

Ideas on the Edge

Cat Clues

VETERINARY RESEARCH AT THE UNIVERSITY OF GUELPH MAY SUGGEST NEW WAYS TO DEAL WITH A DEADLY HUMAN AFFLICTION.

We see the acronym in headlines almost every day: HIV. But quick: what does it stand for?

While it might take a moment, you'll probably be able to come up with the answer: "human immunodeficiency virus," the virus that causes AIDS in humans.

The letters FIV, however, may prove a little more puzzling.

They refer to the "feline immunodeficiency virus," which attacks the immune system of cats. But while FIV

may not be a household term, an increased understanding of the animal virus may help unlock the secrets of its human counterpart.

That's the hope of Dr. Dorothee Bienzle, Associate Professor of Veterinary Pathology at the Ontario Veterinary College, University of Guelph. "Animals also have immunodeficiency viruses," explains Dr. Bienzle, "and many of them make good models for the immunodeficiency virus in people. The cat virus is particularly useful."



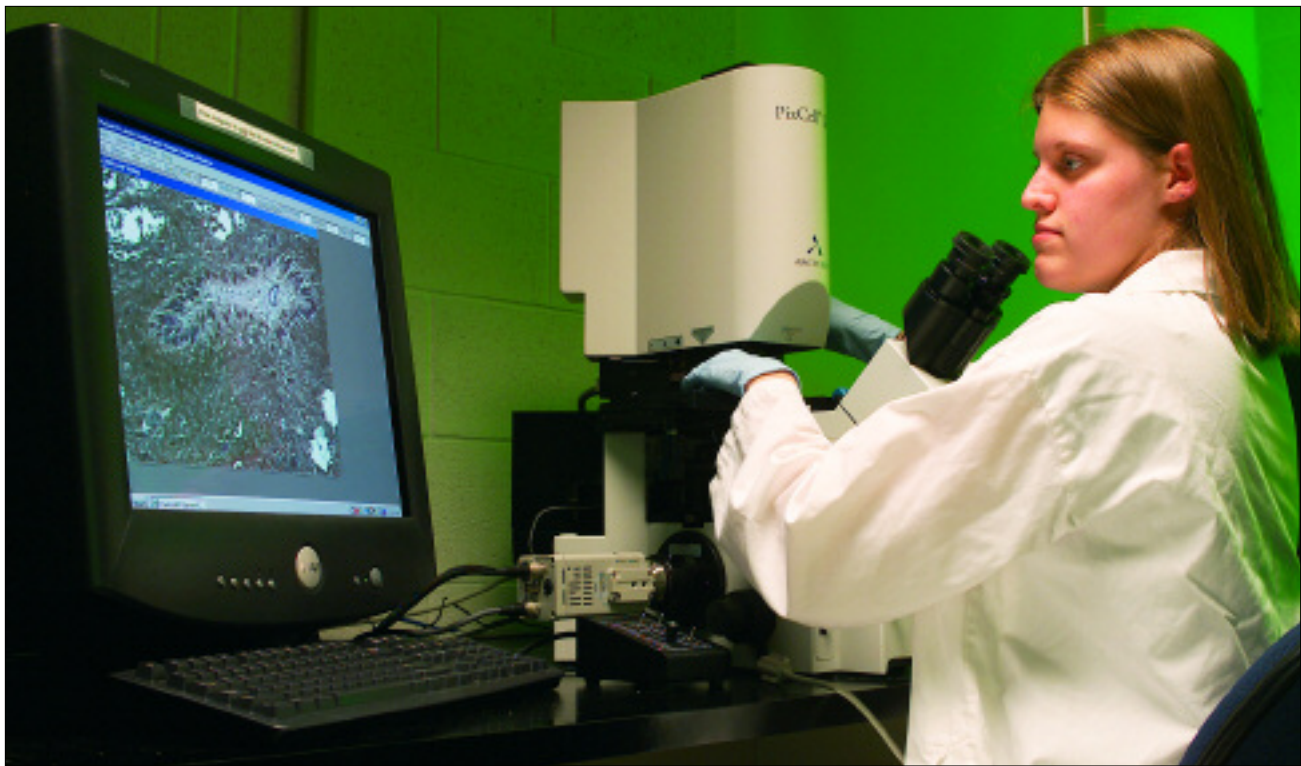
One of the things that makes FIV interesting is that cats infected with the virus can live unaffected for as long as ten years without treatment. In humans, the immunodeficiency virus often takes its devastating toll much sooner. "If we can understand why cats don't have the same disease mechanism as people I think we can have an impact on the human field." Dr. Bienzle is focusing on the role of two kinds of white blood cells in the course of FIV infection: dendritic cells, the particular white blood cells involved in initiating an immune response; and macrophages, cells that feed on pathogens and cellular debris.

In the pursuit of her research, Dr. Bienzle makes use of specialized equipment provided in part by

RESEARCH THAT MATTERS
REAL-WORLD BENEFITS FOR ONTARIANS:

- new veterinary treatments for pets and other animals
- potential insights leading to new approaches to treating and preventing HIV/AIDS

an investment from the Ontario Innovation Trust.



The suite of high-tech tools in her lab includes a laser microdissector, which enables her to cut out individual cells or groups of cells under a microscope and isolate them for testing; and a quantitative

polymerase chain reaction instrument that replicates short sections of DNA in large quantities – a useful tool in identifying infectious diseases.

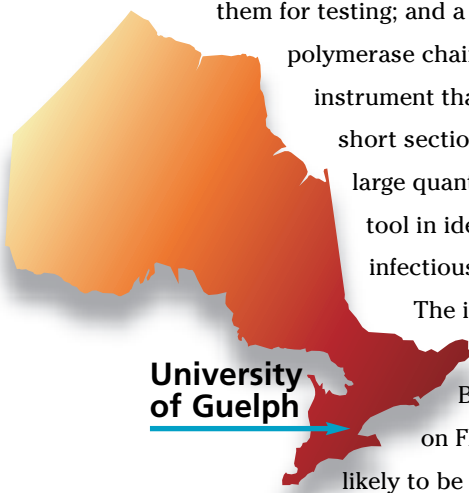
The immediate benefits of Dr. Bienzle's research on FIV are most likely to be experienced—

not surprisingly—by cats and the people who love them.

In particular, her work will help lead to more effective treatment for the feline leukemia virus, responsible for more deaths among cats than any other infectious disease. But the broader implications are never far from Dr. Bienzle's thoughts.

“Understanding how the feline virus interacts with its host at the cellular and molecular levels may yield important clues about preventing and treating this kind of infection in all animals, including people.”

Project: Tissue Microdissection and Analysis for Animal Health and Research
Institution: Ontario Veterinary College, University of Guelph
Research Discipline: Health Sciences
Principal Investigator: Dorothee Bienzle
Trust Investment: \$399,976
CFI Investment: \$399,976
Total research investment from all sources: \$999,940



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Infrastructure for Innovation About the Ontario Innovation Trust

The Ontario Innovation Trust was created in 1999 by the Government of Ontario to invest in research equipment and facilities at Ontario's universities, colleges, hospitals and other non-profit research institutions. The Trust is governed by a volunteer Board of Directors, according to the terms of a Trust agreement established by the Ontario government. A small permanent staff looks after day-to-day operations.

Since its inception, the Trust has committed almost \$843 million to strengthen Ontario's position in the global marketplace of ideas. This represents more than a third of the \$2.44 billion in total funding that has been invested in Trust-supported projects.