

Veronique Demers-Mathieu, Ph.D.

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Citizenship: Canadian

SUMMARY of QUALIFICATION

- Scientist with over 9 years of practice and research in Immunology, Neonatology, Microbiology, Molecular Biology and Nutrition
- Experience in ELISA development, mammalian cell culture, *in vivo* study (mice/rats) and clinical study.
- 10 peer-reviewed publications
- Significant experience with interdisciplinary teams and cross-cultural settings
- English and French languages

EDUCATION

Postdoctoral studies, University of Massachusetts Amherst, Food Science, Amherst, MA, USA
2018-present

Postdoctoral studies, Oregon State University (3 years) 2016-2019
Nutritional Immunology, School of Public Health and Human Science, Corvallis, OR, USA

PhD Food Microbiology, Laval University, Quebec, CA (3.5 years) 2015
Minor: Molecular Biology
Dissertation: "Viability, technological properties and anti-inflammatory effects of new strain probiotics in dairy products"

M.S. Food Sciences, Biochemistry, Laval University, Quebec, CA (2 years) 2011

B.S. Food Sciences, Chemistry, Laval University, Quebec, CA (4 year) 2009

PROFESSIONAL POSITIONS

Senior Research Scientist, Medolac Laboratories, a public benefit corporation 12/2018-present

Postdoctoral Research Associate, University of Massachusetts Amherst 12/2018-present

Postdoctoral Research Associate, Oregon State University, OR, USA 01/2016-12/2018

Research Assistant, Quebec Heart and Lung University Research Institute, QC, Canada
06/2014-01/2015

Research Assistant, Food Research and Development Center/Agriculture & Agri-Food Canada (AAC)
07/2010-06/2014

Research Assistant, Institute of Nutrition and functional Foods (INAF) & STELA, Laval University
06/2009-07/2010

RESEARCH EXPERIENCE

Post-doctoral Research, Department of Food Science, University of Massachusetts Amherst.

Research on immune components (antibodies, immune cells and lactoferrins) from human milk on the infant gut microbiome.

Post-doctoral Research, Department of Biological Sciences/Pharmacy/Veterinary Medicine, Oregon State University. January 2015 to December 2018. Research on the stability of palivizumab during the infant digestion. Study the extent of digestion of antenatal vaccine-specific immunoglobulins within milk, gastric and stool samples from infants. Investigate the activity of immunomodulatory human milk components in the preterm and term infant gastrointestinal tracts. Research goal is to improve the immune system of preterm infants by discovering and understanding the role and function of human milk immune components.

- Determined the stability of Palivizumab activity using binding assay (ELISA) and microneutralization of RSV-GFP (GFP expressed in infected cells was measured via flow cytometry and fluorescence/confocal microscopy). Determined the stability of vaccine-specific antigen proteins using binding assays and adherence/neutralization assays (e.g., pertussis, influenza). Cell culture: HEp-2, HeLa, MDCK, and VERO.
- Assayed the immunomodulatory effect of human milk on monocytes and macrophages THP-1 and their cytokine production using cell culture and qPCR.

Ph.D. Research, Department of Microbiology/Molecular medicine, Laval University/Quebec Heart and Lung University Research Institute/Agriculture & Agri-Food Canada. 2011-2014. Research on the viability, technological properties and anti-inflammatory effects of new probiotic strains in dairy products. Characterized new probiotic strains isolated from feces using molecular methods (RNA 16S and RAPD-PCR). Evaluated the anti-obesity effect of probiotic strains by feeding mice with diet high-fat high-sucrose (HFHS) supplemented of probiotic yogurt and milk.

Research Assistant, Quebec Heart and Lung University Research Institute. 2014-2015. Determine the mechanisms of muscle angiogenesis using Western blot, immunofluorescence (IF), immunohistochemistry (IHC), MSD, Haematoxylin and Eosin stain (H&E), Bradford protein assay. Performed surgery on the rat to isolate pulmonary arteries and subcutaneous and intravenous injections.

