

BIOGRAPHICAL SKETCH

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NAME Sachin Patel	POSITION TITLE Assistant Professor of Psychiatry, and Molecular Physiology and Biophysics Vanderbilt University Medical Center		
eRA COMMONS USER NAME Patels2			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of California, Santa Barbara	B.S.	1994-1998	Psychology
Medical College of Wisconsin, Milwaukee, WI	Ph.D.	1999-2003	Pharmacology
Medical College of Wisconsin, Milwaukee, WI	M.D.	1999-2006	Medicine
Vanderbilt University Medical Center	Residency	2006-2010	Psychiatry

A. Positions and Honors

Positions and Employment

1999-2006 Student, Medical Scientist Training Program, Medical College of Wisconsin
2006-2010 Resident physician, Department of Psychiatry, Vanderbilt University Medical Center
2010-present Assistant Professor, Departments of Psychiatry and Molecular Physiology and Biophysics, Vanderbilt University School of Medicine

Honors

1997 Presidents Undergraduate Research Award, University of California
1998 Howard Hughes Undergraduate Biomedical Research Fellowship
1998 Distinction in the major of Biopsychology, Department of Psychology University of California
1998 Graduation with Honors in Research, Department of Psychology University of California
2001 Medical Student Summer Research Fellowship, National Cancer Institute
2006 Quick Award in Biochemistry, Department of Biochemistry, Medical College of Wisconsin
2006 HOPE Initiative Award for Community Service in Psychiatry, Medical College of Wisconsin
2007 Elliot Newman Award for Best House Staff Research Presentation, Vanderbilt University
2008 Outstanding Resident Award, National Institute of Mental Health, NIH
2009 Resident Research Prize, Department of Psychiatry, Vanderbilt University
2009 Scientific Achievement Award, International Cannabinoid Research Society
2009 Memorial Travel Award, American College of Neuropsychopharmacology
2010 Hollender Award, Department of Psychiatry, Vanderbilt University School of Medicine

B. Publications

Original research

1. Scruggs, J.L.*, **Patel, S.***, Bubser, M., and Deutch A.Y. (2000), DOI-induced activation of the cortex: dependence upon 5-HT_{2A} receptors on thalamocortical glutamatergic projections. *Journal of Neuroscience*, 20 (23): 8846-8852. (*equal contribution)
2. **Patel, S.**, and Hillard, C.J. (2001), Cannabinoid CB1 receptor agonists produce cerebellar dysfunction in mice. *Journal of Pharmacology and Experimental Therapeutics*, 297 (2): 629-637.
3. **Patel, S.**, Muthian, S., Gerrits, R., Green, A., and Hillard, C.J. (2002), The CB1 receptor antagonist SR141716 enhances stimulus-induced activation of the primary somatosensory cortex in the rat. *Neuroscience Letters*, 335: 95-98.
4. **Patel, S.**, and Hillard, C.J. (2003), Cannabinoid-induced Fos expression within A10 dopaminergic neurons. *Brain Research*, 963 (1): 15-25. (cover photograph)
5. Rademacher, D.J., **Patel, S.**, Hopp, F.A., Dean, C., Hillard, C.J., and Seagard, J.L. (2003), Microinjection of the CB1 receptor antagonist SR141716 into the NTS increases baroreceptor duration in dog. *American Journal of Physiology*, 284 (5): 570-576.
6. **Patel, S.**, Wohlfel, E.R., Rademacher, D.J., Carrier, E.J., Perry, L.J., Kundu, A., Falk, J.R., Nithipatikom, K., Campbell, W.B., and Hillard, C.J. (2003), The general anesthetic propofol increases brain N-

