## Convergence of Genomics and Artificial Intelligence
## A strategic collaboration between Génome Québec and IVADO

**Montréal, July 3, 2019** – Génome Québec is proud to announce its financial participation in nine genomics projects selected for funding under the IVADO *Fundamental Research Funding Program*. This strategic collaboration is particularly relevant given that a number of projects financed focus on the use of Big Data in genomics.

Genomics technology will generate massive amounts of data, which will be of significance for the human health sector. Our ability to analyze and interpret these data is a critical factor for the successful integration of genomics into the Québec health care system. The convergence of genomics and AI provides us with the possibility of making optimal use of clinical data from genomics: the research projects selected will lead to the development of tools used to process, analyze and integrate huge volumes of complex data generated by *omics* technologies and lead to advances in machine learning models that can predict the development, progression and response to therapy in diseases, such as epilepsy, cancer and heart disease.

According to Daniel Coderre, President and CEO of Génome Québec, Québec is witnessing major developments in two strategic sectors of excellence that must be put to work for the benefit of the Québec health care system: "Priority must be given to ensuring our leadership in the area of Big Data analysis in genomics using deep learning and artificial intelligence. Our association with IVADO brings to expression that convergence of both sectors, thereby accelerating the development of innovative and personalized therapies for diseases that affect Quebecers. I would like to congratulate the nine research teams for the excellence and quality of the projects submitted."

According to Guillaume Chicoisne, Scientific Programs Director at IVADO, this collaboration with Génome Québec will strengthen Québec's position in health research, an important focus for the Institute. "IVADO finances a significant number of fundamental research projects and we are pleased that Génome Québec will be involved in supporting these initiatives, which are at the intersection of our respective areas of interest – data science and genomics. From data to decision making, this collaboration will serve as a catalyst for innovative genomics research spearheaded by nine teams of experts from two world-class institutions, Polytechnique Montréal and Université de Montréal."

The researchers selected under the IVADO-Génome Québec collaboration are:

- **Patrick Cossette (Université de Montréal**)
  Towards personalized medicine in the management of epilepsy: a machine learning approach in the interpretation of large-scale genomic data

- **Benoit Coulombe (Université de Montréal) –** Institut de recherches cliniques de Montréal
  A machine learning approach to decipher protein-protein interactions in human plasma

- **Julie Hussin (Université de Montréal) –** Institut de Cardiologie de Montréal
  Deep Learning Methods in Biomedical Research: from Genomics to Multi-Omics Approaches

- **Sébastien Jacquemont (Université de Montréal) –** Centre de recherche du CHU Sainte-Justine
  Modeling and predicting the effect of genetic variants on brain structure and function

- **Frederic Leblond (Polytechnique Montréal)**
  Machine learning technology applied to the discovery of new vibrational spectroscopy biomarkers for the prognostication of intermediate-risk prostate cancer patients

- **Éric Lécuyer (Université de Montréal) –** Institut de recherches cliniques de Montréal
  Developing a machine learning framework to dissect gene expression control in subcellular space

- **Sébastien Lemieux (Université de Montréal) –** Institute for Research in Immunology and Cancer
  Deep learning for precision medicine by joint analysis of gene expression profiles measured through RNA-Seq and microarrays

- **Pierre Thibault (Université de Montréal) –** Institute for Research in Immunology and Cancer
  Matching MHC I-associated peptide spectra to sequencing reads using deep neural networks

- **Jean-Claude Tardif (Université de Montréal) –** Montreal Heart Institute
  Machine learning and precision medicine to curb atherosclerosis – Please note that this last team is funded exclusively by Génome Québec.

## About the IVADO Program

The Fundamental Research Funding Program provides a framework for fostering multidisciplinary research in data science by confirming and strengthening the IVADO community as a key player in the field. This program is also very much focused on the future, encouraging the training of the next generation of data researchers and the creation of the foundations for tomorrow's scientific research, whether fundamental or applied.

For more information on IVADO: www.ivado.ca

## About Génome Québec

Génome Québec's mission is to catalyze the development and excellence of genomics research and promote its integration and democratization. It is a pillar of the Québec bioeconomy and contributes to Québec's influence and its social and sustainable development.

The funds invested by Génome Québec are provided by the ministère de l'Économie et de l'Innovation du Québec (MEI), the Government of Canada, through Genome Canada, and private partners.

To learn more, visit www.genomequebec.com

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