The Koret School of Veterinary Medicine

THE HEBREW UNIVERSITY OF JERUSALEM

Report of the Review Committee

December 2007

Presented to Prof. Haim D. Rabinowitch, Rector

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REVIEW COMMITTEE

The Koret School of Veterinary Medicine

Executive Summary

Thursday, November 8, 2007

The review committee evaluated the Koret School of Veterinary Medicine (KSVM) within the Faculty of Agriculture between November 3rd and 8th, 2007. The Committee met with members of the faculty, non-faculty teachers, DVM students, graduate students, and clinical instructors. The Committee also visited the School teaching and clinical facilities in Rehovot and the Hospital and diagnostic facilities at Beit-Dagan.

The Koret School is the only veterinary school in Israel and is an essential resource for the health of all types of animals in the country. In the long term, the KSVM has great potential to be a regional center of excellence for veterinary medicine in the Middle East. The importance of this cannot be underestimated since there are many zoonotic and epizoonotic diseases in the region that threaten the welfare of all societies.

The KSVM has made great improvements since the last review and the Committee applauds the Central University, the School administration, and the academic staff for the progress that has been made. A number of the recommendations of the Pedersen Committee have been addressed. The new teaching facilities in Rehovot are very good, and the physical facilities and technology in the new gross anatomy lab are outstanding. The School is developing programs of excellence in teaching, clinical service, and research. The students are excellent and receive a first-rate veterinary education. As a measure of the School's success, its graduates are accepted by veterinary institutions of high standing throughout the world.

The Faculty is talented, involved in high quality research, and committed to the success of the School in a remarkable way. However, the Committee sees this as a School still in need of care, guidance and investment. Specifically, there should be: (1) a critical number of faculty in basic science and clinical disciplines, (2) additional research floors and adequate equipment in the teaching and research building, (3) improved and expanded facilities at the Veterinary Teaching Hospital (VTH), (4) a major investment in both faculty and facilities in pathology, and (5) a bridge that links the Veterinary School with other Institutes in the Faculty of Agriculture.

In combination with the School of Agriculture, the KSVM is developing an initiative entitled *Helping Individuals to Feed Themselves* that is visionary and has great potential for addressing world food problems in the 21st Century. Research and graduate education in the Institutes will form the core of this new initiative and will provide veterinary students with unique opportunities in public health and research..

A. Administration/Leadership and Administrative Structure

The School has appointed Professor Shimon Harrus as the new Head of School. One of his first priorities must be to develop closer academic ties with the Faculty of Agriculture. A second priority should be to institute a clear administrative structure within the School.

Recommendations

1. The School should be divided administratively into 3 departments: Basic Sciences, Pathobiology (to include pathology, immunology, parasitology and microbiology), and Clinical Sciences.
2. A system analogous to tenure for clinical track faculty should be considered.

B. Faculty Members/Academic Staff

The number of faculty positions is too small to support the missions of the School. Most disciplines in both basic and clinical sciences lack a critical number.

Recommendations

1. The number of faculty should be increased to a minimum of 40. The goal should be to increase by at least two new faculty positions per year for the next 10 years *in addition to* replacing faculty members who leave or retire during the decade. The School's highest priority should be in recruiting faculty with board certification in pathology, clinical pathology, and diagnostic imaging.
2. Every junior faculty should be allocated a mentor.
3. The Academic Planning and Development Committee should be enlarged to include representatives of junior clinical faculty.

C. Pathology

At present there is a severe deficiency in this discipline within the School and the necropsy facility at the Kimron Institute presents a health hazard to all personnel. It must be replaced.

Recommendations

The KSVM and University must urgently address the marked deficiencies in this core subject area; specifically:

1. a concerted effort must be made at the highest level to build a new Diagnostic Services Facility (Post Mortem Room, Histopathology and Clinical Pathology laboratories). The Committee deems this as an essential investment in the future of the KSVM and the State Veterinary Services.
2 administration of this service facility should be transferred, under contract, from the Kimron Institute to the KSVM
3 two anatomical pathologists and two clinical pathologists must be recruited to supplement existing expertise, and to form the nucleus of a new Department of Pathobiology. The postmortem and histopathology facilities make it unlikely that any faculty appointment in diagnostic pathology can succeed under the present circumstances

D. Curriculum

The Committee recognizes that there are particular gaps within the curriculum.

Recommendations

1. The School should expand educational opportunities in veterinary public health, and provide laboratories in microbiology and parasitology. The course in laboratory animal medicine should be moved from the first year to later in the curriculum.
2. All core disciplines must be taught by faculty and not by external teachers.
3. Students should have a more career-specific curriculum in the 4th year, permitting them to take advantage of all the electives in their chosen field.
4. Peer review of teaching should be instituted to help junior faculty develop their instructional skills. Resident teaching should be mentored and evaluated.
5. The results of the 4th year comprehensive examination should be used as an outcomes assessment of the curriculum.

E. Veterinary Teaching Hospital (VTH)

The hospital functions well and is a vibrant centre for animal care and teaching.

Recommendations

1. There must be a minimum of two faculty per clinical service
2 A budget to insure acquisition of new clinical equipment should be developed.
2. Junior clinical faculty should be mentored ensure the success of their academic careers.
3. A long-term strategic plan for the VTH should be developed.

F. Research

The Committee was impressed by the range and quality of basic research conducted at the KSVM. Recent appointments of key research scientists now form the basis for a high quality research program.

The School and University appear to place less value on clinical research than basic research. Clinical research is defined too narrowly, is not well supported, and in terms of importance to the KSVM's mission, should not be considered distinct from basic research.

Recommendations

1. A School Research Committee should be formed to establish research priorities, equipment purchases, and the adequacy of facilities.
2. Start-up funding should be adequate for the needs of all faculty in the School.
3. An infrastructure to support clinical research in the Hospital should be in place.
4. Clinical staff should have adequate protected time to conduct research.

G. Students

The students are mature, highly motivated, of excellent calibre, and dedicated to the profession.

Recommendations

1. Admission to the School should take into consideration the requirement for full participation in courses on laboratory animal medicine and food hygiene.

2. The Committee recommends that the senior thesis becomes a prestigious competition with a substantial monetary award.
3. From the start of their 1st year, and continuing through the entire 4-year curriculum, students should be exposed to seminars from leaders in veterinary medicine from all walks of life. The goal should be to enlarge the window through which students view the world.
4. The School should secure funds to support students wishing to undertake research with faculty during the summer months.
5. In view of the need for veterinary training in global public health, the KSVM should actively develop opportunities for students to work in foreign countries, especially in countries of the developing world.
6. Provided the size of the academic staff and the facilities are increased, student numbers could be increased moderately.

H. Teaching Facilities

Teaching facilities are very good, those in the new gross anatomy lab are outstanding. The Committee recommends that the School utilize or construct a student laboratory for the teaching wet laboratories in microbiology and parasitology.

I. Admission and Tuition

Admission to the KSVM is highly competitive and a large proportion of Israeli students must study abroad. As a result, Israel is faced with a growing number of recent graduates from foreign institutions who require clinical training before they are licensed to practice veterinary medicine in Israel. It seems desirable and important to incorporate some of these students into clinical training programs of the School, which may include the 4th year program and/or post-graduate clinical courses. In view of the small size of the faculty, this will require a concomitant and appropriate increase in the number of faculty and staff as well as investment in infrastructure

J Future plans to strengthen KSVM

1. The KSVM should strongly embrace the Faculty of Agriculture's initiative *Helping People Help Themselves.* The Faculty of Agriculture administration should be fully aware of the strength the KSVM can bring to this program. The KSVM administration should pursue this initiative vigorously for it provides opportunities in veterinary medicine that are unmatched anywhere!

2. The School should negotiate with the University for one, full-time Development Officer to lead the fund raising program. The Veterinary Teaching Hospital, especially the equine clinic, will obtain the greatest benefit from such an appointment.

COMMITEE'S REPORT

REPORT OF THE REVIEW COMMITTEE
The Koret School of Veterinary Medicine
November 4-8, 2007

The Review Committee evaluated the Koret School of Veterinary Medicine (KSVM) within the Faculty of Agriculture, Food and Environmental Quality (heretofore referred to as the Faculty of Agriculture) of the Hebrew University of Jerusalem from November 4–8, 2007. The Committee (Prof. Alan Kelly, Chair – University of Pennsylvania, Prof. Michael Day – University of Bristol, Prof. Hans Dietz – University of Copenhagen [EAEVE member], Prof. Petr Horin – University of Veterinary & Pharmaceutical Sciences, Czech Republic [EAEVE member], Prof. Reuven Laskov – Hebrew University, Prof. Arnon Shimshony – Hebrew University, and Prof. Karen Young – University of Wisconsin-Madison) met with the President of the University, the Rector, the Dean of the Faculty of Agriculture, the KSVM Administration, members of the School Academic Planning and Development (APD) and Curriculum Committees, research and clinical faculty, including "department" heads and specialists in the Veterinary Teaching Hospital (VTH), VTH administrators, external teachers, staff at the Kimron Institute, DVM students, residents, and graduate students. The Committee also visited the School teaching and research facilities in Rehovot and the Hospital and diagnostic facilities, including the Kimron Institute, at Beit-Dagan.

Introduction:

The Koret School of Veterinary Medicine (KSVM) is the only veterinary school in Israel and is an essential resource for the health of all types of animals in the country. The history of the KSVM can be found in the Pedersen Report (1997). It is the only place where veterinarians are trained for the specific needs of animal health and veterinary public health in Israel. In the long term, the School has great potential to be a regional center of excellence of veterinary medicine for the Middle East. The importance of this cannot be underestimated as infectious diseases do not respect national boundaries and there are many zoonotic and epizootic diseases that threaten the welfare of societies throughout the region.

The School has made great improvements since the last review, and the Committee applauds the leadership of the Central University, the School Administration, and the Academic Staff for the remarkable progress that has been made. A number of the recommendations submitted 10 years ago by the Pedersen Committee have been addressed. The Veterinary Teaching Hospital (VTH) has greatly advanced, the new teaching facilities in Rehovot are very good, and the physical facilities and technology in the new gross anatomy lab are outstanding. The School is developing programs of excellence in teaching, clinical service, and research. The students are superb; graduates have first-rate academic and clinical skills and, as a key measure of the School's success, are accepted by veterinary institutions of high standard throughout the world.

Faculty members are talented, involved in research of very high quality, and committed to the success of the School in a remarkable way. However, the Committee sees this as a School in early adolescence and one still in critical need of further investment. Because of this, it seems important to continue maintaining the autonomous position of the School with a direct communication link between the Head of School and the Central University Administration.

