

## **Ph.D. Graduate Student Position**

### **Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac)**

University of Saskatchewan, Saskatoon, Saskatchewan, Canada

#### **Project Title: Flavivirus evolution in the pregnant host: Implications for pathogenesis and transmission**

**Institution:** VIDO-InterVac, University of Saskatchewan  
120 Veterinary Road, Saskatoon, SK S7N 5E3

**Start Date:** The position will be opened until filled

**Organization:** VIDO-InterVac is a preeminent research institute with its primary focus on microbial pathogenesis, vaccine development, and mitigation strategies against both human and animal pathogens. VIDO-InterVac currently has over 100 personnel and state-of-the-art facilities, including the International Vaccine Centre (InterVac), one of the most advanced containment level 3 facilities in the world consisting of both laboratories and animal isolation suites. VIDO-InterVac scientists work with important human (Influenza, MERS, Zika virus, and SARS-CoV-2) and animal viruses (PRRSV, PEDV, PCV2/3, and African swine fever virus); a candidate will have a unique opportunity to learn and contribute to multidisciplinary research on emerging and re-emerging pathogens.

**Project Description:** We are seeking a highly motivated and hardworking Ph.D. student to join Dr. Vladi Karniychuk's lab at VIDO-InterVac, University of Saskatchewan. The successful candidate will use porcine pregnancy model, next-generation sequencing, bioinformatics, molecular virology, cell biology, and immunology to study Japanese encephalitis virus (JEV) evolution in a natural host during pregnancy.

Understanding of host factors affecting flavivirus evolution is essential to predict the emergence of new infection phenotypes and prevent epidemics. The emerging concept is that pregnancy is a particularly favorable host state for viral evolution towards a more pathogenic phenotype. Japanese encephalitis virus infection in pregnant pigs is an excellent model to study flavivirus evolution during pregnancy. First, JEV causes natural transplacental and fetal infection in pigs. Second, JEV infection in pigs has epidemiological significance: domestic pigs are the primary amplifying hosts for JEV that maintain virus existence and transmission from mosquitoes to humans. Finally, JEV can cause transplacental infection in humans, and infection in pregnant pigs can be used as a model.

Our team is uniquely positioned to study JEV in the natural amplifying host during pregnancy. We have strong expertise in pig pregnancy models (*PLoS Pathog.* 2019; *Emerg Microbes Infect.* 2019), flavivirus infections, NGS, and bioinformatics (*Front Immunol.* 2020; *Viruses.* 2020; *EBioMedicine.* 2017).

**Financial Support:** The candidate will be provided a stipend, but will also be expected to apply for internal and external scholarships.

**Research Advisor:** Uladzimir Karniychuk. For more information, visit:

<https://www.vido.org/team/project-leaders-veterinarians/uladzimir-karniychuk>

**Candidate Profile:** **1.** Recent MSc degree in virology, immunology, molecular biology, or relevant biomedical sciences. **2.** Highly motivated and creative, including a willingness to support research experiments overtime and on weekends when required. **3.** Excellent verbal and written English skills. The candidate will be required to work under **high-security biocontainment level-3 conditions** after extensive training. The successful candidate will be required to undergo and clear a reliability status screening assessment, background check, and a criminal record check.

**How to Apply:** Candidates must submit electronically, **one single application document** (pdf file) that includes **1)** a letter of motivation, **2)** a complete *curriculum vitae* (CV), **3)** a copy of graduate transcripts, and **4)** contact information for individuals willing to provide references, to **u.karniychuk@usask.ca**

*VIDO-InterVac and the University of Saskatchewan is strongly committed to a diverse and inclusive workplace. As such, applications from those who will contribute to the diversity of our community are welcome and all qualified candidates are encouraged to apply. However, Canadian citizens and permanent residents will be given priority.*

**Only candidates selected for interviews will be contacted**