- arachidonylethanolamine (anandamide) content and inhibits fatty acid amide hydrolase. *British Journal of Pharmacology*, 139 (5): 1005-1013.
7. **Patel, S.**, Rademacher, D.J., and Hillard, C.J. (2003), Differential regulation of the endocannabinoids anandamide and 2-arachidonylethanolamine within the limbic forebrain by dopamine receptor activity. *Journal of Pharmacology and Experimental Therapeutics*, 206: 880-888.
 8. Seagard, J.L., Dean, C., **Patel, S.**, Rademacher, D.J., Hopp, F.A., Schmeling, W.T., and Hillard, C.J. (2004), Anandamide content and interaction of endocannabinoid/GABA modulatory effects in the NTS on baroreflex-evoked sympathoinhibition. *American Journal of Physiology*, 286 (3): H992-1000.
 9. Rademacher, D.J., Kearns, C.S., Carrier, C.J., **Patel, S.**, Delgado, M.A., Barkmeier, A., Klick, D.E., Breese, N.M., Pfister, S.L., Nithipatikom, K., Campbell, W.B., and Hillard, C.J. (2004), Production of hydroxyeicosatetraenoic acids and prostaglandins by a novel rat microglial cell line. *Journal of Neuroimmunology*, 149 (1-2): 130-141.
 10. **Patel, S.**, Roelke, C.T., Rademacher, D.J., Cullinan, W.E., and Hillard, C.J. (2004), Endocannabinoid signaling negatively modulated stress-induced activation of the hypothalamic-pituitary-adrenal axis. *Endocrinology*, 145 (3): 5431-5438.
 11. Lu, H., **Patel, S.**, Luo, F., Li, S., Hillard, C.J., Ward, D.B., and Hyde, J.S. (2004), Spatial correlations of laminar BOLD and CBV responses to rat whisker stimulation with neuronal activity localized by Fos expression. *Magnetic Resonance in Medicine*, 52 (5): 1060-1068.
 12. **Patel, S.**, Cravatt, B.F., and Hillard, C.J. (2005), Synergistic interactions between cannabinoids and environmental stress in the activation of the central amygdala. *Neuropsychopharmacology*, 30 (3): 508-515.
 13. Hill, M.N.*, **Patel, S.** *, Carrier, E.J., Rademacher, D.J., Ormerod, B.K., and Hillard, C.J. (2005), Down-regulation of endocannabinoid signaling in the hippocampus following chronic unpredictable stress. *Neuropsychopharmacology*, 30 (3): 508-515. (* equal contribution)
 14. **Patel, S.**, Carrier, E.J., Ho, W.-S., Rademacher, D.J., Cunningham, S., Reddy, D.S., Falk, J.R., Cravatt, B.F., and Hillard, C.J. (2005), The post-mortal accumulation of brain N-arachidonylethanolamine (anandamide) is dependent upon fatty-acid amide hydrolase activity. *Journal of Lipid Research*, 46 (2):342-349.
 15. **Patel, S.**, Rademacher, D.J., Roelke, C.T., and Hillard, C.J. (2005), Endogenous cannabinoid signaling negatively modulated stress-induced neural and behavioral activation. *European Journal of Neuroscience*, 21 (4): 1057-1069.
 16. Rademacher, D.J., **Patel, S.**, Ho, W.-S., Savoie, A.M., Rusch, N.J., Guthrie, K.M., and Hillard, C.J. (2005), U-4619 but not serotonin increases endocannabinoid content in the middle cerebral artery: evidence for a functional role. *American Journal of Physiology*, 288 (6): H2694-2701.
 17. **Patel, S.** and Hillard, C.J., (2006), Pharmacological evaluation of cannabinoid receptor ligands in a mouse model of anxiety: further evidence for an anxiolytic role for endogenous cannabinoid signaling. *Journal of Pharmacology and Experimental Therapeutics*, 318 (1): 304-311.
 18. Hill, M.N., Carrier, E.J., Ho, W.-S., Meier, S.E., Shi, L., **Patel, S.**, Gorzalka, B.B., and Hillard, C.J. (2008), Corticosterone treatment decreases cannabinoid CB1 receptor expression, but does not effect endocannabinoid content in the hippocampus. *Hippocampus*, 18(2): 221-6.
 19. **Patel, S.**, Kingsley, P.J., Marnett L.J., Mackie, K., and Winder, D.G. (2009), Repeated homotypic stress elevates 2-arachidonylethanolamine levels and enhances depolarization-induced suppression of inhibition in basolateral amygdala. *Neuropsychopharmacology*, 34(13): 2699-709.
 20. McElligott, Z.A., Klug, J., Nobis, W., **Patel, S.**, Grueter, B.A., Kash, T., and Winder, D.G. (2010), Distinct forms of G_q-receptor-dependent plasticity of excitatory transmission in the Bed Nucleus of the Stria Terminalis are differentially impacted by stress. *Proceedings of the National Academy of Sciences, U.S.A.*, 107(5): 2271-6.
 21. Ho, W.-S., **Patel, S.**, Thompson, J.R., Roberts, C.J., and Hillard C.J. (2010), Endocannabinoids regulate synaptic activity in the primary sensory cortex evoked by physiologically relevant stimuli. *British Journal of Pharmacology*, 160(3): 736-46.
 22. Mozhui, K., Karlsson, R., Kash, T.L., Ihne, J., Norcross, M., **Patel, S.**, Camp, M., Cameron, H.A., Ciobanu, D.C., Winder, D.G., Williams, R.W., Holmes, A. (2010), Neuronal and molecular correlates of trait and stress-induced variation in anxiety-like behavior between genetic mouse strains. *Journal of Neuroscience*, 30(15): 5357-67.