Specifically, the needs are:

(1) a critical number of academic staff in the basic and clinical sciences;

(2) a major investment in the facilities and faculty in Pathology. In the Committee's view, new KSVM faculty appointments in Pathology cannot succeed under the present circumstances;

(3) a new relationship between the KSVM and the Kimron Institute regarding the provision of diagnostic service for the State of Israel. The Committee specifically recommends that, under contract from the State, the KSVM take responsibility for diagnostic services in Pathology at the Kimron Institute;

(4) attention devoted to the morale of junior clinical faculty; they do not believe the School appreciates the value of clinical research, are overwhelmed by clinical responsibilities, and see themselves as 2nd class citizens;

(5) a mentoring program for junior faculty;

(6) research floors added to the new teaching and research building with a bridge linking the Veterinary School to other Institutes in the Faculty of Agriculture;

(7) appropriate core equipment for research faculty to conduct their studies;

(8) improved and expanded facilities in the Veterinary Hospital;

(9) a more clearly defined departmental structure within the KSVM;

(10) at least one Development Officer with sole responsibility for fund raising at the KVSM;

(11) as a criterion for admission, a requirement that students demonstrate some understanding of the broad contributions veterinary medicine makes to society;

(12) closer working relations between the KSVM and the Faculty of Agriculture.

The Faculty of Agriculture in collaboration with the Koret School is developing an initiative entitled "Helping Individuals to Feed Themselves" that is visionary and has great potential for addressing world food problems in the 21st Century. Research and graduate education in a planned Institute for Veterinary and Animal Science will form one of the four pillars of this new initiative and will provide veterinary students with unique opportunities to expand their understanding of public health and research in veterinary medicine. However, the Committee was not convinced that the administration of the Faculty of Agriculture recognizes the enormous potential the KSVM can bring to the entire initiative. Concerns were raised by a statement from the Dean, "The Environmental Institute would not involve the Veterinary School." This came as a surprise to the Committee in view of the relationships among environmental reservoirs of infection, wildlife, pollution, global warming, the spread of known infectious diseases, and the emergence of new zoonotic and epizoonotic diseases.

In addition, the planned Institute for Veterinary and Animal Science does not appear to be well known among faculty in the KSVM. These deficiencies in communication suggest that the KSVM and the Faculty of Agriculture do not work closely together and that collaborative teaching and research opportunities are being overlooked. It is the

Committee's opinion that the great potential of the initiative "Helping Individuals Feed Themselves" will not be fulfilled unless the issues are resolved.

The alignment of the KSVM with the Faculty of Agriculture rather than with the Medical School and the separation of the KSVM core facility from the Hospital are now facts of life. There are positive aspects to this arrangement, but great care should be taken to attend to the natural relationship between veterinary and human medicine as embodied in the concept of "one health."

During the last 4 years, the number of annually licensed new veterinary graduates in Israel has been 75-80. Of these, about 50% were graduates of the KSVM; most of the others were returning Israelis who graduated from European schools (for further details see Appendix 1, Licensing and absorption of foreign graduates in veterinary medicine in Israel). According to internationally accepted criteria, the optimal number of new veterinary graduates should be 70-100 per 10-15 per million people. The Review Committee is of the opinion that a gradual, modest increase in the number of annual admissions (up to 55-60) may be justified, provided available teaching facilities and staff at the KSVM are taken into consideration.

A. Administration/Leadership and Administrative Structure

As Head of the KSVM, Professor Gad Glaser has provided remarkably effective, imaginative, and successful leadership for a number of years. Professor Glaser has recently retired as Head of School and Professor Shimon Harrus is his successor. The Committee is confident that Professor Harrus will provide dynamic leadership and that the School will continue on its rapid upwards trajectory under his watch.

Specific administrative issues that the Committee recommends Professor Harrus address are as follows:

1. According to the Pedersen Report (page 10), the School at one time comprised 3 departments: a)Veterinary Biology, b)Pathology, Immunology and Microbiology, and c)Clinical Sciences. This came as a surprise to the Committee as the KSVM presently lacks a clear administrative structure. There is a loose organization in the School with groups of faculty delineated as basic scientists or clinical faculty members. A structure that defines basic sciences, preclinical sciences, and clinical sciences should evolve so that the School grows as one unit. Specifically, the Committee proposes that the School be divided administratively into 3 departments as outlined by the Pederson Report: Basic Sciences, Pathobiology (to include pathology, immunology, parasitology and microbiology), and Clinical Sciences. Annual budgets for each department should be established.

2. As Head of the KSVM, Professor Harrus must work with the Dean of the Faculty of Agriculture to bring the units more closely together.

3. The School needs to broaden its base of philanthropy and should set annual goals for fund-raising. Presently, the School is too narrowly dependent on a small group of donors including the Koret Foundation. To succeed, the KSVM must have its own Development Officer.

B. Faculty Members/Academic Staff

What members of the faculty do, they do very well. They are dynamic, dedicated, and productive. They eagerly seek out meaningful interactions, and junior faculty members are actively collaborating with colleagues in the Faculty of Agriculture and other institutions, such as the Weizmann Institute. These collaborations are exemplary and should be strengthened; more interactions with the Medical School should be fostered. Three faculty tracks are described in the Pedersen Report (pp. 12-13). The advancement and long-term commitment to faculty on the Clinical and Veterinary Tracks should be reviewed.

The number of faculty has increased in the past 10 years. Nevertheless, the number of faculty positions is still too small to support the missions of the School. The committee was informed that there is a goal to increase the number to positions to 40 and believes that this comes close to the minimal number required for a sustainable academic community. With few exceptions each discipline lacks a critical number of faculty; this includes disciplines in both basic and clinical sciences. Faculty members are isolated and there is a negative impact on their research productivity both from the standpoint of lacking collegial support and, in the case of clinical faculty members, being denied their allotted time for research. There is also a negative impact on teaching.

The number of faculty is so small that each faculty member represents a separate discipline and individual service on committees is exceedingly high. The time assigned to clinical and academic responsibilities is inappropriate if junior faculty are to succeed. Assignments of time should not be based on rank alone. Each junior faculty must have a relevant mentor, mentoring in research, teaching, and clinical service responsibilities should occur.

Despite these difficulties, morale among almost all of the faculty was high with extraordinary commitment to the success of the KSVM. Morale among junior faculty in the Veterinary Teaching Hospital was the one exception. These junior faculty receive many clinical cases, teach 4th year students in the clinical rotations, conduct rounds, teach in the preclinical curriculum, mentor residents, and are expected to conduct clinical research. Uniformly, they are an exceptionally talented group, but most felt overburdened by clinical commitments and the sense of second-class citizenry within the School. The Administration must do more to nurture these young clinicians for the School will not succeed without clinicians who sense they are full partners in the School's mission and accomplishments.

<u>Recommendations</u>

1. The number of faculty should be increased to a minimum of 40. The goal should be to add at least 2 new faculty positions/year for the next 10 years *in addition to* replacing faculty who leave or retire. Some senior positions are needed to provide mentorship for junior faculty. The School's highest priority should be to recruit faculty with board certification in pathology, clinical pathology, and diagnostic imaging. The Committee views these as **core** requirements.

2. Because veterinary medicine is a small profession, the reputations of its schools, once established, tend to become fixed; therefore, it is important for the Koret School to avoid acquiring a reputation for giving junior clinical faculty very limited opportunities for scholarly development by overburdening them with service and teaching responsibilities. In this connection, the general perception by junior clinical faculty that they are second-class citizens of the School requires urgent attention.

3. The Committee found that junior clinical faculty were not confident about their future with the School. A plan that lays out their future opportunities for advancement should be prepared; this plan should include a system for promotion analogous to tenure.

4. It is essential that each junior faculty be allocated a mentor to guide his or her scholarly development. In addition, there should be a mentoring committee that works with the School leadership to assign appropriate distribution of effort for teaching, clinical service, and research. As the number of faculty available to act as mentors is so limited in the School, the administration should consider a formal program to enlist KSVM graduates who have received advanced training and have joined the faculties of veterinary schools in Europe and the USA.

5. Opportunities for faculty training and research in the Medical School should be increased.

C. Pathology

Current Situation

Pathology (including clinical pathology) is the link between preclinical and clinical sciences. A major part of the professional curriculum, pathology is central to clinical diagnosis and resident-training, and underpins both clinical and basic research within the School. At present the School is severely deficient in pathology and relations with the Kimron Institute are problematic. The School is unlikely to succeed in either recruiting or retaining board-certified pathologists under the present circumstances.

Specifically:

Anatomic pathology, a core curriculum subject, is taught entirely by external teachers. Although two of these teachers hold adjunct appointments with the University, the School has limited control over the content and structure of the course.

The post-mortem (PM) room and associated histology laboratory at the Kimron Institute are in deplorable condition. The PM room lacks adequate biosecurity and poses a health risk to all those who use it, including students. The entrance to the facility is through an area for cutting fixed tissues, and there appears to be no designated changing facility with appropriate protective clothing to don before entering the PM room. Similarly, there is no clear exit route with available hand-washing unit. The Committee members were allowed to enter and leave the facility in street clothing. Although a hydraulic winch system is in place, large animal

carcasses are opened on the floor. The facility is not clean and there are windows opened to the outside. Of greatest concern is the removal of brains from potentially rabid animals or those with transmissible spongiform encephalopathies which is undertaken in an open corner of the room that includes a band-saw. The postmortem facilities must be replaced.

Although there is an impressive volume of necropsy and histology case material from a wide range of animal species, the material is not used to best advantage. The histopathology service appears inadequate for the needs of the VTH. At present, the majority of clinical biopsies and some samples for clinical pathology analysis are sent out to a private laboratory. As a consequence, this material is lost for purposes of student teaching, resident-training, and archiving for research purposes. It was not clear that a computerized, retrievable, pathology archive is available.

The pathology resident-training program is also of concern. One previous resident has twice failed ECVP examinations, and a current resident is in training. Resident-training is undertaken primarily by two non-boarded pathologists, and the School's status as an EVCP-approved training center rests on the fact that one retired pathologist with this qualification plays a minor part in the program. This situation is unacceptable.

The VTH runs a limited Clinical Pathology Diagnostic Laboratory. This is staffed by technicians, and one internal medicine clinician. The clinician does a laudable job in overseeing the facility in addition to his other duties in the clinic. Because of the time and resource constraints, written reports are often not generated, and data are not entered into a computerized archive. Quality assurance, generation of reference intervals, trouble-shooting instrument problems, special staining, including immunocytochemistry, and review of all the reports from the Laboratory should be carried out under the auspices of a board-certified clinical pathologist.

Recommendations

The KSVM and University must give urgent consideration to addressing the marked deficiencies in this core area. Specifically we recommend:

1. A concerted effort be made at the highest University level to build a new Diagnostic Services Facility to include a post-mortem room, histopathology laboratory, and clinical pathology laboratory. Ideally these facilities should occupy a separate building that contains an up-to-date and biosecure PM room with associated histology laboratories, office space, and tutorial rooms with adequate microscopy/computer teaching facilities. There should be a computerized database established for laboratory records. Such a facility will be costly, but the Committee deems this to be an essential investment in the future of the KSVM and the State Veterinary Services.

2 A matter of urgency is the recruitment of 2 anatomical pathologists and 2 clinical pathologists to supplement existing expertise in these areas. These individuals should hold American or European diplomas in their subject areas. The appointees in pathology should take leadership for teaching in the professional curriculum, training pathology residents, and providing high quality diagnostics for the Hospital. These appointments should be made in conjunction

with a commitment to construct the facility described above so the appointees may participate in its design and construction.

