

Ruth E. Grossmann

Contact Information

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Education

Ph.D. Emory University, Atlanta, Georgia, May 2012

Thesis title: Bioavailability of Vitamin D and Impact of Supplementation on Clinical and Inflammatory Outcomes in Cystic Fibrosis

Department of Biological and Biomedical Sciences
Division of Nutrition and Health Sciences

Masters of Nursing & Healthcare Practice University of Iowa, Iowa City, Iowa. 2007

MNHP scholarship for academic excellence

Masters of Science University of Iowa, Iowa City, Iowa. 2001

Biology: Emphasis in Neuroscience
Evelyn Hart-Watson Fellow

Bachelors of Arts Covenant College, Lookout Mountain, Georgia. 1999

Biology and Chemistry
Summa cum laude, Maclellan Scholar

Academic Experience

University of Iowa College of Nursing. (2014-present). Adjunct Assistant Professor, Director of Nursing Honors

Classes taught: Nursing Pharmacology and Interventions, Human Pathology, Advanced Pathophysiology and Pharmacology. Lecture development and delivery. Methods: In person, online
Course development: Biological Markers in Health, Advanced Pathophysiology and Pharmacology

University of Iowa College of Nursing. (2012-2014). Associate Faculty

Classes taught: Nursing Pharmacology and Interventions, Human Pathology. Lecture development and delivery. Methods: In person, online

Emory University School of Nursing, Atlanta, Georgia. 2012. Instructor

Classes taught: Pathophysiology

Emory University, Atlanta, Georgia. (2009-12). Graduate Teaching Assistant.

Lectured, led discussions and review sessions for the graduate course, Human Nutrition.

Guest lecturer in the graduate level Dietary Assessment course

Dalton State College, Dalton, Georgia. (2004 - 2005). Adjunct Professor of Biology.

Wrote lectures and taught the Principles of Biology, and Human Biology courses. Composed exams and group projects, designed laboratory experiments, managed laboratory facilities and supplies for the biology department.

Northwestern College, Orange City, Iowa. (2003 - 2004). Visiting Professor of Biology

Wrote lectures and taught Human Anatomy & Physiology, and Principles of Biology for biology majors. Supervised laboratory experiments, led discussions and managed student assistants.

Covenant College, Lookout Mountain, Georgia. (2002 - 2003). Visiting Professor of Biology.

Developed and taught an introductory course in Neurobiology. Recruited guest speakers and led journal reviews in an upper division literature review course, Seminar in Biology. Lectured, designed and supervised laboratory experiments in Cell & Molecular Biology, General Biology, and Microbiology.

Mentoring Activities

<i>Mentee Name</i>	<i>Dates</i>	<i>Mentee Position</i>	<i>Project/Products</i>	<i>Current Position</i>
Brittany Athmer	2016-2017	Young Scholar Awardee (Undergraduate)	Paleo Feeding Study: Development of Social Impact Survey Poster Presentation:	
Katie Robinson	2017-2019	Postdoctoral Fellow	Paleo Feeding Study: research coordination Manuscripts: Dietary Evaluation of a Modified Paleolithic Diet in Individuals with Multiple Sclerosis (working title) Obesity and Multiple Sclerosis: a Narrative Review (working title)	
Nicole Cady	2015-2018	Undergraduate Senior	Paleo Feeding Study: research assistant Manuscript: Biomarkers in Multiple Sclerosis Nutrition Research (working title) Iowa Biosciences Academy Fellow	
Joshua Gold	2017	Graduate Student	Behavioral-Biomedical Interface Training Program	
Taryn O'Brien	2016-2018	Undergraduate	Paleo Feeding Study: research assistant Manuscript: Biomarkers in Multiple Sclerosis Nutrition Research (working title)	

Clinical Research Experience

University of Iowa, Iowa City, Iowa. (2012-present).

Project 1: Feeding study evaluating the impact of a modified Paleolithic diet in healthy subjects and subjects with relapsing-remitting multiple sclerosis. Metabolome & microbiome analyses.

Project 2: Identification of biomarkers related to clinical outcomes. The objective of this project is to use metabolomics to identify biomarkers related to the clinical outcomes of the study.

