



GenomeCanada

CanCOGeN 

CANADIAN COVID-19 GENOMICS NETWORK:

Generating accessible and usable genomics data to inform policy and public health decisions

▶▶ Latest news

Transition planning for CanCOGeN’s two lead projects is underway as the network marks its second anniversary and remaining funds will be disbursed by April 2022.

- [CanCOGeN VirusSeq](#), originally tasked to sequence up to 150,000 viral genomes from people testing positive for COVID-19.
- [CanCOGeN HostSeq](#), whose goal was to sequence up to 10,000 individuals exposed to, or affected by, the SARS-CoV-2 virus. by the virus.

The viral sequencing work is ongoing, reaching more than 400,000 viral sequences in March 2022. Genome Canada and the Public Health Agency of Canada’s National Microbiology Laboratory (NML) are implementing a transition plan with the NML leading coordination of future viral sequencing, and both organizations collaborating to maintain data sharing and the ongoing work of the [Canadian VirusSeq Data Portal](#).

The host sequencing work continues, with more than 7,500 host sequences completed by March 2022. Genome Canada has secured a 12-month extension from Innovation, Science and Economic Development Canada to allow adequate time to finalize the original funding objectives. This work will continue to be funded by the CanCOGeN budget.

Looking ahead: Genome Canada will continue working to harness the vast expertise and capacity built across Canada (personnel and technical), extensive knowledge and valuable partnerships developed over the last two years to strengthen Canada’s health genomics ecosystem—including advancing genomic surveillance for future pandemic preparedness and other major public health challenges. We will do this through a range of ongoing collaboration mechanisms, such as working groups, discussion forums, speaking engagements and events.

Mobilizing the power of genomics to tackle COVID-19

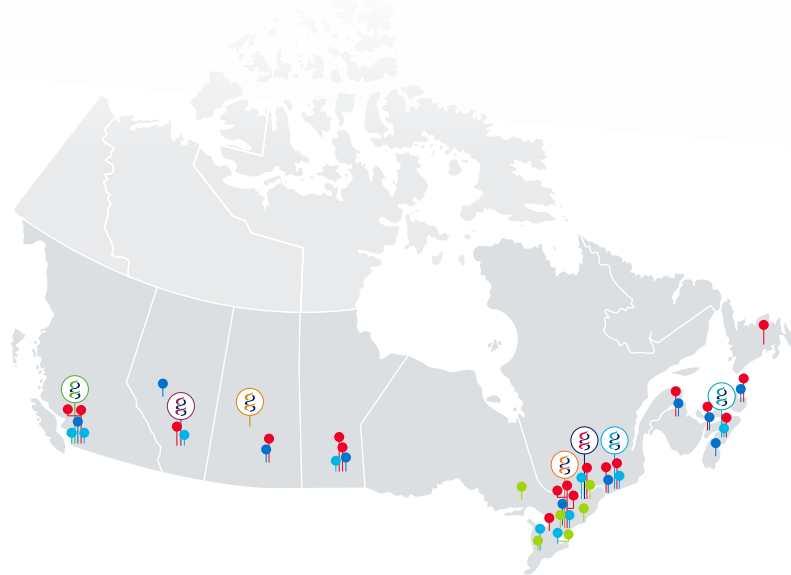
In the fight against COVID-19, genomics data is one of the strongest tools we can deploy towards short-term containment and long-term health-care response and management. When the virus broke out in early 2020, it quickly became clear that a coordinated national effort was needed to generate, share and scale up COVID-19 sequencing activities across Canada focusing on the virus and host genomes.

Genome Canada activated our community immediately, with rapid time to impact. We launched CanCOGeN in April 2020, building on 20 years of investment in genomics in Canada, ongoing collaborations and existing infrastructure.

CanCOGeN is committed to generating accessible and usable genomics data to inform public health and policy decisions, as well as to guide treatment and vaccine development.

WHO’S INVOLVED?

CanCOGeN is a Genome Canada-led network of Canadian federal, provincial and regional public health authorities and their healthcare partners, academia, industry, hospitals, research institutes and large-scale sequencing centres. This coordinated pan-Canadian approach aligns us with global sequencing efforts and enables the sharing of knowledge, discoveries and best practices internationally.

