

CURRICULUM VITAE

NAME: Vasanthi Jayaraman

TITLE: Professor

ADDRESS: McGovern Medical School
University of Texas Health Science Center at Houston
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UNDERGRADUATE EDUCATION:

1985 – 1988 B.S. Madras University, Madras, India

GRADUATE EDUCATION:

1988 – 1990 M.S. Indian Institute of Technology, Madras, India

1990 – 1995 Ph. D. Princeton University, Princeton, NJ (Advisor: Thomas. G. Spiro)

POSTGRADUATE TRAINING:

1995 – 1997 Postdoctoral Fellow, Cornell University, Ithaca, NY (Advisor: George P. Hess)

ACADEMIC APPOINTMENTS:

1997 – 2002 Assistant Professor, Chemistry Department, Marquette University,
Milwaukee, WI

2002 – 2006 Assistant Professor, Department of Integrative Biology, The University of Texas
Health Science Center, Houston, TX

2006 – 2007 Associate Professor, Department of Integrative Biology, The University of Texas
Health Science Center, Houston, TX

2007 – 2012 Associate Professor, Department of Biochemistry and Molecular Biology, The
University of Texas Health Science Center, Houston, TX

2012 – present Professor, Department of Biochemistry and Molecular Biology, McGovern
Medical School, The University of Texas Health Science Center, Houston, TX

LEADERSHIP POSITIONS

2022- Editor in Chief, Biophysical Journal

2020– 2021 Chair, Keck Center Executive committee, Gulf Coast Consortia

2020– 2021	Member, Executive committee, Gulf Coast Consortia
2017– present	Member, Keck Center Executive committee, Gulf Coast Consortia
2014– present	Executive committee for HAMBIP training program
2015 – 2016	Founding Chair, Women Faculty Forum, The University of Texas Health Science Center, Houston, TX
2014 – 2015	President GSBS faculty, The University of Texas Health Science Center, Houston, TX
2013 – 2014	Chair, GSBS Executive Committee, The University of Texas Health Science Center, Houston, TX
2010 – 2013	Director, Biochemistry and Molecular Biology Graduate Program, The University of Texas Health Science Center, Houston, TX
2011 – 2013	Elected Executive Board Member, Biophysical Society
2009 – 2012	Elected Council Member, Biophysical Society

HONORS AND AWARDS:

Research Awards

2018	Women Faculty Excellence in Research Award, McGovern Medical School
2016	McGovern Scholar, McGovern Medical School, UT-Houston
1996 – 1997	Postdoctoral Fellowship Award, Cancer Research Fund of the Damon Runyon-Walter Winchell Foundation
1992 – 1994	Hugh Scott Taylor Fellowship, Princeton University

Teaching Awards

2017	Regent’s Outstanding Teaching Award, The University of Texas System
2016	Finalist, UT System Regents Teaching Award
2019 – 2020	Dean’s Teaching Excellence Award, UT-Houston
2018 – 2019	Dean’s Teaching Excellence Award, UT-Houston
2017 – 2018	Dean’s Teaching Excellence Award, UT-Houston
2016 – 2017	Dean’s Teaching Excellence Award, UT-Houston
2015 – 2016	Dean’s Teaching Excellence Award, UT-Houston
2014 – 2015	Dean’s Teaching Excellence Award, UT-Houston
2011 – 2012	Dean’s Teaching Excellence Award, UT-Houston
2010 – 2011	Dean’s Teaching Excellence Award, UT-Houston
2005 – 2006	Dean’s Teaching Excellence Award, UT-Houston
1993	Miles Pickering Distinguished Teaching Award, Princeton University

SERVICE AND RESEARCH RELATED ACTIVITIES

SERVICE ON NATIONAL GRANT REVIEW PANELS, STUDY SECTIONS, COMMITTEES:

Journals:

2022 -	Editor in Chief, Biophysical Journal
2019 - 2022	Associate Editor, Biophysical Journal
2014 – present	Editorial Board, Journal of Biological Chemistry
2015 – present	Editorial Board, Journal of General Physiology
2016 – 2018	Editorial Board, Biophysical Journal

Grants Reviewer:

2019	NIH Adhoc Editorial Board member for Special Emphasis Panel (RM1 grant)
2018- present	NIH Adhoc reviewer EBIT study section
2012 – 2018	NIH Reviewer BPNS study section
2015 – present	NIH Adhoc reviewer Special Emphasis Panels (BPNS conflict and R35)
2011 – 2012	American Heart Association Review Panel (Chair)
2011	Ad hoc reviewer Government of Greece (Scientific grants)
2011	NIH Adhoc panel reviewer BPNS study section
2010	NIH Transformative Award (Ad hoc reviewer)
2009	Medical Research Council, UK (Ad hoc reviewer)
2009 – 2011	American Heart Association Review Panel (Associate Chair)
2008 – 2009	American Heart Association-Texas Affiliate (Panel Associate Chair)
2008	NIH MFSE (Adhoc reviewer)
2006	National Science Foundation (Panel reviewer)
2006 – 2009	American Heart Association-Texas Affiliate (Panel reviewer)
2002 – present	National Science Foundation (Ad hoc reviewer)
1998	American Chemical Society – Petrochemical research foundation

Committees:

2016	Chair for Annual Program of the 60 th Annual Biophysical Society meeting
2015 – 2017	Member, Program Committee, Biophysical Society
2013 – 2014	Member, Public Affairs Committee, Biophysical Society
2011 – 2012	Member, Society Programs Committee, Biophysical Society
2011 – present	Member, Membership Committee, Biophysical Society
2010 – 2012	American Heart Association, United Peer Review Steering Committee
2005 – 2011	Member, Committee on Professional Opportunities for Women, Biophysical Society