3. Within the evolving structure of the KSVM, these new appointees should form the nucleus of a new Department of Pathobiology. This Department will form a bridge between the Basic Science and Clinical Departments and will strengthen the basic and clinical research enterprise. Research projects will be greatly facilitated by collaborating with pathologists and utilizing support in histopathology, immunohistochemistry, and clinical pathology.

4. The objectives outlined above require the School to establish a new relationship with the Kimron Institute and the State of Israel. The Committee strongly recommends that responsibility for State diagnostic services in Pathology be transferred under contract from the Kimron Institute to the KVSM. The Committee further recommends that board-certified pathologists in the KSVM assume responsibility for these services; they should also participate in advising on the items covered in the contract with the Israeli Department of Agriculture. Service contracts of this type already exist, successfully, at a number of veterinary schools in the US and may serve as models for guiding the development of such agreements in Israel. Examples of contractual arrangements in the US are included in the Appendix 2
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D. Curriculum

This is a 4-year DVM curriculum. The final year is a clinical year. Because students entering the DVM program have a BSc, many basic subjects have already been covered when they begin their professional studies. All students should have satisfied the specific prerequisites. Half of the students come from the Faculty of Agriculture within the University and the remainder from institutions within Israel and beyond.

Within the DVM program, swine medicine, environmental protection, and laboratories in bacteriology and parasitology are not taught. Equine surgery is only partly covered as there are very few lectures in orthopedics. Poultry medicine, like pathology, is fully covered but by an external teacher (from the Kimron institute). Some subjects are taught by the academic staff from the Faculty of Agriculture. There is an internal credit system, and internal credits can be transferred within the whole University. Credits from Europe/US are judged and assigned by a central University office in Jerusalem. Teaching committees at the Faculty of Agriculture and KSVM level are in charge of evaluation and curricular modifications.

<u>Strengths</u>

a. The curriculum appears adequate and has some novel features including the senior thesis and the weekly seminar presented by a member of each class. This promotes interaction within the School and provides experience in public speaking.
b. The 4th year comprehensive examination is a strength of the School's curriculum and could be used as an assessment of the overall curriculum.
c. Modern concepts are well represented in the curriculum. Production animal medicine is taught with large animal medicine, and there is an extensive and very good farm ambulatory experience with Hachaklait (see Pedersen Report,

page 14 for a description of the Hachaklait). A clinically-oriented program for teaching anatomy using surgery faculty has also been established.

d. The School is actively involved in continuing education, organizing courses in veterinary public health, and courses that aid immigrant veterinarians pass the examinations for licensure in the State of Israel. Seminars for nurses, breeders, and others are also provided. Money raised from continuing education is used for promoting clinical research.

e The School may plan, but does not have in place, a clinically oriented, practical course for Israeli students who graduated abroad and for immigrant veterinarians to attain the high clinical proficiency of KSVM graduates. (see Appendix 1)

Weaknesses

a. Non-faculty, external teachers are still relied upon too heavily; some core disciplines are covered entirely by external teachers. As a result, the School has inadequate control of the curriculum. External teachers provide expertise, but their contribution to the coherence of the curriculum is lacking. Student instruction is not their primary responsibility and they are not peer-reviewed. External teachers do not have offices in the School and are not readily available to the students. Finally, external teachers may be unable to participate fully in administering examinations and grading them in a timely fashion.

b. The curriculum, with its emphasis on small and large animal practice and research, reflects the current needs of the country. However, the School should anticipate future needs by expanding course offerings in veterinary public health and introducing laboratories in the preclinical currciulum in the disciplines of microbiology and parasitology. Greater emphasis should be devoted to food animal medicine and its relevance to world food supplies.

c. There are curricular gaps as mentioned above.

d. Students have limited career-specific options in the 4th year curriculum as every student has the same required rotations. Each student should be required to rotate through small and large animal services. But, students with career goals in either small or large animal practice should have the opportunity to spend more time in areas of their respective interest.

e. Teaching by junior faculty is not peer reviewed

Recommendations

1. The Committee recognizes that, because of costs, the School will be dependent on a significant number of external teachers for the foreseeable future. The Committee suggests that the KSVM assimilate external teachers into the School community as much as possible in order to maximize their effectiveness in the academic program. Nevertheless, the KSVM must become less dependent on external teachers in core subjects such as pathology. These subjects must be taught by School faculty for whom teaching is a primary responsibility, and from whom innovation in methods of teaching should be expected.

2. The curriculum committee should discuss the curricular gaps and modify the curriculum accordingly. The School should anticipate future needs in the broad

field of veterinary medicine by expanding instruction in veterinary public health and introducing laboratories in disciplines such as microbiology and parasitology that are currently neglected. The course in laboratory animals should be moved from the first year to a later year in the curriculum.

3. Students should have more career-specific opportunities in the 4th year, permitting them to take advantage of all the electives in their chosen field.

4. Peer review of teaching should be initiated to help junior faculty develop their educational skills. Teaching by residents should be mentored and evaluated.

5. The results of the 4th year comprehensive examination could be used as an outcomes assessment of the curriculum.

6. The School´s involvement in continuing education clearly makes a contribution to the quality of the veterinary profession and to the reputation of the School in Israel. Further participation in these activities is recommended.

E. The Veterinary Teaching Hospital (VTH)

Very positive changes have taken place at the VTH during the last few years, including improved numbers of board-certified clinicians, a higher caseload, and increased revenues. However, the Committee urges the School to look carefully at the organization of the veterinary clinics to make sure that balanced development takes place during the next 10 years. With an added 2 faculty per year during the next decade, in addition to those faculty members presently on the University budget, it is imperative for the VTH to present a long-term plan for faculty development. This plan must take into consideration the needs for both small and large animal patient care and must satisfy the goal of providing 2 faculty per clinical specialty. It is suggested that the detailed planning of the future organization be done by members of the Academic Planning and Development Committee, which, for this purpose, should be enlarged by adding representatives from the junior clinical faculty.

Although revenues have increased, the VTH is just breaking even and has no contingency funds. Ways must be found to rectify this perilous situation. There must be increased effort to raise funds from private philanthropy.

Recommendations

1. The School should not establish clinical specialties composed of a single faculty member. Specialties that presently exist are understaffed and must be enlarged to reach a critical number of academic and technical staff.

2. Disciplines of high priority that should be added to the School include clinical pathology, anatomic pathology, and diagnostic imaging.

3. A plan for mentoring junior faculty should be implemented to ensure that their academic careers are appropriately nurtured. Discussions should include general and individual needs for adequate research time, allocation of facilities for clinical research, and a development plan for VTH.

4. A discussion should be initiated on the definition of clinical research. The importance of clinical teaching, research, and service to the mission of the School also needs to be appreciated more broadly in the University including the Faculty of Agriculture.

5. The Hospital needs larger numbers of highly qualified technical staff. Where necessary, these staff may be shared between clinical disciplines.

6. A computerized medical record system should be implemented.

7. The School should appoint a Development Officer whose sole responsibility is fund-raising at home and abroad. This appointment is especially relevant to the future of the VTH as philanthropic support is most likely to focus on improved clinical care.

8. As part of a long-term plan for the KSVM, there should be a strategic plan to improve and expand the VTH facility. Presently, there is only nominal funding for building maintenance and acquisition of equipment. New sources of revenue must be found to relieve this predicament.

F. Research

Basic Research

The Committee was impressed with the range and level of basic research conducted within the KSVM. Recent new appointments of key research scientists now form the basis for a high quality research program. These individuals are highly intelligent and enthusiastic and have taken responsibility for teaching elements of the curriculum within their areas. They have been successful in obtaining grant funding and in establishing a range of collaborations both within the Faculty of Agriculture, the Weizmann Institute, and other international institutions. They present an impressive range of scientific projects, and the publications resulting from these are of high quality.

In turn, these faculty have been responsible for recruiting doctoral students. The Committee met with a selection of these students and was highly impressed by their enthusiasm, their ability to articulate their field of interest, and the fact that they have formed a supportive network among themselves. There are adequate University processes in place for mentoring and monitoring these students. The Committee was also impressed by the innovative combined DVM/PhD program, but recognizes that at present only small numbers of students were taking this pathway, and none had yet graduated. The Committee spoke with one of the DVM/PhD students who was excited about the program.

Research faculty are housed in new purpose-built category I laboratories on the first floor of the KSVM building. There is a category III laboratory that is currently utilized as an SPF experimental animal facility. Laboratories are equipped with basic research equipment, and the scientists have been successful in collectively purchasing a new real-time PCR machine for general use. Appropriate office space is designated for these staff. Research space will improve with the planned addition of two new floors to the KSVM building.

Specialized research equipment is available elsewhere in the Faculty of Agriculture, but research staff within the KSVM regard the lack of some core equipment as an impediment to the conduct of their research. It was stated that equipment located elsewhere in the Faculty of Agriculture is not always readily accessible. As particular problems, individual groups highlighted the lack of a flow cytometer and imaging equipment, including a confocal microscope.

Clinical Research

The Committee recognizes that clinical research is carried out within the KSVM and that some individuals have been eminently successful as bench scientists. On the basis of their success, these individuals have now transferred from 'clinical' to 'regular academic' career tracks. There are, however, numerous problems within this area:

a) The School and University appear to place less value on clinical research than basic research. Clinical research is defined too narrowly and should not be considered distinct from basic research in terms of value. Recognition must be given to the essential need for strong applied and translational research and the value of publications that record it.

b) The 'clinical' and 'basic research' career tracks appear divisive – in particular the difference related to the rank at which academic tenure is granted within these pathways.

c) The physical separation of the School core facility and the VTH is a handicap for clinicians undertaking individual or collaborative research.

d) There is no infrastructure to support clinical research. There are no diagnostic pathologists with whom clinicians can discuss case material and develop research projects. There are no computerized medical and pathology records, nor is there a clinical research laboratory within the hospital. Training in clinical epidemiology, biostatistics, and experimental design for junior clinical faculty is lacking, and there is no clinical research center to assist clinicians wishing to conduct clinical trials, outcomes analysis, and studies in translational research.

e) Clinical staff members do not have time to conduct research. Junior appointments have a 20% time allocation for research, but they find that with such high clinical and teaching loads there is simply no time available. The allocation of designated research time, with proportionally more tied to increasing rank, appears to the Committee to be the inverse of an ideal situation (i.e., that junior staff be allocated more research time).
In the Committee's view, there are presently too many impediments for the School to have a flourishing and successful clinical research program.

Recommendations

5. A School Research Committee should be formed to develop strategies for research and prioritize equipment purchases. This Committee should work with the Faculty of Agriculture for the purchase of major pieces of equipment.

6. Start-up funding should be adequate, and all new appointments should be offered funding commensurate with their planned research needs.

7. An infrastructure to support clinical research in the Hospital should be in place.

8. Clinical staff should have adequate and protected time to conduct research.

9. An intramural grant program should be established to support pilot projects and clinical research.

G. Students

The students are among brightest and best students in all of Israel. They are very satisfied with the education they are receiving. As a measure of the success of the educational program, the students are well-accepted at the best veterinary institutions throughout the world. The Committee believes the present number of students is optimal; there is a good student/faculty ratio and an adequate amount of clinical material to sustain their education. The Committee is concerned about further increases in student numbers as the VTH already appears to be "bursting at the seams."

