

KATHERINE T. MARTUCCI, PHD

POSITIONS AND EDUCATION

Assistant Professor, Department of Anesthesiology, Center for Translational Pain Medicine, 2018 – present
Director, Human Affect and Pain Neuroimaging Laboratory
Duke University School of Medicine, Durham, NC

Postdoctoral Research Fellow, Department of Anesthesiology, Perioperative and Pain Medicine,
Division of Pain Medicine, Stanford Systems Neuroscience and Pain Laboratory, 2012 – 2018
Stanford University School of Medicine, Palo Alto, CA

PhD Student, Department of Neurobiology and Anatomy, 2006 – 2011
Wake Forest University School of Medicine, Winston-Salem, NC

Bachelor of Science, Physiology and Neurobiology, cum laude, 2001 – 2005
University of Connecticut, Storrs, CT

FUNDING AND AWARDS

Duke Institute for Brain Sciences (DIBS) Research Incubator Award, Duke University 2022
Duke Institute for Brain Sciences (DIBS) Research Incubator Award, Duke University 2021
NIH NIDA Supplement (R00 DA040154-05S1), 2021
DREAM Innovation Grant, Department of Anesthesiology, Duke University School of Medicine, 2020
International Narcotics Research Conference (INRC) Travel Award, 2019
NIH NIDA Pathway to Independence Award (K99/R00), 2015-2021
NIH Loan Repayment Program in Clinical Research, 2014 – 2016, 2017 – 2018
International Association for the Study of Pain Travel Award, 2014
NIH Interdisciplinary Research Training in Pain and/or Substance Use Disorders (T32), 2015
NIH Institutional Postdoctoral Anesthesia Training Program in Biomedical Research (T32), 2013-2015
NIH Individual Predoctoral Ruth L. Kirschstein National Research Service Award (F31), 2010-2012
American Pain Society Young Investigator Travel Award, 2009, 2010, 2013, 2014
NIH Institutional Predoctoral Neurobiology and Anatomy Sensory Training Grant (T31), 2007-2009

RESEARCH EXPERIENCE

Assistant Professor
Department of Anesthesiology, Center for Translational Pain Medicine
Director, Human Affect and Pain Neuroscience Lab
Duke University School of Medicine
September 2018 – present

- NIH R00 award to determine opioid effects on spinal cord activity and reward processing in fibromyalgia
- DREAM Innovation Grant 2020, Department of Anesthesiology, Duke University School of Medicine to study spinal cord activity in fibromyalgia using fMRI
- Duke Institute for Brain Sciences (DIBS) Research Incubator Award to determine neural correlates of the interactions between smoking cessation, chronic pain, and smoking withdrawal induced hyperalgesia
- Duke Institute for Brain Sciences (DIBS) Research Incubator Award to establish the use of midbrain targeted real-time fMRI-based neurofeedback for patients with chronic pain

Postdoctoral Fellow

Department of Anesthesiology, Perioperative and Pain Medicine, Division of Pain Medicine, Systems Neuroscience and Pain Lab, Stanford University School of Medicine
January 2012 – August 2018, Sean Mackey, MD, PhD, Advisor

- Collaborator, Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network
- Resting state fMRI independent components analysis (ICA) of urological chronic pelvic pain (UCPPS)
- Machine learning analysis (support vector machine, SVM) to identify regional differences in gray matter (GM) density and brain based signature patterns of UCPPS and fibromyalgia, comparative voxel based morphometry (VBM) analysis of GM density
- SVM analysis of acute heat pain (Medoc thermode) fMRI data in fibromyalgia patients
- fMRI of the cervical spinal cord during central sensitization using the heat-capsaicin sensitization model
- K99 award to investigate spinal cord activity and reward processing in FM and the effects of opioids

Predoctoral Fellow, Graduate PhD Program

Department of Neurobiology and Anatomy, Wake Forest School of Medicine
Fall 2006 – December 2011, Robert Coghill, PhD, Advisor