Project 3: Evaluation of the microbiome in Experimental Autoimmune Encephalomyelitis. Evaluation of diet-induced alterations of the microbiome and metabolome to determine if they contribute the onset and/or progression of Experimental Autoimmune Encephalomyelitis (EAE), a mouse model of MS.

Project 4: Site PI for a multicenter study of vitamin D supplementation in subjects with cystic fibrosis.

Project 5: Co-investigator Fracture Fragility Project evaluating dietary intake in older adults with low-energy femur fracture.

Emory University, Atlanta, Georgia. (2009-12).

Doctoral dissertation research. *Advisor: Vin Tangpricha, MD, PhD*

Project 1: Conducted a randomized, placebo-controlled pilot study of vitamin D supplementation in cystic fibrosis. Resulted in two manuscripts, one published in *Dermato-Endocrinology* and one submitted for publication.

Project 2: Completed a systematic review of the literature regarding the bioavailability of vitamin D in CF and non-CF subjects. Prepared a manuscript for publication in *Molecular Nutrition and Food Research*.

Basic Science Research Experience

Department of Veteran Affairs Medical Center, Iowa City, Iowa. (2005 - 2007)

Research assistant in the laboratory of Dr. Stephen McGowan. Conducted analysis of protein expression and localization in the developing lung.

University of Iowa, Iowa City, Iowa. (1998 - 2001)

Master's research project: Developed a method to do timelapse, 3-D imaging of hippocampal microglia *in situ*. Designed research analysis, tabulated data, and published findings in *Glia*.

Clinical Experience

St. Mary's Hospital, Rochester, MN. (2007-2008) Critical Care Nurse

Licensure

Registered Nurse Iowa (131802)

Grant Support

Orthopedic Trauma Association (August 2020 – July 2022)

Title: Nutrition Interventions to Improve Clinically Relevant Outcomes after Femoral Fragility Fractures

Role: Co-Investigator Principle Investigator: Michael Willey

Carver College of Medicine, Pilot Grant (August 2020 – July 2021)

Role: Co-Investigator Principle Investigator: Michael Willey

National Institute of Nursing Research, T32 (August 1, 2009 – June 30 2021)

Title: Pain and Associated Symptoms: Nurse Research Training

This grant trains pre and postdoc scientists in the area of pain and related symptoms.

Role: Junior Faculty Member Principle Investigators: Keela Herr/Ann Marie McCarthy

National Institute of General Medical Sciences, K01 (September 30, 2013 – September 29, 2017)

Mentored Research Scientist Development Award in Metabolomics

Title: Metabolomic Biomarkers of a Nutritional Intervention to Prevent Weight Gain

Role: PI Principle investigator: Ruth E. Grossmann

Cystic Fibrosis Foundation Grant (September 1, 2011 – January 11, 2016)

Title: Vitamin D for Enhancing the Immune System in Cystic Fibrosis

Role: Site PI Principle investigator: Vin Tangpricha

Cystic Fibrosis Foundation Training Grant (July 15 – October 14, 2010)

Title: Analysis of vitamin D supplementation strategy in subjects with cystic fibrosis.

National Institute of Diabetes and Digestive and Kidney Diseases, T32 grant

(January 20, 1997 – December 31, 2011)

Principle Investigator: Martorell, Reynaldo. Title: Nutrition and Health Sciences.

Professional Societies

Sigma Theta Tau International. (2007)

American Society for Nutrition. (2008)

Midwest Nursing Research Society. (2013)

Awards

Student Interest Group Travel Award. American Society for Nutrition (2012)

VMRIS Graduate and Post-Doctoral Student Award. American Society for Nutrition (2012)

Clinical Emerging Leader. American Society for Nutrition, Finalist (2012)

Travel Award. American Society for Nutrition (2012)

Travel Award. Society for Clinical Investigation (2012)

Young Investigator's Award. NACFC, Semi-finalist (2011)

Outstanding Oral Presentation. Emory University Department of Medicine Research Day (2011)

Invited Oral Presentations

Impact of Vitamin D Supplementation on Clinical and Inflammatory Outcomes in Cystic Fibrosis.

Covenant College, Lookout Mountain, GA. March 2014

Metabolomics: Tools for Clinical Discovery

Council for the Advancement of Nursing Science, State of the Science Conference. Washington DC.
September 2016

Service

History of Nutrition Committee. American Society for Nutrition (2013-present).