Students are admitted based on their academic credentials. At the time of admission, students appear to have a limited, narrow understanding of veterinary medicine's essential responsibilities to the State of Israel and to society as a whole. The Committee feels that to gain admission, they should demonstrate a broad appreciation of the profession they wish to join.

The senior research thesis currently required by the School is an innovative program that is beneficial to the students and the entire School. However, it may delay a student's graduation date, and many students, especially those who are not motivated by research, complain that they do not have adequate time to fulfill the requirement.

Regarding graduate education, the combined DVM/PhD program is visionary and is key to developing veterinarians who are qualified to fill positions in academia and industry. The new initiative that integrates the Institutes of Plant Sciences, Food Sciences and Nutrition, Environmental Sciences, and the KSVM offers an opportunity to educate graduate students in a unique combination of disciplines that will be of great value for addressing world food production, infectious disease, and environmental problems in the 21st Century. To maximize this potential, the Faculty of Agriculture should be encouraged to develop a graduate program that permits veterinary and other students to move freely throughout the complex of Institutes in search of their thesis topic.

<u>Recommendations</u>

1. As a criterion for admission to the School, students should be required to demonstrate some understanding of the broad contributions veterinary medicine makes to the health and welfare of humans, the environment, and all types of animals. Selection of students should include consideration of the needs of the profession in food production, food safety, and research support.

2. The Committee does not recommend canceling the senior thesis. Instead, we recommend making it a prestigious, voluntary competition, with success registered in the student's academic record and with a substantial monetary award.

3. From the start of their 1st year and throughout the entire 4-year curriculum, students should be exposed to seminars from leaders in veterinary medicine from all walks of life. The goal should be to enlarge the window through which students view the world.

4. The School should secure funds to support students who want to undertake research projects with faculty during the summer months.

5. In view of the new vision for the Faculty of Agriculture in global food production and the need for veterinary training in public health, the KSVM should actively develop opportunities for students to work in foreign countries, especially in countries of the developing world.

6. If the size of the academic staff and the facilities are increased, student numbers could be increased moderately.

H. Teaching Facilities

The Committee members viewed a range of student teaching facilities. Lecture theaters within the Faculty of Agriculture and Hospital sites were of good quality. The Committee was highly impressed by the histology/histopathology teaching laboratory where each student has an individual microscope and adjacent computer, with projecting microscope facilities available for the teacher. The Committee members were also very impressed by the anatomy laboratory in the KSVM building. In the experience of the members of the Committee, this state-of-the art facility is unequaled. The practical dissection course in anatomy is supplemented by access to two innovative computer programs, developed in the USA, to which the students have access directly adjacent to the dissection suite. The Committee members did not see any facilities for teaching wet laboratories in courses such as microbiology and parasitology.

The students have wide access to computers within the KSVM building, the Faculty library, and a designated Faculty Computer Laboratory. There is extensive use of computers within different areas of the curriculum and much support material is available over the Internet. The students can access teaching materials, including PowerPoint presentations. Faculty members have devoted considerable time to the development of these materials – in particular in histology.

Three libraries are accessible to students: the library of the Faculty of Agriculture on the campus, the VTH library, and the library of the Kimron Institute. The central faculty library provides access to books and scientific journals both as hard copies and electronic versions. Circulating books are free of charge, but users must pay for copy services and printing. The library offers separate cubicles with computers for students in silent areas and also provides space for group discussions. The library is open to students from 8.30 to 19.00 every working day on a regular basis. In terms of veterinary medicine, it is a high quality library, with hard copies and electronic

resources covering the veterinary field in a comprehensive way. The library in the Kimron Institute offers hard copies of a variety of journals and has 12 computer stations. In some ways it is complementary to the central library, offering specific veterinary periodicals. It does not seem to be used extensively by veterinary students. The VTH library with standard electronic resources serves the needs of clinicians and staff.

Recommendation:

1. The Committee recommends that the School utilize or construct a student laboratory for the teaching wet procedures in the disciplines of microbiology and parasitology.

I. Admission and Tuition

With a large proportion of Israeli students studying abroad, the country is faced with a growing number of recent graduates from foreign institutions who require clinical training before they are licensed to practice veterinary medicine in Israel. Therefore, it seems desirable and important to incorporate some of these students into clinical training programs of the School, which may include the 4th year program and/or post-graduate clinical courses. However, in view of the small size of the faculty, this will require a concomitant and appropriate increase in the number of faculty and staff as well as investment in infrastructure.

There is a growing need for graduates wishing to enter both large and small animal practice to have skills in business management, economics, and risk analysis.

Recommendations

1. Carefully evaluate the number of additional DVM students from other institutions who can receive clinical training at the KSVM, and charge tuition for these students.

2. Consider broadening the prerequisites and undergraduate majors required for admission to the KSVM to attract as diverse a class as possible.

J. Future plans to strengthen KSVM

1. The School of Veterinary Medicine has the opportunity to meaningfully advance the Faculty of Agriculture's initiative *Helping People Help Themselves.* The administration of the Faculty of Agriculture should be made fully aware of the novel strength the Veterinary School can bring to this program. In turn, the administration of the Veterinary School should pursue this initiative with great vigor for it offers opportunities for collaborative research and training that will address the global challenge of sustaining increased food production in the 21st century. In this realm, the opportunities for the KSVM and for veterinary medicine in general are unmatched anywhere!

2. The School should negotiate with the University to have at least one full-time Development Officer. The Veterinary Teaching Hospital will obtain the greatest benefit from such an appointment. Ideally, this individual should be well-informed not only about Development but also about animals, especially horses.

In a centralized Development structure, these characteristics are rarely taken into account, but are critical to successful fund raising among those devoted to animals. Moreover, other University constituencies are not competitive with the KSVM for donations from equine, dog fancy, and animal welfare organizations.

There are many wealthy Jewish people around the world who care about animals, including wildlife. A more concerted effort must be made to solicit funds from these individuals since future growth of the VTH will, in large measure, be dependent on their generosity. Moreover, the KSVM appears overly reliant on the Koret Foundation and needs to have a broader philanthropic base.

Licensing of horse-racing in Israel will attract very wealthy individuals. Soliciting these individuals for support is essential to future growth of the equine clinic. This can be a mutually beneficial relationship as horse owners are prone to contribute in order to ensure the best clinical care for their valuable animals.

APPENDICES

Appendix 1:
Licensing and absorption of foreign graduates in veterinary medicine in Israel

1) Licensing records in Israel

According to the Israeli records of the last 4 years, 90-100 new veterinarians are certified annually, of which 75-80 are Israelis and the others are immigrants. Roughly half of the Israelis are graduates of KSVM, and the others graduate mainly from European schools including those in Italy, Slovakia, and Hungary.
In European countries, there is an annual output in the range of 10-30 veterinary graduates per year per million people. The comparable number in Israel (with a population of ~7 million) is about 15 per year per million.

2) The quality of training in European veterinary schools is heterogeneous. The main deficiency appears to be inadequate training in clinical aspects of veterinary medicine.

3) The current legislation in Israel [Veterinary (licensing examinations) Regulations, 1991] requires that those who graduate from abroad must pass a licensing examination.

The examination is held in the following subjects:

a) veterinary legislation prevailing in Israel;

b) diseases, as listed in the Animal Diseases Ordinance [New Version, 1985]: their diagnosis, prevention and eradication;

c) the animal-raising industry in Israel and its specific characteristics; and

d) veterinary control of animal products in Israel.

4) This examination requires a much lower level of knowledge and competence than the final fourth year examinations at the KSVM that Israeli students are required to pass in order to be licensed to practice veterinary medicine in Israel. In particular, this pertains to clinical aspects of veterinary medicine.

5) The maintenance of a professional standard of veterinary medicine in Israel necessitates that the licensing examinations for graduates of foreign veterinary schools be gradually upgraded to match the current requirements met by the KSVM students.

6) To help graduates of foreign schools - Israelis and immigrants - achieve national standards and pass the upgraded licensing examinations, we recommend that, in addition to the present one-year veterinary course, the School develop 2 non-mutually exclusive pathways for recent foreign graduates with participation on a voluntary basis:

a) allocate 5-10 additional positions each year, mainly for Israeli graduates of foreign schools, in the 4th clinical year of the KSVM. This may increase the current number of local graduates from 40-50 to up to ~60.
b) offer clinical courses of 6-12 month duration at the KSVM to include the main clinical veterinary teaching "blocks" (2 weeks each): 10-15 blocks of the 10 "mandatory rotations" and/or for a longer course, addition of 5 "mandatory major elective rotations" as offered in the current curriculum of KSVM.

Similar to the state of affairs for foreign graduates in the Israeli medical profession, we propose that those who successfully pass the clinical course (described in b above) receive appropriate credit points in the licensing exam.

7) The committee realizes that these recommendations may require additional personnel and financial support from the government. However, we believe that they are justified in order to achieve the following objectives:
a) maintain a high standard for the veterinary profession in Israel;
b) ensure a smooth integration of graduates of foreign schools into the profession in Israel.

Appendix 2: Contractual arrangements between US veterinary school and State Departments of Agriculture; three examples.

A. State of California and University of California, School of Veterinary Medicine

1. The California Animal Health and Food Safety Laboratory has an advisory Committee. This committee only advises and makes recommendations to the Director of the Laboratory. The Committee consists of the State Veterinarian, representatives of the beef, dairy, poultry, sheep, and equine commodities, and a representative from APHIS. The Director pays attention to the members of the committee as they have political influence and this helps assure funding from the State and the California Department of Food and Agriculture.

2. The Laboratory Director is nominated through the University process for recruitment of faculty. There is a national search that describes the position and expectations of the Director. A search committee is appointed by the Dean of the School. The Committee consists of 2 members of the laboratory, 1 faculty member, a representative of the California Department of Food and Agriculture, and a representative of the advisory committee. The Chair of the Search Commmittee is a representative of the Dean's Office. The Committee will review applications and select 3 to 5 applicants that appear to meet the position description. Interviews are then conducted with the Committee, faculty of the laboratory system, the department chairs, and the Dean. The Director will have an appointment in a relative department. The final recommendation from the Search Committee is made to the Dean, who then makes the final decision for hiring the Director of the Laboratory. The appointment is for 5 years with a review in the 4th year for consideration for reappointment or for another 5 year term. The University has an agreement with the State Department of Food and

Agriculture to manage the Diagnostic Laboratory, and the core funding for the laboratory is provided to the School to employ the workforce to operate the laboratory. The Director's salary is provided in the core funding from the State and the Director is paid as a University employee.

3. The School has the sole authority to direct and make decisions about the operation of the laboratory. With this in mind, the School administration and the laboratory Director have a very close working relationship with the State Veterinarian and the federal regulatory workforce. This relationship has been excellent because it has enhanced the funding for the laboratory from state and federal resources. The agreement with the State was to assure rapid diagnosis and information dissemination to the stakeholders, i.e., farmers, regulatory professionals, and the public in general. Faculty have 70% appointments to diagnostic service and 30% for creative activities and public service. They are considered equivalent academic senate level faculty.