23. Sumislawski J.S., Ramikie, T.S., **Patel, S.** (2011) Reversible gating of endocannabinoid plasticity in the amygdala: a potential role for monoacylglycerol lipase inhibition in the prevention of stress-induced behavioral adaptation. In Press Neuropsychopharmacology.

Non-experimental articles

1. Carrier, E.J., **Patel, S.**, and Hillard C.J. (2005), Endocannabinoids in neuroimmunology and stress. *Current Drug Targets in CNS and Neurological Disorders*, 4 (6): 657-665.
2. **Patel, S.** and Hillard, C.H. (2008), Adaptations in Endocannabinoid Signaling in Response to Repeated Homotypic Stress: A Novel Mechanism for Stress Habituation. *European Journal of Neuroscience*, 27(11): 2821-2829.
3. **Patel, S.** and Hillard, C.J. (2009), Endocannabinoids as modulators of synaptic signaling. In P. Reggio (ed), *The Cannabinoid Receptors*. Humana Press, New York, pp 281-308.
4. Hill, M.N., Hillard, C.J., Bambico, F.R., **Patel, S.**, Gorzalka, B.B. and Gobbi, G. (2009), Therapeutic Potential of the Endocannabinoid System for the Development of a Novel Class of Antidepressant. *Trends in Pharmacological Sciences*, 30(9): 484-93.
5. **Patel S.** and Hillard C.J. (2009), Role of endocannabinoid signaling in anxiety and depression. *Current Topics in Behavioral Neuroscience*, 1: 347-371.
6. Hill, M.N., **Patel, S.**, Campolongo, P., Tasker, J.G., Wotjak, C.T., and Bains, J.S. (2010), Functional Interactions Between Stress and the Endocannabinoid System: From Synaptic Signaling to Behavioral Output. *Journal of Neuroscience*, 30(45): 14980-16.
7. **Patel S.** and Winder D.G. (2010), An Odyssey of Fear: Homer stresses new mechanisms. *Biological Psychiatry*, 68(11): 980-1.

C. Research Support

Current

Title: K08-Stress adaptations in endocannabinoid signaling in the amygdala

Source: NIH, National Institute of Mental Health

Role: Principal investigator

Dates: July 1, 2010- June 30, 2015

Total Direct: \$ 700,000

Title: CAMKII as a novel regulator of diacylglycerol lipase activity

Source: Luton Society

Role: Principal investigator

Dates: Oct, 2010-2012

Total Direct: \$ 10,000

Completed research grants

Title : National Research Service Award F30 Fellowship

Source: NIH, National Institute on Drug Abuse

Role: Principal investigator under mentorship of C.J. Hillard Ph.D.

Dates: 2002-2006

Total Direct Costs: \$ 168,648

Title: Chronic stress and endocannabinoid metabolism

Source: Vanderbilt Institute for Clinical and Translational Research

Role: Principal investigator

Dates: 2/09-7/09

Total Direct Costs: \$ 2000