Researchers in the Ontario Veterinary College and the Ontario Agricultural College have formed a new research group to work on projects intended to improve reproductive technologies used in cattle, pigs, poultry and fish.

The group will use more than $2 million in new funding from the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) for studies on the Guelph campus and at research stations in Ponsonby, Arkell, Elora and Alma. Leaders of the team of 12 scientists are Profs. Allan King, Biomedical Sciences, and Gregory Bedecarrats, Animal and Poultry Science.

The researchers will collaborate on a range of topics, including cattle cloning, reproductive hormones and pregnancy, transgenic pigs, fish development, and evaluation of semen and embryos from artificially inseminated bulls.

The OMAFRA funding will also support graduate students that the team expects to train in reproductive technologies. “It’s the production of the next generation of scientists and technicians,” says King, who holds a Canada Research Chair in Animal Reproductive Biotechnology.

Operating funds will also come from other sources, including grants from the Natural Sciences and Engineering Research Council and the Canadian Institutes of Health Research.
From the Dean

PHYSICIAN HONOURS VETERINARIAN

The Department of Biomedical Sciences marked the 80th birthday of retired professor Jim Raeside with a lecture by John Challis of the University of Toronto on May 26. Challis is U of T’s vice-president (research) and an internationally recognized researcher in the fields of physiology and obstetrics and gynecology. His lecture on “Hormonal Controls of Pregnancy and Parturition” reflected the contributions of Prof. Raeside and veterinary research to human medicine.

The lecture was sponsored by Guelph-based GlobalTox. Former OVC faculty member Mark Goldberg is a principal in the company and an environmental consultant. His areas of specialization are environmental site assessment, risk assessment, carcinogenesis and regulatory toxicology.

From the Dean

AT THE CVMA annual meeting in July, I was asked to speak on the veterinary colleges’ response to the changing needs of veterinarians. Not surprisingly, more questions were raised than answered.

What are the changing needs of veterinarians? Do we need more graduates from our veterinary schools? Do we need more graduates entering private practice or other career paths? How can we better prepare our graduates? Do we need different opportunities for post-graduate training or for veterinarians to change career paths?

To help answer these questions, the deans of the Canadian veterinary schools — led by Tim Ogilvie, DVM ’75 and M.Sc. ’82, at the Atlantic Veterinary College — have asked the CVMA to partner with us in a comprehensive national study of demographics, opportunities and needs for Canadian veterinarians. This would include societal trends and manpower predictions, and would provide data for college and university planning and for the provincial and federal agencies that fund veterinary programs.

An area of particular concern at OVC is the role veterinarians will play as knowledgeable health care professionals in their communities. In a recent review, it was noted that physicians may be uncomfortable discussing the role of animals in the transmission of disease.1 In contrast, veterinary students study the similarities and differences between many animal species. At OVC they learn about health and disease of populations as well as individuals.

Given society’s concerns about zoonoses, veterinarians can have a distinct role in educating people about the likelihood of disease transmission between animals and people. Thus, the “routine” interaction with a veterinarian can become a window of opportunity for educating animal owners and the public about broader health concerns.

Corbeil inspires new graduates

OVC GRADUATE LYNN CORBEIL, IS A PROFESSOR of pathology in the School of Medicine at the University of California, San Diego (UCSD), and an associate dean at the UC, Davis, School of Medicine. When she spoke at OVC’s June convocation, she borrowed a few words from one of Guelph’s most respected alumni—Frank Schofield, DVM 1910—who spoke at her 1962 convocation: “Aim high. Don’t quit. Seek good mentors. Take risks. Serve animals, man and God. Be thankful for opportunities, colleagues and blessings.”

Schofield was a pathologist who also worked as a missionary in South Korea. After completing her DVM, Corbeil pursued her own interests in cross-cultural missions at Columbia International University, an evangelical Bible college and graduate school in South Carolina.

During her Guelph visit, she also gave a public lecture about her research on bovine immunity to respiratory and reproductive infections, the two most economically important kinds of infectious diseases in beef cattle.

Corbeil (née Keur), completed both her DVM and M.Sc. at Guelph and her PhD at Cornell University. She did a post-doctoral stint at UCSD studying infectious diseases, then held positions at several American universities. For the past 20 years, she has been a faculty member at UCSD. There, she is also co-director of the UC Veterinary Medical Centre, San Diego, which is a joint program between UCSD and the University of California, Davis.