4. The laboratories in the California Animal Health and Food Safety System include the core laboratory at Davis; two poultry diagnostic laboratories, one in Turlock and the other in Fresno; a mammalian laboratory in Tulare; and a general purpose laboratory in San Bernadino (southern California). The Davis laboratory is the home of the management information system, the toxicology laboratory, the equine analytical chemistry laboratory, and general management of the system. The San Bernadino laboratory also has an equine necropsy program for thoroughbred horses that die on the tracks.

5. The reporting of information is done through verbal and written reports to state and federal officials. Depending upon the urgency of the diagnostic situation, reports of major outbreaks are immediate to state and federal officials; regulatory reporting is routinely done to federal personnel and the University is told of the major outbreaks. Information is sent electronically and also by telephone for immediate responses and with quarterly reports to state, federal and commodity stakeholders by written means.

6. The collection of samples is done by private veterinarians who have need to gain an confirmatory diagnosis; state and federal veterinarians collect and submit samples for regulatory purposes or for outbreaks of unkown cause. Laboratory personnel seldom go out to collect samples themselves; however, they may provide training on sample collection procedures for submitting veterinarians.

7. Emergency animal health situations require many of the laboratory personnel to work long days to identify the cause of the outbreaks. The laboratory personnel are dedicated to this activity, not to teaching or research. They will conduct research during slow times often with collaborators in the School.

B. Michigan State Department of Agriculture and Michigan State University, College of Veterinary Medicine

From: Dr. Mullaney, the Acting Director of the Diagnostic Center for Population and Animal Health (DCPAH)

The DCPAH provides diagnostic testing for the Veterinary Teaching Hospital in the CVM as well as for animal owners and practitioners throughout Michigan, and several of our laboratory sections have clients throughout the US. The director answers to the Dean of the CVM. The DCPAH has a close working relationship with the CVM and the director is on the Dean's Executive Committee. The veterinary students take all of their required diagnostic pathology rotations at the DCPAH. We have the largest pathology residency training program in North America and our faculty members have shared academic appointments in the academic departments of the CVM.

The State Diagnostic Laboratory only does regulatory tests such as brucellosis serology, EIA testing, anaplasma testing, and Johnes testing and does not do any disease outbreak investigations.

Overall, we are one of the two major service units of the CVM, the other of course being the VTH. Our relationship with the CVM is fostered by the fact that we consider ourselves to be a part of the CVM, with joint appointments and teaching and research responsibilities comparable to those of faculty members in the basic science or clinical departments of the CVM.

C. Commonwealth of Pennsylvania Department of Agriculture and the School of Veterinary Medicine, University of Pennsylvania

In 1988 the Pennsylvania Department of Agriculture was criticized for the quality of its diagnostic services and lost accreditation from the American Association of Veterinary Laboratory Diagnosticians (AAVLD). In response, the Agriculture Department created the Pennsylvania Bureau of Animal Health & Diagnostic Services with commissioners and legislators involved with the livestock and poultry industries in the State. The Secretary of Agriculture for Pennsylvania chairs the Commission, assisted by an Executive Director who is also the State veterinarian.

One division of the Bureau is the Pennsylvania Animal Diagnostic Laboratory System (PADLS). This is a tripartite system comprising the Pennsylvania Department of Agriculture, the Pennsylvania State University, and the University of Pennsylvania School of Veterinary Medicine. The three labs in PADLS work together to provide rapid and accurate diagnostic assistance to veterinarians involved with food-fiber animals, horses, aquaculture, and wildlife. PADLS exists for the purpose of protecting animals and humans from health threats by providing accurate diagnoses to assist Pennsylvania's agricultural community in controlling diseases and to minimize economic loss.

PADLS also provides a field investigation team of veterinary diagnosticians with bases of operation at PADLS-Penn State and PADLS-New Bolton Center. This field investigation team is available when practitioners of veterinary medicine need support for difficult problems in the field. The team is also activated when there is suspicion of any outbreak of diseases that may threaten Pennsylvania agriculture.

Through PADLS, the School of Veterinary Medicine provides diagnostic and field investigation services for Eastern Pennsylvania under contract from the State. Most veterinary diagnosticians in PADLS-New Bolton Center have faculty appointments at the School. Their salary is paid from the State contract and supplemented by the

School budget for their commitments to the teaching program. The director of PADLS-New Bolton Center is a faculty member, and she reports monthly to the Bureau of Animal Health and Diagnostic Services. The State toxicology lab is run by a School faculty at New Bolton Center.

This is a successful partnership between the Department of Agriculture, the School of Veterinary Medicine, and Pennsylvania State University. As a result, PADLS is fully accredited by the AAVLD and has been so for over a decade.

APPENDIX A

RESUMES OF COMMITTEE MEMBERS

1. Prof. Alan Kelly, Penn University, (Chair)
2. Prof. Michael Day, University of Bristol
3. Prof. Hans Dietz, Univ. of Copenhagen, (EAEVE member)
4. Prof. Petr Horin, Univ. of Veterinary & Pharmaceutical Sciences, Czech Republic, (EAEVE member)
5. Prof. Reuven Laskov, Hebrew University
6. Prof. Arnon Shimshony, Hebrew University
7. Dr. Karen Young, University of Wisconsin-Madison

University of Pennsylvania
School of Veterinary Medicine
Curriculum Vitae

Full name: Alan M. Kelly
Date of Birth: February 7, 1935
Place: United Kingdom
Marital status: Married; 4 children
Military service: Royal Naval Reserve 1953 - 1958

Education:

Institution	Date	Degree
University of Reading, Reading, England	1954 to1958	B.Sc.
University of Bristol, Bristol, England	1958 to 1962	B.V.Sc.
University of Pennsylvania	1962 to 1967	Ph.D.

Positions held:

2006 - present	The Gilbert S. Kahn Dean Emeritus
1979 - present	Professor of Pathology, Department of Pathobiology
1994 - 2005	The Gilbert S. Kahn Dean, School of Veterinary Medicine, University of Pennsylvania
1990 - 1993	Chair, Department of Pathobiology, School of Veterinary Medicime
1987 - 1989	Chair, Graduate Group of Pathology, University of Pennsylvania
1986 - 1989	Head, Laboratory of Pathology, School of Veterinary Medicine,
1972 - 1979	Associate Professor of Pathology, School of Veterinary Medicine,
1968 - 1972	Assistant Professor of Pathology, School of Veterinary Medicine

Research support – Grants and Fellowships

Principal Investigator:

1973 - 1978	NIH, NHLB 15835 (PMI) Muscle development and reactions to injury	$180,000
1978 - 1993	Competitive NIH renewals	$1,024,000
1995 - 1999	NIH, AI, Mechanisms of Aging: Analysis and Intervention, PI on project 4, Awarded but not accepted as appointed dean	$2,174,132
1971 - 1973	Muscular Dystrophy Association of America, Muscle reactions to Injury	$25,000

1983 - 1996	Muscular Dystrophy Association of America, Heterogeneity of muscle fiber types With competitive renewals	$390,000
1991 - 1992	Muscular Dystrophy Association of America DMD - The mdx mouse diaphragm and myoblast transfer	$16,248
1993 - 1996	The pathogenesis of muscular dystrophy	$47,774

Funds raised as Dean for Capital Campaign 2001 – 2005 $128,000,000

Representative publications:

Kelly, A.M, and S.I.Zacks. 1969. The Histogenesis of Rat Intercostal Muscle. J. Cell.Biol, 42: 135-153

Kelly,A.M. and S.I. Zacks 1969 The Fine Structure of Motor End Plate Morphogenesis . J. Cell Biol. 42: 154 -169

Kelly,A.M. and N.A. Rubinstein 1981 Why are fetal muscle slow? Nature 288; 266-269

Kelly, A.M. and N.A. Rubinstein 1986 Development of Neuromuscular Specialization Med. Sci. Sports Ex. 18; 292-298

Narusawa, M., R.Fitzsimmons, S. Izumo, B. Nadal-Ginard, N.A. Rubinstein, and **A.M.Kelly** 1987 Slow Myosin in Developing Rat Skeletal Muscle J. Cell Biol. 104; 447-459

Stedman, H.H., H.L. Sweeney, J.B. Shrager, H.C. Maguire, R.A. Panettieri, B. Petrof, M. Nurasawa, J.M. Leferovich, J.T. Sladky, and **A.M. Kelly** 1991 The *mdx* mouse diaphragm reproduces the degenerative changes of Duchenne muscular dystrophy. Nature 325; 536-539

Conferences Organized:

1991 Keystone Symposium on Neuromuscular Development, Keystone, CO (with Dr. Helen Blau)

2001 An Agenda for Action: Veterinary Medicine's Crucial Role in Public Health and Bio-defense, Washington, DC. (PI on grant of $100,000 from the Annenberg Foundation Trust at Sunnylands to organize the conference. Run in conjunction with the American Association for Veterinary Medical Colleges)

2006 Veterinary Public Health in a Global Economy, Philadelphia, PA

Michael J. Day

BSc BVMS(Hons) PhD DSc DiplECVP FASM FRCPath FRCVS
Professor of Veterinary Pathology, University of Bristol

Michael Day qualified as a veterinary surgeon from Murdoch University (Western Australia) in 1982. After a period in small animal practice he returned to Murdoch to complete a Residency in Microbiology and Immunology, and a PhD involving collaborative research with the Royal Perth Hospital. Michael held postdoctoral positions in experimental immunology at the Universities of Bristol and Oxford, and in 1990 returned to Bristol, where he is currently Professor of Veterinary Pathology and Director of Laboratory Diagnostic Services (*Langford Veterinary Diagnostics*). His research interests cover experimental models of autoimmunity and a range of companion animal immune-mediated and infectious diseases. Michael has published widely in the field of immunopathology, is author of the textbook *Clinical Immunology of the Dog and Cat* (2nd Edition 2008) and co-editor of the *BSAVA Manual of Canine and Feline Haematology and Transfusion Medicine* and the text *Arthropod-Borne Infectious Diseases of the Dog and Cat*. He is a diplomate of the European College of Veterinary Pathology, and holds fellowship of the Australian Society for Microbiology, the Royal College of Pathologists and the Royal College of Veterinary Surgeons. Michael is Co-Editor in Chief of the *Journal of Comparative Pathology*. He is chairman of the BSAVA Scientific Committee and chair-elect of the WSAVA Scientific Advisory Committee, and sits on the Petplan Charitable Trust Scientific Committee, the Kennel Club-BSAVA Scientific Committee, the Cat Group, and the UK Veterinary Products Committee. Michael is a consultant to, and co-founder of, a university spin-out company KWS Biotest Ltd. He has been the recipient of the BSAVA Amoroso Award for outstanding contribution to small animal studies (1999), the BSAVA Petsavers Award (2000, 2006 & 2007) and the RCVS Trust's G. Norman Hall Medal for outstanding research into animal diseases (2003).

