

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

EDUCATION AND MEDICAL TRAINING

| | |
|-----------|--|
| 2013-2014 | Fellow Interventional Pain Medicine Department of Anesthesiology UCSD, San Diego-CA |
| 2010-2013 | Resident Department of Anesthesiology University of Arizona, Tucson-AZ |
| 2009-2010 | Intern Department of Surgery University of Arizona, Tucson-AZ |
| 2007-2009 | Instructor/Research Department of Endodontics University of Texas Health Science Center at San Antonio |
| 2006-2007 | Post-Doctoral Fellowship in Pain Department of Endodontics University of Texas Health Science Center at San Antonio |
| 2001-2006 | Research Assistant University of Texas Health Science Center at San Antonio |
| 2006 | Ph.D. in Pharmacology University of Texas Health Science Center at San Antonio, Texas |
| 2000 | M.B.B.S. (Equivalent of MD in US) University of Mumbai, India |
| 1999-2000 | Internship Rajawadi Hospital Mumbai, India |

BOARD CERTIFICATIONS AND LICENSES

| | |
|----------------|---|
| 2016 – Present | American Board of Anesthesiology |
| 2016 – Present | American Board of Anesthesiology Subspecialty Pain Management |
| 2008 | ECFMG certification |
| 2012- 2014 | California medical board permanent license |

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

2014- Present Arizona medical board permanent license

2012- Present DEA registration (expires 03/18)

Membership

2009-Present American Society of Anesthesiologists

2014 - 2015 American Pain Society

2014 Society for Neuroscience

2002-2008 Society for Neuroscience

2014 American Academy of Pain Medicine

EMPLOYMENT

2014- Present Departments of Anesthesiology
Assistant Professor
University of Arizona, Tucson-AZ

2014 – Present Departments of Pharmacology
Assistant Professor
University of Arizona, Tucson-AZ

HONORS/AWARDS

12/2015 Provisional patent filed on the use of TRPV1 antagonist for the treatment of anesthesia-induced hypothermia

06/2013 Best resident research (Department of Anesthesiology, University of Arizona)

06/2012 Best resident research (Department of Anesthesiology, University of Arizona)

03/2011 American Society of Anesthesiologists FAER resident scholar

11/2011 2nd place oral presentation, Western Anesthesia Resident Conference

12/2011 Patent # 20110311545 “Family of pain producing substances and methods to produce novel analgesic drugs”

08/2006 Armand J. Guarino Award for Academic Excellence in Doctoral Studies,
University of Texas Health Science Center at San Antonio

05/2005 Graduate Student of the Year, Department of Pharmacology, UTHSCSA

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

SERVICE/OUTREACH

National Committee:

- 2016 Member, ASA abstract review committee chronic and cancer **pain**
- 2015 Member, ASA committee on chronic and cancer pain
- 2014 Member, organizing committee, American Pain Society ‘Game Changer’
- 2013 Member, American Pain Society Early Career Task Force

Department of Anesthesiology/Pharmacology Committee:

- 2015 Member, Research Committee Department of Anesthesiology, University of Arizona COM
- 2015 Member, Pharmacology PhD thesis committee, Luisine Gomtsian
- 2015 Member, Department of pharmacology faculty recruitment committee

Hospital Committee:

- 2016 Member, Group credentialing committee Banner University Medical

College of Medicine Committee:

- 2015 Elected member, Dean’s research council

Educational Service:

1. Post-Doctoral student supervision

2004-2009 Mentored endodontics residents for research projects that were presented at national meetings

2014 onwards, mentored several anesthesia residents, pain fellows in their clinical duties and research projects.

2. Medical student supervision:

2009- Supervised medical students rotating in surgery or anesthesiology, duties included teaching anesthesia related techniques, differential diagnosis, H&P etc.

3. Annual lectures to anesthesiology residents and pharmacology PhD students

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

EDITORIAL ACTIVITIES

2006 - present **Ad hoc Reviewer** for the Proceedings of National Academy of Sciences, Anesthesiology, Molecular Pain, Journal of Dental Research, Journal of Neurophysiology, Pain, Journal of Neuroinflammation etc.

