dedicated and conscientious Graduate Coordinator. Concerns were raised by the external reviewers and the Internal Academic Review Team regarding the consolidation of the Mini-MSc defence and the PhD comprehensive examination. Greater involvement in undergraduate teaching would help alleviate

some issues regarding the recruitment of graduate students as well as availability of financial support in the form of teaching assistanceships.

The Department stands out for its services provided to the general public and the research community.

Research

Research is a major strength of the Department of Pathology and Molecular Medicine. Research areas in which faculty members enjoy international recognition include cancer, molecular haemostasis, and amyloidosis and cholesterol metabolism. Approximately a third of departmental members is involved in these areas. Their work is supported by funding from major agencies such as CIHR, NCIC, HSFC, and NIH. Research dollars from these agencies to the department as a whole has increased from less than \$2,000,000 in 1999 to more than \$3,500,000 in 2006, while total funding has doubled during this six year period and currently stands at almost \$6,000,000. During this period, graduate enrolment has increased by 55% and postdoctoral fellow by 40%. Productivity, as judged by peer reviewed publications, has increased by approximately 15% and therefore has not kept pace with funding or enrolment.

Several researchers in the Department are recognized as international leaders in their field. This status is exemplified in many ways including invitations as keynote lecturers and visiting professorships, academic prizes including the Robert L. Noble Prize, elected membership to the Royal Society of Canada/Academy of Science, and memberships on several editorial boards. They have authored many book chapters.

There is over 56,000 square feet of research space allotted to researchers in the Department. Approximately half of the space is in Richardson Laboratories. The Cancer Research Laboratories (third floor Botterell Hall) and the Cancer Research Institute constitute nearly half the space, with the remainder being in the Syl and Molly Apps wing. Several core facilities are housed within Richardson Labs. These are the tissue microarray, gene microarray, laser capture microdissection, and morphological services facilities. Other facilities available to departmental and non departmental personnel are the MCID image analysis facility and tumour banks both located in the Douglas wing.

The external consultants identified a need for clinicians who are doing subspecialty work to increase their academic productivity by pursuing opportunities for collaboration with clinical colleagues in the Department and in other basic or clinical departments.

The other concern identified by the consultants was the lack of University recognition of the Clinical PhDs. For the most part these faculty do not have extramural grant funding.

The Department should encourage research and scholarly activity by these individuals since they make up a significant proportion of the faculty. The Department may wish to consider providing small seed money grants for these faculty members to initiate clinical research projects.

Undergraduate and Graduate Academic Programs

Undergraduate Academic Programs:

The undergraduate teaching responsibilities of the Department of Pathology and Molecular Medicine fall within the Life Sciences program in the Faculty of Arts and Sciences and also the undergraduate medical program in the Faculty of Health Sciences. Teaching in the undergraduate medical program was not assessed in the Self Study Report, or the External Consultants' report, as the primary purpose of this Internal Academic Review did not encompass the clinical teaching aspects of the Department, except in the postgraduate medical program.

Overall, the undergraduate courses offered in the Life Sciences program by the Department are well received and the high calibre of the faculty teaching these courses is appreciated by undergraduate students. Yet there are only three courses offered. PATH410 is the major introductory course offered by the Department and it is offered in conjunction with the graduate course PATH824. The other two courses, PATH425 and PATH430 are smaller seminar-style courses and only offered in alternate years, with the latter one taught in conjunction with the graduate course PATH826. As quoted from the external consultants' report, the "lack of high profile presence at the undergraduate level" may be hindering the Department's success in the internal recruitment of graduate students. The fact that the interest and the demand for undergraduate courses in pathology and molecular medicine exist warrants that the Department create more undergraduate courses under the Life Sciences program, with the introduction of some lower level to the fourth year of undergraduate studies.

The external consultants were also concerned that the Life Sciences program has evolved from being considered a training program for research in the biomedical sciences to a pre-medical program. Thus, earlier and greater exposure to undergraduate courses in pathology may pique the interest of students to pursue graduate studies in biomedical research. In addition, it would give opportunities and direction to those undergraduate students who have decided early on in their undergraduate careers that laboratory research-based graduate studies is their definite path upon graduation.

Similarly, while the demand for undergraduate honours thesis opportunities is generally not being met across all departments in the Life Sciences program, this especially seems to be true in the Department of Pathology and Molecular Medicine (less than 15 undergraduate students per year since 1999/00, with only 10 in 2005/06). With the large number of faculty in the Department, it should provide more opportunities for students wishing to pursue a PATH499 thesis project. As undergraduate thesis projects are a popular means of internal graduate student recruitment, this action would also serve a second departmental goal to increase graduate student enrolment.

