

Dr. Carolina Beraldo Meloto, DDS, PhD

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- Personal:** **Home Address:** 88 Rue Charlotte, unit 215
City/Province/Country: Montreal, Quebec, Canada
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Permanent Residence: Brazil
- Education:** **PhD in Clinical Dentistry** (03/2009-02/2013); University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America/State University of Campinas, Piracicaba, São Paulo, Brazil (Joint Program)
- Master in Clinical Dentistry** (03/2006-02/2009); State University of Campinas, Piracicaba, São Paulo, Brazil
- Doctor in Dental Science** (03/2001-02/2005); State University of Campinas, Piracicaba, São Paulo, Brazil
- Academic experience:** **Post-Doctoral Fellow**, The Alan Edwards Centre for research on Pain, Faculty of Dentistry – McGill University, Montreal, Quebec, Canada (12/2013-present)
- Post-Doctoral Fellow**, Center for Neurosensory Disorders, Faculty of Dentistry – University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America (03/2013-08/2013)
- Visiting Research Scholar**, Center for Neurosensory Disorders, Faculty of Dentistry – University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America (08/2011-07/2012)
- Teaching Assistant**, Undergraduate Integrated Clinic, Piracicaba Dental School – State University of Campinas, Piracicaba, São Paulo, Brazil (2010)
- Teaching and Research Trainee**, Department of Prosthesis and Periodontology, Piracicaba Dental School – State University of Campinas, Piracicaba, São Paulo, Brazil (03/2005-02/2006)
- Mentoring experience:** **Richard Klares III**, fourth year undergraduate student (Honors Pharmacology Program, McGill University). Project: Detectable chromosomal mosaicism and level of activation of white blood cells and their relationship to chronic pain. (May 2016-present)
- Maria Verner**, second year undergraduate student (Psychology, Concordia University). Project: Detectable chromosomal mosaicism and level of activation of white blood cells and their relationship to chronic pain. (April 2016-present)
- Nicol Tugarinov**, first year undergraduate student (Anatomy and Cell Biology Program, McGill University). Project: Activation of neutrophils in FM patients. (Jan 2016-present)
- Vivek Verma**, PhD student (Neuroscience Program, McGill University). Project: Detectable chromosomal mosaicism and level of activation of white blood cells and their relationship to chronic pain. (May 2014-Jun 2015)
- Shawn Wen**, senior undergraduate student (Honours Neuroscience Program, McGill University). Project: Expansion of (a)COMT SNPs. (Feb 2014-present)

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Professional and Society Memberships:

1. SBPqO: Brazilian Division of the International Association for Dental Research (2002-2012)
2. IADR: International Association of Dental Research (2010-Present)
3. IASP: International Association for the Study of Pain (2011-present) APS: American Pain Society (2010-Present)

Awards and Honours:

1. Catherine Bushnell Fellowship in Chronic Pain Research, The Louise and Alan Edwards Foundation, Montreal, Quebec, Canada (2016)
2. 14th Kresimir Krnjevic Research Award for Outstanding Research Trainee, Department of Anesthesia, McGill University, Montreal, Quebec, Canada (2016)
3. Best Young Researcher at the 7th SIMPAR (Study in Multidisciplinary Pain Research). Rome, Italy (2015).
4. Best Oral Presentation at the 6th International Dental Congress – *Cytokines: beyond inflammation* – Piracicaba, São Paulo, Brazil (2009)
5. Best Basic Science Poster at the 4th International Dental Congress - *Estrogen receptor alpha polymorphism may increase risk for temporomandibular joint internal disarrangement in menopause Brazilian women* – Piracicaba, São Paulo, Brazil (2008).

Peer Reviewed Publications:

1. Slade GD, Ohrbach R, Greenspan JD, Fillingim RB, Bair E, Sanders AE, Dubner R, Diatchenko L, **Meloto CB**, Smith S, Maixner W. Painful Temporomandibular Disorder: Decade of Discovery from OPPERA Studies. *Journal of Dental Research*. 2016 Jun 23. doi: 10.1177/0022034516653743. [E-pub ahead of print] PubMed PMID 27339423
2. Zorina-Lichtenwalter K, **Meloto CB**, Khoury S, Diatchenko LB. Genetic predictors of human chronic pain conditions. *Neuroscience*. 2016 Apr 30. doi: 10.1016/j.neuroscience.2016.04.041. [Epub ahead of print] Review. PubMed PMID 27143481
3. **Meloto CB**, Bortsov A, Bair E, Helgeson E, Ostrom C, Smith S, Dubner R, Slade GD, Fillingim RB, Greenspan JD, Ohrbach R, Maixner W, McLean S, Diatchenko L. Modification of COMT-dependent pain sensitivity by psychological stress and gender. *Pain*. 2015 Dec 15. PubMed PMID 26675825.
4. **Meloto CB**, Segall SK, Smith S, Parisien M, Shabalina SA, Rizzatti-Barbosa CM, Gauthier J, Tsao D, Convertino M, Piltonen MH, Slade GD, Fillingim RB, Greenspan JD, Ohrbach R, Knott C, Maixner W, Zaykin D, Dokholyan NV, Reenilä I, Männistö PT, Diatchenko L. COMT gene locus: new functional variants. *Pain*. 2015; 156(10): 2072-83. PubMed PMID 26207649.
5. Segall SK, Shabalina SA, **Meloto CB**, Wen X, Cunningham D, Tarantino LM, Wiltshire T, Gauthier J, Tohyama S, Martin LJ, Mogil JS, Diatchenko L. Molecular genetic mechanisms of allelic specific regulation of murine Comt expression. *Pain*. 2015; 156(10): 1965-77. PubMed PMID 26067582.
6. Huijnen IPJ, Rusu A, Scholich S, **Meloto CB**, Diatchenko L. Subgrouping of low back pain patients for targeting treatments: evidence from genetic, psychological, and activity-related behavioral

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approaches. *Clin J Pain*. 2015; 31(2): 123-32. PubMed PMID 24681821.

7. **Meloto CB**, Silva-Concílio LR, Rodrigues-Garcia RCM, Canales GD, Rizzatti-Barbosa CM. Effect of surface treatments on the bond strength of different resin teeth to complete denture base material. *Acta Odontol Latinoam*. 2013; 26 (1): 37-42. PubMed PMID 24294822.
8. Sotto-Maior BS, Jóia FA, **Meloto CB**, Cury AA, Rizzatti-Barbosa CM. Effect of double flasking and investing methods on artificial teeth movement in complete dentures processing. *Gerodontology*. 2012 Jun;29(2):e435-9. PubMed PMID: 21615784.
9. Silva-Concílio LR, **Meloto CB**, Neves AC, Cunha LG, Rizzatti-Barbosa CM. Influence of different flasking and polymerizing methods on the occlusal vertical dimension of complete dentures. *Acta Odontol Latinoam*. 2012;25(3):312-7. PubMed PMID: 23798079.
10. **Meloto CB**, Serrano PO, Ribeiro-DaSilva MC, Rizzatti-Barbosa CM. Genomics and the new perspectives for temporomandibular disorders. *Arch Oral Biol*. 2011 Nov;56(11):1181-91. Review. PubMed PMID: 21536254.
11. Planello AC, Campos MI, **Meloto CB**, Secolin R, Rizzatti-Barbosa CM, Line SR, de Souza AP. Association of matrix metalloproteinase gene polymorphism with temporomandibular joint degeneration. *Eur J Oral Sci*. 2011 Feb;119(1):1-6. PubMed PMID: 21244504.
12. **Meloto CB**, Silva-Concílio LR, Machado C, Ribeiro MC, Joia FA, Rizzatti-Barbosa CM. Water sorption of heat-polymerized acrylic resins processed in mono and bimaxillary flasks. *Braz Dent J*. 2006;17(2):122-5. PubMed PMID: 16924338.

Publication under review in peer-reviews journals:

1. Martin L, Smith S, Khoutorsky A, Magnussen C, Sorge R, Mir E, Gibson D, Otis V, Wieskopf J, Sotocinal S, **Meloto CB**, Austin JS, Salter M, Sonenberg N, Gendron L, Greenspan J, Fillingim R, Ohrbach R, Slade G, Knott C, Dubner R, Ribeiro-da-Silva A, Maixner W, Zaykin D, Mogil JS, Diatchenko L. Epiregulin and Epidermal Growth Factor Receptor Involvement in Pain Revealed by a Reverse Translational Approach. Under review in *Journal of Clinical Investigation*.

Book chapter

1. **Carolina Beraldo Meloto**, Shad Smith, William Maixner, Ze'ev Seltzer, Luda Diatchenko. Genetic Risk Factors for Orofacial Pain: Insights from Human Experimental Studies. In Barry J. Sessle, *Orofacial Pain: Recent Advances in Assessment, Management, and Understanding of Mechanisms* (pp. 373-392). Washington, D.C.: IASP PRESS.

Presentations:

1. "Stabilizing mast cells to treat pain: evidences from animal and humans studies" – Poster presentation at the 20th annual Pain McGill Pain Day, Montreal, Quebec, Canada – January 2016.
2. "Grape juice and anti-asthmatic agents to treat chronic pain" – Symposium presentation at the 7th Study in Multidisciplinary Pain Research, Rome, Italy – March 2015.
3. "Stress affects COMT haplotype dependent pain in a gender specific manner: a gene-sex-environment interaction" – Poster presentation at the 6th Study in Multidisciplinary Pain Research, Rome, Italy – March 2014.