Clinical Nutrition Conference Planning Committee. American Society for Nutrition (2018-2019).

Critical Mentoring and Student Support Volunteer. University of Iowa (2015-2019).

Advances and Controversies in Clinical Nutrition Conference Planning Committee. American Society for Nutrition (2015-2017).

American Society for Nutrition Liaison to the Iowa Association of Pediatric Nurse Practitioners. (2015).

Abstracts – Poster Presentations

Dietary Intake in Young Adults After Musculoskeletal Trauma is Inadequate 2022 American Academy of Orthopaedic Surgeons Annual Meeting, Chicago, Illinois.

Food Insecurity is Common in the Orthopedic Trauma Population: A Single Center Cross-Sectional Study. 2022 American Academy of Orthopaedic Surgeons Annual Meeting, Chicago, Illinois

Penalized Regression Models on the Lipid Profile of Subjects With Multiple Sclerosis. Dajles A., Grossmann, R.E., Huang, Y. 2018 University of Iowa College of Medicine. Iowa City, IA.

Methods in Metabolomics: Design & Implementation of a Clinical Feeding Study. Robinson, K.N. and Grossmann R.E. 2018 Midwest Nursing Research Society Conference, American Society for Nutrition, Boston, MA.

Multi-Omics Translational Study Design in Nutrition and Multiple Sclerosis. Grossmann, RE. 2017 Midwest Nursing Research Society Conference. Minneapolis, MN.

Description of a Study Evaluating the Impact of Participation in a Feeding Trial on Social Roles and Activities. Athmer, G and Grossmann, RE. 2017 Midwest Nursing Research Society Conference. Minneapolis, MN.

Metabolomic Analysis of Dietary Interventions in Multiple Sclerosis. Grossmann, R.E. and Burant, C. 2016. Common Fund Metabolomics Conference. NIH, Bethesda, MD.

Evaluation of the Impact of Dietary Nutrients on Clinical Outcomes (Short-form 36) in Chronic-Progressive Multiple Sclerosis. Grossmann, R.E., Wolf, J., Perkhounkova, E., Chenard, C., Bisht B., Wahls T. 2016. American Society for Nutrition. San Diego, CA.

Intervention Improves Nutrient Intake Associated with Reduced Inflammation in Adults With Multiple Sclerosis. Grossmann, R.E., Wolf, J., Perkhounkova, E., Chenard, C., Bisht B., Wahls T. 2016. Midwest Nursing Research Society. Milwaukee, WI.

Evaluation of the Impact of Dietary Nutrients on Clinical Outcomes (Medical Symptom Questionnaire) in Chronic-Progressive Multiple Sclerosis. Grossmann, R.E., Perkhounkova, E., Chenard, C., Bisht B., Wahls T. 2016. Advances and Controversies in Clinical Nutrition. Long Beach, CA.

Discovery-Based High-Resolution Plasma Metabolomics Following a Vitamin D Intervention in Adult Patients with Cystic Fibrosis. 2015 Jessica A. Alvarez, Ellen M. Smith, Dean P. Jones, Ruth

E. Grossmann, Jennifer K. Frediani, Elizabeth Chong, Shuzhao Li, Karan Uppal, Joshua D. Chandler, Rabin Tirouvanziam, Vin Tangpricha, Thomas R. Ziegler. Experimental Biology Conference / American Society for Nutrition. Boston, MA.

Plasma Metabolome-Wide Association Study of Clinical Variables in Hospitalized Adults with Cystic Fibrosis. 2015. Ellen M. Smith, **Ruth E. Grossmann**, Elizabeth Chong, Karan Uppal, Shuzhao Li, Dean P. Jones, Vin Tangpricha, Thomas R. Ziegler, Jessica A. Alvarez. Experimental Biology Conference / American Society for Nutrition. Boston, MA.

Plasma Metabolomic Profiling in Adults With Cystic Fibrosis and Cystic Fibrosis-Related Diabetes. 2014. Alvarez, JA, Frediani JK, Jones DP, **Grossmann RE**, Uppal K, Tangpricha V, Ziegler TR. Experimental Biology Conference / American Society for Nutrition. San Diego, CA.