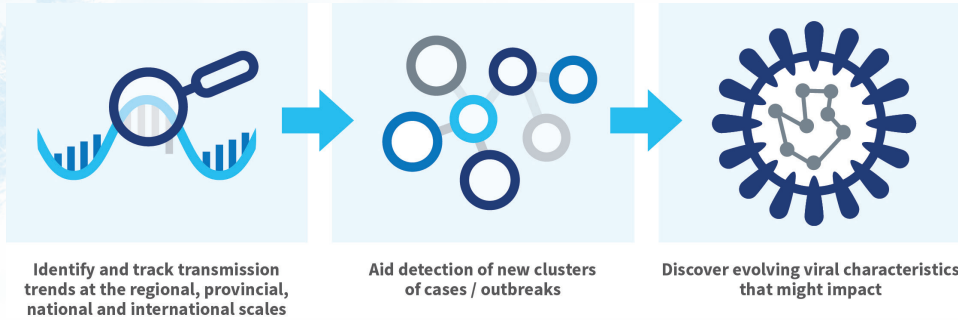


Impact on Canadians

WHY WE STUDY THE VIRUS

Genomics-based tracking and analysis of the evolving traits of the COVID-19 virus across Canada provides critical information for:

- Public health and policy decisions
- Testing and tracing strategies
- Virus detection and surveillance methods
- Vaccine development and effectiveness
- Drug discovery and effectiveness of treatment
- Understanding susceptibility, disease severity and clinical outcomes

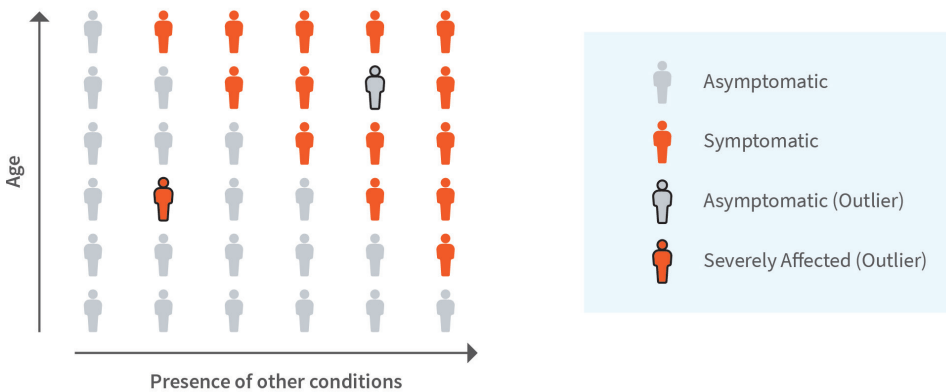


WHY WE STUDY THE HOSTS

Sequencing the genomes of COVID-19 infected individuals (“hosts”) and identifying the underlying genetic factors that contribute to disease response helps us understand:

- People’s susceptibility to the virus
- Clinical variability in disease severity
- The complex interaction between pathogen and host
- Why some people get infected and not others
- Why the virus affects people differently
- Why some infected people are asymptomatic

Different clinical presentations of COVID-19 in hosts



BUILDING FUTURE READINESS AND MODELS

In addition to providing critical information to guide the current public health and policy response to COVID-19, CanCOGeN is now providing real-time data for outbreak analysis. Further, we are poised to use the data to study cases of reinfection as well as to support post-vaccination surveillance. Beyond COVID-19, CanCOGeN is helping build the capacity and infrastructure for a much-needed national genomics and health data platform to prepare Canada for potential new pandemics.

CanCOGeN by the numbers

\$40M

in federal funding

24-month

project

67

COVID-19-related clinical studies being recruited into HostSeq

400K+

viruses sequenced* through VirusSeq

7.1K+

patient sequences completed* through HostSeq

2

implementation committees

9

sub-committees and groups working on data sharing, capacity building, ethics and more

3

large HostSeq sequencing centers participating

9

provinces now sequencing in-house: B.C., Alta., Ont., Que., Sask., Man., N.S., N.L., N.B.

1

case study on lessons learned

*as of March 2022

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