

## Pre-Applications for the 2010 Large-Scale Applied Research Project Competition

This information has been provided to facilitate the flow of information between applicants to the Science and Technology Innovation Centre Competition.

Centre	Project Leader(s)	Lead Organization	Title	Research Area	Methodologies
Genome BC	Aitken, Sally <b>Co-Leader:</b> Hamann, Andreas	University of British Columbia	AdapTree: Assessing the adaptive portfolio of reforestation stocks for future climates	Forestry; GE <sup>3</sup> LS	Candidate genes, SNPs, high-throughput genotyping, temperature stress, drought stress, geospatial analysis, association mapping
Genome BC	Brooks-Wilson, Angela R.	BC Cancer Agency	Genomics of Healthy Aging	Health	Gene expression, genome-wide association study (GWAS), genotyping
Genome BC	Collins, Colin <b>Co-Leader:</b> Gleave, Martin	Vancouver Prostate Centre	Validation and Implementation of the GEMCaP Biomarkers for Prostate Cancer Management	Health; GE <sup>3</sup> LS	aCGH, MIPS, NGST
Genome BC	Connors, Joseph <b>Co-Leader:</b> Gascoyne, Randy	BC Cancer Agency	Lymphoid Cancers: Turning Basic Science into Clinical Reality	Health; GE <sup>3</sup> LS	Sequencing, informatics, pharmacoeconomics, research ethics
Genome BC	Cullis, Pieter <b>Co-Leader:</b> Hansen, Carl Lars	University of British Columbia	Development and Application of siRNA-Nanoparticles for Functional Genomics of Innate Immunity and Hepatitis Infection	Health; Technology Development	Nanoparticles, RNA interference
Genome BC	Douglas, Carl <b>Co-Leader:</b> Mansfield, Shawn	University of British Columbia	POPCAN: Genetic improvement of poplar trees as a Canadian bioenergy feedstock	Environment; Forestry	resequencing, association genetics, natural variation, phenotyping, marker assisted breeding
Genome BC	Eltis, Lindsay <b>Co-Leader:</b> Mohn, William	University of British Columbia	Harnessing microbial diversity for sustainable use of forest biomass resources	Environment; Forestry; GE <sup>3</sup> LS;	High throughput activity screens for biocatalysts, metagenomic analyses of microbial communities, high-throughput sequencing analysis of microbial community composition, metabolic engineering

Genome BC	Foster, Leonard <b>Co-Leader:</b> Pernal, Stephen	University of British Columbia	Next-generation integrated pest management tools for beekeeping	Agriculture	Proteomics, Metabolomics, Agri-economics, Selective Breeding, Host-Pathogen Interactions
Genome BC	Friedman, Jan	University of British Columbia	Genomic characterization of children with intractable seizures	Health	Metabolomics, Exome sequencing, bioinformatics, proteomics
Genome BC	Hallam, Steven	University of British Columbia	Microbial Sentinels of Environmental Change: Climate Effects and Ecosystem Dynamics Across Canada's Three Oceans	Environment; GE <sup>3</sup> LS; Technology Development	Metagenomics, Ocean Observing Systems, Ecogenomic Sensing, Ecological Modelling, Social Network Analysis
Genome BC	Hamelin, Richard	University of British Columbia	Genomics-Based Forest Health Diagnostic and Monitoring	Forestry	Genomics profiling, genome sequencing, genome comparison, metagenomics, DNA detection
Genome BC	Hancock, Robert	University of British Columbia	Genomics of Host Directed Therapies (GHDT)	Health	Systems biology mapping and tools development, mechanistic studies, mouse models, peptide formulations
Genome BC	Hayden, Michael <b>Co-Leader:</b> Goldberg, Paul	University of British Columbia	Towards the Eradication of Iron Overload Using Genotypic Prediction and Preventative Therapies	Health	Applied pharmacogenomics, human proof of concept, hepcidin biomarker, hemojuvelin antisense, small molecule DMT1 inhibitor
Genome BC	Henry, Greg <b>Co-Leader:</b> Rieseberg, Loren	University of British Columbia	Genomics of Plant Adaption to Climate Change in Arctic Ecosystems	Environment	Genome sequencing, transcriptome analyses, bisulfite sequencing, population genomics, common garden experiments
Genome BC	Jacobson, Kevan <b>Co-Leader:</b> Griffiths, Anne Marie Mack, David	University of British Columbia	The Canadian Collaborative Pediatric Inflammatory Bowel Disease (IBD) Network (CCPIN) Biomarker Development Program for Improved Clinical Management of Disease	Health; GE <sup>3</sup> LS; Technology Development	Proteomics, Metabolomics
Genome BC	Keown, Paul <b>Co-Leader:</b> McMaster, Robert	University of British Columbia	Personalized medicine in transplantation: Development of biomarkers of immunological accommodation	Health	Genomics, proteomics, computational analysis, immunology, economic modeling
Genome BC	Koop, Ben <b>Co-Leader:</b> Fast, Mark	University of Victoria	Genomics Tools to Resolve Environmental Impact And Treatment Resistance in Sea Lice (TREAT)	Environment; Fisheries/Aquaculture	SSH, SNP microarray, risk models, qPCR, sequencing