JOURNAL PUBLICATIONS

1. Ibrahim MM*, **Patwardhan A.M.***, Gilbraith K., Moutal A., Yang X, Chew L, Largent-Mines T, Malan T.P., Vandreaux T.W., Porreca F., and Khanna R.(2016) “Long-lasting Antinociceptive Effects of Green Light in Acute and Chronic Pain in Rats” *Pain* (in revision, *= Equal contribution)
2. Matika R., Ibrahim MM, and **Patwardhan A.M.** (2016) “The importance of body temperature: An anesthesiologist's perspective” *Temperature* (in press)
3. Moutal A, Chew LA, Yang X, Wang Y, Yeon SK, Telemi E, Meroueh S, Park KD, Shrinivasan R, Gilbraith KB, Qu C, Xie JY, **Patwardhan A**, Vanderah TW, Khanna M, Porreca F, Khanna R (2016) “(S)-lacosamide inhibition of CRMP2 phosphorylation reduces postoperative and neuropathic pain behaviors through distinct classes of sensory neurons identified by constellation pharmacology”. *Pain* 2016 Jul;157(7):1448-63.
4. Sirianni J., Ibrahim MM, and **Patwardhan A.M.** (2015) “Chronic pain syndromes, mechanisms, and current treatments” *Prog Mol Biol Transl Sci.* 2015;131:565-61
5. Xie JY, Qu C, **Patwardhan A**, Ossipov MH, Navratilova E, Becerra L, Borsook D, Porreca F (2014) “Activation of mesocorticolimbic reward circuits for assessment of relief of ongoing pain: A potential biomarker of efficacy.” *Pain* 2014 May 23. pii: S0304-3959(14)00251-6. doi: 10.1016/j.pain.2014.05.018. [Epub ahead of print]
6. Taylor A, Westveld AH, Szkudlinska M, Guruguri P, Annabi E, **Patwardhan A.M.**, Price TJ, Yassine HN (2013) “The use of metformin is associated with decreased lumbar radiculopathy pain” *J Pain Res* (2013 Dec 9;6:755-63. doi: 10.2147/JPR.S52205)
7. **Patwardhan A.M.**, Eldemayer R., Annabi E., Price T.J., Malan, T.P., and Dussor G.O. (2012) “Receptor specificity defines algogenicity of propofol and fentanyl” *Anesth Analg* 2012 Oct;115(4):837-40
8. Stidd D.A., Wuollet A.L., Bowden K., Price T., **Patwardhan A.M.**, Barker S, Weinand M.E., Annabi J, and Annabi E (2012) “Peripheral nerve stimulation for trigeminal neuropathic pain” *Pain Physician.* 2012 Jan;15(1):27-33
9. Berg, K., **Patwardhan A.M.** and Akopian A.N. “Receptor and Channel Heteromers as Pain Targets” (2012) *Pharmaceuticals* 2012-5
10. Bowden K., Wuollet A., **Patwardhan A.M.**, Price T.J., Lawall J., Annabi J., Barker S., and Annabi E. (2011) “Transforaminal blood patch for the treatment of chronic headache from intracranial hypotension: a case report and review” *Anesthesiol Res Pract* 2012;923904. Epub 2011 Jul 18