- Mechanisms of temporal processing (by studying the pain phenomenon, offset analgesia) using the capsaicin-heat sensitization model (to induce experimental central sensitization)
- Mechanisms of temporal processing (offset analgesia) through a clinical research study in healthy volunteers under conditions of opioid administration (remifentanyl), post-opioid hyperalgesia / opioid-induced hypersensitivity, and after naloxone administration
- Collaborator with a visiting graduate student from Israel (Yarnitsky lab) using fMRI in healthy volunteers to compare neurobiological mechanisms of offset analgesia and conditioned pain modulation (CPM)
- Collaborator with a local pain clinic, Carolinas Pain Clinic, to recruit, conduct psychophysical (sensory) testing, and fMRI scans in patients with complex regional pain syndrome
- Collected and analyzed pilot data for an Arterial Spin Labeling fMRI sequence later used in a study to determine the neurobiological mechanisms of pain reduction by mindfulness meditation
- Trained three research nurses, one postdoctoral fellow and one graduate student
- Composed and maintained Institutional Review Board protocols for the lab

TEACHING AND MENTORING EXPERIENCE

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- Teaching Assistant, Introduction to Neuroscience, Wake Forest School of Medicine, Fall 2009, Fall 2010
 - Guest Lecturer, COMPMED 89Q “Ouch it hurts!” The Comparative Neurobiology of Pain, Stanford University, Winter quarter 2016, Winter quarter 2017
 - Lecturer, Stanford Systems Neuroscience and Pain Lab Neuroimaging Course, 2017, Lectures 6 & 7: FMRIB Software Library, FSL I (pre-processing and graphical user interface) and FSL II (scripts and automated processing)

My undergraduate research assistants and clinical research coordinators, have been successful at obtaining careers and furthering their educations at engineering, medical and academic institutions. The following are the many young scientists who I have mentored and trained since the start of my postdoctoral training in 2012.

- Safwan Siddiqui as a sophomore Stanford undergraduate, now at Shockwave Medical
- Emily Marx as a junior Stanford undergraduate, now at Software Test Engineer at Illumina
- Aneesha Nilakantan as a research coordinator, now at Neuroscience PhD student, Northwestern University
- Amy Sentis as a research coordinator, now a MD/PhD candidate at the University of Pittsburgh
- Lauren Foster as a research coordinator, now in the Stanford Cancer Clinical Trials Office
- Marisa Borja as a sophomore - junior Stanford undergraduate, now at Biosense Webster
- Erin Perrine as senior Stanford undergraduate, now an intern at Google
- Christina Cojocar/Mackey as a research coordinator, now a Medical Student at Midwestern University
- Elizabeth Cha as a sophomore University of Rochester undergraduate

- Grace Kim as a freshman Stanford undergraduate
- Andrew Bassilakis as a junior Stanford undergraduate, now Software Engineering Intern at Facebook
- Leah Tolby as a freshman Stanford undergraduate
- Lindsie Boerger, Duke Clinical Research Specialist, Sr., now at Yale University
- 2019 – 2021: Vinny Krishna, Duke undergraduate research assistant
- 2019 – 2022: Meghna Nanda, Duke undergraduate research assistant
- 2019 – present: Eden Deng, Duke undergraduate research assistant
- 2021 – present: Jason Bao, Duke undergraduate research assistant
- 2022 – present: Carina Lei, Duke undergraduate research assistant

Mentored Postdoctoral Fellows

2020 – present: Anne K. Baker, LCSW, PhD

2020 – present: Su Hyoun Park, PhD

Mentored Medical Student

2022 – present: Sadé Orejobi

Mentored Conference Abstracts

Baker AK, Nanda M, Rosser M, Park SH, **Martucci KT**. Contributions of Pain and Affect to Perceived Opioid Benefit in Females with Fibromyalgia. 2022 World Congress on Pain of the International Association for the Study of Pain. September 2022. Toronto, Canada.

Park SH, Michael AM, Lei C, Baker AK, **Martucci KT**. Altered Functional Networks during Reward Anticipation in Fibromyalgia. 2022 World Congress on Pain of the International Association for the Study of Pain. September 2022. Toronto, Canada.

Baker AK, Nanda M, Park SH, **Martucci KT**. Contributions of pain and affect to perceived opioid benefit in females with fibromyalgia. Duke Anesthesiology 30th Annual Academic Evening. May 2020. Durham, NC.

Park SH, Baker AK, **Martucci KT**. Altered brain reward response to monetary incentives in fibromyalgia: A replication study. Duke Anesthesiology 30th Annual Academic Evening. May 2020. Durham, NC.

