



GlycoNet

The Canadian Glycomics Network (GlycoNet) is a national research network focused on developing new carbohydrate-based drugs, vaccines, and diagnostics to improve the quality of life. Funded by the Federal Networks of Centres of Excellence, GlycoNet brings scientists, clinicians, and partners from public-

private sectors together to accelerate made-in-Canada health innovations, commercialize scientific breakthroughs, support company formation, and develop quality talent to support a sustainable economic growth in the biotechnology and life sciences sectors. The network now includes 175 investigators across Canada who focus on cancer, chronic condition, infectious disease, and neurodegeneration.

Business objectives

- Seek opportunities to co-develop our therapeutics and enabling technologies in the space of cancer, chronic disease, infectious disease, and neurodegenerative disease
- Seek alliance partners to accelerate our portfolio of translational research via co-funding and/or in-licensing
- Seek investors for our discovery / pre-clinical / clinical studies
- Seek early-stage investors for new company creations

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Selected Technology Assets At-a-glance

1. Atherosclerosis Treatment: Potent and selective neuraminidase inhibitors

GlycoNet researchers have developed a novel suite of small molecule neuraminidase (NEU) inhibitors that can effectively reduce the formation of fatty streaks in animal models of atherosclerosis. Additionally, these lead compounds have therapeutic potential in other areas including cardiovascular disease, oncology, infection and inflammation.

2. Biofilm-Disrupting Enzymes: New potentiators for antimicrobials.

GlycoNet researchers have developed novel glycoside hydrolases capable of both degrading and preventing the formation of biofilms originating from a range of bacterial and fungal pathogens. These enzymes potentiate several antimicrobial compounds and can be utilized in medical device coatings, disinfectants, wound treatment, and pulmonary infections.

3. Fucose-Deficient Anti-Cancer Antibodies: GlycoNet start-up Carbaform Bioscience Inc.

Carbaform Bioscience Inc, a GlycoNet start-up company, developed a new class of carbohydrate analogues that function as fucosylation inhibitors. These proprietary compounds are highly effective at inhibiting antibody core fucosylation associated with the industrial production of therapeutic antibodies.

4. GlycoCaged Drugs: Targeted delivery of anti-inflammatory drugs.

GlycoNet researchers have developed a glyco-prodrug delivery platform capable of enhancing the treatment of inflammatory bowel disease. The technology involves “caging” anti-inflammatory drugs and subsequently “releasing” them in the lower gastrointestinal (GI) tract in the presence of enzymes native to lower GI bacteria. This platform technology is further applicable to the hog and poultry industry where animal intestinal inflammatory diseases are currently treated with antibiotics.

5. Glycosylated Therapeutic Proteins: A new cost-effective platform for the production of therapeutic proteins.

Through synthetic biology approaches, GlycoNet researchers developed an *E. Coli* expression system capable of producing therapeutic proteins modified with human mucin type O-glycans. With high yields and without the need for costly mammalian cellular hosts, this method has the potential to significantly reduce production costs.

6. Making Universal Blood: GlycoNet start-up company ABOzymes Biomedical Inc.

In emergency situations requiring blood transfusion, type-O blood is the “go-to” blood type – it is the universal donor blood type. ABOzymes, a GlycoNet start-up company, has developed a highly efficient enzyme technology that can efficiently and fully convert type A blood to type O blood under physiological conditions.

7. Targeting CD33 to Treat Alzheimer’s Disease: New insights into the role of CD33 in Alzheimer’s Disease Progression.

Current treatments for Alzheimer’s disease focus on ameliorating symptoms rather than addressing the root causes. GlycoNet researchers have gained new insight into the role of siglecs – specifically CD33 – in disease progression and have developed a new class of multi-valent CD33 ligands with significant therapeutic potential.