

MEGAN N. MICHALSKI

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EDUCATION

- 2010 – 2017 **University of Michigan** – Ann Arbor, MI
School of Dentistry
DDS/PhD
- Dissertation Topic:
The impact of myeloid lineage cells on skeletal homeostasis and repair
- Dissertation Committee:
Laurie McCauley, D.D.S., Ph.D. – Dean – Mentor and Chair
Jeffrey Curtis, M.D. – Dept of Internal Medicine – Cognate Member
Renny Franceschi, Ph.D. – Periodontics and Oral Medicine
Rogério Castilho, D.D.S, M.S., Ph.D. – Periodontics and Oral Medicine
- 2005 – 2009 **Cornell College** – Mount Vernon, IA
Bachelor of Arts, Biochemistry and Molecular Biology

RESEARCH POSITIONS

- 2017 – present Postdoctoral Fellow, Van Andel Research Institute, Grand Rapids, MI (*Bart O. Williams, Advisor*)
- 2010 – 2017 Graduate Student, Oral Health Sciences DDS/PhD Program, University of Michigan, Ann Arbor, MI (*Laurie K. McCauley, Advisor*)
- 2009 – 2010 Research Technician, University of Michigan, Ann Arbor, MI (*Laurie K. McCauley Laboratory*)
- 2008 – 2009 Undergraduate Research Volunteer, University of Michigan, Ann Arbor, MI (*Laurie K. McCauley Laboratory*)
- 2007 Undergraduate Research Volunteer, Cornell College, Mount Vernon, IA (*Craig M. Teague Laboratory*)

HONORS/AWARDS

- 2017 ASBMR Young Investigator Travel Grant
- 2017 AADR Hatton Competition Finalist
Competition: March 21, 2017, AADR/IADR Annual Meeting, San Francisco, CA
- 2017 First Place Poster “PhD/Postdoctoral Fellow/Faculty/Staff” Award
Research Day, University of Michigan School of Dentistry
- 2016 Rackham Block Grant, University of Michigan
To attend: ASBMR Annual Meeting, Atlanta, GA
- 2016 Rackham Conference Travel Grant, University of Michigan
To attend: ASBMR Annual Meeting, Atlanta, GA
- 2016 Rackham Predoctoral Fellowship, University of Michigan

- 2016 Gordon Research Travel Support
To attend: Gordon Research Seminar and Conference
“Bones and Teeth” – Galveston, TX
- 2016 Rackham Conference Travel Grant, University of Michigan
To attend: Gordon Research Seminar and Conference
“Bones and Teeth” – Galveston, TX
- 2016 First Place Poster “PhD/Postdoctoral Fellow/Faculty/Staff” Award
Research Day, University of Michigan School of Dentistry
- 2015 Endocrine Fellows Forum Travel Support
Endocrine Fellows Foundation/ASBMR
To attend: Endocrine Fellows Forum - ASBMR Meeting
- 2015 Rackham Block Grant, University of Michigan
To attend: ASBMR Annual Meeting, Seattle, WA
- 2015 Rackham Conference Travel Grant, University of Michigan
To attend: IADR/AADR Annual Meeting, Boston, MA
- 2015 Second Place Poster “PhD/Postdoctoral Fellow/Faculty/Staff” Award
Research Day, University of Michigan School of Dentistry
- 2014 Rackham Block Grant, University of Michigan
To attend: IADR/AADR Annual Meeting, Boston, MA
- 2014 Russell W. Bunting Periodontal Society Award
University of Michigan School of Dentistry
- 2012 Phi Kappa Phi Honor Society, University of Michigan
- 2010 Young Investigator Travel Award
3rd International Conference on Osteoimmunology: Interactions of the Immune
and Skeletal Systems
- 2009 *Summa Cum Laude*, Cornell College
- 2008 – 2009 Outstanding Biochemistry Senior, Cornell College
- 2008 – 2009 Phi Beta Kappa, Cornell College
- 2008 – 2009 Mortar Board, Cornell College Torch Chapter
- 2007 – 2008 2007-08 Outstanding Biochemistry Junior, Cornell College
- 2006 – 2007 American Chemical Society Organic Chemistry Award, Cornell College
- 2005 – 2006 H.M. Kelly Award for Academic Excellence in the Sciences, Cornell College
- 2005 – 2006 CRC Press Freshman Chemistry Award, Cornell College
- 2005 – 2009 Samuel Fellows Scholarship, Cornell College

MEMBERSHIPS

2015 – present American Association for the Advancement of Science, member
2015 – present American Society for Bone and Mineral Research, member
2014 – present American Association for Dental Research, member
2014 – present International Association for Dental Research, member
2010 – 2017 American Student Dental Association, member
2007 – 2008 American Chemical Society, member

