



PERSONALIZED MEDICINE  
PARTNERSHIP FOR CANCER

# PERSONALIZED MEDICINE AND CANCER

Personalized medicine proposes to improve the delivery of healthcare by tailoring decisions and therapies using genetic, proteomic and epigenetic information obtained from each patient's tissues. Among all disease areas, nowhere has the impact of personalized medicine been greater than in cancer. The molecular mechanisms leading to cancer are complex and influenced by intrinsic genetic and environmental factors that underlie the diverse responses to treatments. A better understanding of these factors will optimize the treatment selection for each patient.

*The right drug, for the right patient,  
at the right time*



## Partners



Économie,  
Innovation  
et Exportations



CAPRION



This project is made possible through the financial support from the Ministère de l'économie, de l'innovation et des exportations du Québec (MEIE).

## Role of the PMPC

There are many challenges to the implementation of personalized medicine in our healthcare system. These barriers are being addressed through the various studies supported by the PMPC project:

**Development and consolidation of integrated clinical and biomarker platforms:** the integrated network and technology platform supports PMPC project goals and the deployment of personalized medicine in the healthcare system.

**Development, validation and commercialization of cancer biomarkers:** tissue genomic and blood proteomic biomarker signatures are developed to predict response to drugs for lung, colon, breast cancers and neuroendocrine tumors.

### Studies Supported by the PMPC Project

The PMPC will help advance our tools and knowledge to reshape the way doctors approach and select treatments, provide health and quality of life benefits to patients, ease the economic burden imposed on our healthcare system while supporting a recognized niche of expertise in Québec. The following studies are supported through the PMPC project:

- Validation and cost effectiveness assessment of a blood-based biomarker panel for the assessment of lung nodules
- Prospective health economic and clinical outcome study of crizotinib treatment in non-small cell lung carcinoma
- Identification of tissue and blood based biomarkers for resistance to crizotinib treatment in non-small cell lung carcinoma
- Development of biomarkers for the selection of colorectal cancer patients responsive to OCZ-103-OS
- Development of treatment resistance biomarkers for aflibercept treatment in colorectal cancer
- Prospective cost effectiveness and clinical outcome of aflibercept treatment for colorectal cancer
- Development of treatment resistance biomarkers for vectibix in colorectal cancer
- Prospective cost effectiveness and clinical outcome of vectibix treatment in advanced colorectal cancer
- Validation of numerical and decision-making solutions: the initiative expands and implements electronic and numerical solutions to support dataflow and analysis to facilitate timely medical decisions for optimal therapeutic outcomes.
- Demonstration of the health economic, ethical and legal impacts of personalized medicine solutions applied to the Québec healthcare system.
- Validation of blood biomarkers for the diagnosis and treatment of neuroendocrine tumors
- Implementation of a translational database to support personalized healthcare in Québec
- Proposal for a framework for the reimbursement of diagnostic tests in Québec
- Development of an initiative for evidence development in real life situation in support of coverage for drugs and diagnostic technologies in Québec
- Assessment of the impact of personalized medicine implementation on data confidentiality and risk evaluation for insurance purpose





## Origin of the initiative

*The Personalized Medicine Partnership for Cancer (PMPC) is a public private partnership that stemmed from the Stratégie québécoise de la recherche et de l'innovation (SQRI) created by the Government of Québec to accelerate the deployment of personalized medicine solutions by addressing barriers to the deployment of personalized healthcare.*

## Collaborators

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**Luc Bélanger**, Co-fondateur, Q-CROC

**Mélanie Bourassa-Forcier**, Professeure, Université de Sherbrooke et Chercheuse associée, CIRANO

**Victor Cohen**, Hôpital général juif, Professeur adjoint, Départements d'oncologie et de médecine

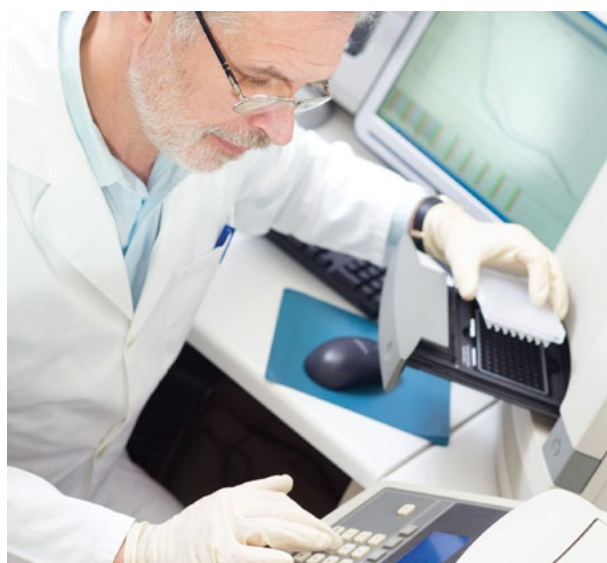
**Christian Couture**, Institut Universitaire de Cardiologie et de Pneumologie de Québec