Deng EZ, Weikel DP, **Martucci KT**. Evaluation by survival analysis of cold pain tolerance in patients with fibromyalgia and opioid use. Duke Anesthesiology 30th Annual Academic Evening. May 2020. Durham, NC. (*Awarded 1st place in Student Presentation category.*)

Baker AK, Nanda M, Park SH, **Martucci KT**. Variable voxel-based morphometry observations of gray matter differences in Fibromyalgia: Individual differences or methodological inconsistency? 2022 Conference of the United States Association for the Study of Pain (USASP). May 2022. Cincinnati, OH.

Park SH, Baker AK, Krishna V, Mackey SC, **Martucci KT**. Evidence of intact corticostriatal and altered subcortical-striatal resting-state functional connectivity in chronic pain. 2022 Conference of the United States Association for the Study of Pain (USASP). May 2022. Cincinnati, OH.

Park SH, **Martucci KT**. Altered resting state activity of the brain reward circuit in fibromyalgia. Duke Anesthesiology 29th Annual Academic Evening. May 2020. Durham, NC. (*Awarded 2nd place in Basic Science category.*)

Boerger L, **Martucci K**. A Longitudinal Study of How Chronic Pain and Opioid Use Influences Brain Reward Systems. Duke Anesthesiology 28th Annual Academic Evening. May 2020. Durham, NC.

Sentis A, Law C, **Martucci K**, Bagarinao E, Mackey S. Discriminating Brain Activation Patterns for Cognitive and Sensory Pain Processing using GLM and SVM. 16th World Congress on Pain of the International Association for the Study of Pain. September 2016. Yokohama, Japan.

Foster LC, **Martucci KT**, Younger J, Mackey SC. Individual predictors of physical function and pain interference in chronic pain syndromes. 34th Annual Scientific Meeting of the American Pain Society, Clinical and Basic Science Data Blitz Presentation. May 2015. Palm Springs, CA.

Borja M, **Martucci KT**, Nilakantan A, Mackey SC. Classification of brain activity response to painful heat stimuli in fibromyalgia patients and healthy controls. 33rd Annual Scientific Meeting of the American Pain Society. May 2014. Tampa, FL.

Sentis A, Bagarinao E, **Martucci KT**, Mackey SC. Cognitive modulation of pain before and after real-time fMRI neurofeedback training: Improving brain state classification. 33rd Annual Scientific Meeting of the American Pain Society. May 2014. Tampa, FL.

PUBLICATIONS

Preprints

Deng EZ, Weikel DP, Martucci KT. Evaluation of cold pain tolerance in patients with fibromyalgia and opioid use by survival analysis. medRxiv, version posted March 26, 2022. doi: doi.org/10.1101/2022.03.26.22272966.

Park SH, Deng EZ, Baker AK, MacNiven KH, Knutson BK, Martucci KT. Altered brain reward response to monetary incentives in fibromyalgia: A replication study. medRxiv, version posted March 3, 2022. doi: 10.1101/2022.03.02.22271367.

Park SH, Baker AK, Krishna V, Martucci KT. Intact corticostriatal and altered subcortical circuits in chronic pain. medRxiv, version posted September 13, 2021. doi: 10.1101/2021.09.08.21263285.

Research Papers

Browndyke JN, Wright MC, Yang R, Syed A, Park J, Hall A, **Martucci KT**, Devinney MJ, Moretti EW, Whitson H, Cohen HJ, Mathew JP, Berger M for the MADCO-PC Investigators. Perioperative neurocognitive and functional neuroimaging trajectories in older APOE4 carriers compared with non-carriers: secondary analysis of a prospective cohort study. *Br J Anaesth*. 2021 Dec;127(6):917-928. doi: 10.1016/j.bja.2021.08.012. Epub 2021 Sep 14.

Martucci KT, Weber KA, Mackey SC. Spinal Cord Resting State Activity in Individuals with Fibromyalgia Who Take Opioids. *Front Neurol*. 2021 Aug 4;12:694271. doi: 10.3389/fneur.2021.694271. eCollection 2021. PMID: 34421798.

Karshikoff B, **Martucci KT**, Mackey SC. Relationship Between Blood Cytokine Levels, Psychological Comorbidity, and Widespreadness of Pain in Chronic Pelvic Pain. *Front Psychiatry*. 2021 Jun 25;12:651083. doi: 10.3389/fpsy.2021.651083. eCollection 2021. PMID: 34248700.

Martucci KT, MacNiven KH, Borg N, Knutson B, Mackey SC. Apparent Effects of Opioid Use on Neural Responses to Reward in Chronic Pain. *Sci Rep*. 2019 Jul 3;9(1):9633.

