

Centre for Public Health and Zoonoses Research Laboratories – General Overview

We have been very busy throughout 2010 working to design our new research facility. This facility is a product of a one million dollar grant from Canada Foundation for Innovation, with matching funds from the Ontario Research Fund. Construction is currently under way and the facility is on track to open in early Summer 2011. The renovated facility will include wet laboratories for bacterial and molecular characterization, computer laboratories for disease modeling and surveillance research as well as a zoonotic disease isolate sample bank and space for field collection equipment storage. Below is a summary of some of the infrastructure that will be available:

Bacteriology:

Conventional bacterial culture and cell culture are essential for infectious disease research. General culture facilities will provide basic equipment as well as a Sensititre MIC system to determine antimicrobial resistance. The laboratory design will facilitate multi-user collaborative efforts by virtue of a large and functional conventional microbiology laboratory and separate cell culture facilities. Two different cell culture rooms will be created, one for clean procedures and the other for infected cell lines to encourage.

Molecular Labs:

Separate rooms will be available for different procedures. One room will be for initial sample handling, as well as techniques such as pulsed field gel electrophoresis. Another will be for DNA/RNA extraction. This will allow for careful transition from crude sample to pure, uncontaminated DNA/RNA. Samples will then be moved into a separate PCR assembly room, that will be restricted to only purified DNA/RNA. After PCR assembly, samples will be transferred to a PCR running room.

The available equipment includes high throughput instrumentation such as the MagnaPure DNA/RNA extraction system, LightCycler480 systems and microarray equipment. The Roche Flex Jr and Quagen Pyromark Q96 ID systems will also be available for short and long base pair sequencing.

Computer labs:

Two complementary computer laboratories are part of the new infrastructure. One of the laboratories will be located in the Department of Mathematics and Statistics and will focus on infectious disease modeling. The other computer laboratory, located in the new CPHAZ lab area, will focus on quantitative analysis of molecular data and surveillance data. Specialty software will be available in both laboratories.

Isolate bank:

The new facilities will include cryostorage to allow researchers to begin to build a bank of zoonotic disease isolates and samples. Isolates of zoonotic disease agents may be used by laboratory researchers to identify virulence factors, conduct molecular studies, develop and validate diagnostic tests, and develop vaccines. This information in turn provides improved diagnostics for field applications and provides the foundation for the conceptualization of new applied research studies. The CPHAZ isolate bank will be a central resource of isolates and samples, with standardized sources and epidemiological data collection. As isolates are characterized by new tests or methods, the continued adding of this information to the isolate database will create, over time, a unique and innovative resource that can be used to address new research questions.

The new CPHAZ facility will be open for use by CPHAZ members, their graduate students and collaborators. We encourage cross-disciplinary research and look forward to research in public health and the prevention and control of zoonotic diseases coming out of this facility. We are purely a research facility and not a diagnostic service (any diagnostic requests will be directed to the Animal Health Laboratory). If you are interested in working in the CPHAZ facility for your research please contact us at **cphaz@uoguelph.ca**.