

**ONTARIO VETERINARY COLLEGE**  
**Project Proposal Form:**  
**Summer Research Assistantship**



**ONTARIO**  
**VETERINARY COLLEGE**

**1. BASIC INFORMATION**

**Advisor Name:** Dorothee Bienzle

**Department:** Pathobiology

**Proposed Start Date:** 2019-05-06

**CONTACT INFORMATION FOR STUDENT APPLICATIONS**

**Name:** Dorothee Bienzle

**Phone Extension:** x54351

**Email:** dbienzle@uoguelph.ca

**2. DETAILS OF PROJECT**

**Title of Proposed Project:**

In vivo microscopic imaging of bronchial epithelial function

**Outline of Proposed Research Project (please keep concise, approximately ½ page or less):**

Horses with asthma develop neutrophilic inflammation and excessive mucus production in the airways in response to chronic inhalation of mold spores, bacteria and dust. The epithelial barrier separating inhaled air and the peribronchial tissues balances an inflammatory response to inhaled antigens with minimizing injury to host tissue. We have previously determined the gene response in epithelial biopsies from horses with and without asthma, which showed a wide array of markedly altered gene expression and affected biological processes. Now, we would like to directly assess whether epithelial cilia can transport particulate matter and mucus toward the oral cavity, and whether particulates gain access across the inflamed epithelial barrier to reach sub-bronchial sites in asthmatic and non-asthmatic horses. These studies will involve endoscopy and bronchoalveolar lavage in horses with and without asthma, recently developed in vivo fluorescent microscopy, and advanced signal data analysis.

The successful student for this project has experience with handling horses, is keen to learn advanced endoscopy skills, is very organized, and has excellent attention to detail. The summer student will work in a team with other summer students, graduate students, technician and faculty, and will participate in the Summer Student Leadership Program. For particularly motivated students, there is opportunity to participate in weekly "case rounds" in pathology, and to contribute to a manuscript pertinent to the research.

**3. AVAILABLE ASSISTANTSHIPS**

Select assistantship most relevant to the proposed research project (multiple boxes may be checked).  
Please note restrictions.

- Andrea Leger Dunbar Summer Research Assistantship:**  
No restrictions
- James and Marjorie Pinkney Research Scholarship:**  
Projects in *animal health and welfare*, restricted to veterinary students
- OVC Summer Research Studentship:**  
Restricted to veterinary students
- Boehringer Ingelheim (previously Merial) Veterinary Scholars Program:**  
Projects in *veterinary medicine*, restricted to veterinary students