Martucci KT, Weber KA, Mackey SC. Altered Spinal Cord Resting State Activity in Fibromyalgia. *Arthritis & Rheumatology*. 2019. Mar;71(3):441-450.

Martucci KT, Borg N, Hennigan K, Knutson B, Mackey SC. Altered Prefrontal Correlates of Monetary Anticipation and Outcome in Chronic Pain. *Pain*. 2018 Aug;159(8):1494-1507.

Kutch JJ, Ichescio E, Hampson JP, Labus JS, Farmer MA, **Martucci KT**, Ness TJ, Deutsch G, Apkarian AV, Mackey SC, Klumpp DJ, Schaeffer AJ, Rodriguez LV, Kreder KJ, Buchwald D, Andriole GL, Lai HH, Mullins C, Kusek JW, Landis JR, Mayer EA, Clemens JQ, Clauw DJ, Harris RE. Brain Signature and Functional Impact of Centralized Pain: a Multi-Disciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Network Study. *Pain*. 2017 Oct; 158(10):1979-1991.

Kutch JJ*, Labus JS*, Harris RE*, **Martucci KT***, Farmer MA*, Fenske S, Fling C, Ichescio E, Peltier S, Petre B, Guo W, Hou X, Stephens AJ, Ness TJ, Deutsch G, Mullins C, Clauw DJ, Mackey SC, Apkarian AV, Landis JR, Mayer EA. Resting-state functional connectivity predicts longitudinal symptom change in urologic chronic pelvic pain syndrome: A MAPP Network Study. *Pain*. 2017 Jun; 158(6):1069-1082.

Huang L, Kutch JJ, Ellingson BM, **Martucci KT**, Harris RE, Clauw DJ, Mackey S, Mayer EA, Schaeffer AJ, Apkarian AV, Farmer MA. Brain white matter changes associated with urological chronic pelvic pain syndrome: multisite neuroimaging from a MAPP case-control study. *Pain*. 2016 Dec; 157(12):2782-91.

- Martucci KT**, Shirer W, Bagarinao E, Johnson KA, Farmer MA, Apkarian AV, Deutsch G, Harris RE, Mayer EA, Labus J, Clauw DJ, Greicius M, Mackey S. The Posterior Medial Cortex in Urological Chronic Pelvic Pain Syndrome: Detachment from Default Mode Network. A Resting-State Study from the MAPP Research Network. *Pain*. 2015 Sep; 156(9):1755-64.
- Farmer MA, Huang L, **Martucci K**, Yang CC, Maravilla KR, Harris RE, Clauw DJ, Mackey S, Ellingson BM, Mayer EA, Schaeffer AJ, Apkarian AV; MAPP Research Network. Brain White Matter Abnormalities in Female Interstitial Cystitis/Bladder Pain Syndrome: A MAPP Network Neuroimaging Study. *Journal of Urology*. 2015 Jul; 194(1):118-26.
- Kairys AE, Schmidt-Wilcke T, Puiu T, Ichesco E, Labus JS, **Martucci K**, Farmer MA, Ness TJ, Deutsch G, Mayer EA, Mackey S, Apkarian AV, Maravilla K, Clauw DJ, Harris RE. Increased Brain Gray Matter in the Primary Somatosensory Cortex is Associated with Increased Pain and Mood Disturbance in Interstitial Cystitis/Painful Bladder Syndrome Patients. *Journal of Urology*. 2015 Jan; 193(1):131-7.
- Bagarinao E, Johnson KA, **Martucci KT**, Mayer EA, Labus J, Ness TJ, Deutsch G, Harris RE, Ichesco E, Apkarian AV, Farmer MA, Maravilla K, Clauw DJ, Mackey SC. A structural MRI based brain signature of chronic pelvic pain: A MAPP Network Study. *Pain*. 2014 Dec; 155(12):2502-9.
- Nahman-Averbuch H, **Martucci KT**, Granovsky Y, Weissman-Fogel I, Yarnitsky D, Coghill RC. Distinct brain mechanisms support spatial vs temporal filtering of nociceptive information. *Pain*. 2014 Dec; 155(12):2491-501.
- Kilpatrick LA, Kutch JJ, Tillisch K, Naliboff BD, Labus JS, Jiang Z, Farmer MA, Apkarian AV, Mackey SC, **Martucci KT**, Clauw DJ, Harris RE, Deutsch G, Ness TJ, Yang CC, Maravilla K, Mullins C, Mayer EA. Alterations in Resting State Oscillations and Connectivity in Sensory and Motor Networks in Women with Interstitial Cystitis/Painful Bladder Syndrome. *Journal of Urology*. 2014 Sep; 192(3):947-55.
- Zeidan F, **Martucci KT**, Kraft RA, McHaffie JG, Coghill RC. Neural Correlates of Mindfulness Meditation-Related Anxiety Relief. *Soc Cogn Affect Neurosci*. 2014 Jun; 9(6):751-9.
- Emerson NM, Zeidan F, Lobanov OV, Hadsel MS, **Martucci KT**, Quevedo AS, Starr C, Nahman-Averbuch H, Weissman-Fogel I, Granovsky Y, Yarnitsky D, Coghill RC. Pain Sensitivity is Inversely Related to Regional Grey Matter Density in the Brain. *Pain*. 2014 Mar; 155(3):566-73.
- Martucci KT**, Eisenach JC, Tong C, Coghill RC. Opioid-Independent Mechanisms Supporting Offset Analgesia and Temporal Sharpening of Nociceptive Information. *Pain*. 2012 Jun; 153(6):1232-43.
- Martucci KT**, Yelle MD, Coghill RC. Differential Effects of Experimental Central Sensitization on the Time-course and Magnitude of Offset Analgesia. *Pain*. 2012 Feb; 153(2):463-72.
- Zeidan F, **Martucci KT**, Kraft RA, Gordon N, McHaffie JG, Coghill RC. Brain Mechanisms Supporting Modulation of Pain by Mindfulness Meditation. *Journal of Neuroscience*. 2011 Apr; 31(14):5540-8.