SERVICE

Administrative:

2010 – 2016 Michigan Oral Health Sciences Student Association (MOHSSA)
2015-16 - Oral Health Sciences Program Committee Student Rep
2014-15 - Oral Health Sciences Admission Committee Student Rep
2012-13 - Oral Health Sciences Seminar Series Student Rep

2010 – 2011 Dental Class Student Council Chair Position
University of Michigan, School of Dentistry

2008 – 2009 Beta Beta Beta Biologic Sciences Honor Society, President
Cornell College

2008 – 2009 Mortar Board, Secretary
Cornell College

2008 Student Member of Biochemistry Faculty Search Committee
Cornell College

GRANT SUPPORT

Sept 2016 – Aug 2017 Rackham Predoctoral Fellowship
University of Michigan

July 2015 – June 2016 Ruth L. Kirschstein National Research Service Awards (NRSA) for
Individual Fellowship (F30) F30DE025154

July 2010 – June 2015 Tissue Engineering and Regeneration (TEAM) Training Grant supported
by the National Institute for Dental and Craniofacial Research (NIDCR)
DE007057

PUBLICATIONS

Articles in scientific peer-reviewed journals:

Michalski MN, Seydel AL, Siismets EM, Zweifler LE, Koh AJ, Sinder BP, Aguirre JI, Atabai K, Roca H, McCauley LK. Inflammatory bone loss associated with MFG-E8 deficiency is rescued by teriparatide. *The FASEB Journal*. *Conditionally accepted*.

Sinder BP, Zweifler L, Koh AJ, **Michalski MN**, Hofbauer LC, Aguirre JI, Roca H, McCauley LK. Bone Mass is Compromised by the Chemotherapeutic Trabectedin in Association with Effects on Osteoblasts and Macrophage Efferocytosis. *Journal of Bone and Mineral Research*, 2017 Jun 10. [Epub ahead of print] PMID: 28600866.

Michalski MN, McCauley LK. Macrophages and Skeletal Health. *Pharmacology and Therapeutics*, 174: 43-54, 2017. PMID: 28185913; PMCID: PMC5429177

Michalski MN, Koh AJ, Weidner S, Roca H, McCauley LK. Modulation of Osteoblastic Cell Efferocytosis by Bone Marrow Macrophages. *J Cell Biochem*. 2016. PMID: 27061191; PMCID: PMC5055427

Cho SW, Pirih FQ, **Michalski M**, Eber M, Ritchie K, Sinder B, Oh S, Lee J, Kozloff K, Danciu T, Wronski T, McCauley LK. Soluble interleukin-6 receptor signaling is a mediator of hematopoietic and skeletal actions of parathyroid hormone. *Journal of Biological Chemistry*: 288: 6814-25, 2013. PMID: 23297399; PMCID: PMC3591592

Novince CM, Entezami P, Wilson CG, Wang J, Koh AJ, **Michalski MN**, Sinder BP, Kozloff KM, Taichman RS, McCauley LK. The impact of proteoglycan-4 and parathyroid hormone on articular cartilage degeneration. *Journal of Orthopaedic Research*: 31:183-90, 2013. PMID:22898906; PMCID: PMC3502647

Park SI, Liao J, Berry J, Li X, Koh A, **Michalski M**, Eber M, Soki F, Sadler W, Sud S, Tisdelle S, Daignault SD, Nemeth J, Snyder L, Wronski T, Pienta K, McCauley LK. Cyclophosphamide creates a responsive microenvironment for prostate cancer skeletal metastasis. *Cancer Research*: 72:2522-2532, 2012. Press release: <http://ns.umich.edu/new/multimedia/videos/20392-fertilizing-bone-marrow-helps-answer-why-some-cancers-spread-to-bones>

Novince CM, **Michalski MN**, Sinder BP, Entezami P, Koh AJ, Eber MJ, Pettway GJ, Rosol TJ, Wronski TJ, Kozloff KM, McCauley LK. Proteoglycan-4: a dynamic regulator of skeletogenesis and PTH skeletal anabolism. *Journal of Bone and Mineral Research*: 27:11-25, 2012. PMID 21932346. Video Abstract: <http://www.youtube.com/watch?v=e3wtvDuUu4>

Novince CM, Koh AJ, **Michalski MN**, Marchesan JT, Wang J, Jung Y, Berry JE, Eber MR, Rosol TJ, Taichman RT, McCauley LK. Proteoglycan-4, a novel immunomodulatory factor, regulates parathyroid hormone actions on hematopoietic cells. *American Journal of Pathology*: 179:2431-2442, 2011. PMID:21939632.

