

# PATHOBIOLOGY RESEARCH PROJECTS IN VETERINARY PATHOLOGY



**Veterinary Pathologists diagnose and investigate diseases of animals. Clinical Pathologists are specialized in laboratory assessment of samples such as blood, bone marrow, urine and tissue biopsies.**

## CANCER RESEARCH

### Leukemia and lymphoma

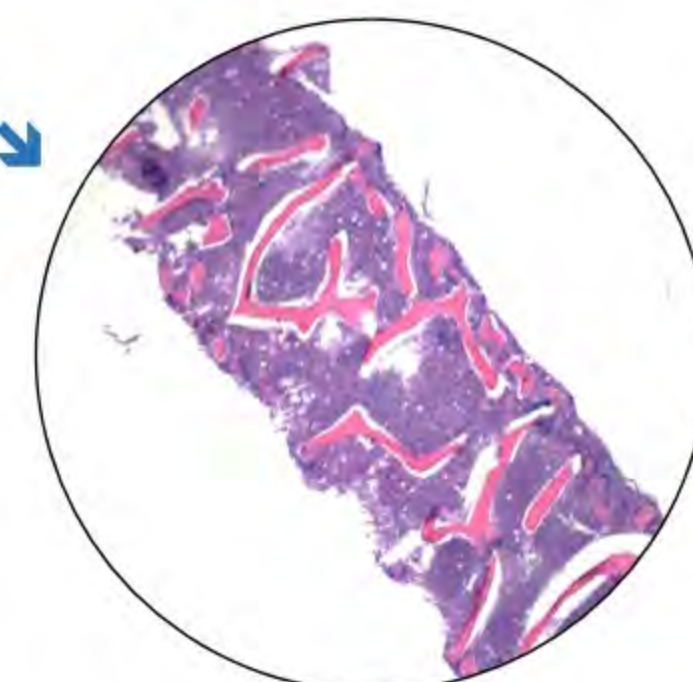
- Cancer of blood cells is as common in animals as in people
- There are many different types of leukemia and lymphoma
- Some cause very little disease and allow the animal to live a long time, while others cause death within weeks

**Research goals:** Develop better tests to diagnose and characterize different types of leukemia and lymphoma

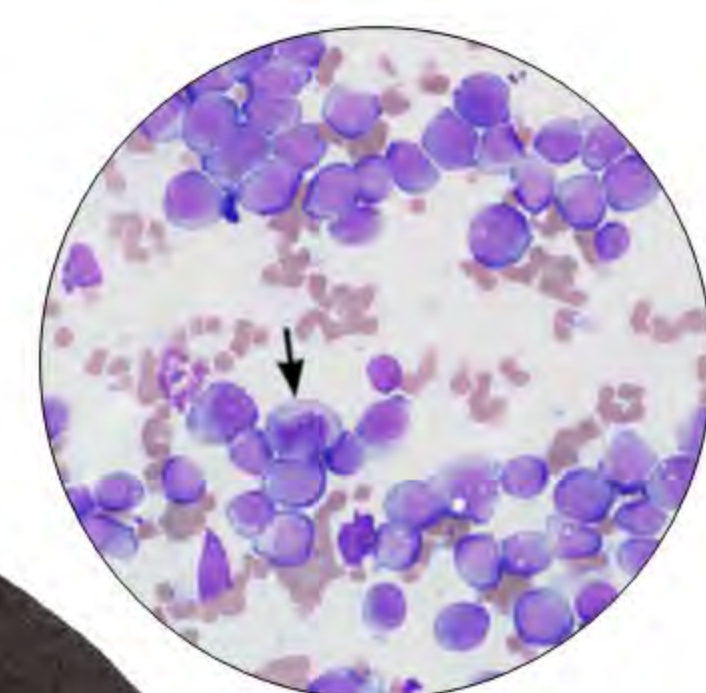
Collaborators:

Dr. Paul Woods, Medical Oncologist / Internal Medicine, Ontario Veterinary College  
Dr. Tony Mutsaers, Medical Oncologist, Ontario Veterinary College  
Dr. Vicky Sabine, Clinical Research Coordinator, Ontario Veterinary College

Bone marrow biopsy from a dog with leukemia. The cancer cells are packed tightly in the bone marrow and displace normal blood cells. ➔



Bone marrow aspirate from an animal with leukemia. Neoplastic cells look alike and include mitotic figures (arrow). ⬇