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

11. Trevino E.G., **Patwardhan A.M.**, Henry M.A., Perry G., Dybdal-Hargreaves N., Hargreaves K.M., and Diogenes A. (2011) "Effect of Irrigants on the Survival of Human Stem Cells of the Apical Papilla in a Platelet-rich Plasma Scaffold in Human Root Tips" *J Endod.* 2011 Aug;37(8):1109-1
12. Patil, M., **Patwardhan, A.M.**, Hargreaves, K.M. and Akopian, A.N. (2011) "Cannabinoid receptor antagonists activate TRPA1 in sensory neurons" *Neuropharmacology* 2011 Sep;61(4):778-88. Epub 2011 May 27
13. Berg, K.A., Rowan, M.P., Sanchez, T.A., Silva, M., **Patwardhan, A.M.**, Milam, S.B. and Clarke, W.P. (2011) "Regulation of kappa opioid receptor signaling in peripheral sensory neurons in vitro and *in vivo*" *J Pharmacol Exp Ther* jpet.110.177493;published ahead of print April 12, 2011, doi:10.1124/jpet.110.177493
14. Ruparel, N.B., **Patwardhan, A.M.**, Akopian, A.N., and Hargreaves, K.M. (2011) "Desensitization of TRPA1 by the TRPV1-selective cannabinoid arachidonoly-2 chloroethanolamine (ACEA)" *Mol Pharmacol.* 2011 Mar 25. [Epub ahead of print]
15. **Patwardhan, A.M.**, Akopian, A.N., Ruparel, N.B., Diogenes, A., Weintraub, S.T., Uhlson, C., Murphy, R.C. and Hargreaves, K.M. (2010) "Heat generates oxidized linoleic acid metabolites that activate TRPV1 and produce pain in rodents." *J Clin Invest.* 2010 May 3;120(5):1617-26. doi: 10.1172/JCI41678. Epub 2010 Apr 26
16. **Patwardhan, A.M.**, Scotland, P.E., Akopian, A.N. and Hargreaves, K.M. (2009) "Activation of TRPV1 in the spinal cord by oxidized linoleic acid metabolites contributes to inflammatory hyperalgesia" *Proc Natl Acad Sci U S A.* 2009 Nov 3;106(44):18820-4. Epub 2009 Oct 20.
17. Jeske, N.A., **Patwardhan, A.M.**, Ruparel, N.B., Akopian, A.N., Shapiro, M.S., and Henry, M.A. (2009) "A-kinase anchoring protein 150 controls protein kinase C-mediated phosphorylation and sensitization of TRPV1" *Pain* 2009 Sep 18. [Epub ahead of print]
18. Rowan, M.P., Ruparel, N.B., **Patwardhan, A.M.**, Berg, K.A., Clarke, W.P. and Hargreaves, K.M. (2009) "Peripheral Delta Opioid Receptors (DOR) Require Priming for Functional Competence *In Vivo*" *Eur J Pharmacol* 2009;602:283-287.
19. Jeske, N.A., **Patwardhan, A.M.**, Henry, M.A., and Milam, S.B. (2009) "Fibronectin stimulates TRPV1 translocation in primary sensory neurons" *J Neurochem.* 2009 Feb;108(3):591-600. Epub 2008 Nov 11
20. Akopian, A.N., Ruparel, N.B., Jeske, N.A., **Patwardhan, A.M.**, and Hargreaves, K.M. (2009) "Role of ionotropic cannabinoid receptors in peripheral antinociception and antihyperalgesia" *Trends Pharmacol Sci.* 2009 Feb;30(2):79-84
21. **Patwardhan, A.M.**, Vela, J., Farugia, J., Cerka, K. and Hargreaves, K.M. (2008) "Trigeminal neurons express prostaglandin receptors" *J Dent Res* (Mar;87(3):262-6)
22. Akopian, A.N., Ruparel, N.B., **Patwardhan, A.M.** and Hargreaves, K.M. (2008) "Cannabinoids desensitize capsaicin and mustard oil responses in sensory neurons via TRPA1 activation" *J Neurosci* (Jan 30;28(5):1064-75)