GRANT SUPPORT:**Current Grant Support:**

NIH – 1R35GM122528 (PI) 4/1/17-3/31/22
 National Institutes of Health (NIGMS)
 Dynamics of ligand gated ion channels

NIH – 1R21 1R21AI146880-01 3/16/20-2/28/22
 PI- Ilya Levental
 National Institutes of Allergy and Infectious Disease
 Compositional, Biophysical and functional consequences of membrane scrambling in immune cells

Current sponsor grant

Houston Area Molecular Biophysics Fellowship (Paudyal) 8/1/18 - present
 Training in Pharmaceutical Sciences Fellowship (Gonzalez) 9/1/20 - present
 NIH F31 fellowship (Durham) 9/1/18 - present

Pending Grant

Renewal NIH – 1R35GM122528 (PI) (Scored 18) 4/1/22-3/31/27
 National Institutes of Health (NIGMS)
 Dynamics of ligand gated ion channels

Past Grant Support:

NIH- 1R01 GM115446-04S1 (Collaborator/support for Dr. Nidhi Kaur) 9/16/19-8/31/20
 PI- Askar Akimzhanov
 Dynamic Protein Palmitoylation in Cell signaling

NIH - 1R01GM113212-01 (PI) 12/05/14- 11/30/18
 National Institute of Health
 TARP modulation of AMPA receptor

NIH - 1R01GM094246-06 (PI) 9/30/11- 8/31/17
 National Institute of Health
 Structure and function of NMDA receptors

NSF - 1110501 (PI) 12/1/11-11/30/15
 National Science Foundation
 Structure and function of Membrane proteins

American Heart Association (PI) 6/30/15- 9/15/15

Modulation of AMPA receptor

AHA (PI) American Heart Association Glutamate receptor modulation	7/01/11 - 6/30/14
Muscular Dystrophy Association (PI) RNA Based Drugs for ALS	8/01/11 - 7/31/14
NIH - 2R01HL082808-05 (Co-PI) National Institute of Health Structure and function of platelet glycoprotein IB-IX-V Complex Renhao Li (PI)	03/08/10 - 12/31/14
NIH - 1R01GM073102-01 (PI) National Institute of Health Vibrational spectroscopy of glutamate receptors	4/1/06 - 3/31/13
NIH- 1R01GM084175-01A1 (Co-PI) National Institute of Health Transmembrane regulation of Ecto domain shedding Renhao Li (PI)	1/1/09 - 12/31/12
H-E-0035/R-11-0055 (PI) Gulf Coast Consortium/Welch Foundation Selective Agonists and Antagonists for AMPA Receptors	2/1/11–1/31/12
AHA - 0855081F (PI) American Heart Association Allosteric mechanism in NMDA receptors	7/01/08 - 6/30/11
NIH- 1R21DE018522-01A1 (Co-PI) National Institute of Health RNA Aptamers Selective for TPRV Channels	8/01/08 - 6/30/10
NIH- 2R42DK063882-04A1 (Co-PI) National Institute of Health GI safety and therapeutics of oil-based PC-NSAIDs Lenard Lichtenberger (PI)	3/01/07- 1/31/10
NSF–0444352 (PI) National Science Foundation Structure and Function of Membrane Proteins	9/01/05 - 7/31/09

NIH – 1R21NS051378-01 (PI) National Institute of Health Subtype specific NMDA receptor antagonists	4/01/05 - 3/31/08
Muscular Dystrophy Association (Regular grant) (PI) High throughput screening for AMPA receptor antagonists for ALS	1/01/05 - 12/31/06
NIH - 1R03AA015682-01 (PI) National Institute of Health High throughput screening for glutamate receptors	9/01/04 - 8/31/06
AHA - 0365014Y (PI) American Heart Association Structure and Function of Glutamate Receptors	7/01/03 - 6/30/05
Texas Higher Education Board (Co-PI) Molecular interactions between phosphatidylcholine and NSAIDs Lenard Lichtenberger (PI)	1/01/04 - 12/31/05
NIH - 2R42DK063882-02 (Co-PI) National Institute of Health GI safety and therapeutics of oil-based PC-NSAIDs Lenard Lichtenberger (PI)	6/01/04-11/01/05
NSF –0240447 (PI) National Science Foundation Structure and Function of Membrane Proteins	8/01/01 - 7/31/05
NSF -9982759 (PI) National Science Foundation Structure and Function of Membrane Proteins	8/15/00 - 7/31/01
Past Sponsor Grants	
American Heart Association Fellowship (Carrillo)	9/1/18 – 7/31/20
Houston Area Molecular Biophysics Fellowship (Litwin)	8/1/16 – 7/31/19
American Heart Association Postdoctoral Fellowship (Shaikh)	8/1/16 - 7/31/18
NIH-K99 NS094761-01 (Maclean)	9/30/15-8/31/17
Schissler Foundation Fellowship for Translational Studies of	

Common Human Diseases (Dolino)	10/1/15-9/30/16
Houston Area Molecular Biophysics Fellowship (Edmunds)	8/1/14 – 8/31/17
Pharmacological Training grant fellowship (Dolino)	7/1/14 – 6/30/15
Houston Area Molecular Biophysics Fellowship (Sirrieh)	1/1/13 – 5/1/15
American Heart Association Postdoctoral fellowship (Maclean)	1/1/13-12/31/14
Henry and Camille Foundation fellowship (Ramaswamy)	1/1/13 - 12/31/13
NIH- 1F31GM082023-01 (Gonzalez)	9/1/07 - 4/31/10
Houston Area Molecular Biophysics (Mankiewicz)	6/30/05 -7/1/08

