2022 CSCC Award for Research Excellence
Sponsored by Ortho Clinical Diagnostics

Dr. Mari L. DeMarco

The CSCC is pleased to award the 2022 award for Research Excellence sponsored by Ortho Clinical Diagnostics to Dr. Mari L. DeMarco

Mari DeMarco, PhD, DABCC, FAACC, FCACB, is a Clinical Chemist at Providence Health Care, the Research Director of Providence Research, and a Clinical Associate Professor in Pathology and Laboratory Medicine at the University of British Columbia in Vancouver Canada. Dr. DeMarco completed her PhD in the Biomolecular Structure and Design program at the University of Washington, and a clinical chemistry fellowship at Washington University School of Medicine.

As a Clinical Chemist, Dr. DeMarco has input into all aspects of the clinical chemistry laboratory and is a major voice in all clinical chemistry test decision making whether the testing pertains to routine chemistry, immunoassay, electrophoresis, or mass spectrometry. She takes responsibility for determining the need for new testing and its implementation, interpretation, and quality monitoring.

Dr DeMarco's strong research interest is in bridging protein biochemistry and analytical chemistry her research group focuses on building new biofluid tests for direct translation into patient care (www.DeMarcoLab.ca). Biomarker projects in the DeMarco group are driven by clinical demand, that is, they work collaboratively with health care providers and patients to build biofluid diagnostics to fill unmet needs in medicine. While the group uses a variety of techniques to solve biomarker-related challenges in medicine, their specialty is clinical mass spectrometry.

Important contributions of her research group include streamlining proteomic workflows to enable implementation by clinical labs. A major obstacle to the uptake of mass spec workflows for quantification of peptide and protein biomarkers in a clinical setting had been the laborious and lengthy sample preparation protocols. The DeMarco group's early contributions re-evaluated the status quo for clinical proteomics workflows, yielding simple and rapid workflows suitable for use in clinical lab environments. The knowledge gained through this work enable important contributions to the first Clinical and Laboratory Standards Institute guideline on quantitative protein mass spectrometry; guidelines which are used by the regulatory agencies in the approval process for new in vitro diagnostic tests.

A particular area of interest for her research group is in advancing protein-based clinical diagnostics for neurodegenerative disorders, such as Alzheimer's disease, frontotemporal dementia and Lewy body dementia. The goal of this program of research is to ensure that new biomarker tools make the challenging jump from research into healthcare. As an example, Dr. DeMarco is the Principal Investigator of a Canada-wide study investigating the impact of Alzheimer's disease biomarkers in routine care (www.impactAD.org) – a major outcome of which was the launch of the national Alzheimer's disease biomarker testing program which provides access to medical testing for the core Alzheimer's disease biomarkers to physicians across Canada.

Reflecting her group's research accomplishments, Dr. DeMarco is the recipient of the University of British Columbia's Early Career Excellence in Research and Discovery, the American Association of Clinical Chemist's Outstanding Scientific Achievements by a Young Investigator award, and the Association for Mass Spectrometry and Advances in the Clinical Lab's Michael S. Bereman Award for Innovative Clinical Proteomics.