Genome BC	Marziali, Andre	University of British Columbia	Portable DNA Extraction and Pathogen Detection System	Technology Development	Electrophoresis, SCODA, non-linear, phase-lock, hybridization
Genome BC	McManus, Bruce <b>Co-Leader:</b> Dyck, Jason	University of British Columbia	Development of Diagnostic Biomarkers for Improved Heart Failure Management	Health	Genomics, Proteomics, Bioinformatics, Diagnostics
Genome BC	Sahinalp, Cenk <b>Co-Leader:</b> Biol, Inanc	Simon Fraser University	An Integrative Computational Platform for PetaScale Sequence Analysis	Health; GE <sup>3</sup> LS; Technology Development	Personal sequence assembly based on ABySS platform; structural variation detection via VariationHunter platform; multiple sequence alignment based on FAST & CO platform; SNV variation and fusion detection platforms; generalization to multiple genome comparison, algorithm, software and data integration
Genome BC	Sin, Don	University of British Columbia	Development of Novel Biomarker Blood Tests for COPD	Health	Proteomics, Genomics, Bioinformatics, Diagnostics, Therapeutics
Genome BC	Tang, Patrick <b>Co-Leader:</b> Isaac-Renton, Judith	University of British Columbia	Applied Metagenomics of the Watershed Microbiome	Environment	Metagenomics, bioinformatics, microbial transport and dynamics modeling, microbial source attribution, water quality indicators
Genome BC	Wasserman, Wyeth <b>Co-Leader:</b> Kushniruk, Andre	University of British Columbia	Portal for Clinical Analysis of DNA (PCAD)	Health	Software development; User Interface Design; Software Evaluation
Genome Alberta	Deyholos, Michael <b>Co-Leader:</b> Vidmar, John	University of Alberta	Industrial Hemp Improvement Project (IHIP)	Agriculture	whole genome sequencing, SNPs, mapping, proteomics, reverse genetics
Genome Alberta	Deyholos, Michael <b>Co-Leader:</b> Zhang, Jian	University of Alberta	AGERC (Applied Genomics for Environmental Remediation in Canada)	Environment	metagenomics, ecogenomics, remediation, native plant for restoration, gene expression of plant-microbes interactions
Genome Alberta	Gilleard, John <b>Co-Leader:</b> Booker, Calvin	University of Calgary	Genomics-Assisted Production and Health Management System in Feedlot Cattle	Agriculture and GE <sup>3</sup> LS	SNP, microarray, sequencing, genetic epidemiology, bioinformatics

Genome Alberta	Hallgrimsson, Benedikt <b>Co-Leader:</b> Olson, David	University of Calgary	Understanding and managing syncope, cleft palate and pre-term birth using coordinated genomics, model systems and ethics approaches	Health, Technology and GE <sup>3</sup> LS	Massively parallel sequencing, 600K HapMap BeadChip, bioinformatics, tomography, morphometric analysis
Genome Alberta	Halloran, Philip <b>Co-Leader:</b> Mengel, Michael	University of Alberta	Developing and Validating an Integrated Diagnostic System for kidney transplant biopsies	Health, and GE <sup>3</sup> LS	Microarrays, biostatistics, transcriptomics
Genome Alberta	Kenny, Louise <b>Co-Leader:</b> Lopaschuk, Gary	University of Alberta	Exploiting Metabolomics for Women's Health: Sensitive Screening and Personalized Prediction Using Biomarkers	Health, Technology and GE <sup>3</sup> LS	Nuclear magnetic resonance, mass spectroscopy, computational biology, metabolomics, point-of-care technology
Genome Alberta	Kovalchuk, Igor <b>Co-Leader:</b> Weselake, Randall	University of Lethbridge	Generating plants with new traits through epigenetic applications	Environment	Analysis of methylation and miRNA via bisulphate and deep sequencing, analysis of histone modifications and signaling via Chip-on-chip
Genome Alberta	Moore, Stephen <b>Co-Leader:</b> Miller, Stephen	University of Alberta	Whole Genome Selection through Genome Wide Imputation in Beef Cattle.	Environment Agriculture and GE <sup>3</sup> LS	
Genome Alberta	Plastow, Graham <b>Co-Leader:</b> Kemp, Bob	University of Alberta	Application of genomics to improving swine health and welfare.	Agriculture and GE <sup>3</sup> LS	Disease Challenge, Disease Outbreaks, Next Generation DNA sequencing, High Density SNP Panels, Transcriptomics, Proteomics, Kinomics, Bioinformatics.
Genome Alberta	Strelkov, Stephen <b>Co-Leader:</b> Borhan, Hossein	University of Alberta	Identifying clubroot resistance by deciphering the molecular basis of the <i>Plasmodiophora brassicae</i> -host plant interaction	Agriculture and Environment	Next generation sequencing, transcriptome profiling, transient assay, protein-protein interaction, protein localization, gene silencing
Genome Alberta	Tuszynski, Jacek <b>Co-Leader:</b> Marsh, Sharon	University of Alberta	Pharmacogenomics-based drug discovery	Health, Technology and GE <sup>3</sup> LS	Genotyping, bioinformatics, virtual screening, in vitro assays
Genome Alberta	Wishart, David	University of Alberta	The Food Metabolome Project	Environment	Metabolomics, Nutrigenomics, Bibliomics, Bioinformatics, Nutrition science

