



## ***Molecular YOU: Understand What Makes YOU Healthy***

### **Life Sciences Institute**

Researchers in the LSI, the top ranked institute of its kind in Canada, are positioned to take a lead in unraveling medicine's greatest challenges and guide the healthcare system through an evidence-based approach to achieve more precise management of health and treatment of disease. They are leaders in "personalized medicine" — healthcare based on the unique molecular makeup of each individual. Personalized medicine will allow more effective preventive care, improve the safety, efficiency and effectiveness of the healthcare system, potentially reduce per capita costs, and dramatically improve patient and provider healthcare experiences.

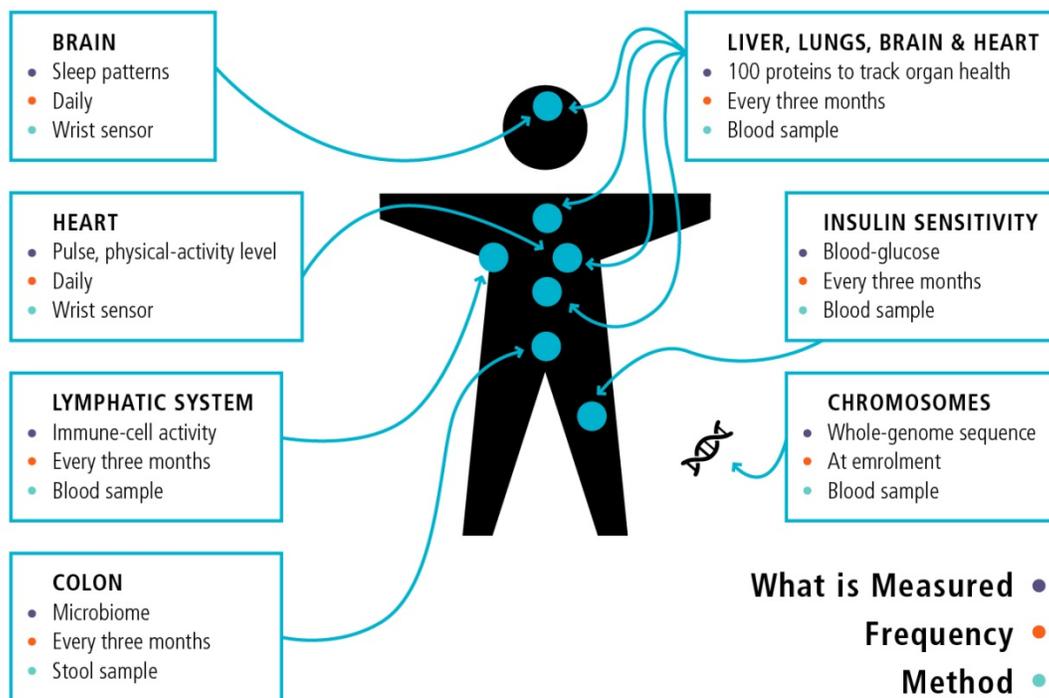
### **The Personalized Medicine Initiative (PMI)**

Led by UBC, the Personalized Medicine Initiative or PMI is an umbrella organization of personalized medicine stakeholders and resources in British Columbia that has the overarching mission of introducing technologies for personalized medicine into the front lines of healthcare. The senior scientists and leaders involved represent a cross-section of interests relating to healthcare, science, technology, ethics, and health policy. The PMI's researchers are gathering the strongest science in the world and their efforts will revolutionize effective health prevention.

### ***Molecular You (MY) – Personalized Medicine Project***

The PMI is pursuing a groundbreaking study called Molecular You (MY): 20,000 patients in British Columbia will get a molecular level understanding of themselves over the next 20 years. Scientists will use their MY data to detect disease risk and initiate early intervention. This project will provide the proprietary science necessary to dramatically improve health, change clinical practice and decrease health costs.

**How it works:** Participants will be extensively studied utilizing the most up-to-date and validated tools available. Their genomes will be sequenced and analyzed to identify genetic risk factors for disease. Plasma proteins will be comprehensively evaluated by proteomic and computational biology approaches. Their physical activity, heart rate, sleep patterns will be regularly monitored. Analysis of microbial species present in the gut and their metabolites will also be monitored. Data will be analyzed for health status and transitions from health to disease. Participants will receive regular consultation with a healthcare professional to interpret data and discuss potential options. Data will be presented using totally new graphical interface to produce a "dashboard for health".



## Benefits of Molecular You: Personalized Health Maintenance and Medicine

The only way to map the natural history of diseases and understand etiology is through longitudinal studies of a large patient population. Spanning 20 years, Molecular You will gather the high-level comparison data needed to identify disease risk or presence in 20,000 patients — from molecular changes to organ functioning. In addition to the health benefits to participants, the large database created from this study combined with existing BC databases will consolidate a powerful array of information to fine-tune early biomarkers of disease and treatment. Such data will be the basis of new intellectual property and proprietary opportunities to create industries focused on maintaining health and preventing diseases before they become dangerous. With this data, personalized medicine will become increasingly effective, accessible and mainstream and improve the safety, efficiency and effectiveness of the healthcare system, potentially reduce per capita costs, and dramatically improve patient and provider healthcare experiences..

## Future Growth

The PMI plans to grow the Molecular You database and strengthen the value of the science by adding findings from a similar study in the United States. The Institute of Systems Biology (ISB) in Seattle started a personalized medicine program with an initial 100 patients in 2014, a project that will grow to a projected 100,000 patients in coming years. In order to add the data from these 100,000 patients to the Molecular YOU study, the PMI is acquiring the Canadian franchise for this Seattle-based ISB 100-100K Wellness Program. The PMI will also leverage and promote local, national and international resources to implement the combined programs in Canada, and network with BC companies and not-for-profits such as Contextual Genomics (DNA analysis), MRM Proteomics (proteomic and metabolomic analysis) PROOF Centre of Excellence (bioinformatics and biomarker interrogation) and PHEMI (secure storage and computational integration of big data sets).



The University of British Columbia (UBC) is a primary partner in this personalized medicine initiative poised to transform healthcare. UBC resources would include the Life Science Institute (LSI; for integrated Omics resources, bioinformatics and functional genomics), the E-Health Strategy Office (Dr. Kendall Ho; remote monitoring of vital signs/physical activity/environment), the Department of Family Practice (Dr. Martin Dawes; Facilitated Lifestyle Intervention Program (FLIP) for behavior modification), the Department of Urology (Dr. Larry Rosenberg, Men's Health Initiative) among others. MY will also leverage the expertise and resources of the PMI Board of Directors, Advisory Council and network of members. This includes clinical trial design capabilities, risk of infection assessments (Dr. Jim Russell); cancer detection and pathology (Dr. David Huntsman); ethics (Dr. Mike Burgess); access to family practitioners and training resources (Dr. Martin Dawes); commercialization opportunities (Dr. Pieter Cullis).

### **Partnership Opportunities**

The PMI seeks partners to build components of the Molecular You study in British Columbia and explore commercial opportunities. In addition to these contributing partners and the ISB in Seattle, the PMI also plans to establish collaboration with companies in South Korea to promote Molecular You — a partnership made feasible by Canada's recent free trade agreement with South Korea. Such a partnership also assures appraisal of ethnic diversity. For this project, the PMI would envision leveraging expertise from all participants and sharing de-identified data to better maintain wellness for individuals and enable innovation in health care and maintenance around the globe.