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

23. Ruparel N.B., **Patwardhan, A.M.**, Akopian, A.N. and Hargreaves, K.M. (2006), "Homologous and heterologous desensitization of capsaicin and mustard oil responses utilize different cellular pathways in nociceptors" *Pain*. (2007 Jun 22; [Epub ahead of print])
24. Berg, K.A., **Patwardhan, A.M.**, Sanchez, T.A., Silva, Y.M., Hargreaves, K.M. and Clarke, W.P. (2007) "Regulation of μ -opioid receptor signaling by bradykinin in rat trigeminal ganglion" *J Pharmacol Exp Ther* (Jun;321(3):839-47)
25. **Patwardhan, A.M.**, Jeske, N.A., Price, T.J., Gamper, N, Akopian, A.N. and Hargreaves, K.M. (2006) "The Cannabinoid WIN 55,212 inhibits TRPV1 and evokes peripheral antihyperalgesia/antinociception via the calcineurin pathway" *Proc Natl Acad Sci U S A* (Jul 25;103(30):11393-8)
26. **Patwardhan, A.M.**, Diogenes, A., Akopian, A.N., Berg, K.A., Clarke, W.P. and Hargreaves, K.M. (2006) "PAR-2 agonists activate trigeminal nociceptors and induce functional competence in the Delta opioid receptor" *Pain* (Nov;125(1-2):114-24. Epub 2006 Jun 14)
27. Diogenes, A., **Patwardhan, A.M.**, Jeske, N.A., Ruparel, N.B., Goffin, V., Akopian, A.N. and Hargreaves, K.M. (2006) "Prolactin Modulates TRPV1 in Female Rat Trigeminal Sensory Neurons" *J Neurosci* (Aug 2;26(31):8126-36)
28. Jeske, N.A., **Patwardhan, A.M.**, Gamper, N., Price, T.J., Akopian, A.N. and Hargreaves, K.M. (2006) "Cannabinoid WIN 55,212 regulates TRPV1 phosphorylation in sensory neurons" *J Biol Chem* (Oct 27;281(43):32879-90. Epub 2006 Sep 5)
29. **Patwardhan, A.M.**, Berg, K.A., Akopian, A.N., Jeske, N.A., Gamper, N., Clarke, W.P. and Hargreaves, K.M. (2005) "Bradykinin induced functional competence and trafficking of the Delta opioid receptor in trigeminal nociceptors." *J Neurosci* (Sep 28;25(39):8825-32)
30. Price, T.J., **Patwardhan, A.M.**, Flores, C.M. and Hargreaves, K.M. (2005) "A role for anandamide membrane transporter in TRPV1-mediated neurosecretion from trigeminal sensory neurons" *Neuropharmacology* 2005 Jul;49(1):25-39)
31. Price, T.J., Louria, M.D., Candelario-Soto, D., Dussor, G.O., Jeske, N.A., **Patwardhan, A.M.**, Diogenes, A., Trott, A.A., Hargreaves, K.M., Flores, C.M. (2005) "Treatment of trigeminal ganglion neurons in vitro with NGF, GDNF or BDNF: effects on neuronal survival, neurochemical properties and TRPV1-mediated neuropeptide secretion" (2005) *BMC Neurosci*. Jan 24;6(1):4.
32. Price, T. J., **Patwardhan, A.M.**, Akopian A.N., Hargreaves, K.M., and Flores, C.M. (2004) "Cannabinoid receptor-independent actions of the aminoalkylindole cannabinoid WIN 55,212-2 on trigeminal sensory neurons" *Br. J. Pharm.* (142(2):257-66)
33. Price, T. J., **Patwardhan, A.M.**, Akopian A.N., Hargreaves, K.M., and Flores, C.M. (2004) "Modulation of trigeminal sensory neuron activity by the dual cannabinoid-vanilloid agonists anandamide, N-arachidonoyldopamine and arachidonoyl-2-chloroethylamide" *Br. J. Pharm.* (141(7):1118-30)

POSTER PUBLICATIONS

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

1. Singer B., Ibrahim M. and **Patwardhan A. M.** “Reduction in Chronic Opioid Usage and Improvement in Pain: A Role for Multimodal Pain Clinic” *Banner University Innovation Symposium, December 2016*
2. Garza, J., Garami A., Ibrahim M., Porreca F., Romanovsky A. and **Patwardhan A.M.** “Transient Receptor Channel Vanilloid-1 Antagonist as a Pharmacological Treatment for Preemptive Analgesia and Reducing Anesthesia-Induced Hypothermia” *Western Regional Anesthesia Conference, October 2016*
3. **Patwardhan, A.M.**, Edelmayer, R., Price, T.J., Annabi, E., Malan, T.P. and Dussor, G.O. (2011) “Receptor specificity defines algogenicity of propofol and fospropofol” *Western Regional Anesthesia Conference, November 2011*
4. **Patwardhan, A.M.**, Akopian, A.N., Ruparel, N., Diogenes, A., Scotland P.E., Murphy, R. and Hargreaves K.M. (2010) “Oxidized metabolites of linoleic acid activates TRPV1 to produce pain in response to heat and mechanical stimuli” *Soc. Neurosci. Abstr (78.16) November 2010*
5. Ruparel S., Green, D., **Patwardhan, A.M.**, Patil, M., and Hargreaves, K.M. “Role of cytochrome p450 enzymes in OLAM-mediated thermal nociception” (2010) *Soc. Neurosci. Abstr (78.18) November 2010*
6. Rowan, M.P., Ruparel, N.B., **Patwardhan, A.M.**, Berg, K.A., Clarke, W.P. and Hargreaves, K.M. (2008) “Peripheral Delta Opioid Receptors (DOR) Require Priming for Functional Competence *In Vivo*” *The FASEB Journal. May 2008;22:726.4*
7. **Patwardhan, A.M.**, Baccanglini, L., Naylor, S., Fehrenbacher, J.C., Locke, E., Sun, X. and Hargreaves, K.M. (2007) “Association of Polymorphisms of the Mu and Delta opioid receptors with the magnitude of pain in humans following acute surgical trauma” *Soc. Neurosci. Abstr 923.14 November 2007*
8. Ruparel, N.B., **Patwardhan A.M.**, Akopian A.N. and Hargreaves K.M. (2007) “Peripheral effects of cannabinoids are mediated via TRPV1 and TRPA1” *Soc. Neurosci. Abstr 400.4 November 2007*
9. **Patwardhan, A.M.**, Akopian, A.N., Jeske, N.A. and Hargreaves, K.M. (2006) “Involvement of the calcium-calcineurin pathway in peripheral cannabinoid-induced antihyperalgesia/antinociception” *American Pain society Abstr 5828 May 2006*
10. Ruparel, N.B., Akopian, A.N., **Patwardhan, A.M.**, Jeske, N.A. and Hargreaves, K.M. (2006) “Cannabinoids inhibit capsaicin sensitive neurons via a heterologous desensitization mediated by the TRPV1/TRPA1 heteromers” *American Pain society Abstr 5990 May 2006*
11. Jeske, N.A., **Patwardhan, A.M.**, Akopian, A.N. and Hargreaves, K.M. (2006) “Cannabinoids reduce tyrosine phosphorylation of TRPV1 via a calcineurin-dependent mechanism” *American Pain society Abstr 5942 May 2006*
12. Cerka-Withers, K., **Patwardhan, A.M.** and Hargreaves, K.M. (2006) “Characterization of Prostaglandin Receptors Mediating Sensitization of Trigeminal Nociceptors” *IADR Abstr 1174 July 2006*