Genome Alberta	Wishart, David <b>Co-Leader:</b> Materi, Wayne	University of Alberta	Functional genomics of synthetic biological systems for carbon capture and recycling	Health, Agriculture Technology and GE <sup>3</sup> LS	Transcriptomics, proteomics, metabolomics, metagenomics, synthetic biology
Genome Prairie	Bonham-Smith, Peta <b>Co-Leader:</b> Arocha-Rosete, Yaima	University of Saskatchewan	Genomics and Proteomics of aster yellows and clubroot plant pathogens threatening canola production in Canada (GPAC)	Environment, Agriculture and GE <sup>3</sup> LS	Real-time PCR (RT-PCR); whole-genome shotgun technology; genome annotation; computational proteomic analysis; transmission electron microscopy.
Genome Prairie	Chibbar, Ravindra <b>Co-Leader:</b> Bai, Yuguang	University of Saskatchewan	Genomics of shrubs for oil sand reclamation in boreal forests	Environment	High throughput DNA sequencing, Gene Expression assays, Genotype-environment interaction, Modeling shrub regeneration, Plant adaptation
Genome Prairie	Eck, Peter <b>Co-Leader:</b> Jones, Peter	University of Manitoba	Genetics of dietary interventions efficacy in metabolic spectrum disorders	Health	Cohort study, extreme cases, GWAS, gene-environment interactions modeling
Genome Prairie	Liber, Karsten <b>Co-Leader:</b> Haakensen, Monique	Saskatchewan Research Council	Profiling microbial communities associated with uranium mining and milling	Environment, Technology and GE <sup>3</sup> LS	Metagenomics; Transcriptomics; Biogeochemistry; Synchrotron; Integrated multidisciplinary research
Genome Prairie	Hicks, Geoff <b>Co-Leader:</b> Kubes, Paul	University of Manitoba	Cre-munity: Tissue specific conditional drivers for developing pre-clinical mouse models of inflammation-associated degenerative diseases and regenerative therapies.	Health, Technology and GE <sup>3</sup> LS	Gene targeting, mouse embryonic stem cells, transgenic technologies, in vivo phenotyping, recombinase-mediated conditional mutations.
Genome Prairie	Johnston, Mark <b>Co-Leader:</b> Van Rees, Ken	Saskatchewan Research Council	The use of genomics to assess the vulnerability of jack pine to climate change	Forestry and Environment	metabolomics, transcriptomics, hormone profiling, SNP, genome sequencing, quantitative trait loci
Genome Prairie	Krause, Denis <b>Co-Leaders:</b> McAllister, Tim Bernstein, Charles	University of Manitoba	Water as a vector of bovine and human disease	Environment	

Genome Prairie	Leighton, Ted <b>Co-Leader:</b> Soos, Catherine	University of Saskatchewan	Identifying the origins, predicting the movement and understanding risk factors associated with emerging infectious diseases of wildlife in Canada	Environment	Genomics, metabolomics, stable isotopes, modeling, epidemiology
Genome Prairie	Mai, Sabine <b>Co-Leader:</b> Knecht, Hans	University of Manitoba	Nucleomics of the cancer genome – three-dimensional (3D) cancer genome scanning	Health and Technology	Quantitative imaging, 3D telomere imaging, 3D automated scanning, quantitative 3D software, diagnostic tool
Genome Prairie	Oresnik, Ivan J. <b>Co-Leader:</b> de Kievit, Teri	University of Manitoba	Microbial-Plant Genomics for Bio-inoculant Development	Environment	proteomics / transcriptomics / metabolomics / metagenomics
Genome Prairie	Pierce, Grant N. <b>Co-Leader:</b> Wigle, Jeffrey	St. Boniface Hospital Research/University of Manitoba	Nutriogenomic approaches for the modulation of inflammation and oxidative stress in patients with diabetes using Canadian flaxseed	Health, Agriculture and GE <sup>3</sup> LS	Micro array analysis and gene profiling; Proteomics, Flow-cytometry, ELISA, GC-MS
Genome Prairie	Potter, Andrew <b>Co-Leader:</b> Gerdts, Volker	University of Saskatchewan	Vaccinomics for Animal Disease	Agriculture and GE <sup>3</sup> LS	Proteomics, sequencing, kinome, recombinant DNA, immunization
Genome Prairie	Pozniak, Curtis <b>Co-Leaders:</b> Hucl, Pierre	University of Saskatchewan	Genomic Strategies to Improve Wheat Breeding in Canada	Agriculture	Next generation DNA sequencing, allele mining, bioinformatics, phenomics
Genome Prairie	Rysgaard, Soeren <b>Co-Leader:</b> Barber, David	University of Manitoba	GENICE: Genomics of Ice Environments	Environment and GE <sup>3</sup> LS	DNA fingerprinting and deep sequencing, stable isotope probing for carbon cycling, targeted proteomics and transcriptomics for hydrocarbon and mercury cycling, microcalorimetry assays of ice brines and microbial polymers for cryopreservation biotechnology