## ASTHMA RESEARCH

### Asthma in horses

- Many older horses in Canada develop "heaves" or "recurrent airway obstruction" (RAO)
- Disease results from chronic exposure to dusty hay, straw and mold spores
- Affected horses cough, have excess mucus production and airway constriction, and have difficulty expiring air

**Research goals:** Identify why this disease develops and how to diagnose it earlier

Collaborators:

Dr. Cameron Ackerley, Hospital for Sick Children



## FELINE VIRUS RESEARCH

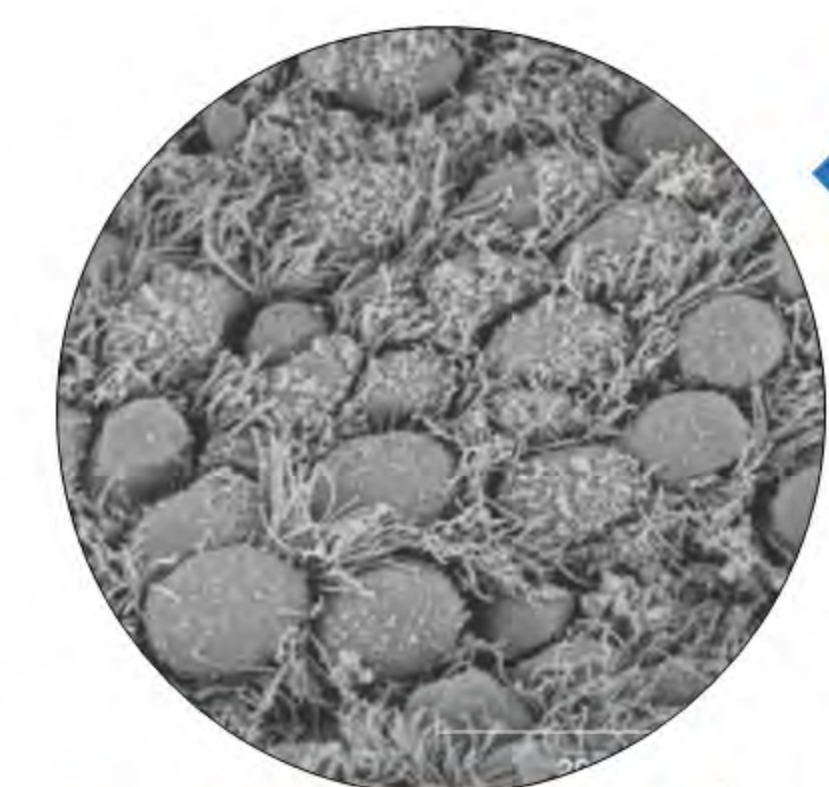
### Host response to FIV

- Cats are susceptible to infection by the feline immunodeficiency virus (FIV)
- FIV is very similar to HIV and causes AIDS in cats
- Cats vary in how they respond to FIV infection and how quickly they develop immunodeficiency

**Research goal:** Identify determinants of variable progression from FIV infection

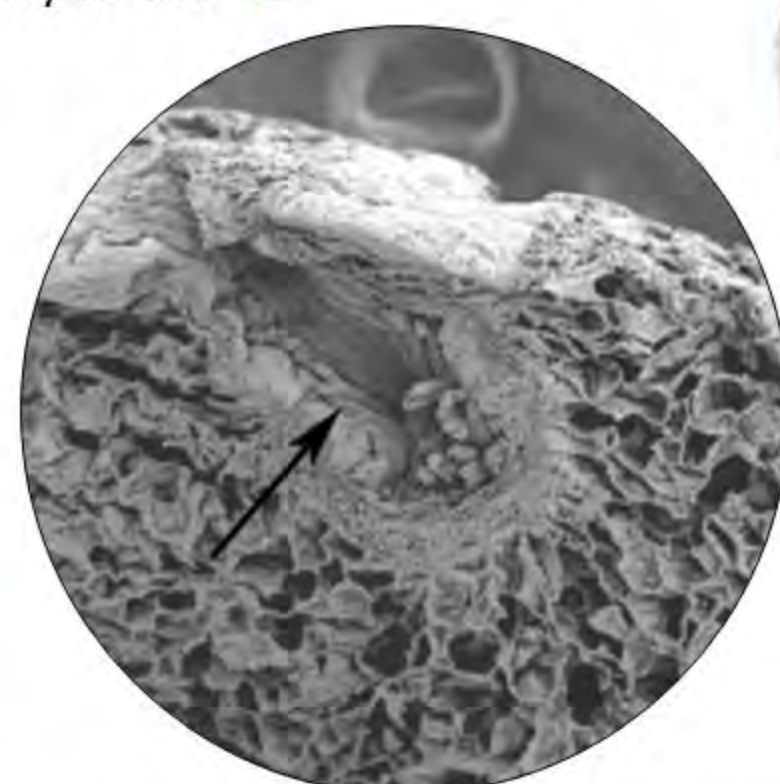
Collaborators:

Dr. Susan Little, Bytown Cat Hospital  
Dr. Olaf Berke, Ontario Veterinary College



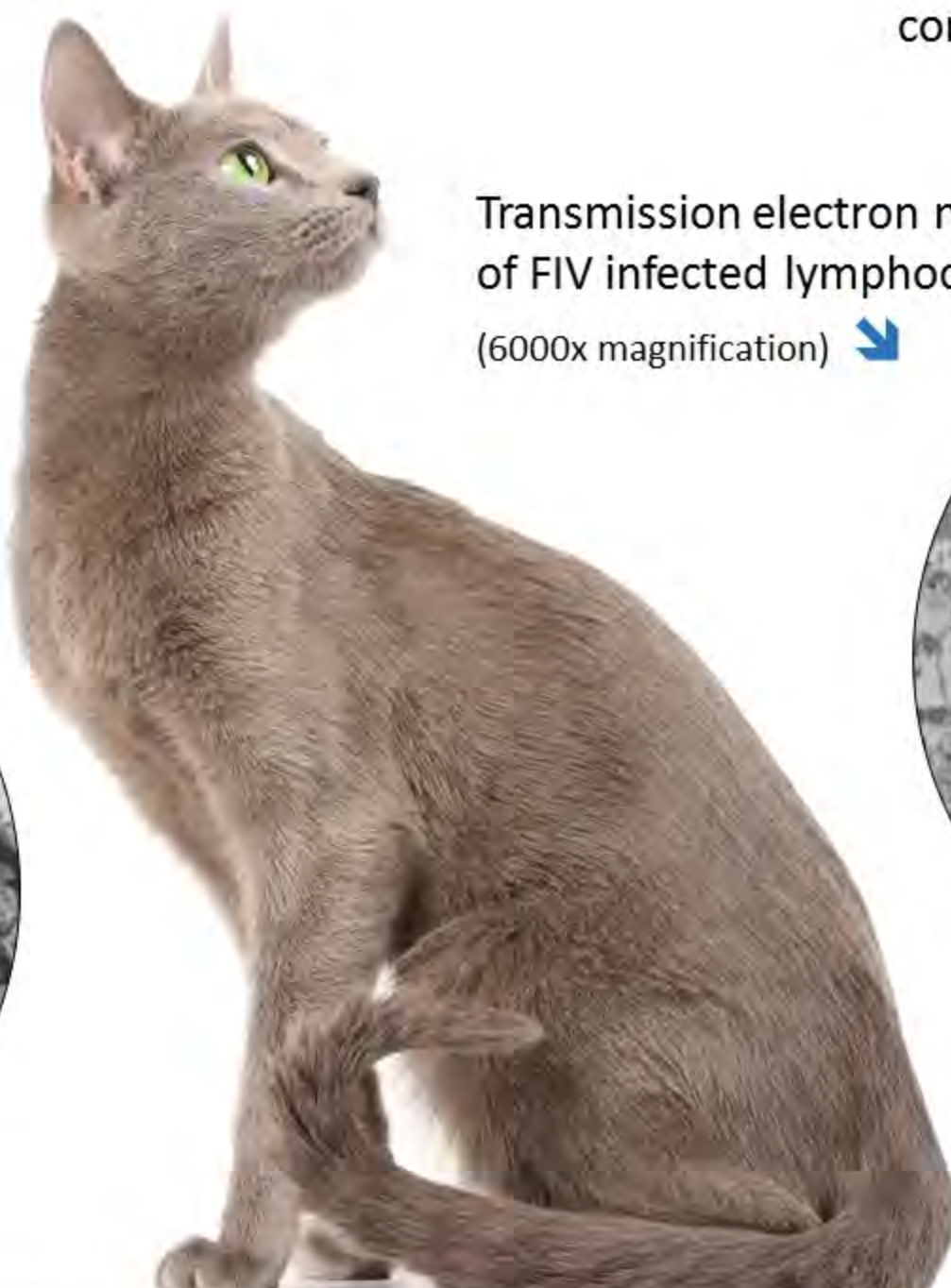
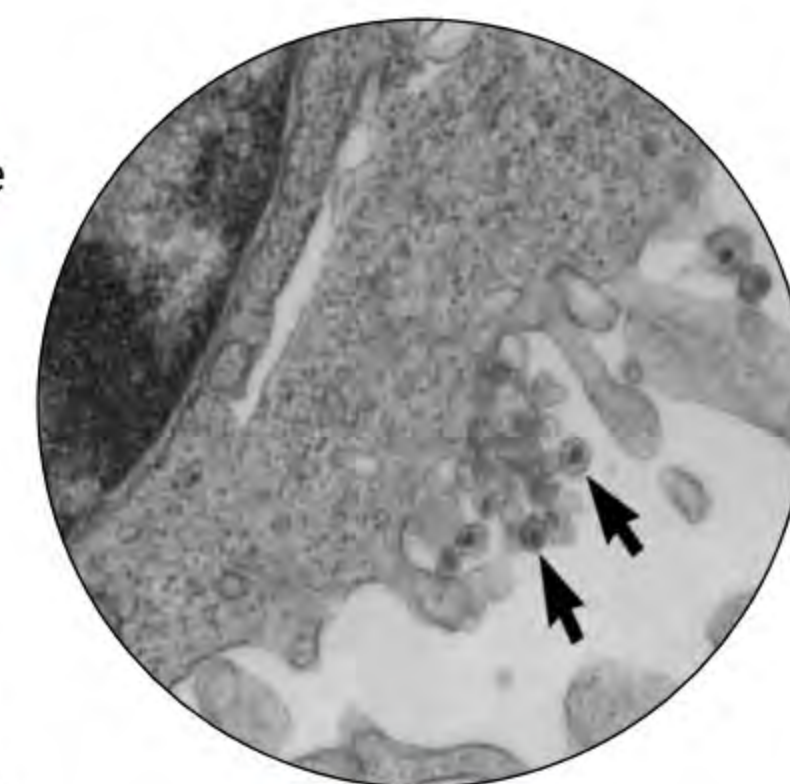
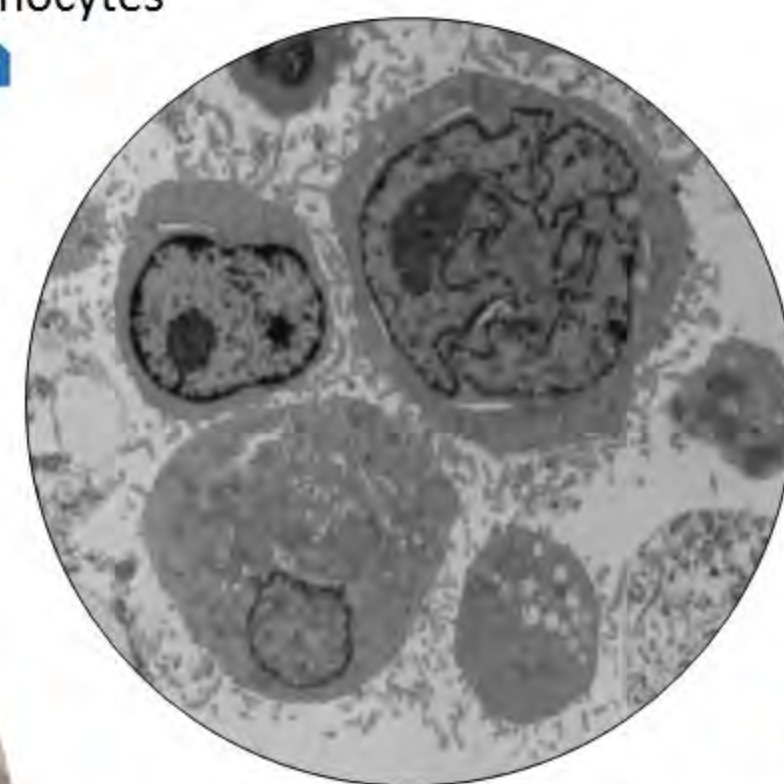
← Scanning electron micrograph of a bronchiolar wall composed of ciliated epithelial cells and non-ciliated epithelial cells with flecks of mucus

Scanning electron micrograph of a horse lung with a bronchiole (arrow) surrounded by alveoli ➔



Particles bud through the cell membrane and have electron dense cores (arrows, 60000x magnification) ➔

Transmission electron micrograph of FIV infected lymphocytes (6000x magnification) ➔



African lions like domestic cats are susceptible to infection by FIV