Non-experimental Articles

- Clemens JQ, Mullins C, Ackerman AL, Bavendam T, van Bokhoven A, Ellingson BM, Harte SE, Kutch JJ, Lai HH, **Martucci KT**, Moldwin R, Naliboff BD, Pontari MA, Sutcliffe S, Landis JR; MAPP Research Network Study Group. Urologic chronic pelvic pain syndrome: Insights from the MAPP Research Network. *Nat Rev Urol*. 2019 Mar; 16(3):187-200. Review.
- Mackey SC, Greely H, **Martucci KT**. Neuroimaging-Based Pain Biomarkers: Definitions, Clinical and Research Applications, and Evaluation Frameworks to Achieve Personalized Pain Medicine. *PAIN Reports*. 2019 Aug 7; 4(4):e762. 2019 Jul-Aug. Review.
- Sturgeon JA, **Martucci KT**. The Intersection between Pain, Neuroimaging and Neuropsychiatry. In: Overlapping Pain and Psychiatric Syndromes. Oxford University Press. *In Press*.
- Martucci KT**, Mackey SC. Neuroimaging of Pain: Human Evidence and Clinical Relevance of Central Nervous System Processes and Modulation. *Anesthesiology*. 2018 Jun; 128(6):1241-1254.
- Martucci KT**. Disentangling Mood and Pain: A Commentary on Two Manuscripts. *Pain*. 2017 Jan; 158(1):4-5.
- Mackey SC, **Martucci KT**. Brain-Based Biomarkers for Pain: Objective Measures of Pain or a Journey down the Rabbit Hole? In: Pain 2016: Refresher Courses, 16th World Congress on Pain. Washington, DC; IASP Press: 2016.
- Martucci KT**, Mackey SC. Imaging Pain. *Anesthesiology Clin*. 2016 Jun; 34(2):255-69.
- Martucci KT**, Ng P, Mackey SC. Neuroimaging in Chronic Pain: What Have We Learned and Where Are We Going? *Future Neurology*. 2014 Nov; 9(6):615-626.

Martucci KT, Coghil RC. Regional Anesthesia: Functional Implications Beyond the Anesthetized Nerve. Editorial View. *Anesthesiology*. 2011 Jan; 114(1):21-3.