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

13. **Patwardhan, A.M.**, Diogenes, A., Berg, K.A., Fehrenbacher, J.C., Clarke, W.P., Akopian, A.N. and Hargreaves, K.M. (2006) "PAR-2 agonists activate trigeminal nociceptors and induce functional competence in the delta-opioid receptor" *Soc. Neurosci. Abstr* 249.16 October 2006
14. Diogenes, A., **Patwardhan, A.M.**, Berg, K.A., Fehrenbacher, J.C., Clarke, W.P., Akopian, A.N. and Hargreaves, K.M. (2006) "Trypsin excites trigeminal nociceptors through activation of PAR-2" *Soc. Neurosci. Abstr* 249.15 October 2006
15. Ruparel, N.B., **Patwardhan, A.M.**, Akopian A.N. and Hargreaves, K.M. (2006) "Heterologous desensitization of TRPA1 by TRPV1 is independent of the calcium-calcineurin pathway" *Soc. Neurosci. Abstr* 802.13 October 2006
16. **Patwardhan, A.M.**, Akopian, A.N., Jekse, N.A. and Hargreaves, K.M. (2005) "Involvement of the calcium-calcineurin pathway in peripheral cannabinoid-induced antihyperalgesia/antinociception" *Soc. Neurosci. Abstr* 622.2 July 2005
17. Ruparel, N.B., Akopian, A.N., **Patwardhan, A.M.**, Jeske, N.A. and Hargreaves, K.M. (2005) "Cannabinoids inhibit capsaicin-sensitive neurons via heterologous desensitization mediated by the TRPV1-TRPA1 heteromultimer" *Soc. Neurosci. Abstr* 622.3 July 2005
18. Jeske, N.A., **Patwardhan, A.M.**, Akopian A.N. and Hargreaves, K.M. (2005) "Cannabinoids reduce phosphorylation of TRPV1 via a calcineurin dependent mechanism" *Soc. Neurosci. Abstr* 622.1 July 2005
19. Berg, K.A., **Patwardhan, A.M.**, Zardaneta, G., Hargreaves, K.M., Milam, S., and Clarke, W.P. (2005) "Regulation of K-opioid receptors in cultured trigeminal ganglion neurons" *Soc. Neurosci. Abstr* 511.2 July 2005
20. Pham, M.K., Zardeneta, G., **Patwardhan, A.M.**, De la Fuente, J. and Milam, S.B. (2005) "Mechanical Stimulation via Integrins Causes CGRP Secretion in Neuronal Cultures" *AADR Abstr* July 2005
21. Vela, J., **Patwardhan, A.M.**, Gould, G., Cerecero, J. and Hargreaves, K.M. (2005) "Adrenergic Modulation of Trigeminal Nociceptors" *AADR Abstr* July 2005
22. **Patwardhan, A.M.**, Berg, K.A., Jeske, N.A., Sanchez, T.A., Clarke, W.P., Hargreaves, K.M.(2004). "Effect of bradykinin pre-conditioning on trafficking and function of opioid receptors in trigeminal sensory neurons". *Soc. Neurosci. Abstr* November 2004
23. Berg, K.A., Sanchez, T.A., **Patwardhan, A.M.**, Hargreaves, K.M., Clarke, W.P.(2004) "Mechanisms of bradykinin-mediated regulation of mu opioid receptor responsiveness in cultured trigeminal ganglia neurons." *Soc. Neurosci. Abstr* November 2004
24. Scalzitti, J., Berg, K.A., Jeske, N.A., **Patwardhan, A.M.**, Zardaneta, G., Hargreaves, K.M., Clarke, W.P., Roberts, J.L (2004). "Endopeptidases 24.15 and 24.16 in Opioid Receptor Signaling in the Trigeminal Sensory Ganglion." *Soc. Neurosci. Abstr* November 2004
25. Vela, J., **Patwardhan, A.M.**, Gould, G., Cerecero, J., Hargreaves, K.M. (2004) "Adrenergic
26. Modulation of Trigeminal Nociceptors." *Soc. Neurosci. Abstr* November 2004

