

## PROJECT FACT SHEET

### New Research into Anticancer Agent

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*Drug research and development is a complex process. Fundamental research into the ways drugs move and transformed in our bodies (pharmacokinetics) is a vital step in developing innovative therapies that will help Nova Scotians live healthier lives.*

Patients often respond differently to medication. Understanding why a drug works for one patient, and not for another, reduces the risk of administering unnecessary medications and helps health care professionals anticipate and avoid dangerous drug reactions. Understanding pharmacokinetics is an important part of the process of drug development — leading to better clinical outcomes and more effective therapeutic strategies.

Among the medications explored in our study of pharmacokinetics are the nucleoside anti-cancer agents, which are widely used for treatment of leukemia and solid tumors. “However, the body reacts in unpredictable ways to this class of medications,” notes Pollen Yeung, a professor in Dalhousie University’s College of Pharmacy and Department of Medicine. What may not be a sufficient dose for one patient can potentially be toxic when administered to another.

Current thought holds that many of these differences are linked to what are called endogenous nucleoside transporters, biochemical compounds produced within the body that are unique to an individual and specific locations in their body. These compounds are also affected by physical and environmental factors.

Recently Dr. Yeung and Amyl Ghanem, Associate Professor, in the Department of Process Engineering and Applied Science at Dalhousie University, conducted a study of “cladribine” which is a prototype nucleoside anticancer agent to determine if rat may be a suitable animal model to study the pharmacokinetics of this agent.

“We are investigating the development of a polymeric drug delivery agent to modulate the pharmacokinetics of cladribine” says Dr. Ghanem. “In the future, we hope to contribute to the

body of knowledge and understanding how we could improve delivery and treatment strategy for this class of therapeutic agents for treatment of cancers,” says both Drs. Ghanem and Yeung.

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