PEER-REVIEWED JOURNAL ARTICLES

Demers-Mathieu V., Underwood A.M, Beverly R.L., Dallas C.D. 2018. Survival of immunoglobulins from human milk of preterm infant gastric samples at 1, 2, and 3 h postprandial. *Neonatology*. DOI: 10.1159/000489387. *Ranked*: 24/124 in speciality. Impact factor: 2.688. Citations: 0 on 10/18.

Demers-Mathieu V., Underwood, M. A., Beverly, R. L., Nielsen, S. D., & Dallas, D. C. 2018. Comparison of human milk immunoglobulin survival during gastric digestion between preterm and term Infants. *Nutrients*, 10(5), 631-644. Impact factor: 4.196. Citations: 0 on 10/18.

Demers-Mathieu V., Qu Y., Underwood A.M., Borghese R., Dallas C.D. 2018. The preterm stomach actively degrades milk proteins with increasing breakdown across digestion time. *Acta Paediatrica*. DOI: 10.1111/apa.14244. *Ranked*: 28/124 in speciality. Impact factor: 2.580. Citations: 0 on 10/18.

Demers-Mathieu V., Qu Y., Underwood A.M., Borghese R., Dallas C.D. 2018. Premature infants have lower gastric digestion capacity for human milk proteins than term infants. *Journal of Pediatric Gastroenterology and Nutrition* 66.5: 816-821. *Ranked*: 23/124 in speciality. Impact factor: 2.799. Citations: 2 on 10/18.

Demers-Mathieu V., Nielson D.S., Underwood A.M., Borghese, R., Dallas C.D. 2018. Changes in proteases, antiproteases and bioactive proteins from mother's breast milk to the premature infant stomach. *Journal of Pediatric Gastroenterology and Nutrition*. 66.2: 318-324. *Ranked*: 23/124 in speciality. Impact factor: 2.799. Citations: 3 on 10/18.

Demers-Mathieu V., Nielson D. S., Underwood A.M., Borghese R., Dallas C., D. 2017. Analysis of milk from mothers who delivered prematurely reveals few changes in proteases and protease inhibitors across gestational age at birth and infant postnatal age. *The Journal of Nutrition* 147(6):1152-1159. *Ranked*: 16/81 in speciality. Impact factor: 4.145. Citations: 7 on 10/18.

Demers-Mathieu V., St-Gelais D., Audy J., Laurin É., Fliss I. 2016. Effect of the low-fat Cheddar cheese manufacturing process on the viability of *Bifidobacterium animalis* subsp. *lactis*, *Lactobacillus rhamnosus*, *Lactobacillus paracasei/casei*, and *Lactobacillus plantarum* isolates. *Journal of Functional Foods* 24: 327–337. *Ranked*: 53 in speciality. Impact factor: 3.470. Citations: 4 on 10/18.

Demers-Mathieu V., Audy J., Laurin É., Fliss I., St-Gelais D. 2015. The impact of commercial mesophilic and thermophilic starters on the growth of new probiotic isolates. *International Dairy Journal* 45: 31-40. *Ranked*: 47/133 in speciality. Impact factor: 1.938. Citations: 3 on 10/18.

Demers-Mathieu V., Gauthier S.F., Britten M., Fliss I., Robitaille G., Jean J. 2013. Inhibition of *Listeria monocytogenes* growth in Cheddar cheese by an anionic peptides-enriched extract from whey proteins. *International Dairy Journal* 32: 6-12. *Ranked*: 47/133 in speciality. Impact factor: 1.938. Citations: 8 on 10/18.

Demers-Mathieu V., Gauthier S.F., Britten M., Fliss I., Robitaille G., Jean J. 2013. Antibacterial activity of peptides extracted from tryptic hydrolysate of whey protein by nanofiltration. *International Dairy Journal* 28: 94-101 *Ranked*: 47/133 in speciality. Impact factor: 1.938. Citations: 20.