Traditional Risk Factors Overshadow HIV-Related Factors in Predicting Vitamin D Deficiency in HIV-Infected Children and Young Adults. 2011. Ross, AC, Judd, S, Ziegler, T, Camacho-Gonzalez, A, Fitzpatrick, A, Hadley, G, **Grossmann, RE**, Seydafkan, S, Seaton, L, Mulligan, M, Rimann, N, Lai, L, Ying, K, Noback, M, Tangpricha, T, McComsey, GA.

Efficacy of a single 250,000 IU dose of vitamin D3 in subjects with cystic fibrosis during pulmonary exacerbation. 2011. **Grossmann, RE**, Kumari, M, Seydafkan, S, Jenkins, ME, Hao, L, Stecenko, A, Zughair, S, Ziegler, T, and Tangpricha, V. ASN Advances and Controversies in Clinical Nutrition Conference, San Francisco, CA.

Vitamin D Supplementation in Acute Cystic Fibrosis Exacerbation. 2009. Kumari M, **Grossmann RE**, Wolfenden L, Stecenko A, Colman L, Tangpricha V. The Annual North American Cystic Fibrosis Conference. Minneapolis, MN.

Abstracts – Oral Presentations

Postoperative Dietary Quality is Poor after Major Musculoskeletal Trauma. A Miller, J Davison, N Hendrickson, B Koch, M Willey, **R.E. Grossmann**. 2020. American Society for Nutrition. Accepted, not presented due to Covid-19.

Perioperative Nutritional Screening Tools are Not Associated with Poor Outcomes After Musculoskeletal Trauma. J Davison, N Hendrickson, E Wilson, N Glass, A Miller, RE Grossmann, M Willey. 2020. American Society for Nutrition. Accepted, not presented due to Covid-19.

Conditionally Essential Amino Acid Supplementation Reduces Postoperative Muscle Wasting in Orthopedic Trauma Patients. N Hendrickson, J Davison, E Wilson, A Miller, N Glass, RE Grossmann, M Willey, MD. 2020. American Society for Nutrition. Accepted, not presented due to Covid-19.

Amino Acid Supplementation is Associated with Reduced Mortality and Complications Following Acute Fracture Fixation: Results of a Prospective, Randomized Controlled Trial. NR Hendrickson, J Davison, E Wilson, A Miller, RE Grossmann, N Glass, MC Willey. 2020. American Society for Nutrition. Accepted, not presented due to Covid-19.

Evaluation of Dietary Nutrients on Clinical Outcomes in Chronic Progressive Multiple Sclerosis. **Grossmann, R.E.**, Wolf, J., Perkhounkova, E., Chenard, C., Bisht B., Wahls T. 2016 Midwest Nursing Research Society. Milwaukee, WI.

Micronutrient status during acute pulmonary exacerbation in adult cystic fibrosis. Alvarez, J.A., Mazer, L.M., Hebbard, G., Frediani, J.K., Benton, S.M., **Grossmann, R.E.**, Combs, G.F., Tangpricha, V., Ziegler, T.R. 2013. North American Cystic Fibrosis Conference.

High dose vitamin D supplementation improves survival and clinical outcomes in adults with cystic fibrosis hospitalized for a pulmonary exacerbation: a pilot study. 2012. **Grossmann, RE**, Zughailer, S, Kumari, M, Seydafkan, S, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. Sigma Theta Tau International Nursing Research Congress. Brisbane, Australia. Accepted for an oral presentation.

Impact of high dose vitamin D supplementation in adults with cystic fibrosis: a randomized, controlled pilot study. 2012. **Grossmann, RE**, Zughailer, S, Kumari, M, Seydafkan, S, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. Emory School of Nursing Research Symposium. Atlanta, GA.

High dose vitamin D is associated with decreased markers of inflammation and increased number of hospital-free days in adults with cystic fibrosis: a pilot study. 2012. **Grossmann, RE**, Zughailer, S, Kumari, M, Seydafkan, S, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. Experimental Biology Conference / American Society for Nutrition. San Diego, CA.

Impact of a large, oral dose of vitamin d₃ on markers of inflammation in adults with cystic fibrosis hospitalized for a pulmonary exacerbation. 2012. **Grossmann, RE**, Zughailer, S, Kumari, M, Seydafkan, S, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. Southern Society for Clinical Investigation. New Orleans, LA.