Pirih F, **Michalski M**, Koh A, Berry J, Ghaname E, Kamarajan P, Bonnelye E, Ross C, Kapila Y, Jurdic P, McCauley LK. The impact of parathyroid hormone on cells of the hematopoietic lineage: in vivo and ex vivo studies. *PloS One*, Oct 27;5(10):e13657,2010, PMID: 21048959.

MEETING ABSTRACTS

Oral Presentation

Michalski MN, Seydel, A.L., Koh, A.J., Aguirre, J.I., Roca, H., McCauley, L.K. Defective Efferocytosis (Apoptotic Cell Clearance) Leads to Osteopenia in Mice. IADR/AADR/CADR General Session & Exhibition, San Francisco, CA March 2017. **Abstract selected for Hatton Award Competition.**

Michalski MN, Sinder B.P., Koh, A.J., Roca, H., McCauley, L.K. MFG-E8 Mutant Mice Exhibit Reduced Bone Mass and Enhanced Anabolic Response to Parathyroid Hormone. *Bones and Teeth Gordon Research Seminar*, Galveston, TX, February 2016

Michalski MN, McCauley, L.K. Efferocytosis: An emerging role for macrophages in bone. *Oral Health Sciences Seminar Series*, University of Michigan School of Dentistry, October 22, 2014

Michalski MN, Weidner S. Sinder B.P., Koh, A.J., Roca, H., McCauley, L.K. Macrophage Efferocytosis in the Bone Microenvironment. Apoptotic Cell Recognition and Clearance Gordon Research Seminar, Biddeford, ME, June 2015

Poster Presentation

Michalski MN, Seydel AL, Siismets EM, Zweifler LE, Koh AJ, Sinder BP, Aguirre JI, Atabai K, Roca H, McCauley LK. MFG-E8 deficiency: A model of inflamm-aging associated bone loss robustly rescued by teriparatide. American Society for Bone and Mineral Research, Denver, CO, September 2017

Michalski MN, Seydel, A.L., Koh, A.J., Aguirre, J.I., Roca, H., McCauley, L.K. Defective Efferocytosis (Apoptotic Cell Clearance) Leads to Osteopenia in Mice. University of Michigan School of Dentistry Research Day, February 2017 **First Place Poster Award in "PhD/Postdoctoral Fellow/Faculty/Staff" Division**

Michalski MN, Seydel, A.L., Sinder B.P., Koh, A.J., Aguirre, J.I., Roca, H., McCauley, L.K. MFG-E8 Mutant Mice Exhibit Reduced Bone Mass and Enhanced Anabolic Response to Parathyroid Hormone. American Society for Bone and Mineral Research, Atlanta, GA, September 2016

Michalski MN, Sinder B.P., Koh, A.J., Roca, H., McCauley, L.K. MFG-E8 Mutant Mice Exhibit Reduced Bone Mass and Enhanced Anabolic Response to Parathyroid Hormone. Bones and Teeth Gordon Research Conference, Galveston, TX, February 2016

Michalski MN, Sinder, B.P. Koh, A.J., Roca, H., McCauley, L.K. MFG-E8 Mutant Mice Exhibit Reduced Bone Mass and Enhanced Anabolic Response to Parathyroid Hormone. University of Michigan School of Dentistry Research Day, February 2016 **First Place Poster Award in "PhD/Postdoctoral Fellow/Faculty/Staff" Division**

Michalski MN, Koh, A.J., Roca, H., McCauley, L.K. Alternative Activation of Macrophages by IL-10 Promotes Efferocytosis of Osteoblasts. American Society for Bone and Mineral Research, Seattle, WA, October 2015

Michalski MN, Weidner S. Sinder B.P., Koh, A.J., Roca, H., McCauley, L.K. Macrophage Efferocytosis in the Bone Microenvironment. Apoptotic Cell Recognition and Clearance Gordon Research Conference, Biddeford, ME, June 2015

Michalski MN, Koh, A.J., Soki F.N., Roca, H., McCauley, L.K. Factors which Engage Macrophage-Mediated Efferocytosis in Bone. IADR/AADR/CADR General Session & Exhibition, Boston, MA, March 2015

Michalski MN, Koh, A.J., Roca, H., McCauley, L.K. IL-10 Directs Macrophage-Mediated Efferocytosis of Osteoblastic Cells. University of Michigan School of Dentistry Research Day, February 2015 **Second Place Poster Award in "PhD/Postdoctoral Fellow/Faculty/Staff" Division**