Genome Prairie	Vandenberg, Albert <b>Co-Leaders:</b> Sharpe, Andrew	University of Saskatchewan	Lentil Genomics for Canada (Len-Gen)	Agriculture and Environment	Next generation sequencing (genome, transcriptome and genotyping); High density SNP genotyping (GWAS); Bioinformatics (genome assembly, re-sequencing comparative analysis, SNP discovery / genetic mapping, GWAS)
OGI	Altosaar, Illimar <b>Co-Leader:</b> Smith, Jeffrey	University of Ottawa	Starch Regulomics	Environment, Technology and GE <sup>3</sup> LS	Mass spectrometry, iTRAQ Analysis, Bioenergy Biomarker Discovery by Mass Spectrometry, Starch excess mutants, Giant granule mutants (ssg1)
OGI	Bonetta, Dario <b>Co-Leaders:</b> Castonguay, Yves	University of Ontario Inst. of Technology	BioAlfa – Molecular Markers for increased value of Alfalfa	Environment, Technology and GE <sup>3</sup> LS	Germplasm improvement, metabolomics, SNP array, high throughput phenotyping, marker assisted selection
OGI	Brown, Stephen <b>Co-Leader:</b> Oleschuk, Richard	Queen's University	Advanced Biotechnology for Water Monitoring	Environment, Health, Technology and GE <sup>3</sup> LS	microfluidics, biomolecular recognition, immobilized DNA, aptamers, optical biosensors DNA/RNA screening, DNA/RNA barcoding
OGI	Brudno, Michael <b>Co-Leader:</b> Scherer, Stephen	Hospital for Sick Children	Canadian Initiative in Medical Sequencing and Informatics (CIMSI)	Health, Technology and GE <sup>3</sup> LS	Genome Sequencing, Medical Annotation, Genomic Structural Variation, Informatics, GE <sup>3</sup> LS
OGI	Charles, Trevor <b>Co-Leader:</b> McConkey, Brendan	University of Waterloo	Green Microbes for Carbon Capture and Bioproduction (GMCCB)	Environment and GE <sup>3</sup> LS	bioreactors, bioprospecting, metagenomics, synthetic biology, proteomics
OGI	Chen, Han <b>Co-Leader:</b> Matheson, Carney	Lakehead University	Jack pine health genomes	Forestry and GE <sup>3</sup> LS	metagenomics, metatranscriptomics, bioinformatics, microarray, genetic extraction and analysis, sanger sequencing

OGI	Christendat, Dinesh <b>Co-Leader:</b> Sain, Mohini	University of Toronto	Large-Scale Fungal Genomics for Utilization of Forest Biomass Residues	Forestry	Sequencing of <i>Ophiostoma novoulmi</i> , gel electrophoresis and mass spectrometry to identify relevant proteins, recombinant production of proteins for scale-up bioconversion of biomass residues, biotransformation of biomass and characterization of bioproducts using engineering approaches.
OGI	Danska, Jayne <b>Co-Leader:</b> Poussier, Philippe	Hospital for Sick Children	The Intestinal Microbiome in Type 1 Diabetes	Health and GE <sup>3</sup> LS	metagenomics, transcriptomics, longitudinal cohort studies, proteomics, systems biology
OGI	Danska, Jayne	Hospital for Sick Children	SIRP $\alpha$ -CD47 therapies to enhance and modulate stem cells (STEMs)	Health and GE <sup>3</sup> LS	mouse xenotransplant models, iPS, immunological assays, phos-flow proteomics, gene expression microarrays, therapeutic fusion proteins
OGI	Ekker, Marc <b>Co-Leader:</b> Waskiewicz, Andrew	University of Ottawa	Zebrafish for Envirogenomics	Environment	TILLING, Zinc Finger nucleases, mutagenesis, transgenic models.
OGI	El-Soheemy, Ahmed <b>Co-Leader:</b> Palmer, Lyle	University of Toronto	Integrated Nutrigenomics for Personalized Nutrition	Health and GE <sup>3</sup> LS	GWAS, Proteomics, Metabolomics, Biomarkers, Epidemiology
OGI	Ensminger, Ingo	University of Toronto	Genomic tools for assessing adaptation of Douglas-fir to future climate	Forestry, Environment and GE <sup>3</sup> LS	genotyping. Phenotyping, metabolite profiling, stable isotope discrimination, association genetics