CURRICULUM VITAE
HANS HENRIK DIETZ, DVM, PhD

Hans Henrik Dietz, born 26 November 1952 in Aalborg, Denmark

DVM, The Royal Veterinary and Agricultural University, Copenhagen 1981

Current position

Head of Department, Department of Small Animal Sciences, Faculty of Life Sciences, University of Copenhagen 2004 - present
Associate Professor, internal medicine, companion animals 2006 - present
Head of the Group of veterinary departments, University of Copenhagen, Faculty of Life Sciences, 2006 - present
Acting Head of Department, Department of Large Animal Sciences, Faculty of Life Sciences, University of Copenhagen 2007

Previous posts

NOVO Foundation scholarship (Protein losing enteropathy in horses), The Royal Veterinary and Agricultural University, Copenhagen, 1979 – 1980

Mixed veterinary practice, 1981 – 1983

PhD-scholarship, The Royal Veterinary and Agricultural University, Copenhagen, January 1983 – 1986
PhD (Ophthalmo-pathology) (lic.med.vet.), The Royal Veterinary and Agricultural University, Copenhagen, 1987

Assistant Professor (anatomy), The Royal Veterinary and Agricultural University, Copenhagen 1986 – 1987

Junior Research Officer, Danish Veterinary Institute, Aarhus 1987 – 1990

Senior Research Officer, Danish Veterinary Institute, Aarhus 1990 – 2004

Head of section for fur animals, wildlife, zoo animals and pet animals, 1995 – 2004
Responsible for diagnostic, research and advisory activities related to the above mentioned species including pathology, bacteriology, virology, parasitology and epidemiology.

Other appointments

Board member, vice president, Danish Veterinary Association, 1997 - 2004
President, Danish Veterinary Association 2000 – 2001
Chairman, The Disease and Health Committee, Nordic Fur Animal Research Association, 1999 - present

Chairman, Wildlife Disease Association, Nordic Section, 1993 – 2004

Participation in accreditation/evaluation visits to veterinary schools

EAEVE visit to University of Leon, Spain. Team member	2001
EAEVE visit to University of Naples, Italy. Team member	2002
TAIEX visit to University of Tartu, Estonia. Team member	2002
TAIEX visit to University of Brno, Czech Republic. Chairman	2002
EAEVE visit to Justus-Liebig Universität, Giessen, Germany. Team member	2003
EAEVE visit to University of Cluj-Napoca, Romania. Chairman	2004
AVMA accreditation, University of Georgia, USA. Observer	2006
EAEVE visit to Veterinärmed. Universität, Vienna, Austria. Team member	2006
EAEVE revisit to University of Ankara, Turkey. Chairman	2007
EAEVE revisit to University of Cluj-Napoca, Romania. Chairman	2007

Participation in activities relating to standards/accreditation

Member, European Joint Education Committee (evaluating all veterinary schools in Europe), 2000 – present

Representative of University of Copenhagen (formerly: The Royal Veterinary and Agricultural University), Denmark in EAEVE (Warzaw 2005, Ghent 2006, Konya 2007) 2005 – present

EAEVE delegate at Global Accreditation Meeting, London 2004

Representative of the Nordic-Baltic region in EAEVE, Executive Committee (European Association of Establishments in Veterinary Education) 2006 – present

Publications

The scientific results are published in international scientific journals, as proceedings from scientific meetings or as other, eg. national popular articles and chapters in books (>140).

Presentations

More than 100 oral presentations at national and international meetings, congresses etc.

Hans Henrik Dietz

13. juli 2016

Petr Horin, Prof. RNDr. MVDr. PhD.

BORN 15TH AUGUST 1953

Affiliation:
Institute of Animal Genetics
Faculty of Veterinary Medicine
University of Veterinary and Pharmaceutical Sciences
Palackého 1/3
612 42 Brno
Czech Republic

Education:

Bachelor: Académie de Montpellier, Lycée A. Daudet, Nimes, France: 1972
MVDr. *(doctor in veterinary medicine)**:*** School of Veterinary Medicine, Brno: 1978
RNDr. *(doctor in life sciences)* ***in Genetics:*** Faculty of Science, Masaryk University, Brno: 1985
PhD: Faculty of Vet. Med. Brno: 1986

Professional positions*:*
Assistant professor*:* Fac. of Vet. Medicine Brno, 1977-1989
Associate professor - Faculty of Vet. Medicine Brno: 1989 - 1999
Full professsor in genetics*:* Faculty of Vet. Medicine Brno since 1999

Administration:
Since 1990: Head of the Institute of Genetics
1990 – 1993: Vice-dean of the faculty
1993-2000 Dean of the faculty
Since 2002: Head of the Department of Pathobiology

Teaching

1. ***Regular teaching activities***
   - Courses for undergraduate and/or graduate students at the Faculty of Veterinary Medicine (Clinical Genetics), Faculty of Veterinary Hygiene and Ecology (Special Genetics), Faculty of Pharmacy (Applied Genetics), Faculty of Science (Animal Genetics)
   - Regular specialized lectures for undergraduate and/or graduate students at the Faculty of Medicine, Faculty of Agronomy

2. ***Specialized lectures and courses***
   Invited presentations for different teaching institutions in Europe, Canada, USA

3. ***Supervising***
   Supervisor of PhD and undergraduate students of three faculties

RESEARCH

Main topic: genetics of animal health. *Special topics:* immunogenomics, immunogenetics, genetics of disease resistance, animal breeding and genetics

Selected recent papers

Davies, C. J. - Joosten, I, - Bernoco, D. - Arriens, M.A. -.Bester, J. - Ceriotti, G. - Ellis, S. - Hensen, E. J. - Hines, H. C. - Hořín, P. - Kristensen, B. - Lewin, H. A. - Meggiolaro, D. - Morgan, A. L. G. - Morita, M. - Nilsson, Ph. R. - Oliver, R. A. - Orlova, A. - Ostergard, H. - Park, C. A. - Schubert, H.-J. - Spooner R. L. - Stewart, J. A.: Polymorphism of bovine MHC class I genes. Joint report of the Fifth International Bovine Lymphocyte Antigen (BoLA) Workshop, Interlaken, Switzerland, 1 August 1992. **European Journal of Immunogenetics** 21, 1994: 239-258.

Hořín, P. - Matiašovic, J. - Trtková, K. - Pavlík, I.: BoLA DYA polymorphism in Czech cattle.

Experimental and Clinical Immunogenetics 15, 1998: 56-60.

Hořín, P. - Cothran, E.G. - Trtková, K. - Marti, E. - Glasnák, V. - Henney, P. - Vyskočil, M. - Lazary, S.: Polymorphism of Old Kladruber horses, a surviving but endangered baroque breed. **European Journal of Immunogenetics** 25, 1998: 357-363.

Hořín, P.: Biological principles of heredity of and resistance to disease. In: Genetic resistance to Animal Disease, M. Müller & G. Brem, Eds. **Scientific and Technical Reviews OIE** 17, 1998: 302-314. ISBN 92-9044-466-5.

Hořín, P. - Rychlík, I. - Templeton, J.W. - Adams, L.G: A complex pattern of microsatellite polymorphism within the bovine Nramp1 gene. **European Journal of Immunogenetics** 26,1999: 311-313.

Guérin, G. - Bailey, E. - Bernoco, D. - Anderson, I. - Antczak, D.F. - Bell, K. - Binns, M.M. - Bowling, A.T. - Brandon, R. - Cholewinski, G. - Cothran, E.G. - Ellegren, H. - Förster, M. - Godard, S. - Hořín, P. - Ketchum, M. - Lindgren, G. - McPartlan, H. - Mériaux, J.-C. - Micklelson, J. - Millon, Murray, J. - L.V. - Neau, A. - Roëd, K. - Sandberg, K. - Shiue, Y.-L. - Skow, L. - Stott, J. - Swinburne, J. - Valberg, S.J. - Van Haringen, H. - Van Haringen, W.A. - Zeigle, J.: Report of the International Equine Gene Mapping Workshop: Male linkage map. **Animal Genetics** 30, 1999: 341-354.

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Matiasovic J, Lukeszova L, Horin P Two bi-allelic single nucleotide polymorphisms within the promoter region of the horse TNF-a gene. **European Journal of Immunogenetics** 29, 2002: 285-286.

P. Hořín, J. Matiašovic: A second locus and new alleles in the major histocompatibility complex class II (ELA-DQB) region in the horse. **Animal Genetics** 33, 2002: 196-200.

J. Matiašovic, S. Kubíčková, P. Musilová, J. Rubeš, P. Hořín: Characterization of the *NRAMP1 (SLC11A1)* gene in the horse *(Equus caballus L.).* **European Journal of Immunogenetics** 29, 2002: 423-429.

Hořín P., Smola J., Matiašovic, J. *et al*. (2004) Polymorphisms in equine immune response genes and their associations with infections. **Mammalian Genome 15***, 843-50.*

Vychodilova, L., Matiasovic, J., Horin, P. : Single nucleotide polymorphisms in four functionally related immune response genes in the horse: CD14, TLR4, Ce, and FceR1 alpha. **International Journal of Immunogenetics** 32, 2005: 277-283.

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Kralik P., Matiasovic J., Horin P.: Genetic evidence for the existence of interleukin-23 and for variation in the interleukin-12 and interleukin-12 receptor genes in the horse. **Comparative Biochemistry and Physiology** – Part D (Genomics and Proteomics) 1, 2006:179-186.

Matiasovic J., Kralik P., Leva L., Faldyna M., Horin, P.: Suppressive subtraction hybridization on stimulated primary horse macrophages. **Acta Veterinaria Brno** 75, 2006: 337-341.

Musilova P., Kubickova S., Zrnova E., Horin P., Vahala J., Rubes J.: Karyotypic relationships among Equus grevyi, Equus burchelli and domestic horse defined using horse chromosome arm-specific probes. **Chromosome Research** 15, 2007: 807-813.

INTERNATIONAL ACTIVITIES

Teaching

- **European Association of Establishments for Veterinary Education (EAEVE):**

- Member of the Executive Board: 1997-1999
- Member of visiting teams
- Chairman of visiting teams
- Member of the Joint Education committee of the EAEVE and FVE in Brussels since 2002

- **European University Association Brussels**

- Member of the Working Group 2 on the EU FP7 - Mobility, Research Training and Careers: 2005.
- Member of the Working Group for Research Policy, since 2005

- **Other expertise**

- Member of an international team for evaluation of the Veterinary Research Institute in Brno, Czech Republic
- Independent academic expert for Socrates project assessments (Brussels, 2003)

Research

- **International Society for Animal Genetics (ISAG)**:

- member: since 1986
- Member of the Standing Committee for Genetics of Immune Responses and Disease Resistance: 1994-1996.
- Secretary of the Standing Committee for Genetics of Immune Responses and Disease Resistance:1996-1998.
- Chairman of the Standing Committee for Genetics of Immune Responses and Disease Resistance: 1998-2000.
- Member of the Standing Committee for Genetics of Immune Responses and Disease Resistance: since 2000.