Recommendations:

- The Department should increase its profile within the Life Sciences program. This could be done by the creation of more undergraduate courses and their introduction earlier on in the program.
- More positions should be made available to Life Science undergraduate students looking to pursue a 499 project in the Department. This could be achieved by adding to the program external hosting laboratories from other departments. This may also help boost the internal recruitment of graduate students into the Department.

Graduate Academic Programs:

The Department of Pathology and Molecular Medicine graduate program currently has an enrolment of 42 students. The graduate program is well perceived by students, and is under excellent administration.

Enrolment:

In conjunction with a University-wide initiative, the Department is striving to increase graduate student enrolment, particularly enrolment in the PhD program. Due to recent increases in faculty positions, the Department has the human resources to support increased enrolment. However, it should be noted that students should not suffer a decrease in resources, relative to what is currently offered, as a result of increased enrolment. The need for more space has been identified as an issue requiring attention in the event of increased enrolment, particularly space for wet labs.

As the undergraduate Life Sciences program is a critical recruiting base for graduate students in the Department, enrolment in the graduate program would be enhanced by increasing the visibility of the Department to undergraduate students. Increasing the number of undergraduate course offerings and number of 499 projects available would help to accomplish this.

In addition to recruitment of graduate students through the Life Sciences program, it is also important for the Department to continue to actively recruit students from institutions other than Queen's. This is vital to maintaining a balanced student population in which diverse backgrounds and scientific experiences benefit everyone.

Admission Requirements:

Overall, admission criteria are fair, and high standards are set for potential students. This allows the Department to recruit motivated, high-achieving students. The Department has indicated a desire for a greater role in admitting students, especially direct-entry PhD students. This could potentially benefit the Department and allow it to achieve its goal of increased PhD student enrolment. It should also be noted that both students with 'unquestionably superior' academic records, AND potential MSc candidates with a strong sense of direction in research should be encouraged toward direct-entry PhD programs.

Teaching Assistant/Teaching Fellow Positions:

One significant shortcoming of the Graduate Academic program in the Department is the insufficient availability of Teaching Assistant (TA) or Teaching Fellow (TF) positions for non-Biochemistry graduate students. This is a significant shortcoming because teaching is a very important component of a graduate level education, especially given that many graduate students plan careers in academic research settings in which teaching is required. This problem stems from the presence of only a few undergraduate courses being offered by the Department, and could be solved by increasing the number of courses offered to undergraduate students. Increasing the number of undergraduate students admitted into the currently offered courses could also create a greater, but not sufficient number of such teaching positions for graduate students. Collaborations with other health sciences departments in this area could also provide opportunities for graduate students in the Department to hold TA/TF positions in courses offered by other departments, given that the relevant expertise of certain graduate students may qualify them for such work. Increasing the number of 499 projects available to undergraduate Life Sciences students would also increase the mentorship/leadership opportunities available to graduate students in the Department.

Academic Requirements:

Graduate course offerings in the Department are good, and the number of courses seems adequate. Concerns have been raised with regard to having the mini-masters and PhD comprehensive exams consecutively on the same day. Given that this is such a lengthy period of examination, students are likely to be unable to perform at their best under these conditions. These two examinations should not be held on the same day. In addition, according to the regulations of the School of Graduate Studies and Research, comprehensive examinations are reserved exclusively for students officially enrolled in a PhD program. Official enrolment in a PhD program only becomes effective after approval from the Chair of Division 1 sometime (not immediately) following the successful Mini-MSc defence.

Recommendations:

- The Department must ensure adequate resources are available for graduate students, despite increased enrolment (especially wet lab space).
- In addition to increasing avenues for recruitment of graduate students from the Life Sciences program, the Department should continue to actively recruit students from other Universities.
- More TA/TF positions must be made available to graduate students in the Department. Teaching is a key component of a graduate student education.
- The mini-masters and PhD comprehensive exams should be separated.

Teaching and Learning

The Department of Pathology and Molecular Medicine (DPMM) is positioned at the interface of clinical medicine and basic science and, as such, contributes to teaching and learning in both areas. The DPMM faculty is under strong leadership with the determination to see its academic mission remain strong. Many of the faculty are well engaged in scholarly activities, with each individual having a specific balance in his/her job description amongst teaching, research and clinical care. Over the past seven years, six DPMM faculty received awards for teaching excellence given in the Faculty of Health Sciences, and by external associations and societies.

