Global Alliance for Genomics & Health

GA4GH community response to COVID-19

The COVID-19 pandemic has affected millions of people around the globe. Learn more about how members of the GA4GH community are contributing to the effort to fight the pandemic through the power of data sharing.

GA4GH receives funding from CIHR to advance data sharing tools in the fight against Covid-19

With the new funding support, GA4GH aims to further link Canada's research efforts to the international data sharing ecosystem via interoperable technical standards and policy frameworks. As the grant recipient, the Ontario Institute for Cancer Research (OICR) — which also serves as a GA4GH Host Institution—will serve as an active collaborator alongside several Canadian partners: CoVaRR-Net, the Digital Supercluster COVID Cloud, and the Canadian COVID-19 Genomics Network (CanCOGeN) VirusSeq and HostSeq portals. Together, they will aim to advance and support uptake of GA4GH standards within the Canadian COVID-19 research community.

In addition, GA4GH international partners such as the Public Health Alliance for Genomic Epidemiology (PHA4GE), the International COVID-19 Data Alliance (ICODA), the COVID-19 Host Genetics Initiative, and the COVID-19 Genomics UK (COG-UK) consortium will help ensure that Canadian efforts are connected—both technically and strategically—to the broader international community.

LEARN MORE >

A message from the GA4GH Executive Committee

Ewan Birney, Heidi Rehm, Peter Goodhand, and Kathryn North

The urgency of scientific data sharing is never more apparent than during a global disease outbreak. Rapid sharing of high quality data is critical for the effective and timely response to any pandemic. GA4GH has joined Wellcome and others to call for rapid, open sharing of research findings and data relevant to COVID-19. The GA4GH community is responding through the development of a variety of research and data sharing platforms and initiatives....

But in order to ensure truly equitable access to and participation in both the scientific process and its benefits, we must rigorously maintain technical and ethical standards that support the open sharing of data and knowledge—now and always.

READ THE FULL LETTER >

Responsible data sharing to respond to the COVID-19 pandemic

Ethical and legal considerations

Developed by the GA4GH Regulatory and Ethics Work Stream (REWS), this document highlights key legal and ethical issues that the human genomic research community faces in the context of the pandemic. We deal principally with (1) privacy and data protection; (2) intellectual property; (3) medical devices; (4) data sharing policy; (5) public health ethics; (6) research ethics review; and (7) data access processes.

READ THE DOCUMENT >

COVID-19 podcast series

On the OmicsXchange Podcast, we've launched a new series discussing the role of data sharing during the COVID-19 pandemic. These conversations feature members of the international genomics community on new initiatives that leverage collaboration, interoperability, and open science to advance research into the novel coronavirus. You will find a list of current episodes below, along with links to the transcript.

28 July 2020	HDR UK's COVID-19 Response: an interview with Caroline Cake
29 June 2020	ELIXIR's COVID-19 response: an interview with Kathi Lauer
2 June 2020	Regulatory and ethics perspective on COVID-19 data sharing: an interview with Johan Ordish
12 May 2020	COVID-19 Beacon: an interview with Marc Fiume

COVID-19 initiatives from our community

Members of GA4GH—and the human genetics community more broadly—are accelerating COVID-19 research through a variety of research and data sharing initiatives. Some of these leverage GA4GH standards. Others bring together a diverse cross-section of stakeholders. All of them share the mission and values of GA4GH. We feature them here to facilitate awareness and collaboration.

BY-COVID

€12 million Horizon Europe funded project, BeYond-COVID (BY-COVID), which will tackle the data challenges that can hinder effective pandemic response. The core aim of the project is to ensure that data on SARS-CoV-2 and other infectious diseases can be found and used by everyone. BY-COVID will build and expand upon the successful COVID-19 Data Platform, a resource initiated in the early stages of the pandemic and led by EMBL-EBI. Since its launch, many countries have established their own national data hubs, which ensures that data produced locally can be instantaneously connected and shared with the main COVID-19 Data Portal.

Rather than focus purely on providing technical solutions to the biological data, BY-COVID will work with partners such as the Versatile emerging infectious disease Observatory (VEO) and the Public Health Information Research Infrastructure (PHIRI) to incorporate data from a broader range of disciplines, including public health and social sciences.