OGI	Fan, Ming <b>Co-Leader:</b> Moreno-Hagelsieb, Gabriel	University of Guelph	Metagenomic Mining of Porcine Gut Symbiotic Microbial Enzymes for Lignocellulose Degradation	Environment	Collaborative and multi-disciplinary systems biology and integrative research tools; induction of novel microbial $\beta$ -glycosyl hydrolases in the porcine gut by feeding processed agricultural feedstock substrates; extraction of intestinal microbial genomic DNA; metagenomic libraries; Illumina-based high- throughput sequencing and bioinformatic analyses of microbial hemicellulases and cellulases genes
OGI	Feng, Zhong-Ping <b>Co-Leader:</b> Holdway, Douglas	University of Toronto	Risk-based study to evaluate the potential effect of environmental contaminants on the epigenetics of the freshwater pond snail <i>Lymnaea stagnalis</i>	Environment, Forestry and Fisheries/Aquaculture	de novo gene sequencing, multimedia mass balance models, QSAR, bioinformatics, risk assessment
OGI	Finan, Turlough	McMaster University	Integration of Phosphate and Carbon Metabolism in Bacteria	Environment	Transcriptomics, Metabolomics, Bioinformatics
OGI	Fulthorpe, Roberta <b>Co-Leader:</b> Malcolm, Jay	University of Toronto (at Scarborough)	Genomics of the Black Spruce Boreal: implications for nutrient cycling and structural and functional biodiversity	Forestry, Environment and GE <sup>3</sup> LS	Roche 454 pyrosequencing, transcriptome analysis, metabolite analysis, functional gene analysis, metagenome
OGI	Gladman, Dafna <b>Co-Leader:</b> Rahman, Proton	University of Toronto	Early Diagnosis and Effective Treatment through Genomics advances in Spondyloarthritis	Health	Genome Wide Association Studies, Copy Number Variation, Sequencing
OGI	Greenblatt, Ellen <b>Co-Leader:</b> King, W. Alan	University of Toronto	Genomic and proteomic approaches to improve success of human and bovine <i>In vitro</i> fertilisation	Health and Agriculture	Gene expression profiling, arrayCGH, NanoString, multiplex ELISA, mass spectrometry

OGI	Hajibabaei, Mehrdad	University of Guelph	Biomonitoring 2.0: A high-throughput genomics approach for comprehensive biological assessment of environmental change	Environment	Next-generation sequencing, DNA barcoding, phylogenetics, bioinformatics
OGI	Hedley, David <b>Co-Leader:</b> Jurisica, Igor	University Health Network	Integrative approach to improving pancreatic cancer treatment, quality of life and survival	Health, Technology and GE <sup>3</sup> LS	Genomics, proteomics, primary xenograft models, Integrative computational biology, clinical trials
OGI	Hegele, Robert <b>Co-Leader:</b> Blencowe, Benjamin	University of Western Ontario	Integrated Transcriptomics in Human Health and Disease	Health and Technology	High-throughput RNA sequencing, machine learning/algorithm development, network analysis, synthetic antibodies
OGI	Holden, Jeanette, <b>Co-Leader:</b> Lewis, M.E. Suzanne	Queen's University	Towards Optimal Development for People with ASDs, through Genomics, Phenomics, Proteomics, and Bioinformatics	Health	Microarrays, next-generation sequencing, association studies, clinical and physical examinations, behavioural assessments
OGI	Keshavjee, Shaf <b>Co-Leader:</b> Liu, Mingyao	University Health Network	Functional genomic assessments to improve graft survival after lung transplantation	Health and GE <sup>3</sup> LS	gene expression microarray, proteomics, microRNA assessment and bioinformatics
OGI	Krell, Peter <b>Co-Leader:</b> Bede, Jacqueline Seguin, Armand	University of Guelph	Genomics for the detection and mitigation of invasive forest pests: Emerald Ash Borer-Ash interaction	Environment, Forestry and GE <sup>3</sup> LS	Whole genome sequencing, in-vitro functional assays, expression profiling, metabolomic profiling, metagenomic analysis
OGI	Magarvey, Nathan <b>Co-Leader:</b> Kerr, Russell	McMaster University	Sustainable bioprospecting of the Canadian North for bioactive natural products	Environment and Health	Sustainable Bioprospecting, metabolomics, natural product gene clusters, chemoinformatics, bioactive small molecule mining
OGI	Mak, Tak <b>Co-Leader:</b> Bedard, Phillippe	University Health Network	Integrated Genomic Analyses of Breast Cancer Drug Resistance	Health, Technology and GE <sup>3</sup> LS	High-throughput sequencing, gene expression profiling, animal models
OGI	Master, Emma <b>Co-Leader:</b> Abou-Zaid, Mamdouh	University of Toronto	Forest FAB: Applied Genomics for Functionalized Fibre and Biochemicals	Environment, Forestry, Technology and GE <sup>3</sup> LS	In silico and in vitro enzyme screens, transcriptome sequencing and quantification, high-throughput protein production, functional proteomics, enzyme engineering, bioassays, Life Cycle Assessment