Clinical Responses To A Novel Vitamin D Supplementation Strategy In Adult CF Patients Hospitalized For Pulmonary Exacerbation. 2011. **Grossmann, RE**, Zughailer, S, Kumari, M, Seydafkan, S, Grote, J, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. The Annual North American Cystic Fibrosis Conference. Anaheim, CA.

High dose vitamin d is associated with decreased markers of inflammation and increased number of hospital-free days in adults with cystic fibrosis: a pilot study. 2012 **Grossmann RE**, Zughailer, S, Kumari, M, Seydafkan, S, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. Emory DSAC Meeting. Atlanta, GA.

Clinical responses to a novel vitamin D supplementation strategy in adult CF patients hospitalized for pulmonary exacerbation. **Grossmann, RE**, Zughailer, S, Kumari, M, Seydafkan, S, Liu, S, Lyles, R, Sueblinvong, V, Schechter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. 2011. Emory Department of Medicine Research Day. Atlanta, GA.

Publications

Alvarez J.A., Chong E.Y., Walker D.I., Chandler J.D., Michalski E.S., **Grossmann R.E.**, Uppal K., Li S., Frediani J.K., Tirouvanziam R., Tran V.T., Tangpricha V., Jones D.P., Ziegler T.R. Vitamin D supplementation does not improve clinical outcomes in Cystic Fibrosis. *American Journal of Clinical Nutrition*. 2018

Ferranti, E.P., **Grossmann R.E.**, Starkweather, A., Heitkemper M. Biological determinants of health: Genes, microbes, and metabolism exemplars of nursing science. *Nursing Outlook*.

Alvarez J.A., Chong E.Y., Walker D.I., Chandler J.D., Michalski E.S., **Grossmann R.E.**, Uppal K., Li S., Frediani J.K., Tirouvanziam R., Tran V.T., Tangpricha V., Jones D.P., Ziegler T.R. Plasma metabolomics in adults with cystic fibrosis during a pulmonary exacerbation: a pilot randomized study of high-dose vitamin D₃ administration. *Metabolism: Clinical and Experimental*. 2017 Apr 26. PMID: 28456337

This manuscript describes the relationship of vitamin D status and vitamin D supplementation to metabolic changes.