Press release

Centre for Epidemic Response and Innovation (CERI)

The University of KwaZulu-Natal and the Chan Soon-Shiong Foundation (CSSFF) announced the official launch of the Centre for Epidemic Response and Innovation, for which they are founding partners. Backed by an initial $4.5 million in funding from The Rockefeller

Foundation's pandemic prevention institute, CERI is a leader in ongoing work to expand pathogen surveillance capability across Africa. 51 of the 54 African countries are reporting genomic data on SARS-CoV-2.

Press release

CoVaRR-Net

CoVaRR-Net, or Coronavirus Variants Rapid Response Network, is a network of interdisciplinary researchers from institutions across the country created to assist in the Government of Canada's overall strategy to address the potential threat of emerging SARS-CoV-2 variants.

Press release

Canadian COVID Genomics Network (CanCOGeN)

CanCOGeN is an open and collaborative initiative to coordinate safe data sharing and analysis across Canada. It will oversee the sequencing of genomes of up to 150,000 viral samples and 10,000 patients to inform clinical and public health strategies. The work will also provide the foundation to develop the tools needed to better protect Canadians' health when similar outbreaks occur in the future.

Press release

Communicable Disease Genomics Network (CDGN) - AusTrakka Platform

The AusTrakka platform was developed in response to key reports to the Office of Health Protection, Australian Government Department of Health, on the need to better facilitate public health genomics data sharing and analysis in Australia. The purpose of the platform is to facilitate nationally integrated genomics epidemiology in Australia and has been developed in alignment with the National Microbial Genomics Framework 2019-2022.

Learn more

COVID Cloud

GA4GH Member Organisation and active contributor DNAstack has launched COVID-19 Beacon to enable the scientific and medical communities to share and discover knowledge about the genetics of the virus in real time. Researchers can use the new Beacon, which integrates derivative data from genetic sequencing libraries like GISAID and links to Nextstrain pathogen evolution visualisations, to discover sequences with specific genetic mutations and map their geographic and evolutionary origins.

Learn more

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Press release | COVID-19 Beacon

COVID-19 Data and Connectivity National Core Study

The National Core Studies (NCS) programme is enabling the UK to use health data and research to inform both our near and long-term responses to COVID-19, as well as accelerating progress to establish a world-leading health data and research infrastructure for the future.

Learn more

COVID-19 Data and Tools in Terra

The Terra team is making relevant data and tools across the Broad Institute available to the public. These currently include a public workspace focused on the genomics of the virus and an inventory of single-cell studies tagged as being relevant to COVID-19 research. The list continues to expand and will be summarised on the Terra website.

Blog post | COVID-19 Data and Tools

COVID-19 Genomics UK Consortium

To provide increased capacity to collect, sequence, and analyse the whole genomes of virus samples in the UK, the COVID-19 Genomics UK (COG-UK) Consortium is pooling world leading knowledge and expertise in genomics from the four UK Public Health Agencies, multiple regional University hubs, and large sequencing centres—including Genomics England, EMBL-EBI, and the Wellcome Sanger Institute.

Learn more

COVID-19 Host Genetics Initiative

The COVID-19 Host Genetics initiative brings together the human genetics community to generate, share, and analyze data to learn the genetic determinants of COVID-19 susceptibility, severity, and outcomes. Such discoveries could help to generate hypotheses for drug repurposing, identify individuals at unusually high or low risk, and contribute to global knowledge of the biology of SARS-CoV-2 infection and disease.

Learn more | Media coverage
COVID-19 Portal The European Commission and EMBL's European Bioinformatics Institute (EMBL-EBI), together with EU Member States and research partners such as ELIXIR, have deployed COVID-19 Portal, a dedicated European COVID-19 Data Platform to enable the rapid collection and comprehensive data sharing of available research data from different sources for the European and global research communities. This joint effort is a priority pilot to realise the objectives of the European Open Science Cloud (EOSC). Learn more | Press release
Covidaware.me Platform GA4GH Driver Project the Monarch Initiative has partnered with Pryzm Health to develop Covidaware.me — an online platform for individuals to anonymously share COVID-19 and flu-like symptoms and track their progression over time. The information is converted into a machine-readable format, allowing individuals to compare their information to others, or to download their information using an open format called a Phenopacket — a GA4GH standard for sharing phenotypic information. Learn more | Press release
Galaxy COVID-19 The Galaxy team has developed best practices and publicly accessible infrastructure and workflows for SARS-CoV-2 data analyses, including the interpretation of primary (reads) and derived (assemblies) sequence data, as well as chemoinformatic analyses. The effort spans research teams from the US, EU, and Australia. Learn more
GECCO GECCO is a compact, interoperable dataset for collecting, exchanging and analysing COVID-19 data across institutions and software systems. Developed by a multidisciplinary group of experts within the National Research Network of University Medicine on COVID-19 ("Nationales Forschungsnetzwerk der Universitätsmedizin zu COVID-19") funded by the German Federal Ministry of Education and Research, GECCO builds on international terminologies and IT standards to harmonise COVID-19 research. Press release | Preprint | Dataset description | Dataset description
Health Data Research UK COVID-19 Strategy Health Data Research UK (HDR UK) is working in partnership to support with the UK