OGI	McKerlie, Colin	Mount Sinai Hospital	Functional annotation of the genome for pre-clinical mouse models and therapeutic targets: Canada-UK's contribution to the IMPC	Health	Mutagenesis, mouse model creation, high-throughput phenotyping, imaging, pathology, in vivo drug target characterization, in vivo drug validation
OGI	McNeill, Helen <b>Co-Leader:</b> Zhen, Mei	SLRI, Mt. Sinai	Systematic functional analysis of ciliopathies: from model organisms to human disease	Health, Technology and GE <sup>3</sup> LS	mass spec., drosophila, C. elegans, RNAi screens, high-res imaging, GWAS
OGI	Tsao, Ming Sound <b>Co-Leader:</b> Moran, Michael	Hospital for Sick Children	Assays of Proteomics Signatures in Lung Cancer	Health	Mass spectrometry, computational biology, tumor xenograft, clinical assay, selective reaction monitoring/multiple reaction monitoring (SRM/MRM)
OGI	Nam, Robert	Sunnybrook Health Sciences Centre	Genomics-Based Paradigm for Prostate Cancer Screening	Health	Cohort study, nomograms, gene chips
OGI	Paterson, Andrew <b>Co-Leader:</b> Boright, Andrew	Hospital for Sick Children	Identification of genes influencing glycemic control and complications in type 1 diabetes (T1D)	Health and GE <sup>3</sup> LS	GWAS, NGS, quantitative trait, time-to-event, repeated measures
OGI	Petronis, Art	Centre for Addiction and Mental Health	DNA Methyloomics of Major Psychiatric Disease	Health, Technology and GE <sup>3</sup> LS	DNA; microarrays; next generation sequencing; medicinal chemistry
OGI	Regan, Sharon	Queen's University	Poplar Omics Widens Energy Resource	Forestry and GE <sup>3</sup> LS	Activation tagging, transcript profiling, next generation sequencing, proteomics, metabolomics
OGI	Roberts, Robert <b>Co-Leader:</b> Stewart, Alexandre	University of Ottawa Heart Institute	Discovery of Rare Risk Variants for Coronary Artery Disease by high throughput sequencing and determining function of rare and common variants	Health	Genome wide DNA sequencing, cell culture, genome wide association studies
OGI	Rodd, Helen <b>Co-Leader:</b> Hughes, Kimberly	University of Toronto	Genomics of adaptation to rapidly changing environments and invasiveness	Environment and GE <sup>3</sup> LS	Next generation and third-generation sequencing, BAC libraries, experimental streams, genetic mapping, and gene expression analysis

OGI	Rogan, Peter <b>Co-Leader:</b> Knoll, Joan	University of Western Ontario	Single copy DNA diagnostic products and research tools for human and agricultural applications	Agriculture, Health, Technology, and GE <sup>3</sup> LS	Fluorescence in situ hybridization, array comparative genomic hybridization, bioinformatics, microfluidics
OGI	Rudnicki, Michael <b>Co-Leader:</b> Shoemaker, Dan	Ottawa Hospital Research Institute	High-throughput Signature- based Gene Expression Screening for Regenerative Medicine	Health	Microarray; RNA-directed oligo Annealing, Selection, and Ligation; High throughput Screening; Preclinical Development; Biologics
OGI	Sidhu, Sachdev <b>Co-Leader:</b> Boone, Charles	University of Toronto	Synthetic antibody platform: commercial reagents and novel therapeutics	Health	Synthetic Antibodies, Phage Display, High Content Screening, Mass Spectrometry, Yeast Display
OGI	Siminovitch, Katherine	Mt. Sinai Hospital	Autoimmune disease genomics - from disease gene mapping to clinical practice	Health	NGS, genetic association analysis, computational algorithms
OGI	Singh, Shiva <b>Co-Leader:</b> Gloor, Gregory	University of Western Ontario	Twin Genomics: A novel framework for discoveries in genome fidelity, health and disease	Health, Technology and GE <sup>3</sup> LS	Complete genome sequence, development of database, data access, bioinformatics, genetics analysis, genetic and epigenetic difference, <i>de novo</i> mutation detection
OGI	Somers, Dary <b>Co-Leader:</b> Dixon, Michael	Vineland Research and Innovation Centre	Mitigating the environmental impact of horticulture production through novel traits	Environment	EMS mutation, next-generation sequencing, high-resolution DNA melting, controlled environment
OGI	Taylor, Michael <b>Co-Leader:</b> Marra, Marco	Hospital for Sick Children	Stratifying and Targeting Pediatric Medulloblastoma Through Genomics	Health and GE <sup>3</sup> LS	Cancer genome sequencing, transcriptome profiling, bioinformatics
OGI	Thorsteindottir, Halla <b>Co-Leader:</b> Seguin, Beatrice	University Health Network	Fostering Global Partnerships in Health Genomics: Capitalizing on Canada- Emerging Economy Collaborations in Research and Innovation	Health and GE <sup>3</sup> LS	qualitative research methodology, quantitative methodology, bibliometrics/scientometrics, statistical modeling and network analysis
OGI	Wen, Xiao-Yan <b>Co-Leader:</b> Rotstein, Ori Zon, Leonard Ekker, Stephen	St. Michael's Hospital	Rapid Drug Discovery in Cardiovascular and Infectious Diseases by Zebrafish Functional Genomic Approaches	Health	Chemical genetic screen, gene trapping, mutagenesis, zebrafish, high throughput