PUBLICATIONS: Refereed Articles in Journals

1. Paudyal N, Bhatia NK, Jayaraman V. Single molecule FRET methodology for investigating glutamate receptors. *Methods Enzymol.* 2021;652:193-212.
2. Bhatia N. K., Carrillo E., Durham R.J., Berka V, and Jayaraman V. Allosteric changes in the NMDA receptor associated with calcium-dependent inactivation. *Biophys J* 2020. 119(11):2349-2359. (New and Notable on this article).
3. Carrillo E., Bhatia N. K., Akimzhanov, A.M., and Jayaraman V. Activity dependent inhibition of AMPA receptors by Zn²⁺. *J Neuroscience* 2020. 40(45):8629-8636.
4. Durham R.J., Latham D., Sanabria H., and Jayaraman V. Structural dynamics of Glutamate signaling systems by smFRET. Perspective in *Biophys J* 2020. 119(10):1929-1936.
5. Durham R.J., Paudyal, N., Carrillo E, Bhatia, N. K., MacLean D.M., Berka V, Dolino D. M., Gorfe, A. A., and Jayaraman V. Conformational spread and dynamics in allostery of NMDA receptors, *Proc Natl Acad Sci U S A*, 2020 117 (7) 3839-3847.
6. Plested A., Jayaraman V. Biophysics of Membrane Protein Signaling. *Biophys J* 2020 118(4): E1.
7. Carrillo E., Shaikh S. A., Berka V., Durham R. J., Litwin D. B., Lee G., MacLean D. M., Nowak L. M., Jayaraman V. Mechanism of modulation of AMPA receptors by TARP-γ8. *J Gen Physiol.* 2020 152(1). (News and Views on this Article).
8. Litwin, D.B., Paudyal, N., Carrillo, E., Berka, V., and Jayaraman, V. The structural arrangement and dynamics of the heteromeric GluK2/GluK5 kainate receptor as determined by smFRET. *Biochim Biophys Acta Biomembr.* 2020. 1862(1):183001.
9. Litwin, D.B., Carrillo, E., Shaikh, S.A., Berka, V., and Jayaraman, V. The structural arrangement at intersubunit interfaces in homomeric kainate receptors. *Sci Rep* 2019. 9: 6969.

10. Chatterjee, S., Ade, C., Nurik, C.E., Carrejo, N.C., Dutta, C., Jayaraman, V., and Landes, C.F. Phosphorylation Induces Conformational Rigidity at the C-Terminal Domain of AMPA Receptors. *J Phys Chem B* 2019. 123: 130-137.
11. Litwin, D.B., Durham, R.J., and Jayaraman, V. Single-Molecule FRET Methods to Study Glutamate Receptors. *Methods Mol Biol* 2019. 1941: 3-16.
12. MacLean, D.M., Durham, R.J., and Jayaraman, V. Mapping the Conformational Landscape of Glutamate Receptors Using Single Molecule FRET. *Trends Neurosci.* 2019. 42: 128-139.
13. Prakash P., Litwin D., Liang H., Sarkar-Banerjee S., Dolino D., Zhou Y., Hancock J.F., Jayaraman V., Gorfe A.A. Dynamics of Membrane-Bound G12V-KRAS from Simulations and Single-Molecule FRET in Native Nanodiscs. *Biophys J.* 2019. 116(2):179-183.
14. Chen J., Li L., Chen S. R., Chen H., Xie J. D., Sirrieh R.E., MacLean, D.M., Zhang Y., Zhou M. H., Jayaraman V., Pan H. L., The $\alpha 2\delta$ -1-NMDA Receptor Complex Is Critically Involved in Neuropathic Pain Development and Gabapentin Therapeutic Actions, *Cell Rep.* 2018. 22(9):2307-2321.
15. Dolino D.M., Chatterjee S., MacLean, D.M., Flatebo C., Bishop L., Shaikh, S.A., Landes C.F., and Jayaraman V. The structure-energy landscape of NMDA Receptor gating. *Nature Chem. Biol.* 2017. 13(12):1232-1238.
16. Jayaraman, V., Biophysics of the Brain: From Molecules to Networks, *Biophys J.* 2017, 113, 10: E1
17. Coombs I.D., MacLean D.M., Jayaraman V., Farrant M., Cull-Candy S.G. Dual Effects of TARP γ -2 on Glutamate Efficacy Can Account for AMPA Receptor Autoinactivation. *Cell Rep.* 2017. 20(5):1123-1135.
18. MacLean, D.M. Jayaraman, V., Deactivation kinetics of acid-sensing ion channel 1a are strongly pH-sensitive. *Proc Natl Acad Sci U S A*, 2017. 114(12):E2504-E2513.
19. Vitrac H, MacLean DM, Karlstaedt A, Taegtmeier H, Jayaraman V, Bogdanov M, Dowhan W. Dynamic Lipid-dependent Modulation of Protein Topology by Post-translational Phosphorylation. *J Biol Chem.* 2017. 292(5):1613-1624.
20. Ma J, Yanez-Orozco IS, Rezaei Adariani S, Dolino D, Jayaraman V, Sanabria H. High Precision FRET at Single-molecule Level for Biomolecule Structure Determination. *J Vis Exp.* 2017. May 13;(123).
21. Shaikh, S.A., Dolino, D.M., Lee, G., Chatterjee, S., MacLean, D.M., Flatebo, C., Landes, C. F., Jayaraman, V. Stargazin Modulation of AMPA Receptors. *Cell Reports.* 2016. 17(2):328-335.
22. Dolino, D.M., Rezaei, A. S., Shaikh, S.A., Jayaraman, V., Sanabria H. Conformational selection and submillisecond dynamics of the ligand-binding domain of the N-methyl-D-Aspartate receptor. *J Biol Chem.* 2016. 291(31):16175-85.