The DPMM does not offer a free standing undergraduate science program. Rather, it offers senior level courses to 4th-year students, the majority of whom are enrolled in the Life Sciences program. The DPMM is home to a number of Life Sciences undergraduates who are performing their elective research via the research project course PATH 499. The contribution of the DPMM is viewed as strongly supporting the Life Sciences program and serves as an important recruiting tool for future graduate students and physicians. A reorganization of courses being carried out by the Life Sciences Committee will allow the DPMM to increase its participation the teaching of existing courses, and to develop new 3rd and 4th year courses with emphasis on the molecular basis of cancer and advances in molecular medicine, two areas of research strength. Graduate students in the DPMM have expressed the need for more teaching experience, which may be achieved by increasing the number of PATH 499 students, which has remained more or less constant over the past seven years. This would provide additional teaching/mentorship experience to DPMM graduate students and increase the number of TA positions in the Department. According to the consultants, relatively recent changes in the undergraduate Life Sciences program has shifted its focus from being “the entry point for a career in ‘biomedical sciences’,

to now being viewed as the almost obligate ‘premedical curriculum’ for entry into medical school.” This shift in focus has led undergraduate students aiming for doctoral studies to feel lost in the Life Sciences programming. DPMM faculty also teach in programs and courses that are external to the Department, including courses offered in the School of Nursing and in the Rehabilitation Medicine program.

The DPMM offers residency programs in Anatomic and General Pathology and in Hemopathology. DPMM clinical faculty also play a major role in teaching pathology and laboratory medicine to residents in numerous postgraduate programs, including General Surgery, Gynecology, Urology, Nephrology, Gastroenterology, Hematology and Oncology. They participate in the teaching of students in various laboratory technology programs offered through St. Lawrence College and the Michener Institute in Toronto.

Service to the University, the Profession and the Community

The Department of Pathology and Molecular Medicine provides important services to the university, profession and the community.

Academic Services:

Faculty members of the Department participate in a wide range of academic leadership roles in the following sectors:

Granting agencies (both Canadian and International):

- 6 faculty members participate in review committees for the Canada Research Chair program, American Association for Cancer Research, Association of Hemophilia Clinic Directors, US National Cancer Institute and Breast International group.
- Various faculty members are actively involved as reviewers for major Canadian agencies including the NCIC, HSF, NSERC and CIHR.

Advisory boards:

- 4 faculty members

Societies:

- 3 faculty members

The Department has a collection of plastinated sections that provides valuable educational resources for the training of residents as well as undergraduate medicine and Life Science students (e.g. the Department of Anatomy and Cell Biology makes use of plastinated pathological specimens as part of the lab component of the Anatomy 409 course).

Important services to the community are provided by graduate students in the Department of Pathology and Molecular Medicine who are active in the organization and teaching of enrichment courses such as SEEDS, $E=MC^2$, the ABC program and the Outreach Education program which target elementary and secondary school students.

One cannot ignore that the Department provides diversity to the University academic mission, with strong programming for undergraduate students; the Graduate School; the Medical School; and training of Postdoctoral Fellows and Pathology Residents.

Clinical Services:

Clinical laboratory services provided in association with KGH include anatomic pathology, haematopathology, microbiology, clinical chemistry, laboratory genetics and autologous blood transfusion program. Compared with other basic science departments, the Department of Pathology and Molecular Medicine is in the unique position of having to provide services to KGH as well as Queen's University. There is a sense that a corporate strategy is applied to the operation and delivery of clinical services, as it is stated in the strategic plan that one of the main opportunities for the Department is to increase its market share in such delivery of services. It was also noted by the committee that the Department acknowledged in 2004 some complaints about the culture of “perpetual coping” (*status quo*, mediocre service enhancements and no efforts made to raise the level of services).

Research Services:

The Department is extremely collegial and generous with the sharing of its high-tech facilities with local researchers including investigators who do not belong to the Department. Some of these facilities include: tissue microarray, gene microarray, laser capture microdissection, morphological services, image analysis and tumour banks.

An important aspect of research services provided by the Department includes the administration of the Graduate program. The Graduate Coordinator is attentive, focusing on both academic and career advice to trainees.

In summary, the services provided by the Department of Pathology and Molecular Medicine are critical to the well-being of the public and the research community.

Respectfully submitted,

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