Language skills:

Czech, Slovak, English, French: fluent

Spanish, German, Russian: Passive knowledge, basic active knowledge

Short CV – Reuven laskov (October 2007)

1. Name: Reuven Laskov
2. Date and place of Birth: 25-9-1935, Haifa, Israel
3. Department: Experimental. Medicine & Cancer Research
4. Academic Degree: Professor emeritus**,** 2004
5. Academic Education: Hebrew University-Hadassah Medical School, Jerusalem, Israel
   - M.Sc. in Physiology, 1962
   - M.D. , 1962

6. Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:
Dept. of Cell Biology, Albert Einstein College of medicine (AECOM), Bronx, NY: 1967-1970

7. Appointments at the Hebrew University (title and year granted):
Instructor, 1964; Lect., 1970; Sen. Lect., 1973; Assoc. Prof., 1978; Prof., 1990; Prof. Emeritus, 2004.

8. Other appointments:
   - Visiting Scientist- Dept. of Microbial Immunity, NIH, Bethesda MD, USA (1977-8); Dept. of Microbiol & Immunol. Univ. South Florida, Tampa, USA (1987, 3 month); Dept. of Cell Biology, AECOM, Bronx, NY (1988-9); Dept. of Microbiol. & Immunol. AECOM, Bronx ,NY (2001-2); Dept. of Microbiol. & immunol. AECOM, Bronx, NY (2003, 3 month).
   - Member of the Hubert H. Humphrey center for "Experimental Medicine and cancer research", 1970-to date.
   - Member of the Paul Ehrlich research center for the "study of normal and leukemic white blood cells", 1989-1996.

9. Main academic positions:
   Appointments Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):
   - Independent investigator, Dept. of Exptl. Med & Cancer Research: 1964- to date.
   - Chairman, Dept. of Exptl. Med & Cancer Research: 1993-1996.
   - First Chairman of the newly founded Institute of Medical Sciences, faculty of Medicine: 1994-1996.

10. Engagements outside the Hebrew University:
    - Military service: Regular army service, Israeli Defense Force (IDF) as a military physician 1962-1964.
    - IDF, reserve army service: 1953-1962; 1964-1993.
      Final rank: Lieutenant colonel.

11. Main research areas:
Molecular Immunology, B cell differentiation, Mechanisms of B cell transformation and malignancies.

Summary of current research

The current main research effort of my laboratory is an attempt to understand the molecular mechanism of the phenomenon of somatic hypermutation (SHM) that affects the immunoglobulin (Ig) variable region genes (V) and results in the formation of antibody molecules with higher affinity towards the immunizing antigen. Activating Induced Cytidine Deaminase (AID) was recently found as a key mutator enzyme responsible for SHM. It acts by deamination of cytidines and converting it to Uracyl, in ssDNA in germinal center (GC) B-lymphocytes. Epstein Bar Virus (EBV) immortalizes B-cells and is implicated in the tumorigenesis of certain B-lymphomas and nasopharyngeal carcinomas. We are trying to find out whether transformation by EBV induces SHM in B-cells. We have found by RT-PCR that normal PBL from cord blood or adult did not express AID. In contrast, EBV-transformed lymphoblastoid cell lines (LCLs) derived from either cord blood or adult PBL, expressed significant amounts of AID. Moreover, AID was rapidly expressed within 1 day following viral infection. To correlate AID expression with an ongoing process of SM, we have analyzed the sequences of the rearranged V-genes of both cord blood and adult LCLs. We did not detect somatic mutations in the rearranged Vk genes in LCL derived from cord blood (with an overall mutation frequency of $<1.8x10^{-4}$). On the other hand, in an established monoclonal IgM Rheumtoid factor (RF) producing LCL (which was derived from a Rheumatoid arthritis patient), we have found that the IgM antibodies secreted by 4/26 cellular clones lost their ability to bind to the IgG antigen. RT-PCR and sequencing of the VH genes from these clones, revealed 16 point mutations which occurred at a frequency of $1.6x10^{-3}$/bp and were restricted to C/G transitions (14/16), indicating that these mutations were due to the initial phase of AID dependent mutations. Overall, there were 13 missense mutations, two silent mutations and was a stop codon in the VH gene of the RF cells. Interestingly, no mutations were found in the rearranged V-lambda gene from the same RF cell line and its cellular clones (i.e., $MF<1.2x10^{-4}$). In order to explain our results, we are currently looking in the RF cells, for the expression of DNA repair enzymes and translesion repair polymerases known to be responsible for expanding the spectrum of SHM following the initial phase of AID directed lesions. Our combined results demonstrate that EBV transformation can rapidly induce the expression of AID and may also result in an ongoing process of SM in adult's LCLs, albeit at a relatively low rate. This process, in combination of positive selection in culture for the non-producing IgM clones, could explain the occasional loss of antigen binding activity of antibody secreting LCL's. The use of antibody producing LCL's will enable us to determine not only mutation frequencies but also the mutation rates in the IgV genes in the antibody producing LCL cultures. We intend to extend our findings to additional antibody producing LCL's and to find out whether freshly isolated LCL's have higher ability to generate SHM. Since our results also show that expression of AID is necessary but not sufficient for generation of SM in the IgV genes (For example the cord blood LCL's express AID but do not mutate), we intend to look for other genes that are specifically expressed in GC B-cells and may collaborate with AID in generating mutations. Since EBV is known to be associated with B-lymphomas, we also intend

to look for SHM in a variety of proto-oncogenes and to examine the possibility that activation of the AID mutator by EBV plays a role in progression of the EBV immortalized human B cells into malignant B-lymphomas.

12. Competitive Research Grants within the last five years :

- Israel Ministry Health, 2001-2002: "Molecular characterization of human B-lymphoma cell lines that exhibit an ongoing process of somatic hypermutation in their antibody variable region genes" (60.000 NS).
- Israel Cancer Association 2004-2006: "Does activation-induced cytidine deaminase (AID) participate in the transformation of B cells by Epstein Bar virus". (45.000+30.000NS).

13. Scientific Publications:

77 peer reviewed articles and 63 Abstracts (presented at scientific meetings)

14. Main scientific publications within recent years (refereed publications and presentations):

1) Nir Berger, Hanna Ben Bassat, Zipora Shlomai, Beni Klein and Reuven Laskov
Cytotoxicity of the NF-kB inhibitors BAY11-7085 and CAPE for human B lymphoma cell lines.Experimental Hematology. 35: 1495-1509 (2007).

2) Gil Y, Levy-Nabot S, Steinitz M, Laskov R.

Somatic mutations and activation-induced cytidine deaminase (AID) expression in established rheumatoid factor-producing lymphoblastoid cell line.
Mol Immunol. 44: 494-505 (2007)

3) Laskov R, Berger N, Scharff MD, Horwitz MS.

Tumor necrosis factor-alpha and CD40L modulate cell surface morphology and induce aggregation in Ramos Burkitt's lymphoma cells.
Leuk Lymphoma. 47:507-519 (2006).

4) Laskov R, Berger N, Horwitz MS.

Differential effects of tumor necrosis factor-alpha and CD40L on NF-kappaB inhibitory proteins IkappaBalpha, beta and epsilon and on the induction of the Jun amino-terminal kinase pathway in Ramos Burkitt lymphoma cells.
Eur Cytokine Netw. 16:267-276 (2005).

5) Gabay C, Ben-Bassat H, Schlesinger M, Laskov R.

Somatic mutations and intraclonal variations in the rearranged Vkappa genes of B-non-Hodgkin's lymphoma cell lines.
Eur J Haematol. 63:180-191 (1999).

6) Riss J, Laskov R.

Expression of novel alternatively spliced isoforms of the oct-1 transcription factor.
Biochim Biophys Acta. 1444:295-298 (1999).

Abstract presentations:

1. Riss, J. and Laskov, R. Multiple levels of regulation of the expression of the oct-1 gene. The European Developmental Biology Conference, Oslo Norway, June 1999.

2. Riss, J. Friedman, Y. and Laskov, R. Multiple levels of regulation of the oct-1 gene in embryonic and adult tissues. 29th meeting of the Isr. Immunol. Society, Jerusalem, Israel, January 2000.

3. Gabay, C., Ben-Bassat, H. Schlesinger, M. and Laskov, R. Somatic mutations and intraclonal variations in the rearranged Vk genes of E-non-Hodgkin's lymphoma cell lines. 29th Meeting of the Isr. Immunol. Society, Jerusalem, Israel, January 2000.

4. Levy, S., Ben-Bassat,H., Rabinowitz,R., Shlomai,Z., Steinitz,M and Laskov,R. Expression of AID and Bcl-6 genes in normal and EBV transformed B-lymphocytes. 32th meeting of the immunol. Society, Haifa, Israel, February 2003.

5. Yaniv G, Levy S, Steinitz M and Laskov R, Induction of activating-induced cytidine deaminase (AID) expression and somatic mutations in EBV transformed lymphoblastoid cell lines (Abst.). "ILANIT" Meeting Eilat, February, 2005 and in the 34th meeting of the Israeli Immunological society, Ben-Gurion university, Beer Sheeba , February, 2005.

6. Yaniv, G, Steinitz , M, and Laskov, R, Somatic mutations and activation-induced cytidine deaminase (AID) expression in a rheumatoid factor producing lymphoblastoid cell line (Abst.). XXXIII Meeting of the International Society for Oncodevelopmental Biology and Medicine (ISOBM) meeting, Rhodes, Greece, September, 2005.

7. Yaniv Gil, Sarah Levy-Nabot, Michael Steinitz and Reuven Laskov
Somatic mutations and activation-induced cytidine deaminase (AID) expression in established rheumatoid factor-producing lymphoblastoid cell line (Abst). 35th meeting of the Israel Immunological society, Jerusalem Israel, February, 2006.

8. Reuven Laskov, Ilan Chezar, Liat Lobl-Lavi, Yaniv Gil, and Michael Steinitz
Somatic hypermutation in the rearranged VH but not in the V-lambda genes in EBV-transformed rheumatoid factor-producing lymphoblastoid cell line.
Meeting of the International Society for Oncodevelopmental Biology and Medicine (ISOBM), Prague, Czechoslovakia, September, 2007.

15. Miscellaneous:

Chairman of the organizing committee of the 35th meeting of the Israeli Immunological society, held in The Ein Karem campus of the Hebrew university-Hadassah medical school, February, 2006 Jerusalem, Israel

Arnon Shimshony

DVM, Utrecht, Netherlands, 1963.

State Veterinary Medicine:

-Small ruminants diseases officer, Ministry of Agriculture, Northern Israel**,** 1963-1973.

-Head, Department of Epidemiology, Veterinary Services and Animal Health, Beit-Dagan, Israel. 1973-1974**.**

-Chief Veterinary Officer/Director of Veterinary Services and Animal Health, Ministry of Agriculture, Beit-Dagan, Israel. 1974-1999.

Academic:

-Diplomate, sheep diseases, 1968, Tel-Aviv University.

-Parasitology (small ruminants) fellowship, Glasgow Veterinary School, 1973.

-Lecturer, post graduate school, Sackler School of Medicine, Continuous Veterinary Medicine, Tel-Aviv University (1971 – 1983).