23. Maclean, D. M., Jayaraman, V. Acid-sensing ion channels are tuned to follow high-frequency stimuli. *J. Physiol.* 2016. 594(10):2629-45.
24. Vitrac, H., Maclean, D. M., Jayaraman, V., Bogdanov, M., Dowhan, W. Dynamic membrane protein topological switching upon changes in phospholipid environment. *Proc Natl Acad Sci USA*, 2015. 112(45):13874-9.
25. Sirrieh, R. E., Maclean, D. M., Jayaraman, V. A conserved structural mechanism of NMDA receptor inhibition: A comparison of ifenprodil and zinc. *J Gen Physiol.* 2015. 146(2):173-81.
26. Sirrieh, R. E., Maclean, D. M., Jayaraman, V. Subtype dependent NMDA receptor amino-terminal domain conformations and modulation by spermine. *J Biol Chem.* 2015. 290(20):12812-20.
27. Cooper, D.R., Dolino, D.M., Jaurich, H., Shuang, B., Ramaswamy, S., Nurik, C.E., Chen, J., Jayaraman, V., Landes, C.F. Conformational Transitions in the Glycine-Bound GluN1 NMDA Receptor LBD via Single-Molecule FRET. *Biophys J.* 2015. 109(1):66-75.
28. Dolino, D.M., Cooper, D., Ramaswamy, S., Jaurich, H., Landes, C.F., Jayaraman, V. Structural Dynamics of the Glycine-Binding Domain of the N-Methyl-D-Aspartate Receptor. *J Biol Chem.* 2015. 290(2):797-804.
29. Maclean, D. M., Ramaswamy, S.S., Du, M., Howe, J. R., Jayaraman, V. Stargazin promotes closure of the AMPA receptor ligand-binding domain. *J Gen Physiol.* 2014.144(6):503-12.
30. Dolino, D.M., Ramaswamy, S.S., Jayaraman, V. Luminescence resonance energy transfer to study conformational changes in membrane proteins expressed in mammalian cells. *J Vis Exp.* 2014. (91):51895.
31. Lee, G., Maclean, D. M., Ulrich, H., Zhao, X., Aronowski, J. Jayaraman, V. RNA based antagonist of NMDA receptor. *ACS Chem Neurosci.* 2014. 5(7):559-67.
32. Sirrieh, R. E., Maclean, D. M., Jayaraman, V. Amino-terminal domain tetramer organization and structural effects of zinc binding in the N-methyl D-Aspartate receptor. *J Biol Chem.* 2013. 288(31):22555-64.

33. Ramaswamy S. S., MacLean D. M., Gorfe A. A., Jayaraman V. Proton-mediated conformational changes in an acid-sensing ion channel. *J Biol Chem.* 2013. 288(50):35896-903.
34. Ramaswamy, S., Cooper, D., Poddar, N., Maclean, D.M., Rambhadran, A., Taylor, J.N., Uhm, H., Landes, C.F., Jayaraman V. Role of Conformational Dynamics in α -Amino-3-hydroxy-5-methylisoxazole-4-propionic Acid (AMPA) Receptor Partial Agonism. *J Biol Chem.* 2012. 287(52): p. 43557-64.
35. Lichtenberger, L.M., Zhou, Y., Jayaraman, V., Doyen, J.R., O'Neil, R.G., Dial, E.J., Volk, D.E., Gorenstein, D.G., Boggara, M.B., Krishnamoorti, R. Insight into NSAID-induced membrane alterations, pathogenesis and therapeutics: characterization of interaction of NSAIDs with phosphatidylcholine. *Biochim Biophys Acta.* 2012. 1821(7): p. 994-1002.
36. Wu, M., Tong, S., Gonzalez, J., Jayaraman, V., Spudich, J.L., Zheng, L. Structural Basis of the Ca(2+) Inhibitory Mechanism of Drosophila Na(+)/Ca(2+) Exchanger CALX and Its Modification by Alternative Splicing. *Structure*, 2011. 19(10): p.1509-17.
37. Landes, C.F., A. Rambhadran, J.N. Taylor, F. Salatan, and V. Jayaraman, Structural landscape of isolated agonist-binding domains from single AMPA receptors. *Nature Chem Biol*, 2011. 7(3): p. 168-73.
38. Rambhadran, A., J. Gonzalez, and V. Jayaraman, Conformational changes at the agonist binding domain of the N-methyl-d-aspartic Acid receptor. *J Biol Chem*, 2011. 286(19): p. 16953-7.
39. Rambhadran, A., J. Gonzalez, and V. Jayaraman, Subunit arrangement in N-methyl-D-aspartate (NMDA) receptors. *J Biol Chem*, 2010. 285(20): p. 15296-301.
40. Gonzalez, J., M. Du, K. Parameshwaran, V. Suppiramaniam, and V. Jayaraman, Role of dimer interface in activation and desensitization in AMPA receptors. *PNAS USA*, 2010. 107(21): p. 9891-6.
41. Du, M., A. Rambhadran, and V. Jayaraman, Vibrational spectroscopic investigation of the ligand binding domain of kainate receptors. *Protein Sci*, 2009. 18(8): p. 1585-91.
42. Mankiewicz, K.A., A. Rambhadran, L. Wathen, and V. Jayaraman, Chemical interplay in the mechanism of partial agonist activation in alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptors. *Biochemistry*, 2008. 47(1): p. 398-404.
43. Liu, Z., G. Ramanoudjame, D. Liu, R.O. Fox, V. Jayaraman, M. Kurnikova, and M. Cascio, Overexpression and functional characterization of the extracellular domain of the human alpha glycine receptor. *Biochemistry*, 2008. 47(37): p. 9803-10.
44. Gonzalez, J., A. Rambhadran, M. Du, and V. Jayaraman, LRET investigations of conformational changes in the ligand binding domain of a functional AMPA receptor. *Biochemistry*, 2008. 47(38): p. 10027-32.
45. Du, M., A. Rambhadran, and V. Jayaraman, Luminescence resonance energy transfer