Michalski MN, Koh A.J., Cho S.W., McCauley L.K. Exploring the Role of Macrophages in Anabolic Actions of PTH in Bone. T-32 Biennial Symposium on Tissue Engineering and Regen. Univ of Michigan, May 2014

Michalski MN, Kaartinen V. Investigating the Role of Tgf-B Receptor Type I ALK5 and Palatal Formation. T-32 Biennial Symposium on Tissue Engineering and Regeneration. Univ of Michigan, May 2011

Michalski MN, Pirih F.Q., Koh A.J., Sorah K., and McCauley L.K. PTH Increases Hematopoietic Progenitor Cells and Bone Mass in an IL-6 Dependent Manner. University of Michigan School of Dentistry Research Day, Feb 2010

Michalski MN, Pirih F.Q., Koh A.J., and McCauley L.K. Anabolic Effects of Parathyroid Hormone. Cornell College Student Symposium, April 2009

Michalski MN, Pontarelli K., Szczepanik B., Teague CM. Polyoxometalate-surface interactions and properties of POM-based composite materials. Cornell College Student Symposium, February 2008

Michalski MN, Pirih, F.Q., Koh, A.J., Berry, J.E., Ross, C.W., and McCauley, L.K. Interleukin-6 is a Critical Mediator of Parathyroid Hormone Expansion of Hematopoietic Cells. 3rd International Conference on Osteoimmunology: Interactions of the Immune and Skeletal Systems, June 23, 2010, Santorini, Greece **Received Young Investigator Travel Award**

Michalski MN, Pirih, F.Q., Koh, A.J., Sorah, K., and McCauley, L.K. PTH Increases Hematopoietic Progenitor Cells and Bone Mass in an IL-6 Dependent Manner. University of Michigan, School of Dentistry Research Day, February 2010, Ann Arbor, MI

Co-authored Abstracts

Koh, A.J., **Michalski MN**, Sinder, B.P., Rhee, J., McCauley, L.K. . Induction of Apoptosis Altered the Bone Microenvironment and Reduced Bone. American Society for Bone and Mineral Research, October 2015.

Sinder, B.P., Koh, A.J., **Michalski MN**, Hofbauer, L., Roca, H., McCauley, L.K. Osteal macrophages and efferocytosis regulate bone turnover and bone mass. American Society for Bone and Mineral Research, October 2015.

Cho, S.W., Pirih, F.Q., **Michalski MN**, Eber, M., Oh, S.J., Wronski, T.J., and McCauley, L.K. Interleukin-6 receptor signaling links hematopoietic and anabolic actions of PTH in bone. American Society for Bone and Mineral Research, October 2011.

Novince, C.M., **Michalski MN**, Sinder, B.P., Entezami, P., Koh, A., Eber, M.R., Rosol, T., Wronski, T., Kozloff, K., and McCauley, L.K. Proteoglycan-4: a dynamic regulator of skeletogenesis and PTH skeletal anabolism. American Society for Bone and Mineral Research, October 2011.

Novince, C.M., **Michalski MN**, Koh, A., Sinder, B., Berry, J., Kozloff, K., and McCauley, L.K. Proteoglycan-4: A Dynamic Regulator of PTH Actions in Skeletal Anabolism and Arthritic Joint. American Society for Bone and Mineral Research, October 18, 2010, Toronto, Canada

Novince, C.M., Koh, A.J., **Michalski MN**, Marchesan, J.T., Sinder, B.P., Kozloff, K., McCauley, L.K. Proteoglycan-4, a Novel Immunomodulator of Parathyroid Hormone (PTH) Anabolic Actions, IADR/AADR Annual Meeting, Johnson & Johnson Healthcare Products Hatton Awards Competition, Oral and Poster Presentations, March 2010, Washington D.C. **Hatton Award Presented to Novince, CM**

Pirih, F.Q., **Michalski MN**, Koh, A.J., Sorah, K. Ross, C.W., and McCauley, L.K. PTH Increases Hematopoietic Progenitor Cells and Bone Mass in an IL-6 Dependent Manner. The American Society for Bone and Mineral Research, September 2009, Denver, CO **Young Investigator Award presented to Pirih, FQ**

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Novince, C.M., Koh, A.J., **Michalski MN**, Marchesan, J.T and McCauley, L.K. Proteoglycan-4: A Novel Gene Regulating Parathyroid Hormone Actions in Bone Anabolism and Hematopoiesis. Gordon Research Conference: Bones & Teeth, July 11-12, 2009, Biddeford, ME

Pirih, F.Q., Koh, A.J., **Michalski MN**, and McCauley, L.K. Parathyroid Hormone Mediates Hematopoietic Cell Maintenance through Interleukin-6. IADR/AADR/CADR 87th General Session and Exhibition, April 2009