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4. “Characterizing a novel COMT isoform: expression level, enzymatic activity, and affinity towards different substrates” – Poster presentation at the *18th annual Pain McGill Pain Day*, Montreal, Quebec, Canada – January 2014.
5. “Characterization of a new COMT isoform associated with TMD” – Lecture at *Hussman Institute for Human Genomics*, Miami, Florida, United States of America – August 2013.
6. “Characterization of a new COMT isoform associated with TMD” – Oral presentation for the *Clinical and Science Data Blitz* of the *32nd Annual Meeting of the American Pain Society*, New Orleans, Louisiana, United States of America – May 8th 2013.
7. “Characterizing a novel COMT isoform: expression levels and enzymatic activity – Poster presentation at the *Genetics and Pain Special Interest Group Meeting* of the *American Pain Society*, Miami, Florida, United States of America – February 11th 2012
8. “Characterizing a novel COMT isoform: expression levels and enzymatic activity – Poster presentation at the *Dental Research in Review Day* of the *School of Dentistry* of the *University of North Carolina at Chapel Hill*, Chapel Hill, North Carolina, United States of America – February 29th 2012.
9. “TNF- α and IL1 polymorphisms and predisposition to TMJ disorders” – Poster presentation at the *89th General Session and Exhibition of the IADR/AADR/CADR*, San Diego, California, United States of America – March 2011.
10. “Effect of coaching and use of occlusal appliance on the treatment of symptomatic TMD: a preliminary study – Poster presentation at the *27th Annual Meeting of the SBPqO, Brazilian Division of the IADR*, Águas de Lindóia, São Paulo, Brazil – September 2010.
11. “Estrogen receptor alpha polymorphism may increase risk for temporomandibular joint internal disarrangement in menopause Brazilian women – Oral presentation at the *26th Annual Meeting of the SBPqO, Brazilian Division of the IADR*, Águas de Lindóia, São Paulo, Brazil, 2009.
12. “Cytokines: beyond inflammation – Oral presentation at the *6th International Dental Congress*, Piracicaba, São Paulo, Brazil – October 2008
13. “Influence of estrogen receptor alpha polymorphism in Brazilian women carrying TMD” – Oral presentation at the *23rd Annual Meeting of the SBPqO, Brazilian Division of the IADR*, Águas de Lindóia, São Paulo, Brazil – September 2006.

Research Funding

1. CAPES/PDEE (Brazilian Federal Agency for the Support and Evaluation of Graduate Education/Program for the Development of PhD Internship Abroad), grant 0968-11-0. PI: Rizzatti- Barbosa CM; Co-PI: Diatchenko L. *COMT gene locus: new functional variants*: the goals of this study were to investigate the association of SNP rs165774, situated in the 3’ untranslated region of an alternatively spliced COMT isoform, with chronic pain and nociceptive pain in different human cohorts, and characterize this alternative isoform by means of mRNA expression and enzymatic activity levels (2011-2012).
2. FAPESP (Agency of the São Paulo Research Foundation) grant 2009/02520-6, **Participating Researcher**. Principal Investigator (PI): Rizzatti-Barbosa CM. *Association of TNF- α , IL-1, IL-6, IL-10 and COMT polymorphisms and painful TMD*: the goals of this study were to investigate the association of the single nucleotide polymorphisms (SNPs) located at the TNF- α , IL-1, IL-6, IL-10 genes and of LPS, APS, and HPS catecholamine-O-methyltransferase (COMT) haplotypes and the risk for painful temporomandibular disorders (2009-2012).

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3. FAPESP grant 2006/56019-8R, **Participating Researcher**. PI: Rizzatti-Barbosa CM. *Correlation among clinical, systemic, genetic factors and temporomandibular disorders*: the goals of this study were to investigate the association of SNP T-397C and A-351G located at the estrogen receptor alpha (ER α) gene and Val¹⁵⁸Met located in the catecholamine-O-methyltransferase (COMT) gene and the risk for painful temporomandibular disorders (2006-2009).

Present Research/Research of Interest:

- Investigating the association of acquired chromosomal mosaicism in different blood cells and risk of developing chronic pain conditions;
- Investigating the level of activation of different blood cells and risk of developing chronic pain conditions;
- Unrevealing the role of the alternatively spliced COMT in chronic pain conditions;
- Identifying new molecular and genetic markers for chronic pain conditions;
- Developing genetically-targeted treatment alternatives for chronic pain conditions;
- Conducting clinical research trials based on precision medicine.