OGI	White, Bradley <b>Co-Leader:</b> Wilson, Paul	Trent University	Landscape Genomics: Assessment of the impact of landscape and climate Change and invasive species on hybrid genome structure and function in ecosystems	Environment and GE <sup>3</sup> LS	genome sequence, functional gene expression, physiological performance, SNPs, metagenomics
Génome Québec	Abou Elela, Sherif <b>Co-Leader(s):</b> Chabot, Benoît	Université Sherbrooke	Splice variants essential for tumor metastasis	Health	Functional genomics, transcriptome profiling, oncogenomics.
Génome Québec	Antoun, Hani <b>Co-Leader(s):</b> Finan, Turlough	Université Laval	Arctic Rhizobium low Temperature Adaptation and Nodulation properties (ARTAN)	Environment and Technology	Cold adaptation genes, nodulation genes, genome sequencing, low temperature physiology, gene knock- out.
Génome Québec	Awadalla, Philip <b>Co-Leader(s):</b> Parker, Louise	U de M	Development of clinical pre- diagnostic tools for obesity- related chronic diseases	Health	Next-generation sequencing, computational biology, statistical modeling, epidemiology.
Génome Québec	Bergeron, John J.M. <b>Co-Leader(s):</b> Nilsson, Tommy	RI-MUHC	A Translational Approach to Combat Liver Disease	Health, Technology and GE <sup>3</sup> LS	Quantitative organelle proteomics, Bioinformatics, GE <sup>3</sup> LS, Economic model of clinical and cost projections, Population models for Quebec and Canada
Génome Québec	Bergeron, Michel G. <b>Co-Leader(s):</b> Rodrigues, Manuel	Université Laval	The microbiota and the microbiome of potable water – A source of opportunity for Québec and Canada	Environment	Bioinformatics, genome sequencing, metagenomics, whole genome application, genomic biomarkers
Génome Québec	Coulombe, Benoit <b>Co-Leader(s):</b> Greenblatt, Jack	IRCM	Towards a comprehensive map of the human interactome: Application to the discovery of biomarkers for pulmonary diseases	Health and Technology	Mass spectrometry; affinity purification; laboratory information management systems; computational biology
Génome Québec	Desrosier, Martin <b>Co-Leader(s):</b> Rousseau, Simon	CHUM	TLR signalling dysfunction as a factor in the development of inflammatory airway disease	Health	Genotyping, whole-genome sequencing, methylation assay, epithelial cell culture, microarray analysis of gene expression

Génome Québec	Guichard, Frederic <b>Co-Leader(s):</b> Bureau, Thomas	McGill	Genomic indicators of marine ecosystem health	Environment	Metagenomics; bioinformatics; biostatistics; ecoinformatics; RNA sequencing;
Génome Québec	Lang, B. Franz <b>Co-Leader(s):</b> Hijri, Mohamed	U de M	Improving Bioremediation of polluted soils through Environmental Genomics	Environment	Sanger sequencing; Whole genome shotgun and paired-ends 454 pyrosequencing; PCR amplicon pyrosequencing; Illumina sequencing; Plant and microbial transcriptome analyses; cDNA and genomic libraries; Cloning; Bioinformatics; Development of sequence databases.
Génome Québec	Levesque, Roger <b>Co-Leader(s):</b> Cusson, Michel Lucarotti, Christopher	Université Laval	BEGAB: Budworm EcoGenomics: Applications & Biotechnology	Environment	genome sequencing, DNA bar-coding, SNP discovery, microarray analysis, ecological modeling
Génome Québec	MacKay, John <b>Co-Leader(s):</b> Bohlmann, Joerg	Université Laval	SMarTForest : Spruce Marker Technologies for Sustainable Forestry	Environment, Forestry and GE <sup>3</sup> LS	High-throughput genotyping, association genetics, genomic selection, functional genomics, genome sequencing.
Génome Québec	Martin, Vincent <b>Co-Leader(s):</b> Mahadevan, Krishna	Concordia	A Synthetic Biology Platform for the Sustainable Production of Chemicals	Environment and Forestry	Genome sequencing, Large scale genome synthesis, Large scale genome deletions and insertions
Génome Québec	Polychronakos, Constantin	McGill	Somatic mutations in complex phenotypes relevant to human health	Health	Whole-genome sequencing, twins, deep sequencing, lymphocytes, cell cloning
Génome Québec	Quessy, Sylvain <b>Co-Leader(s):</b> Fravalo, Philippe	U de M	Assessment of the impact of feed additives on the diversity and evolution of gut and environmental microbial communities	Health, Environment and Agriculture	Capillary Electrophoresis PCR-SSCP / PCR-DGGE / virulence and antibioresistance genes probes design / HIS-Hydrophobic Grid Membrane Filtration GMF / in situ hybridization / profile analyzing - Gene Mapper-Bionumerics