- investigation of conformational changes in the ligand binding domain of a kainate receptor. *J Biol Chem*, 2008. 283(40): p. 27074-8.
46. Mankiewicz, K.A., A. Rambhadran, M. Du, G. Ramanoudjame, and V. Jayaraman, Role of the chemical interactions of the agonist in controlling alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor activation. *Biochemistry*, 2007. 46(5): p. 1343-9.
 47. Mankiewicz, K.A. and V. Jayaraman, Glutamate receptors as seen by light: spectroscopic studies of structure-function relationships. *Braz J Med Biol Res*, 2007. 40(11): p. 1419-27.
 48. Du, M., H. Ulrich, X. Zhao, J. Aronowski, and V. Jayaraman, Water soluble RNA based antagonist of AMPA receptors. *Neuropharmacology*, 2007. 53(2): p. 242-51.
 49. Ramanoudjame, G., M. Du, K.A. Mankiewicz, and V. Jayaraman, Allosteric mechanism in AMPA receptors: a FRET-based investigation of conformational changes. *PNAS USA*, 2006. 103(27): p. 10473-8.
 50. Martin, E., K. Czarnecki, V. Jayaraman, F. Murad, and J. Kincaid, Resonance Raman and infrared spectroscopic studies of high-output forms of human soluble guanylyl cyclase. *J Am Chem Soc*, 2005. 127(13): p. 4625-31.
 51. Du, M., S.A. Reid, and V. Jayaraman, Conformational changes in the ligand-binding domain of a functional ionotropic glutamate receptor. *J Biol Chem*, 2005. 280(10): p. 8633-6.
 52. Cheng, Q., M. Du, G. Ramanoudjame, and V. Jayaraman, Evolution of glutamate interactions during binding to a glutamate receptor. *Nature Chem Biol*, 2005. 1(6): p. 329-32. (News and Views on this article).
 53. Madden, D.R., Q. Cheng, S. Thiran, S. Rajan, F. Rigo, K. Keinanen, S. Reinelt, H. Zimmermann, and V. Jayaraman, Stereochemistry of glutamate receptor agonist efficacy: engineering a dual-specificity AMPA/kainate receptor. *Biochemistry*, 2004. 43(50): p. 15838-44.
 54. Cheng, Q. and V. Jayaraman, Chemistry and Conformation of the Ligand-binding Domain of GluR2 Subtype of Glutamate Receptors. *J Biol Chem*, 2004. 279(25): p. 26346-50.
 55. Ma, C.C., M.G. Steinmetz, Q. Cheng, and V. Jayaraman, Photochemical cleavage and release of carboxylic acids from alpha-keto amides. *Organic Letters*, 2003. 5(1): p. 71-74.
 56. Deming, D., Q. Cheng, and V. Jayaraman, Is the isolated ligand binding domain a good model of the domain in the native receptor? *J Biol Chem.*, 2003. 278(20): p. 17589-17592.
 57. Ramachandran, H., V. Jayaraman, B. Banerjee, P.A. Greenberger, K.J. Kelly, J.N. Fink, and V.P. Kurup, IgE binding conformational epitopes of Asp f 3, a major allergen of *Aspergillus fumigatus*. *Clin Immunol*, 2002. 103(3 Pt 1): p. 324-33.
 58. Cheng, Q., S. Thiran, D. Yernool, E. Gouaux, and V. Jayaraman, A vibrational spectroscopic investigation of interactions of agonists with GluR0 a prokaryotic glutamate receptor. *Biochemistry*, 2002. 41(5): p. 1602-1608.