JOURNAL ARTICLES IN PREPARATION or SUBMITTED

Demers-Mathieu V., Spooner M., Huston R., Dallas C.D. Digestion of maternal immunoglobulins from mother's own breast milk and donor breast milk in preterm infants. *Nutrient*.

Demers-Mathieu V., Spooner M., Huston R., Dallas C.D. Survival of antenatal anti-influenza A virus antibodies in preterm and term infants fed mother's milk and donor breast milk. *The Journal of Nutrition*.

Demers-Mathieu V., Spooner M., Huston R., Dallas C.D. Passive immunization of maternal anti-*Bordetella pertussis* antibodies from mother's milk and donor breast milk to preterm and term infants. *The Journal of Nutrition*.

Demers-Mathieu V., Qu Y., Scottoline B., Dallas C.D. Binding activity of palivizumab humanized antibody specific to respiratory syncytial virus during *in vitro* term infant digestion. *Nutrient*.

Demers-Mathieu V., Qu Y., Scottoline B., Dallas C.D. Survival of human milk anti-influenza A virus and anti-*Bordetella pertussis* antibodies during *in vitro* term infant digestion. *Journal of Pediatric Gastroenterology and Nutrition*.

Demers-Mathieu V., Dallas C.D. Immunomodulatory effects of preterm and term milks on monocytes and macrophages for cytokine production. *Nutrient*.

Le Barz M., **Demers-Mathieu M.** et al. In vivo screening of multiple bacterial strains identifies *Lactobacillus rhamnosus* Lb102 and *Bifidobacterium animalis* ssp. Bf141 as probiotics that improve metabolic disorders in a mouse model of obesity. *FASEB J*.

COMPETITION AWARDS and FUNDING

- Speaker Travel Award at the 15th International Symposium on Milk Genomic & Human Health (IMGC), Sacramento, CA, USA 11/2018
- Granted for Travel Award from International Society for Research in Human Milk and Lactation for ISRHML 2018, Kanagawa, Japan 07/2018
- Granted for Travel Award from International Society for Research in Human Milk and Lactation for Nutrition 2018, Boston, MA, USA. 04/2018
- Postdoctoral Scientist Award of the Oregon State University Chapter of Phi Kappa Phi, Corvallis, OR, USA 02/2018
- Helped Dr. Dallas to obtain the Gerber Foundation grant, USA. Determining limitations in premature infant protein digestion capacity. 11/2017
- Helped Dr. Dallas to obtain Bill & Melinda Gates Foundation grant (OPP1183649), Seattle, WA, USA. Immunoglobulin stability in the infant gut. 11/2017
- Helped Dr. Dallas to obtain the United State Department of Agriculture (USDA) NIFA (124477300). Novel immunomodulatory and antimicrobial peptides from human milk within the infant intestine. 10/2017
- Speaker Travel Award at the 13th International Symposium on Milk Genomic & Human Health (IMGC), UC Davis, Davis, CA, USA 09/2016
- Student Travel Award at the 12th International Symposium on Milk Genomics & Human Health, Sydney, Australia 10/2015

ACADEMIC PRESENTATIONS (oral)

