GlycoNet

Innovating Health One Sugar at a Time

210+ researchers
750+ highly qualified personnel
37 institutions

What is glycomics?

Every cell, virus, and bacterium is coated in sugars called glycans that influence critical aspects of biology, from how our bodies fight infection to how crops resist pests and drought. **Glycomics studies the roles of glycans across organisms, microbes, and viruses.**

Why is it important?

Glycomics is driving the development of **next-generation vaccines, diagnostics, therapeutics, and bio-based technologies** that strengthen human and animal health, enhance food security, and bolster biodefence and emergency preparedness.

5 of the top 10 selling drugs contain glycans and generated **USD $76 billion** in 2024.

Strengthening Canada's Bioeconomy and Security

As a pan-Canadian **research and commercialization** network, GlycoNet builds national resilience through glycomics-based innovations that **protect health, enhance biodefence and emergency readiness, and support sustainable agri-food systems**.

"One-Stop Shop" for Glycomics Innovation

Leveraging **$35 million in infrastructure**, GlycoNet's Integrated Services connects researchers in academia, industry, and government with specialized expertise, equipment, and facilities for glycomics research—**keeping Canada at the forefront of global bioinnovation**.

Catalytic Investment Impact

(First Start-up Cohort | Data as of 2025)

- **4 start-ups** launched in 2017-2022 with GlycoNet support
- **$50 million** in follow-on capital secured
- **303:1** realized leverage on $165K initial GlycoNet funding
- **Up to $37 million in additional capital** in pipeline
- **41 high-skilled jobs** created in Canada, retaining talent

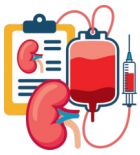
PanTHERA CryoSolutions | Part of Biolife Solutions | 48Hour Discovery | CARBAFORM | AVIVO

Since 2015, GlycoNet, partners and supported companies have directly and indirectly:*

- **Generated $887 million in GDP**
- **Supported 6,600 jobs**

*2024 Statistics Canada, Input-Output Multipliers Table 36-10-0594-01

Health & Biodefence Readiness



Breaking blood-type barriers in transfusion and transplantation: GlycoNet startup Avivo Biomedical is developing **universal donor blood and organs** to expand transplant access and trauma care.

Precision diagnostics for transplantation: GlycoNet startup GlycoBead is revolutionizing **transplant compatibility testing** with a next-generation assay that replaces the 125-year-old agglutination test, enhancing precision, equity and safety in blood and organ donor matching.

Detecting autoimmune disease earlier: GlycoNet researchers are developing a **simple sugar-based blood test** for early detection of scleroderma, a rare disease occurring at higher rates in military personnel and others exposed to specific toxins.

Next-gen cell and tissue preservation: GlycoNet startup PanTHERA CryoSolutions is redefining preservation with **glycan-based cryoprotectants** that keep cells, tissues, and organs viable longer—strengthening advanced therapies, biobanking, and emergency preparedness.

Enhancing antiviral strategies and pandemic preparedness: Cloudburst Biotech, a GlycoNet startup, is speeding up antiviral develpment with a **cost-effective, scalable process** that reduces nucleoside analogue production time, advancing global drug discovery and pandemic preparedness.

Tackling neurodegenerative disease: Partnering with major biopharma, GlycoNet researchers are creating **tools to monitor and slow** Alzheimer's and Parkinson's disease—addressing the escalating health and economic impact of neurodegeneration in an aging population.

Food Security & Sustainable Agri-Food Systems

Antimicrobial alternatives for animal health: A **glycan-based vaccine** being developed against *S. Suis*, a zoonotic pathogen, will protect swine and reduce reliance on antimicrobials, **strengthening Canada's $6-billion pork sector**.

Protecting pollinators: GlycoNet researchers are developing **sugar-based treatments** to help honeybees resist viral infections—supporting healthy ecosystems, stable crop yields, and a **$20-billion global honey and beeswax industry**.

Safeguarding marine ecosystems: GlycoNet researchers are developing **glycomics tools** to monitor how marine life adapts to climate change—helping **protect ocean biodiversity and global food supplies**.

Maple syrup quality assurance: A rapid **glycan-based fingerprinting test** in development will enhance quality control for **Canada's $840-million maple syrup sector, which accounts for 72% of global production,** while strengthening protection against counterfeit products.

GlycoNet is supported by: Canada INNOVATION Canada Foundation for Innovation Fondation canadienne pour l'innovation

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