59. Cheng, Q., M.G. Steinmetz, and V. Jayaraman, Photolysis of gamma-(alpha-carboxy-2-nitrobenzyl)-L-glutamic acid investigated in the microsecond time scale by time-resolved FTIR. *J Am Chem Soc*, 2002. 124(26): p. 7676-7.
60. Madden, D.R., S. Thiran, H. Zimmermann, J. Romm, and V. Jayaraman, Stereochemistry of quinoxaline antagonist binding to a glutamate receptor investigated by Fourier transform infrared spectroscopy. *J Biol Chem.*, 2001. 276(41): p. 37821-37826.
61. Jayaraman, V., S. Thiran, and D.R. Madden, Fourier transform infrared spectroscopic characterization of a photolabile precursor of glutamate. *Febs Letters*, 2000. 475(3): p. 278-282.
62. Jayaraman, V., R. Keeseey, and D.R. Madden, Ligand--protein interactions in the glutamate receptor. *Biochemistry*, 2000. 39(30): p. 8693-7.
63. Hess, G.P., H. Ulrich, H.G. Breiting, L. Niu, A.M. Gameiro, C. Grewer, S. Srivastava, J.E. Ippolito, S.M. Lee, V. Jayaraman, and S.E. Coombs, Mechanism-based discovery of ligands that counteract inhibition of the nicotinic acetylcholine receptor by cocaine and MK-801. *Proc Natl Acad Sci USA*, 2000. 97(25): p. 13895-13900.
64. Jayaraman, V., P.N.R. Usherwood, and G.P. Hess, Inhibition of nicotinic acetylcholine receptor by philanthotoxin-343: Kinetic investigations in the microsecond time region using a laser-pulse photolysis technique. *Biochemistry*, 1999. 38(35): p. 11406-11414.
65. Jayaraman, V., S. Thiran, and G.P. Hess, How fast does the gamma-aminobutyric acid receptor channel open? Kinetic investigations in the microsecond time region using a laser-pulse photolysis technique. *Biochemistry*, 1999. 38(35): p. 11372-11378.
66. Gee, K.R., L. Niu, K. Schaper, V. Jayaraman, and G.P. Hess, Synthesis and photochemistry of a photolabile precursor of N-methyl-D-aspartate (NMDA) that is photolyzed in the microsecond time region and is suitable for chemical kinetic investigations of the NMDA receptor. *Biochemistry*, 1999. 38(10): p. 3140-3147.
67. Jayaraman, V., Channel-opening mechanism of a kainate-activated glutamate receptor: Kinetic investigations using a laser-pulse photolysis technique. *Biochemistry*, 1998. 37(47): p. 16735-16740.
68. Jayaraman, V. and T.G. Spiro, Structural evolution of the heme group during the allosteric transition in hemoglobin: Insights from resonance Raman spectra of isotopically labeled heme. *Biospectroscopy*, 1996. 2(5): p. 311-316.
69. Jayaraman, V. and T.G. Spiro, Structure of a third cooperativity state of hemoglobin: ultraviolet resonance Raman spectroscopy of cyanomethemoglobin ligation microstates. *Biochemistry*, 1995. 34(14): p. 4511-5.
70. Jayaraman, V., K.R. Rodgers, I. Mukerji, and T.G. Spiro, Hemoglobin allostery: resonance Raman spectroscopy of kinetic intermediates. *Science*, 1995. 269(5232): p. 1843-8.
71. Gregoriou, V.G., V. Jayaraman, X. Hu, and T.G. Spiro, FT-IR difference spectroscopy of

hemoglobins A and Kempsey: evidence that a key quaternary interaction induces protonation of Asp beta 99. *Biochemistry*, 1995. 34(20): p. 6876-82.

72. Jayaraman, V., K.R. Rodgers, I. Mukerji, and T.G. Spiro, R and T states of fluoromethemoglobin probed by ultraviolet resonance Raman spectroscopy. *Biochemistry*, 1993. 32(17): p. 4547-51.

Chapter

1. Sirrieh, R.E., and Jayaraman, V. (2016) "LRET Methods for Investigating Conformational Changes in Functional Ionotropic Glutamate Receptors" in "Ionotropic Glutamate Receptor Technologies", Humana Press.
2. Jayaraman, V., Spectroscopic and kinetic methods for ligand-protein interactions of glutamate receptor. *Methods Enzymol*, 2004. 380: p. 170-87.
3. Jayaraman, V. (2005) "Analytical studies using photochemical triggering methods Infrared spectroscopy with caged compounds: Selected Applications" in "Dynamic Studies in Biology: Phototriggers, Photoswitches, and Caged Biomolecules" Wiley-VCH, Vertag GmbH and Co.

Other publications

1. Editor, Membrane Signaling Special issue, Biophysical Journal, February 2020.
2. Editor, Brain Biophysics Special issue, Biophysical Journal, November 2017.
3. Curated virtual issue in Biophysical Journal on Brain Biophysics June 2016.

OTHER PROFESSIONAL COMMUNICATIONS

A. Invited Lectures

Plenary lecture

1. Brazilian Society of Biochemistry and Molecular Biology, Agua De Lindua, July 2006.

Distinguished Lecture

2. University of California Davis, Davis, October 2015.

Invited Lectures

3. Department of Physiology, Johns Hopkins University, April 2021
4. Department of Chemistry, Cambridge University, UK, March 2021
5. Department of Neuroscience, University of Wisconsin Madison, Feb 2021.
6. New York Structural Biology Symposium, New York, August 2020 (moved to 2021).
7. Session Chair, Ion Channels, Gordon Conference, July 2020 (moved to 2022).
8. Keck Seminar, Gul Coast Consortia, Houston, October 2019.

9. Austin conference on Ion channel dynamics and mechanism. November 2019.
10. Keck Center Seminar, Rice University, Houston, TX, September 2019.
11. Telluride Ion Channel meeting, Telluride, CO, August, 2019.
12. Monod Conference, Ligand gated channels from atomic structure to synaptic function, Roscoff, France, May 2019.
13. Society of General Physiologists, September 2018.
14. FASEB meeting, Molecular Biophysics of Membranes, June 2018
15. Gordon Research Conference on Ion Channels, June 2018.
16. Department of Physiology and Biophysics, Weill Cornell Medicine, March 2018.
17. Telluride Ion Channel meeting, Telluride, CO, August, 2017.
18. Gordon Research Conference on Membrane Transport, June 2017.
19. Biophysical Society Meeting, February, 2017.
20. University of Minnesota, Duluth, MN, November 2016.
21. Glutamate receptor Retreat, Montreal, Canada, August 2016.
22. Telluride Ion Channel meeting, Telluride, CO, August, 2015.
23. Glutamate receptor Retreat, Albany, NY, August 2015
24. University of Wisconsin Madison, April 2015
25. Penn State University, Philadelphia, November 2014
26. Michigan University, Ann Harbor, MI, October 2014
27. Glutamate receptor Retreat, Buffalo, NY, August 2014
28. University of Texas at Austin, TX, November 2013.
29. Telluride Ion Channel meeting, Telluride, CO, August, 2013.
30. Biophysical Society, February, 2012 (presented by Rita Sirrieh).
31. Ion channel, Gordon research conference, NH, July 2012 (presented by David Maclean)
32. University of Texas Health Science Center at Lubbock, TX, September 2011.
33. Marquette University, Milwaukee, WI, September 2011.
34. Telluride Ion Channel meeting, Telluride, CO, August, 2011.
35. American Chemical Society, March 2010.
36. Biophysical Society, February, 2010.
37. University of Buffalo, October, 2010.
38. Telluride Ion Channel meeting, Telluride, July, 2009.
39. American Physical Society, Pittsburg, March 2009.