- Tangpricha V., Smith E.M., Binongo J., Judd S.E., Ziegler T.R., Walker S., Tirouvanziam R., Zughaier S.M., Lee M.J., Chesdachai S., Hermes W.A., Chmiel J.F., Gaggar A., **Grossmann R.E.**, Joseph P.M., Alvarez J.A. The Vitamin D for Enhancing the Immune System in Cystic Fibrosis (DISC) trial: Rationale and design of a multi-center, double-blind, placebo-controlled trial of high dose bolus administration of vitamin D3 during acute pulmonary exacerbation of cystic fibrosis. 2017. *Contemporary Clinical Trials Communications*. 2017 Jun;6:39-45. PMID: 28508087
- Tobert CM, Hamilton-Reeves JM, Norian LA, Hung C, Brooks NA, Holzbeierlein JM, Downs TM, Robertson DP, **Grossmann R**, Nepple KG. The emerging impact of malnutrition on surgical patients: literature review and potential implications on cystectomy for bladder cancer. *Journal of Urology*. 2017 (In Press).
This manuscript describes the implications of malnutrition for the prognosis and treatment of bladder cancer.
- Lee MJ, Alvarez JA, Smith EM, Killilea DW, Chmiel JF, Joseph PM, **Grossmann RE**, Gaggar A, Ziegler TR, Tangpricha V; Vitamin D for Enhancing the Immune System in Cystic Fibrosis (DISC) Investigators. Changes in Mineral Micronutrient Status During and After Pulmonary Exacerbation in Adults With Cystic Fibrosis. *Nutrition in Clinical Practice*. 2015 Jun 15. PMID: 26078287
This manuscript describes how pulmonary exacerbations in cystic fibrosis impact micronutrient status.
- Ghanta S., **Grossmann, R.E.**, and Brenner, C. Mitochondrial protein acetylation as a cell-intrinsic, evolutionary driver of fat storage: biochemical and metabolic logic of acetyl-lysine modifications. *Critical Reviews In Biochemistry & Molecular Biology*. 2013 Nov-Dec;48(6):561-74 PMID: 24050258
This manuscript describes how protein acetylation may alter cell metabolism in response to energy input.
- Bisht B., Darling W.G., **Grossmann R.E.**, Shivapour, E.T., Lutgendorf, S.K., Snetselaar L.G., Hall M.J., Zimmerman M.B., Wahls, T.L. A multimodal intervention for patients with secondary progressive multiple sclerosis: feasibility and effect on fatigue. *Journal of Alternative and Complementary Medicine*. 2014 May;20(5):347-55 . PMID: 24476345
This manuscript describes the feasibility of an intervention that includes a nutrient dense diet in chronic progressive multiple sclerosis.
- Grossmann RE**, Zughaier, Liu, S, Tangpricha, V. Impact of vitamin D supplementation on markers of inflammation in adults with cystic fibrosis hospitalized for a pulmonary exacerbation. 2012. *European Journal of Nutrition*. 2012. 66: 1072-1074.
This manuscript describes the impact of a single, oral bolus of vitamin D on markers of inflammation in adults with CF hospitalized for a pulmonary exacerbation.
- Eckard AR, Judd SE, Ziegler TR, Camacho-Gonzalez AF, Fitzpatrick AM, Hadley GR, **Grossmann RE**, Seaton L, Seydafkan S, Mulligan MJ, Rimann N, Tangpricha V, McComsey GA. Risk factors for vitamin D deficiency and relationship with cardiac biomarkers, inflammation and immune restoration in HIV-infected youth. *Antivir Therapy*. 2012. 17:1069-1078.
This manuscript evaluates the impact of vitamin D deficiency on comorbidities of HIV in HIV infected youth.
- Grossmann RE**, Zughaier, SM, Kumari, M, Seydafkan, J, Lyles, RH, Liu, S, Sueblinvong, V, Schecter, M, Stecenko, A, Ziegler, TR, Tangpricha, V. Evaluation of a Single Large Bolus Dose of Vitamin D in Adult Subjects with Cystic Fibrosis: A Pilot Study. 2012. *Dermato-Endocrinology*. 2012. 4: 1–8;
This manuscript reports the results of a randomized, controlled trial of a successful vitamin D supplementation strategy in CF subjects and describes the clinical response to vitamin D supplementation.

- Finklea JD, **Grossmann RE**, Tangpricha V. Vitamin D and chronic lung disease: a review of molecular mechanisms and clinical studies. 2011 *Advances in Nutrition* 2:244-253
This manuscript reviews the role of vitamin D in chronic lung disease. It summarizes the clinical data in asthma, COPD, interstitial lung disease and cystic fibrosis.
- Grossmann RE** and Tangpricha V. Evaluation of vehicle substances on vitamin D bioavailability: A systematic review. 2010. *Molecular Nutrition and Food Research*. 54:1-7
This manuscript reviews factors that influence the effectiveness of vitamin D supplements. The objective is to determine which vitamin D therapies are the most effective, especially in vulnerable populations like subjects with cystic fibrosis.
- Kimani PW, Holmes AJ, **Grossmann RE**, McGowan SE. PDGF-R α gene expression predicts proliferation, but PDGF-A suppresses transdifferentiation of neonatal mouse lung myofibroblasts. 2009. *Respiratory Research*. 10:119-136
This manuscript evaluates the function of a specific gene in the development of lung cells. Understanding the genetic regulation of lung development may assist in the development of therapies for diseases that damage lung tissue, such as cystic fibrosis.
- McGowan SE, **Grossmann RE**, Kimani PW, Holmes AJ. Platelet-derived growth factor receptor-alpha-expressing cells localize to the alveolar entry ring and have characteristics of myofibroblasts during pulmonary alveolar septal formation. 2008. *The Anatomical Record*. 291:1649-1661
This manuscript describes the characteristics of lung cells as they develop normally. The objective is to understand normal growth so that new therapies can be developed to repair lung tissue damaged by disease.
- Grossmann RE**, Stence N, Carr J, Fuller L, Waite M, Dailey ME. Juxtavascular microglia migrate along brain microvessels following activation during early postnatal development. 2002. *Glia*. 37:229-240
This manuscript describes the response of microglia, the immune cells of the brain, to injury. The purpose is to understand how immune cells contribute to recovery after tissue damage.