Invited Talks, Conference Presentations, and Conference Workshops

- Martucci KT**. Human Spinal Cord Neuroimaging of Chronic Pain and Opioid Use. In Session: Translational Approaches To Understand and Target Pathological Pain. Neurotrauma 2022. Atlanta, Georgia. June 29, 2022.
- Martucci KT**. Brain Reward Activity and Circuits in Fibromyalgia. #Pain2021 Workshop hosted by the Gulf Coast Consortia. Co-presenters: Drs. Joyce Da Silva, Massieh Moayed, Tim Salomons. July 16, 2021. Virtual Presentation via Zoom.
- Martucci KT**, organizer and presenter. Translational Spotlight on the Spinal Cord in Chronic Pain: Mechanisms, Modulation, Clinical Trials, and Human Neuroimaging. Co-presenters: Drs. Pascal Fossat (France), Yves De Koninck (Canada) and Marieke Niesters (Netherlands). **IASP's 2021 Virtual World Congress on Pain**. June 10, 2021. (*Exceptionally high viewing rate with 220 live viewers and highest number of views for its day of the Congress.*)
- Martucci KT**. A Snapshot of Brain Reward Processing and Spinal Cord Resting State Activity in Individuals with Fibromyalgia. Kansas University Medical Center Department of Anatomy & Cell Biology Seminar. September 2020. Virtual Presentation via Zoom.
- Martucci KT**. Human Spinal Cord Neuroimaging of Chronic Pain and Opioid Use. Pain Research Forum Webinar. June 22, 2020. Virtual Presentation via Zoom. (*Over 240 live attendees and 400 registrants. Recording of talk available on the PRF website.*)
- Martucci KT**. Neuroimaging of Chronic Pain: Altered Brain Reward/Value Responses and Effects of Opioids. CUNY Neuroscience Collaborative Colloquium Series. May 2020. Virtual Presentation via WebEx.
- Martucci KT**. Approach/Avoidance Behaviors & Brain Reward Activity in Chronic Pain & Opioid Use. Duke Center for Addiction and Behavior Change Seminar Series. February 2020. Durham, NC.
- Martucci KT**. Chronic Pain Changes the Brain – A Primer of fMRI Neuroimaging. Due Anesthesiology Grand Rounds. January 2020. Durham, NC.
- Martucci KT**. Effects of Opioid Use on Neural Responses to Reward in Chronic Pain. International Narcotics Research Conference 2019. July 2019. New York, NY.
- Martucci KT**. Fibromyalgia + Opioids? Unraveling the Neurobiological Effects of Opioids in Chronic Pain Using Neuroimaging. American Pain Society 2018 Scientific Meeting. April 2019. Milwaukee, WI.
- Martucci KT**, Hassett A, Zubieta JK. At the Intersection of Affect Regulation, Reward/Value Processes, and Placebo: Altered Human Psychological, Neurobiological, and Opioidergic Systems in Chronic Pain. American Pain Society 2018 Scientific Summit. March 2018. Anaheim, CA.
- Martucci KT**. Translational Questions of Human Spinal Cord fMRI. 36th Annual Scientific Meeting of the American Pain Society, Early Career Forum Sounding Board Presentation. May 2017. Pittsburgh, PA.
- Martucci KT**. Acute and Chronic Pain in Humans: Pain Phenomena, Neurophysiological Alterations, and Effects of Opioids. Washington University Department of Anesthesiology. Oct. 2017. St. Louis, MO.
- Martucci KT**. Acute and Chronic Pain in Humans: Pain Phenomena, Neurophysiological Alterations, and Effects of Opioids. University of Michigan Department of Anesthesiology. April 2017. Ann Arbor, MI.
- Martucci KT**. Acute and Chronic Pain in Humans: Pain Phenomena, Neurophysiological Alterations, and Effects of Opioids. Boston Children's Hospital. Department of Anesthesiology. March 2017. Boston, MA.
- Martucci KT**. Acute and Chronic Pain in Humans: Pain Phenomena, Neurophysiological Alterations, and Effects of Opioids. Wake Forest University Department of Anesthesiology. Jan. 2017. Winston-Salem, NC.
- Martucci KT**. Acute and Chronic Pain in Humans: Pain Phenomena, Neurophysiological Alterations, and Effects of Opioids. Duke University Department of Anesthesiology. Dec. 2016. Durham, NC.
- Martucci KT** (co-organizer & speaker), Law C, Cohen-Adad J, Sprenger C, Barry R, Glover G, Mackey SC. Morning Workshop: New Developments and Horizons for Spinal Cord fMRI. Organization for Human Brain Mapping Meeting. June 2015. Honolulu, HI.