40. University of Texas Health Science Center at Lubbock, TX, February 2009.
41. German University at Cairo, Cairo, Egypt, December 2008.
42. University of Texas A&M at Prairie View, September 2008
43. Arizona State University, Phoenix, February 2008.
44. Chemistry in Neuroscience Symposium, Janelia Farm, Howard Hughes Institute, October, 2007.
45. American Chemical Society Annual Meeting, Boston, August, 2007.
46. Telluride Ion Channel meeting, Telluride, July, 2007.
47. Institute of Molecular Medicine, Cornell University, Ithaca, April 2007.
48. Department of Physics, Rice University, Houston, January 2007.
49. Ion channel, Gordon research conference, NH, July 2006.
50. Department of Biophysics, Pittsburg Medical School, Pittsburg, June 2006
51. Department of Chemistry, Princeton University, Princeton, October 2005.
52. Department of Bioengineering, Louisiana Tech, Ruston, October 2005.
53. Department of Biology, University of Houston-Downtown, Houston, November 2005.
54. Biological Ion channels, Telluride Research Center, Telluride, August 2005.
55. Department of Pharmacology, University of Houston, Houston, February 2005.
56. Structural Biology Center, University of Texas Health Science Center, August 2004.
57. Institute of Molecular Medicine, UT-Houston, Houston, October 2003.
58. Biological Ion channels, Telluride Research Center, Telluride, August 2003.
59. Center for Membrane Biology, University of Texas Medical School at Galveston, Galveston, July 2003.
60. Keck Center for Structural Biology, Rice University, Houston, January 2003.
61. Department of Biophysics, Medical College of Wisconsin, Milwaukee, December 2001.
62. Chemistry Department, University of Houston, Houston, October, 2001.
63. Department of Pharmacology and Integrative Biology, University of Texas Medical School, Houston, September 2001.
64. Department of Physiology and Biophysics, Baylor College of Medicine, Houston, September 2001.
65. Department of Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee, March 2001.
66. Chemistry Department, University of Wisconsin Oshkosh, Oshkosh, September, 2000.
67. Chemistry Department, University of Wisconsin Milwaukee, Milwaukee, September 2000.

68. Physics Department, Marquette University, Milwaukee, November 1999.
69. Chemistry Department, Viterbo College, La Crosse, December 1998.
70. Biology Department, Marquette University, Milwaukee, February 1998.
71. Chemistry Department, Marquette University, Milwaukee, March 1997.
72. Chemistry Department, Florida Atlantic University, Boca Raton, March 1997.

B. Other

1. Women in science, UTHealth, February 2020.
2. Co-Organizer, Biophysical Society Annual meeting 2016.
3. Organizer, Panel Discussion, “If I know now what I knew then” Biophysical Society meeting, San Francisco, 2010.
4. Session Chair “Ion Channels” American Chemical Society Annual Meeting, Boston, 2007.
5. Organizer, Career Luncheon sponsored by the committee on professional opportunities for women at the Biophysical Society Meeting, Salt Lake City, February 2006.
6. Organizer, Career Luncheon sponsored by the committee on professional opportunities for women at the Biophysical Society Meeting, Long Beach, February 2005.
7. Session Chair “Structure and function of glutamate receptors” Houston Area Molecular Biophysics Conference, Houston, February 2004.
8. Panelist in “Discussion on the role of research in undergraduate education” at the 32nd Great Lakes regional American Chemical Society Meeting, North Dakota, 2000.

EDUCATION AND MENTORING RELATED ACTIVITIES

SERVICE ON GRADUATE STUDENT TRAINING GRANTS:

2020- present	Chair Executive Committee, Keck Center (Training Arm), Houston, TX
2017– 2019	Member, Keck Center Executive committee, Gulf Coast Consortia
2013 – present	Executive committee, Houston Area Molecular Biophysics Training Grant
2016– present	Member, Training Interdisciplinary Pharmacology Scientists Training Grant

SERVICE ON GRADUATE SCHOOL COMMITTEES:

The University of Texas Graduate School of Biomedical Sciences (GSBS):

2018-present	Executive committee, BCB program
2015 – 2018	Executive Committee, Neuroscience Graduate Program
2014 – 2015	President- GSBS faculty
2013 – 2014	Chair, GSBS Executive Committee

2013 – 2014	Vice President- GSBS faculty
2012-2013	Recruiting Council
2009 – 2013	Program coordinating committee
2009 – 2010	Chair, Admissions Committee
2009 – 2011	GSBS Executive Committee
2008 – 2009	Co Chair, Admissions Committee
2007 – 2010	Admissions Committee
2009 – 2014	Graduate Student Education Committee

SERVICE ON DEPARTMENT COMMITTEES:

2013 – 2016	Co-Director, Biochemistry and Molecular Biology Graduate Program
2010 – 2013	Director, Biochemistry and Molecular Biology Graduate Program
2009 – 2010	Co-Director, Biochemistry and Molecular Biology Graduate Program
2008 – 2009	Departmental Seminar Committee
2004 – 2006	Medical Education Curriculum Committee

TEACHING RESPONSIBILITIES:

2014 – present	Foundations of Biomedical Research, Topic Director Topic: Protein structure and function
2016 – present	Current Methods in in Structural and Molecular Biology Topic: Spectroscopic methods Topic: Membrane proteins
2002 – present	Research in Biomedical Sciences
2002 – present	Tutorials in Biomedical Sciences
2014 – 2016	Emerging Fields in Biochemistry and Molecular Biology: Advanced Cell Signaling, Topics: Light activated channels, Optogenetics
2016 – 2017	Medical School first year Wrap up on Osmosis and Transport
2015 – 2016	Current Topics in Neuroscience
2010 – 2013	Topics in Biochemistry-Receptors
2012 – 2013	Medical School Biochemistry; Block III Lecturer; Topic: Bioenergetics and Energy storage
2008 – 2015	Current Methods in Molecular Research II Topic: Spectroscopic methods

2008	Topic: Membrane Protein methodologies Postdoctoral Training course; Topic: Funding sources
2008 – 2012	Medical School Biochemistry; Block II conference leader; Topic: Bioenergetics and Energy storage
2005 – 2006	Medical School Biochemistry; Block II conference leader; Topic: Bioenergetics and Energy storage
2005 – 2007	Medical Physiology Topic: Membrane II;
2005 – 2008	Dental Pharmacology Topic: Receptors and Drug Action;
2004 – 2005	Topics in Molecular Medicine;
2004 – 2005	Mechanism in Hormone Action; Topics: Ligand binding:Agonists; Membrane potential/cellular excitability
2004 – 2006	Medical Pharmacology Receptors and Drug Action;
2003-2010	Cell and Systems Physiology; Topics: Cell membrane transport; Ionic equilibria and membrane potential
2002 – 2004	Seminars in Cell and Regulatory Biology;
1999 – 2001	Chemical Kinetics,; 3 credits, Graduate course;
1998 – 2000	Introduction to Biochemistry, 3 credits, Undergraduate/graduate course;
1997 – 2001	Physical Chemistry for the Biosciences, 3 credits, Undergraduate course;
1996 – 1997	Molecular Spectroscopy, 3 credits, Graduate course;

Rice University- Invited Guest Lecturer:

2004 – 2005	Molecular Biophysics, 2 hrs Topics: IR and Raman spectroscopic methods
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SPONSORSHIP OF CANDIDATES FOR POSTGRADUATE DEGREE:

2017 – present	Ryan Durham
2018 – present	Nabina Paudyal
2015 – 2019	Douglas Litwin (Scientist, saleSEER Inc., Houston, TX)
2014 – 2018	Caitlin Nurik (Research Scientist, Amicrobe Inc., Denver, CO)
2012 – 2017	Drew Dolino (Assistant Professor, University of St. Thomas, Houston, TX)
2010 – 2015	Rita Sirrieh PhD (Assistant Professor, University of Houston, TX)

2010 – 2015	Swarna Ramaswamy PhD (Senior Research Scientist, AIT Bioscience Pharmaceuticals, IN)
2008 – 2011	Anu Rambhadran PhD (Senior Principal Scientist, Celgene, NJ)
2006 – 2010	Jennifer Gonzalez, PhD (Scientist, at Johnson and Johnson, PA)
2005 – 2009	Kimberly Mankiewicz PhD (Scientific writer, Ophthalmology, UT Houston)
2000 – 2004	Qing Cheng PhD (Real estate agent)
1997 – 2001	Shalita Thiran PhD (Instructor Milwaukee Technical College)

SPONSORSHIP OF POSTDOCTORAL FELLOWS:

2018- present	Dr. Nidhi Kaur
2016 – present	Dr. Elisa Corrillo
2015 – 2019	Dr. Sana Shaikh (Intern, JJ Labs, Houston, TX)
2012 – 2018	Dr. Garam Lee (Scientist, Base Pair Technologies Inc., Houston, TX)
2012 – 2017	Dr. David MacLean (Assistant Professor, Rochester Medical School)
2012 – 2013	Dr. Vassili Ivanov (CTO, Photosound Technologies, Houston, TX)
2010 – 2011	Dr. Etti Sundaresan (Assistant Professor, Bharathiar University, India)
2009 – 2010	Dr. Indira Pokkunuri (Research Associate, University of Houston)
2007 – 2008	Dr. Alain Bopda Waffo (Associate Professor, Alabama State University)
2005 – 2007	Dr. Gomathi Ramanoudjame (Instructor, Houston Community College)
2003 – 2006	Dr. Mei Du
2002 – 2003	Dr. Shanti Rajan (Faculty, Santa Fe College, FL)
1998 – 1999	Dr. Robert Keeseey (Associate Professor, Andrew College, Georgia)

SPONSORSHIP OF UNDERGRADUATE STUDENTS:

2013	Ms. Tran Nyugen (Optometrist)
2010	Mr. Abhishek Mandel (Analyst, Highmark Inc.)
2007	Mr. Oluwatimilehin Oluwaseun Ajayi
2006	Ms. Lisa Broussard (High school Teacher)
2004	Mr. Zoabe Hafez
2003	Ms. Imene Bokhetache (Dentist)
2000 – 2002	Frank Rigo (CEO, Isis Pharmaceuticals, Inc)
2001 – 2002	Dustin Deming (Associate Professor, University of Wisconsin Madison, WI)
1999 – 2000	Jonathan Romm (Executive Director, Campus Election Engagement Project)
1999	Amberlina Stoner (freelance scientific writer)
1998 – 2000	Monica Hayhurst (Scientist, Assay Development at Fate Therapeutics Inc.)

1997 – 1999 Steve Twomey

SPONSORSHIP OF HIGH SCHOOL STUDENTS:

2019 Ms. Faith Verma
2018 Ms. Ishani Shetia
2017 Mr. Kartik Devashish
2015 Mr. Tarun Srinivasan