government and the NHS in England, Northern Ireland, Scotland, and Wales to enable rapid health data research into COVID-19 utilising the data assets, skills, and expertise across the UK. The strategy is three-fold: to advise the Strategic Advisory Group for Emergencies (SAGE), policy makers, and the NHS on relevant health data research questions; enable a scalable approach to linked data across the four nations; and provide rapid access to secure analytical environments for researchers.

Weekly SAGE Reports | HDR Innovation Gateway

Human Cell Atlas Research on COVID-19

The Human Cell Atlas (HCA) — a GA4GH Driver Project—is bringing its scientific expertise to accelerate COVID-19 research and inform clinical care. The team has analysed their existing data to gain valuable insights into the biology of the disease, and is openly releasing these data and analyses as rapidly as possible to the community.

Learn more

Lifebit CloudOS

GA4GH Member Organization Lifebit Biotech is now providing its premium Lifebit CloudOS licence free to all researchers and teams working on COVID-19 efforts, including diagnostics, treatments, and vaccines. The company has also made the NCBI dataset for SARS-CoV-2 globally available. The dataset consists of viral sequence data for SARS-CoV-2 and includes all Next Generation Sequencing runs for SARS-CoV-2 from the Sequence Read Archive (SRA), associated metadata, and the virus reference genome.

Learn more | Press release

National COVID Cohort Collaborative

The National COVID Cohort Collaborative is an open science community focused on analysing patient-level data from many centres.

Learn more

National Swedish COVID-19 Data Portal

The Swedish COVID-19 Data Portal provides information, guidelines, tools and services to support researchers to utilise Swedish and European infrastructures for data sharing.

Learn more

Pan-European Privacy-Preserving Proximity Tracing

Members of the GA4GH Data Security Work Stream have launched Pan-European Privacy-Preserving Proximity Tracing (PEPP-PT), a core technology that provides an

internationally applicable mechanism upon which any country can develop a secure app for local proximity tracing. PEPP-PT makes it possible to interrupt new chains of SARS-CoV-2 transmission rapidly and effectively by informing potentially exposed people.

Learn more | **Press release**

Public Health Alliance for Genomic Epidemiology (PHA4GE)

The Public Health Alliance for Genomic Epidemiology (PHA4GE) is a global coalition that is actively working to establish consensus standards; document and share best practices; improve the availability of critical bioinformatic tools and resources; and advocate for greater openness, interoperability, accessibility and reproducibility in public health microbial bioinformatics.

Learn more

Public Policy Projects

The mission of Public Policy Projects is to learn both from our own experience and from the experience of others and to make contributions to the policy debate which address real world choices based on real-world evidence. The team is writing a Global Genomics report, addressing COVID as one area of focus.

Learn more

Roche Data Science Coalition

GA4GH Member Organisation and active contributor Hoffmann-La Roche Limited (Roche Canada) has assembled a group of like-minded public and private organisations with a common mission and vision to bring actionable COVID-19 intelligence to patients, frontline healthcare providers, institutions, supply chains, and government. The Roche Data Science Coalition has developed a centralised database of more than 200 publicly available population datasets, a self-assessment tool to aid both research and clinical decision making, and an online data challenge to answer key questions about the virus.

Learn more | Press release

Secure Collective COVID-19 Research (SCOR)

Members of the GA4GH Data Security Work Stream have helped establish the Secure Collective COVID-19 Research (SCOR) consortium, which aims to support international collaboration on COVID-19 research while respecting patient privacy.

Learn more