As the daughter of a B.C. dairy farmer, Corbeil pursued veterinary studies on the advice of a colleague of her father’s. “I think of it as a calling,” she says, perhaps partly explaining her tenacity in 1957 when someone at OVC suggested she withdraw as one of only five women who entered the DVM program that year. Her response to that suggestion was: “I’ve got to do this.”

Summer jobs in the mastitis research lab of professor emeritus Don Barnum led her to study infectious diseases. Her work has improved understanding of the mechanisms of infection and immunity against bovine diseases, especially pneumonia and infertility. Corbeil’s studies of microbial surface proteins—including work with Guelph microbiologist Terry Beveridge—may help in developing vaccines against the bacterium Haemophilus somnus.
PROF UNCOVERS CAUSE OF PRRS

Prof. Dongwan Yoo, Pathobiology, has learned how a virus infects piglets and pregnant sows to cause porcine reproductive and respiratory syndrome (PRRS). Besides suggesting a way to counter the devastating disease in pigs, his work may yield clues about how to prevent other viruses from infecting animals and people.

His work was reported in the March cover article of Virology.

In the United States, PRRS costs pig producers an estimated $600 million (US) in losses each year; Yoo says that may translate into $60 million worth of losses here in Canada.

The virus causes abortions in pregnant sows. In piglets, it causes respiratory problems and poor growth. The infection spreads rapidly to affect all sows and piglets on a farm.

Sows with severe cases must be euthanized. Piglets with mild cases may recover without treatment but have to be kept longer, which means added costs for producers. Although the disease does not affect adult males, they may shed the virus in their semen — no small matter in an industry heavily reliant on the use of stored semen for artificial insemination, says Yoo.

A vaccine is currently available, but producers and veterinarians question its safety and efficacy. Yoo hopes his work will lead to a more effective vaccine.

The PRRS virus exists in the host cell cytoplasm, not inside the cell nucleus. But he found that a protein made by the virus crosses into the nucleus to cause the infection.

After isolating the pertinent gene, he used genetic engineering to induce the virus to make a mutant version of the protein. The mutant version differs by only two amino acids but is unable to cross into the cell nucleus.

“We don’t know the exact mechanism of this protein in the nucleus, but by changing these
amino acids to prevent the transport of this particular mutant, we produce less severe infection in pigs,” says Yoo.

He now hopes to learn more about how the protein gets into the cell nucleus. He’s also studying how the cell produces interferon as a way to combat the infection.

Yoo is the only Canadian researcher among an international group of scientists funded by the U.S. Department of Agriculture. He has also received funding from the Natural Sciences and Engineering Research Council of Canada and Ontario Pork.

WASH YOUR HANDS

OVC researchers recently published a study in the Journal of Hospital Infection that revealed 80 per cent of therapy dogs are carrying zoonotic diseases that can potentially pass from animals to people.

Although it’s now established that most dogs are carrying something, there’s no published evidence of people catching an agent from a therapy dog, says Sandra Lefebvre, a veterinarian who is a PhD candidate in the Department of Population Medicine.

“The potential is there, but we don’t yet know if it happens,” she says.

It would depend on a lot of factors, such as the immune status of the people interacting with the dog, whether they have an open wound or whether they put their hand in their mouth after handling the dog, she says.

“The aim of this research was to collect scientific evidence showing that there needs to be more stringent evidence-based protocols for therapy dogs.”

Existing therapy dog protocols dictated by Canadian hospitals and the Centres for Disease Control and Prevention — such as keeping animals parasite-free, clean and well-groomed, and maintaining up-to-date vaccinations — are only recommendations and don’t address many important concerns, she says.

Lefebvre, along with Profs. David Waltner-Toews, Population Medicine, and Scott Weese, Clinical Studies, received support from Pet Trust to examine 102 visitation dogs from across Ontario for 18 specific pathogens.

A surprising 58 per cent of the dogs were carrying the Clostridium difficile bacterial strain. Other pathogens detected in the dogs were Salmonella, multidrug-resistant E. coli and Pasteurella spp. The researchers add that dogs could also pick up bacterial strains that originate in hospitals and transfer them to people in the community.

Hand washing before and after handling dogs is the best way to avoid contracting a zoonotic organism, says Lefebvre, who notes that hand sanitizers are readily available in hospitals and nursing homes. Dogs can’t take such precautions, so it’s up to people to do so, she says.
Frequent fliers can now support the efforts of veterinarians in developing countries by donating air miles. Veterinarians Without Borders/Vétérinaires Sans Frontières-Canada (VWB/VSF-Canada) is one of several non-profit groups to join with Aeroplan’s latest charitable effort. The company unveiled its Beyond Miles program May 17, donating one million miles each to VWB/VSF-Canada and other organizations, including Médecins Sans Frontières.