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

27. Bains, M., Jeske, N.A., Helesic, G., Berg, K., **Patwardhan, A.M.**, Chung, W.C.J., Handa, R.J., Clarke, W.P., Hargreaves, K.M. and Roberts, J.L. (2004) "SEX AND PAIN: 'OUCH, THAT HURT.'" *Soc. Neurosci. Abstr* 746.16 November 2004
28. Patel, T. , Tonioli, M. , **Patwardhan, A. M.**, Diogenes, A., Naftel, J., Keiser, K. , and Hargreaves, K. M. (2004) "Characterization of Bradykinin Receptor-Expressing neurons in rat trigeminal ganglia" *AAE Abstr. October 2004*
29. Tonioli, M., Patel, T., Diogenes, A., **Patwardhan, A. M.**, Keiser, K., and Hargreaves, K. M. (2004) "Effect of neurotrophic factors on bradykinin receptor expression in rat trigeminal sensory neurons determined by Real Time Polymerase Chain Reaction (RT-PCR)" *AAE Abstr. October 2004*
30. **Patwardhan, A.M.**, Akopian, A.N, Trott, A.A., Clarke, W.P, Berg, K.A., Hargreaves, K.M. (2003) "Delta opioid agonist modulation of CGRP release from rat trigeminal ganglia: effect of bradykinin preconditioning" *Soc. Neurosci. Abstr* 588.7 November 2003
31. **Patwardhan, A. M.**, Price, T. J., Trott, A. A., Hargreaves, K.M., and Flores, C.M. (2002) "Cannabinoid agonist modulation of CGRP release from primary sensory neurons of rat trigeminal ganglia" *Soc. Neurosci. Abstr.* 453.1. November 2002

GRANTS

- | | |
|------|---|
| 2015 | Principal Investigator, Foundation of Anesthesia Education and Research grant \$175,000 direct costs for two years. |
| 2015 | Site Co Principal Investigator, Boston Scientific study 'RELIEF' study, \$250,000 direct cost for three years. |
| 2014 | University of Arizona Career Development Grant (~\$210,000) |
| 2009 | IIMS Grant (\$50,000) for the project titled "Burn injury results in the generation of endogenous TRPV1 ligands" (respectfully declined due to move to Arizona) |

SCHOLARLY PRESENTATIONS

Invited Lectures

- | | |
|---------|--|
| 11/2016 | May Clinic, Scottsdale, AZ, Perioperative Use of TRPV1 Antagonists |
| 8/2016 | University of Utah, Huntsman Cancer Center |
| 06/2016 | Barrow Neurological Institute/St. Joseph Medical Center |
| 04/2016 | Spring Brain Conference, Sedona AZ |
| 03/2015 | American Academy of Pain Medicine |

AMOL M. PATWARDHAN, M.D., Ph.D.
Co-Director, Chronic Pain Management
Assistant Professor, Anesthesiology
Assistant Professor, Pharmacology
The University of Arizona COM
apatwardhan@anesth.arizona.edu

10/2011

Western Anesthesia Regional Conference