- Martucci KT** (presenter on behalf of Mackey SC), Labus JS, Wager T, Mackey SC. Morning Workshop: Neuroimaging-based multivariate classification algorithms for acute and chronic pain. Organization for Human Brain Mapping Meeting. June 2015. Honolulu, HI.
- Martucci KT**, Nash PG, Reyes B, Hubbard E, Foster LC, Mackey SC. Evidence of Central Sensitization of the Human Spinal Cord in the Absence of Pain. 34th Annual Scientific Meeting of the American Pain Society, Clinical and Basic Science Data Blitz Presentation. May 2015. Palm Springs, CA.
- Martucci KT**. Opioid-Independent Temporal Contrast Mechanisms Disrupted in Chronic Pain States but not following Acute Central Sensitization. 30th Annual Scientific Meeting of the American Pain Society, Clinical and Basic Science Data Blitz Presentation. May 2011. Austin, TX.

PROFESSIONAL AFFILIATIONS

US Association for the Study of Pain (USASP), member, 2021 – present
Organization for Human Brain Mapping (OHBM), member, 2011 – present
American Pain Society (APS), member, 2008 – 2019
 APS Early Career Advisory Group (ECAG), member, 2015 – 2019
 APS Membership Committee, member & ECAG liaison, 2015 – 2019
International Association for the Study of Pain (IASP), member, 2007 – present
 2020 Global Year Task Force for the Prevention of Pain, invited member, 2019 – present
 IASP Digital Strategy and Content Working Group, committee member Jan. 2021 – Dec. 2022
Society for Neuroscience (SfN), member, 2006 – present
Cognitive Neuroscience Society (CNS), member, 2016 – present
Western North Carolina Chapter of the Society for Neuroscience, member, 2005 – 2011

ACADEMIC / SCIENTIFIC SERVICE

United Kingdom Research and Innovation (UKRI) Medical Research Council (MRC) Reviewer, 2022 – present
Duke Anesthesiology Grand Rounds Planning Committee, 2022 – present
Editorial Board, *Frontiers in Neurology*, November 2021 – present
NIH NCCIH Training and Education Special Emphasis Panel (ZAT1 PS-05), Reviewer, November 2021
Associate Editor, Pain Medicine - Psychology, Psychiatry & Brain Neuroscience Section, March 2021 – present
NIH Somatosensory and Pain Study Section (*now Neurobiology of Pain & Itch*), Reviewer, September 2019
NIH NINDS Translational Devices Special Emphasis Panel (ZNS1 SRB-C 04), Reviewer, March 2019
NIH Somatosensory and Pain Study Section, Early Career Reviewer, June 2019
Duke Brain Imaging and Analysis Center (BIAC), Member, 2019 – present
Duke Institute for Brain Sciences (DIBS), Member, 2019 – present
Stanford Neurosciences Institute, Seminar Series Committee, Member, 2017, 2018
NIH Loan Repayment Program Ambassador, 2017, 2018
Stanford University Postdoctoral Association, Co-chair 2014, Council Member 2013 – 2015
Stanford Postdoc Initiative Fund Committee, Member and Proposal Reviewer, 2012 – 2015
Wake Forest University Graduate Student Association, Departmental Representative, 2006 – 2011;
 Secretary, 2008 - 2009; Insurance Chair, 2007 – 2010
Wake Forest University Brain Awareness Council, Materials Management Chair, 2008 – 2011
Western NC Chapter of the Society for Neuroscience: Student Councilor, 2007 – 2008
Ad-hoc Journal Reviewer for Anesthesiology (20 reviews since 2009), Pain (17 reviews since 2013), eNeuro, Journal of Pain, Journal of Pain Research, Pain Medicine, Pain Research and Treatment, Experimental Brain Research, PLOSone, Journal of Clinical Investigation, and Nature Communications
Associate Editor, Pain Medicine, Psychology, Psychiatry & Brain Neuroscience Section, 2021 – present

PUBLIC OUTREACH

- Women in Science and Engineering (WISE), Stanford, 2012 – 2015
- Participant in female postdoc discussion and support group, 1.5 hours weekly

Science is Elementary, Mountain View, CA, 2012 – 2013

- Volunteer teacher of science experiments to underprivileged elementary school students, monthly Project TEACH Program, Winston-Salem, NC, 2009 – 2011
- Biology tutor to a high school student, two hours weekly Brain Awareness Council, Wake Forest School of Medicine, 2006 – 2011
- Volunteer at monthly school visits. Educated students (K-12) about human and animal brain anatomy; the nervous system; concepts of neural plasticity; visual, auditory and sensory processing; careers in science
- Team Coordinator for Brain Injury Association of North Carolina's (BIANC) Walk & Roll-athon, 2010, 2011

