



## KEYNOTE:

## Dr. Janelle Sauvageau

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Janelle Sauvageau performed her bachelor and master's degree at Laval University in chemistry. After working and studying in Germany, she moved to New Zealand where she worked as a research scientist at Industrial Research Limited (IRL). After obtaining an enterprise Fulbright scholarship she completed her PhD at Victoria University of Wellington. Janelle returned to Canada to work for the NRC in 2014. Janelle became a research officer at NRC in summer 2018 and is now also an adjunct prof. at l'Institut National de la Recherche Scientifique (Armand-Frappier) and at l'Université Laval. She works in the area of carbohydrate synthetic chemistry and her projects range from the synthesis and analysis of immunomodulators and their utility as adjuvants, to carbohydrate conjugate vaccines, to vaccine antigens and latency reversal agents. She is listed as an inventor on 4 patents and has authored 20 publications.

### The applications of carbohydrate chemistry to vaccines and adjuvants

Glycans are often an integral part of molecules we use to treat or prevent diseases. We use glycolipids as adjuvants (e.g. monophosphoryl lipid A), glycan analogues as inhibitors (e.g. miglitol), polysaccharides are conjugated to proteins to prevent illness caused by bacterial infections (e.g. *Haemophilus influenzae* type b (Hib)). Many glycoproteins are also used to treat diseases such as serpins (e.g. A1AT) or to prevent diseases such as protein vaccine antigens (e.g. SARS-CoV-2 spike glycoprotein). As such, the Human Health Therapeutics research center at the National Research Council (NRC) has many projects surrounding glycans. Such projects include the development of carbohydrate conjugate vaccines, of adjuvants and immunomodulators as well as the production of glycoproteins such as mAbs, serpins and vaccine antigens. During this talk, through a glycochemistry lens, I will detail several projects I am involved in or lead. I will first describe the work surrounding the synthesis of an archaeol derived adjuvant candidate. Then, I will introduce the work performed on the development of a potential HIV latency reversal agent that I currently lead. Next, I will recount the synthesis of a novel pentasaccharide for glycoconjugate production. This is a potential prophylactic vaccine candidate against *Pseudomonas aeruginosa*, an antibiotic resistant bacteria. Finally, I will discuss the implications of glycan content in glycoprotein therapeutics and the analytical methodologies that have been developed to interrogate that. Overall this talk will provide a brief overview on the different projects involving glycans at the NRC, and moreover will showcase the wide implications of glycans in the wide field of therapeutics.