-Lecturer, Koret Vet School, 1987 – 1994 (Infectious diseases of sheep; Veterinary legislation).

-Associate professor, Koret Vet School, HU, 1994 (Epizootics of livestock; veterinary legislation).

Editorial:

- Scientific Advisory Board, Scientific and Technical Review, OIE
- Editorial board, Israel Journal of Veterinary Medicine.
- Editorial board, Veterinaria Italiana.

Miscellaneous:

1982 – 1991: OIE Expert for Rift Valley Fever.

1984–1998: Board of Directors, HU, Koret School of Veterinary Medicine.

1985–1998: Curriculum committee, Koret School of Veterinary Medicine.

1990 – 1994: Foreign Animal Diseases Committee, U.S. Animal Health Association.

1990 – 1996: Steering Committee and Coordinator for Israel, TAHRP (Trinational Animal Health Research Program), Egypt-Israel-USA.

1991: Steering Committee, 2nd International Symposium on Bluetongue, African Horse Sickness and Related Arboviruses, OIE, Paris.
1996: International Advisory Board, 1st International Conference of Emerging Zoonoses, Jerusalem.
1996-1999: Regional (Egypt, Israel, Jordan, Palestinian Authority) Oversight Committee (ROC), for Animal Health.
2000 – present: member/ chair, OIE ad-hoc committees/working groups (Bluetongue; Epidemiology; Humane slaughter of food animals; Rinderpest country evaluation; Scrapie; Terrestrial Animal Disease / Pathogenic Agent Notification).
2002 – present: ProMED-mail animal disease and zoonoses moderator.

Honours and prizes:

1967 - Research prize for 1967, Tsur Research Foundation.
1975 - Research prize for 1975, Kimron Foundation
1990 - Jonas prize - Israel's veterinarian of the year
1993 - OIE meritorious medal
1998 – Shoshan prize, Israel Veterinary Association.

Karen M. Young

CURRICULUM VITAE, abbreviated, October, 2007

Office Address: Department of Pathobiological Sciences, School of Veterinary Medicine
University of Wisconsin-Madison
2015 Linden Drive, Madison, WI 53706 USA
Tel: 608-263-5317, Fax: 608-263-0438
Email: youngk@svm.vetmed.wisc.edu

Education:

1969-73	B.A.	University of Pennsylvania (Russian Language/Literature, History)
1974-78	V.M.D.	School of Veterinary Medicine, University of Pennsylvania
1981-85	Ph.D.	Laboratory of Experimental Hematology and Cell Biology University of Pennsylvania, Major Professor: Leon Weiss, M.D.

Postgraduate Training and Positions, School of Veterinary Medicine, University of Pennsylvania:

1978-1979	Intern, Small Animal Medicine and Surgery
1979-1981	Resident, Medical Oncology
1981-195	Postdoctoral Trainee

Academic Appointments in the Department of Pathobiological Sciences, School of Veterinary Medicine, University of Wisconsin-Madison:

1985-1990	Assistant Professor of Clinical Pathology
1990-1991	Clinical Assistant Professor of Clinical Pathology
1991-2000	Clinical Associate Professor of Clinical Pathology
2000-present	Clinical Professor of Clinical Pathology

Selected Awards, Honors, and Membership in Honorary Societies:

1973	Phi Beta Kappa
1978	Phi Zeta Veterinary Honor Society, V.M.D. summa cum laude
1991, 1994	University of Wisconsin-Madison, SAVMA Basic Science Teaching Award
1993	Norden Distinguished Teacher Award
1993	North American Association of Summer Sessions Creative and Innovative Award, Celebrate Diversity: Enhancing the Learning Environment in Veterinary Medical Education
1995-present	Fellow, University of Wisconsin-Madison Teaching Academy
2001	Cum Laude Society, Charter Member, St. Paul's School for Girls, Brooklandville, MD
2005	Chancellor's Hilldale Award for Excellence in Teaching
2007	Nominated for Doris Slesinger Award for Excellence in Mentoring

Membership in Professional Societies:

American Society for Veterinary Clinical Pathology
American Society of Hematology
American Veterinary Medical Association
Veterinary Cancer Society
Society for Veterinary Medicine and Literature (Board Member), www.vetmedandlit.org/society.htm

Selected Professional Service:

1993-1998	Education Committee, American Society for Veterinary Clinical Pathology Chair (founding) 1993-6
2000-2002	Selection Committee, Pfizer North American Teaching Award, Chair 2002
2006-2008	AAVMC (American Association of Veterinary Medical Colleges), planning group for 2008 symposium on assessing clinical competency in veterinary medical students

Selections among 14 Courses, School of Veterinary Medicine, University of Wisconsin-Madison:

1985-present: Veterinary Clinical Pathology, 4 credits, 2nd year veterinary students
2002-present: Diagnostic Reasoning, 1 credit, 2nd year, 4th year students

Training of residents (clinical pathology and other disciplines) and graduate students: 47 trainees

Faculty Mentoring Committees: 14

Selected Educational/Instructional Grant Support:

1. Pew National Veterinary Education Program. Workshop on Student Diversity in Colleges of Veterinary Medicine: Celebrate Diversity: Enhancing the Learning Environment in Veterinary Medical Education, June 13-15, 1993, University of Wisconsin-Madison. PI: KM Young. Direct Costs: $25,000. Sponsored by the North American Strategic Veterinary Education Task Force (NASVET).
2. University of Wisconsin Undergraduate Teaching Improvement Grants. Assessment of Students in an Integrated Learning Curriculum. Co-PIs: KM Young, D Panciera. $11,500. 7-1-94 to 6-30-96.
3. US Department of Education, Fund for the Improvement of Post-Secondary Education (FIPSE), Learning Anytime Anywhere Partnerships (LAAP). Creating and distributing a comprehensive on-line learning system for diagnostic reasoning. Co-PIs: H Bender (VA Tech), KM Young (Wisconsin), M Christopher (UC-Davis), D Smith (Guelph), J George (UC-Davis), P Pion (VIN). $1,267,826. 9-1-01 to 8-31-05.

Selected Proceedings/Websites:

1. Young KM. Celebrate Diversity: Enhancing the Learning Environment in Veterinary Medical Education. Proceedings of the workshop sponsored by the North American Strategic Veterinary Education Task Force, Pew Health Professions Commission, and American Association of Veterinary Medical Colleges, University of Wisconsin-Madison, June 13-15, 1993.
2. Bennett J, Broman T, Carlson-Dakes C, Delamater J, Farrell P, Green R, Sanders K, Skloot R, Varga J, Young K (co-creators). Peer Review of Teaching, University of Wisconsin-Madison: http://teachingacademy.wisc.edu/archive/Assistance/MOO/index.htm, 1998-present.

Educational Organizations/Workshops – Organizer/Presenter: 52 workshops since 1990

Book Chapters and Invited Publications: 20 book chapters since 1985

Clinical Service: 2000-2007 Section Head of Pathology, 2007-Chief of Diagnostic Services

Selected Editorial Service:

Veterinary Clinical Pathology, an international journal of laboratory medicine, 1999-2003 Section Editor, 2004-2007 Associate Editor, 2008 Co-Editor in Chief

Selected Research Support:

1. NIH-NIAID. Eosinophilopoiesis in parasitic infection. PI: KM Young. $338,990 (total direct costs). 2-1-88 to 1-31-95.
2. UW-Madison School of Veterinary Medicine, Companion Animal Grant. Eosinophilic diseases in cats: An ultrastructural and immunohistochemical study of activated feline eosinophils. PI: KM Young; Co-I: RL Meadows. $1500. 7-1-94 to 6-30-99.
3. Merial Student Research Fellowship. Serum ferritin as a marker for malignant histiocytosis in dogs. PI: KM Young; Co-I: ML Plier; Student Fellow: Jenni Mitchell. $6000. 6-1-98 to 5-31-99.
4. UW-Madison School of Veterinary Medicine, Companion Animal Grant. Native harmonic ultrasound imaging of splenic nodules in dogs. O'Brien RT, Ziegler LE, Young KM. $1229. 7-1-00 to 6-30-01.
5. UW-Madison School of Veterinary Medicine, Companion Animal Grant. Identification of putative cancer stem cells using a canine osteosarcoma model. PI: Young K. Co-I: Chun R, Wilson H, Friedrichs K, Argyle D. $4500. 2006-07.
6. National Science Foundation. Research and Evaluation in Science and Engineering (RESE) program. A study of diagnostic problem solving using a cognitive tool called the Diagnostic Pathfinder. PI: Danielson J. Senior Personnel: Young KM, Wood D. $1,500,000 requested. 2007-2010. Pending review.

Refereed Publications: 31

Abstracts, Proceedings, and Presentations at Meetings: 46

Invited Presentations, Continuing Education, and Outreach: 73 presentations since 1980

Selected College Service:

1992-1997	Curriculum Committee (Chair, 1995-1996)
1988-1992, 1997-present	Academic Planning Council
2002-2004	Ad Hoc Committee to Design a Combined DVM/PhD Program

APPENDIX B

List of People who Met with the Committee

The President, Prof. Menachem Magidor
The Rector, Prof. Haim Rabinowitch
The Vice-Rector, Prof. Miri Gur-Arye

Head of Academic Review for the Sciences, Prof. Eliahu Friedman
Head of Academic Review for the Humanities, Prof. Jacob Metzer

Dean of the Faculty of Agricultre, Prof. Eli Feinerman
Head of Curriculum Committee of the Faculty, Prof. Boaz Yuval

Former Director of the School, Prof. Gad Glaser
Director of the School, Prof. Shimon Harrus
Head of the Veterinary Teaching Hospital, Prof. Hylton Barak
Administrative Director of the School, Mr. Andrei Ianc

Academic Planning Committee:
Prof. Gad Baneth, Chair, Prof. Ron Shahar

Curriculum Committe:
Dr. Merav Shamir, Dr. Itamar Aroch, Dr. Nahum Shpigel, Dr. Gila Zur
Ms. Jackie Hirsch

Senior Researchers:
Dr. Ron Ofri

Junior Researchers:
Dr. Gila Kahila Bar-Gal, Dr. Dalit Sela-Donenfeld, Dr. Eyal Klement

Department Heads (in Hospital):
Dr. Eyal Ranen, Dr. Yaron Bruchim, Dr. Izhak Aizenberg, Dr. Amir Steinman

Certified Specialists:
Dr. Gilad Segev, Dr. Josh Milgram, Dr. Gila Sutton, Dr. Sigal Yudelevitch
Dr. Gillian Dank, Dr. Dan Ohad

External Teachers:
Prof. Eugene Pipano, Prof. Shmuel Perl, Dr. Nadav Galon, Dr. Alex Markovics, Dr. Roni Kalman, Dr. Alon Harmelin, Dr. Daniel Elad

Residents:
Dr. Orit Hai, Dr. Einat Yad, Dr. Sharon Kuzi, Dr. Michal Shelach,
Dr. Liat Cohen, Dr. Hadas Benzioni

2nd year students, 3rd year students
4th year DVM Students (graduating in 2007)
4th year students (graduating in 2008), PhD Students