**Louis Gaboury**, Directeur, Département de pathologie et biologie cellulaire, Université de Montréal

**Yann Joly**, Directeur de recherche du Centre de génomique et politiques, Université Mc Gill

**Jean Lachaine**, Président, PériPharm et Faculté de pharmacie, Université de Montréal

**Sylvie Mader**, Chercheur, Institut de Recherche en Immunologie et cancérologie, titulaire, Professeur titulaire, Département de Biochimie, Université de Montréal



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**Benoit Samson**, Hématologue et oncologue, Centre intégré de cancérologie de la Montérégie du CSSS Champlain-Charles-Le Moyne

**Alan Spatz**, Directeur, Département de pathologie, Hôpital général juif

**Leon van Kempen**, Hôpital général juif, COO et Directeur scientifique, Centre de pathologie moléculaire

## Accelerating precision medicine through proteomics and immune monitoring

### ProteoCarta™

PROTEOCARTA, is a gel-free, label-free mass spectrometry platform enabling comprehensive and quantitative measurements of proteins across large sets of samples for the discovery and validation of biomarkers.

- Over 15 years working with leading pharmaceutical and biotech companies to discover and validate new biomarkers and drug targets
- Expertise in targeted proteomics using highly multiplexed MRM assays for biomarker development and validation
- Greater reproducibility, throughput, and multiplexing capabilities with MRM assays than competing technologies.
- GLP operation with rigorous QA/QC

### ImmuneCarta®

IMMUNECARTA is a proprietary immune monitoring platform offering 14 color, multiparametric flow cytometry for functional analyses of complex innate and adaptive immune responses.

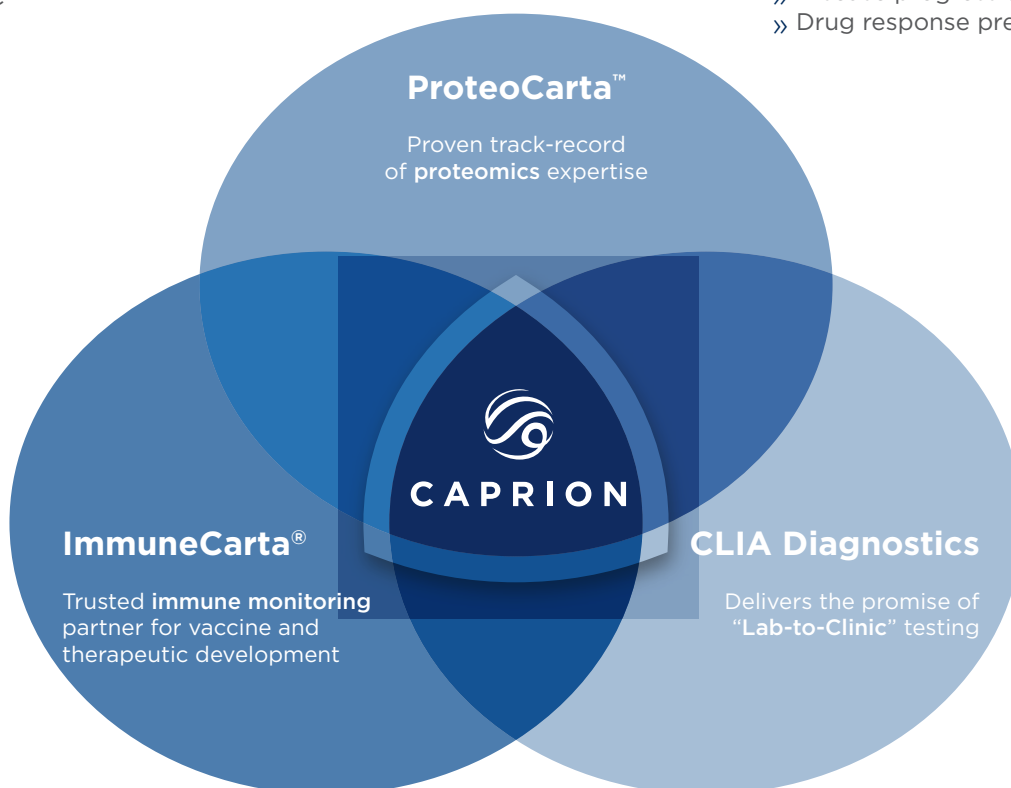
- Immune Oncology, Vaccine, Infectious Disease, and Autoimmune expertise
- Pre-clinical and clinical trial experience
- GLP operation with rigorous QA/QC
- Differentiated ability to rapidly develop and validate customized complex assays for clinical studies
- New ways to monitor complex immune functions
- Partnering with over 50 pharmaceutical and biotech companies

### CLIA Diagnostics

Caprion's diagnostic initiatives are focused on programs that leverage and enhance Caprion's existing core proteomics competencies for biomarker discovery in tissues (secretory vesicles) and plasma with the use of multiplexed MRM assays for rapid biomarker verification and validation.

Current active programs for in vitro diagnostics product development include:

- **Oncology**
  - » Lung nodules
  - » Neuroendocrine tumors
- **Infectious diseases**
  - » Tuberculosis
  - » Brucellosis
  - » Lyme disease
  - » Pediatric fever
- **Diabetes**
  - » Disease progression
  - » Drug response prediction



For more information:

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