Prof. David Waltner-Toews, president of VWB/VSF-Canada, says the partnership is a major step forward for the group, which just had its official launch last year. For more information, go to www.vwb-vsf.ca.

HONORARY OVC GRAD OVC has a special friend in Gus Lagerquist, an entrepreneur who helped many graduate veterinarians get their practices underway. Lagerquist once studied to be a veterinarian, but started a business instead, becoming a well-known and trusted distributor of veterinary products. He opened Central Sales in 1953, and in the company’s early days, helped many young veterinarians open their clinics by extending credit during their first year of operation. His son, John, has joined him in the business, which has operations across the country in Ontario, Quebec, Eastern and Western Canada.

Gus Lagerquist has continued his relationship with class friends, attending and hosting reunions at his farm in Alton, Ont., where he raises Standardbred horses.

To recognize his contributions to the veterinary field, Lagerquist was made an honorary OVC alumnus at the 2006 Canadian Veterinary Medical Association annual conference. The presentation was made by Karyn Jones, DVM ’01, and Clayton MacKay, DVM ’70, president and past president of the OVC Alumni Association. From left are Peggy Lagerquist, MacKay, Gus Lagerquist, OVC dean Elizabeth Stone and Jones.
The Journal of Veterinary Medical Education devoted its entire spring 2006 issue to communication skills in veterinary education. One of the major articles draws on the OVC experience in program development. "Building on Existing Models From Human Medical Education to Develop a Communication Curriculum in Veterinary Medicine" was co-authored by OVC population medicine professor Cindy Adams, PhD ’96, and Suzanne Kurtz, a professor of education and medicine at the University of Calgary. You can read the issue online at www.jvmeonline.org.

OVC GETS HPLC LAB
Thanks to an $80,000 gift from Pfizer Animal Health, OVC can now equip its pharmacology laboratory with a high-performance liquid chromatography (HPLC) system that will support both basic and clinical research.

Ron Johnson, B.Sc. ’86 and DVM ’90, will manage the lab, located in the Department of Biomedical Sciences. He is board-certified in the American College of Veterinary Clinical Pharmacology.

Prof. Neil MacLusky, chair of the Department of Biomedical Sciences, says the HPLC system will fulfill a critical unmet need at OVC and in the region as it will enable scientists to determine drug (metabolite)-levels in a breadth of research conducted by faculty at OVC, at the University of Guelph and in the private sector. It will also support the training of pharmacology personnel and strengthen collaborative partnerships.

---

Celebrating the support of Pfizer Animal Health are, from left: OVC assistant dean Kerry Lissemore; Don Sauder, Pfizer division director; assistant dean Peter Conlon; and Dr. Don McDermid of Pfizer Animal Health.

‘01, and her son, Spencer; and Garth Graham, DVM ’01; Graham and Bateman are members of the OVC Alumni Association executive. Julian is an OVC professor emeritus and Alumni-in-Action volunteer. ABOVE: Prof. Peter Conlon, DVM ’80 and PhD ’87, takes the lead as OVC alumni and friends begin a tour of the college.
College News

Summer program expands

The 2006 summer leadership and Research Program provided more than 70 DVM, B.Sc. and other student researchers at OVC with a stimulating slate of events from May to August. It raised the bar on student leadership training and exposed them to a variety of career options.

The program included a round-table series with veterinarians and other scientists who work in diverse areas such as medical research and the food and pharmaceutical industries. DVM students attended a lecture by Prof. Scott Weese about internships, residencies and the D.V.Sc. program and then met with a variety of clinical specialist veterinarians. Topical issues such as a foreign animal disease simulation and a panel discussion on Avian Influenza with panelists from government, industry and public health exposed students to current challenges in the field. Students were also offered field trips to the Robarts Research Institute, Gencor and the Metro Toronto Zoo.

In addition, students got hands-on experience making poster presentations to share their research with the OVC community in mid-August and September.

Many thanks to the guests, alumni, faculty and staff who helped make the summer program a success. Financial support for the program comes from the Ontario Ministry of Training, Colleges and Universities and industry partners.

For full details and photos go to www.ovc.uoguelph.ca/slp.