CONFERENCE ABSTRACTS

(also see above "Mentored Conference Abstracts" which are listed separately)

- Martucci KT**. Apparent Effects of Opioid Use on Neural Responses to Reward in Chronic Pain. International Narcotics Research Conference 2019. July 2019. New York, NY.
- Weber II KA, Law CS, **Martucci KT**, Gilam G, Lewis B, Narayan S, Hastie T, Wager TD, Mackey S. Evaluation of Resting State Functional Connectivity Classification Pipelines for Chronic Back Pain, 24th Annual Meeting of the Organization for Human Brain Mapping 2019, Rome, Italy.
- Jarrahi B, **Martucci KT**, Nilakantan AS, Mackey S. Cold Water Pressor Test Differentially Modulates Functional Network Connectivity in Fibromyalgia Patients Compared with Healthy Controls. Conf Proc IEEE Eng Med Biol Soc. 2018 Jul;2018:578-582.
- Martucci KT**, Borg N, Hennigan K, Knutson B, Mackey S. Opioids Modulate Prefrontal Reward Systems in Chronic Pain Patients. Stanford University School of Medicine Department of Anesthesiology Research Awards Dinner. June 2018. Palo Alto, CA.
- Martucci KT**, Borg N, Hennigan K, Knutson B, Mackey S. Inverted Reward/Value Brain Responses in Chronic Pain: Altered Monetary Gain Anticipation and Non-Loss Outcome in the Medial Prefrontal Cortex. Stanford Neuroscience Symposium. October 2017. Stanford, CA.
- Jarrahi B, **Martucci KT**, Nilakantan AS, Mackey S. Investigating the BOLD spectral power of the intrinsic connectivity networks in fibromyalgia patients: A resting-state fMRI study. Conf Proc IEEE Eng Med Biol Soc. 2017 Jul;2017:497-500.
- Jarrahi B, **Martucci KT**, Nilakantan AS, Mackey SC. Temporal Functional Network Connectivity Dynamics In Fibromyalgia Patients - An Exploratory fMRI Study. 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. July 2017. Jeju Island, Korea.
- Martucci KT**, Perrine E, Borg N, Knutson B, Mackey S. Decreased Arousal and Altered Brain Reward Processes during Anticipation of Monetary Gains in Fibromyalgia. Stanford University School of Medicine Department of Anesthesiology Research Awards Dinner. May 2017. Palo Alto, CA.
- Weber KA, Sentis A, Johnson K, **Martucci KT**, Mackey SC. Neural correlates of response inhibition in chronic low back pain: a functional magnetic resonance imaging study. 36th Annual Scientific Meeting of the American Pain Society. May 2017. Pittsburgh, PA.
- Sentis A, Law C, **Martucci KT**, Bagarinao E, Mackey S. Discriminating Brain Activation Patterns for Cognitive and Sensory Pain Processing using GLM and SVM. 16th World Congress on Pain of the International Association for the Study of Pain. September 2016. Yokohama, Japan.
- Kutch J, Ichesco E, Hampson J, Farmer M, **Martucci KT**, Ness T, Deutsch G, Apkarian A, Mackey S, Klumpp D, Shaeffer A, Rodriguez L, Kreder K, Buchwald D, Andriole G, Lai H, Mullins C, Kusek J, Landis R, Mayer E, Clemens J, Clauw D, Harris R, for the MAPP Research Network. Functional Impact and Neurologic Signature of Centralized Pain among Persons with Urologic Chronic Pelvic Pain Syndrome (UCPPS). 16th World Congress on Pain of the International Association for the Study of Pain. September 2016. Yokohama, Japan.
- Martucci KT**, MAPP Research Network, Mackey SC. Altered Functional Connectivity of the Nucleus Accumbens in Fibromyalgia: A Pilot Analysis. Stanford University School of Medicine Department of Anesthesiology Research Awards Dinner. May 2016. Palo Alto, CA.
- Foster LC, **Martucci KT**, Younger J, Mackey SC. Individual predictors of physical function and pain interference in chronic pain syndromes. 34th Annual Scientific Meeting of the American Pain Society. May 2015. Palm Springs, CA.

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