Génome Québec	Rioux, John D. <b>Co-Leader(s):</b> Lettre, Guillaume	ICM	Genomic medicine of complex traits – improving our understanding of disease for developing diagnostic tools and therapeutic targets	Health	Sequencing, association, high-content screening, functional genomics
Génome Québec	Rouleau, Guy A. <b>Co-Leader(s):</b> Rousseau, François	U de M	Diagnosis of Neurological Disorders using Next-Generation Sequencing	Health	next-generation sequencing, bioinformatics, patents, health economics, medicine
Génome Québec	Rousseau, François	Université Laval	Streamlining the Translational Pipeline of Genomic Innovations to HealthCare – A Large Scale Stand-Alone GE3LS Project	GE <sup>3</sup> LS	Evidence-based genomic medicine; Health economics; Health technology assessment; Implementation research; Health services research, Health policy research
Génome Québec	Secko, David <b>Co-Leader(s):</b> Avard, Denise	Concordia	GenMarket: Deliberations on Direct-to-Consumer and Marketplace Genomics	GE <sup>3</sup> LS	GE <sup>3</sup> LS; deliberative engagement; comparative studies; dialogue methodology development; policy testing
Génome Québec	Sheppard, Donald <b>Co-Leader(s):</b> Whiteway, Malcolm	McGill	Genomic approaches to the identification of antifungal drug synergies	Health	High throughput scening, mechanism of action
Génome Québec	Shore, Gordon <b>Co-Leader(s):</b> Tremblay, Michel	McGill	Therapeutic Development platform: Targeting metabolism in cancer	Health	Synthetic lethality , sh and siRNA screening
Génome Québec	Singh, Jawsinder	McGill	Upgrading Jerusalem artichoke ( <i>Helianthus tuberosus L.</i> ) for Valuable Bioproducts through Genomics	Agriculture, Environment and Health	Sequencing, metabolics, proteomics, molecular biology, immunology
Génome Québec	Tardiff, Jean-Claude <b>Co-Leader(s):</b> Dubé, Marie-Pierre	ICM	Integrated biomarkers of atherosclerosis and plaque vulnerability	Health	Next-generation sequencing, genome-wide genotyping, microRNA analysis, mass spectrometry-based metabolomics, imaging
Génome Québec	Thomas, David <b>Co-Leader(s):</b> Hanrahan, John	McGill	Systems Biology of Cystic Fibrosis	Health	siRNA genome wide screens, Transcriptional profiling

Génome Québec	Tsang, Adrian <b>Co-Leader(s):</b> Deng, James	Concordia	Forest products genomics	Forestry	genomics; transcriptomics; exo-proteomics; database development;
Génome Québec	Villemur, Richard <b>Co-Leader(s):</b> Lau, Peter C.K.	INRS-IAF	Beaver Gut Metagenomics: Providing Options and Solutions to Canadian Forest Sustainability through Bark Valorization	Environment and Forestry	Metagenomics, metabolomics/NMR, bioinformatics, high throughput screening, enzyme assays
Genome Atlantic	Reith, Mike <b>Co-Leader(s):</b> Archibald, John	Dalhousie University	Microbial Genomics for Biofuels (MGB) Project	Environment	Genomics, Transcriptomics, Genetics, Bioinformatics, Metabolic Profiling
Genome Atlantic	Caldwell, Claude <b>Co-Leader(s):</b> Parkin, Isobel	Nova Scotia Agricultural College	Camelina: Revitalising Oilseed Productivity in Canada (CROP-CANADA)	Agriculture, Fisheries/Aquaculture	Next Generation Sequencing, High Throughput SNP Analysis, Microarray Analysis, TILLING, Bioinformatics
Genome Atlantic	McMaster, Chris <b>Co-Leader(s):</b> Fernandez, Conrad	Dalhousie University	Identifying New Genes and Medicines for the Treatment of Orphan Diseases	Health	Exome Sequencing using NGS, Microarrays, Yeast Synthetic Genetic Arrays, Zebrafish Trans-genetics
Genome Atlantic	Ouellette, Rodney <b>Co-Leader(s):</b> Doucette, Alan	Atlantic Cancer Research Institute	The Populomix Pancreatic Cancer Early Detection (P <sup>2</sup> CED) Project	Health	Proteomics, Transcriptomics, Metabolomics, Animal Models, Epidemiology
Genome Atlantic	Parfrey, Pat <b>Co-Leader(s):</b> McLaughlin, John	Memorial University	Genetic determinants of colorectal cancer and translation of discoveries to improve population health: A joint Newfoundland-Ontario team approach	Health and GE <sup>3</sup> LS	Exome Sequencing, Population Based Linkage Analysis, Genome Wide Association Study, DNA Methylation profiling, Diagnostic Mutation Panel - A Provincial Community Based CRC Control Strategy in High Risk Families
Genome Atlantic	Young, Terry <b>Co-Leader(s):</b> Andrew Krahn Pullman, Daryl	Memorial University	Life or death? Genomics-based Diagnostic Tools to Prevent Sudden Cardiac Death	Health	SNPs, Copy Number Variation, Direct Population Sampling, Focus Groups, Next Generation Sequencing