- Invited Speaker.** 15th International Symposium on Milk Genomics and Human Health, Comparison of human milk immunoglobulin survival during gastric digestion between preterm and term Infants. Sacramento, CA, USA, 2018.
- Invited Speaker.** Co-Chair for the Oral Session entitled Nutrition and Maternal, Pregnancy and Infancy Outcomes at Nutrition 2018. Boston, USA, 2018.
- Invited Speaker.** The survival of human milk immunoglobulins in the preterm and term infant stomach. Oregon State University, Biological Population and Health Sciences. NUTR 507/607: Nutrition Graduate Seminar. Corvallis, OR, USA, 2018.
- Invited Speaker.** Activity and abundance of major proteases and antiproteases in human milk and in the preterm infant stomach across lactation. 13th International Symposium on Milk Genomics and Human Health, Davis, CA, USA, 2016.
- Invited Speaker.** Effect of probiotic milk and probiotic yogurt to counteract the negative effect of obesogenic diet. 12th International symposium on milk genomics & human health, Sydney, Australia, 2015.
- Invited Speaker.** Anti-obesity effects of new potential probiotic strains used in non-fat yogurt and milk. STELA 2015 Symposium, Quebec, QC, Canada, 2015.
- Invited Speaker.** Viability of new potential probiotic strains with anti-inflammatory & anti-obesity effects during low-fat yogurt and Cheddar cheese making. Probiotics Summit Congress, San Francisco, CA, USA, 2015.

GRADUATE STUDENTS and MENTEES

Jiraporn Lueangsakulthai, Postdoc Scholar, Nutrition Program. Adhesion activity of palivizumab in biological samples from infants. School of Biological and Population Health Sciences, Oregon State University. 2018 to present.

Baidya Sah Nath, Post-doc Scholar. Nutrition Program. Microneutralization of respiratory syncytial virus with palivizumab using HEp-2 cell line. Immunomodulatory effects of human milk peptides by measuring cytokines production from THP-1 macrophages. School of Biological Population and Health Sciences, Oregon State University. 2018 to present.

Yunyao Qu, Graduate student. Student. Adhesion activity of palivizumab in biological samples from infants. College of Biological Population and Health Sciences, Oregon State University. 2017 to present.

Robert Beverly, PhD Student. Effects of antimicrobial peptides from infant digested human milk using microbiology and spectrometry methods. College of Biological Population and Health Sciences, Oregon State University. 2017 to present.

Anahi Torres-Pimentel, Undergraduate student. Clinical study with biological fluids samples from preterm and term infants (preparation/collection), College of Biological Population and Health Sciences, Oregon State University. 2018 to present.

Melinda Spooner, PhD Student. Determination of enzyme activity and concentration in human milk. College of Biological Population and Health Sciences, Oregon State University. 2017 to 2018.

Carly Robertson, Undergraduate student. Effects of human milk enzymes in infant digestion, College of Biological Population and Health Sciences, Oregon State University. 2016.

PROFESSIONAL SOCIETY MEMBERSHIP

The American Association of Immunologists	11/2017-present
American Society for Nutrition member.	11/2016-present
International Society for Research in Human Milk and Lactation member.	03/2016-present
International Milk Genomics Consortium member.	2016-present
The American Association of Immunologists	2017-present

PROFESSIONAL LEADERSHIP and COLLABORATION

Committee member, Oregon State University Phi Kappa Phi, 2018-current

Abstract Reviewer, Nutrition 2018, American Society for Nutrition, Boston, MA, USA, June 2018

Review Editor for Frontiers in Nutrition, Nutrition Methodology 11/2016-present

Committee member, Oregon State University Postdoctoral Association (OPA OSU), 2017-2018

Co-chair at Nutrition 2018 in Boston, 2018

Participated in the Women in Science poster project that will inspire girls to pursue science careers, Portland, OR, USA, 2016.

Manager, Oregon State University Postdoctoral Association (OPA) on LinkedIn group (Social media, discussion & events)

Mentors, International Peer Mentoring Program (IPMP) for undergraduate students, Oregon State University, OR, USA, 2017

Committee member and moderator, Congress of Probiotic Summit, healthy bacteria for healthier life, July 2015.

TEACHING EXPERIENCE

Teaching Certification (Associate Level) from the Center for the Integration of Research, Teaching and Learning, Oregon State University, Oregon. 09-2018.

Teaching workshops at the Center for the Integration of Research, Teaching and Learning, Oregon State University, Oregon. 2016-2018