

CURRICULUM VITAE – Samie R. Jaffrey, M.D., Ph.D.

Department of Pharmacology
Weill Medical College, Cornell University
1300 York Avenue, Box 70
New York, NY 10065

Office: (212) 746-6243
Cell: (917) 589-7401
Fax: (212) 746-6241
email: srj2003@med.cornell.edu
web: www.jaffreylab.org

Education

1999 **M.D., Johns Hopkins University, School of Medicine**
1999 **Ph.D. in Neuroscience, Johns Hopkins University School of Medicine**
1992 **B.S. in Biology, Massachusetts Institute of Technology**

Research and Professional Experience

2016 – present Greenberg-Starr Professor, Department of Pharmacology, Weill Medical College, Cornell University, New York, NY

2012 – present Professor of Pharmacology (with tenure), Weill Medical College, Cornell University, New York, NY

2006 – 2012 Associate Professor of Pharmacology (with tenure), Weill Medical College, Cornell University, New York, NY

2001 – 2006 Assistant Professor of Pharmacology, Weill Medical College, Cornell University, New York, NY

1999 – 2001 Postdoctoral Fellow, Johns Hopkins University, School of Medicine, Department of Neuroscience
 1. “Chemical biology of protein modifications by nitric oxide”
 2. “Proteomic characterization of nitric oxide signaling”
 Dr. Solomon H. Snyder, postdoctoral advisor

1993 – 1997 Graduate student, Johns Hopkins University, School of Medicine, Department of Neuroscience
 “Cloning and characterization of proteins that bind and regulate neuronal nitric oxide synthase”
 Dr. Solomon H. Snyder, graduate thesis advisor

1989 – 1992 Undergraduate thesis research, Department of Biology, Massachusetts Institute of Technology
 “Metal binding properties of the HIV-1 RNA-binding protein Tat”
 Dr. Alan Frankel, undergraduate thesis advisor

Selected Awards and Fellowships

2018 American Diabetes Association Visionary Award
2017 John J. Abel Award in Pharmacology, American Society of Pharmacology and

	Experimental Therapeutics
2017	Elected Member, American Society of Clinical Investigation
2017	<i>Nature Methods</i> "2016 Method of the Year – Epitranscriptome Analysis." Highlighted the foundational role of the first epitranscriptome mapping technology Meyer, K.D., et al., Comprehensive analysis of mRNA methylation reveals enrichment in 3' UTRs and near stop codons. <i>Cell</i> , 149:1635-1646, 2012
2014	Siegel Family Award for Outstanding Medical Research
2014	American Society for Biochemistry and Molecular Biology 2014 Young Investigator Award
2013	NIH EUREKA Award
2013	Blavatnik Award for Young Scientists, 2013
2011	Faculty of 1000, All-time top-10 ranked publication (since 2001), for Paige et al., 2011
2009	NIH Director's Transformative R01 award
2006	Postdoctoral Mentoring Award from the Weill Cornell Postdoctoral Association
2006	Irma T. Hirschl Scholar
2006	McKnight Foundation Technology Development Award
2006	Klingenstein Fellow in Neuroscience
2005	"New York 40 under 40" award, Crane's New York Business Magazine
2003	Essel Investigator Award, National Alliance for Research on Schizophrenia and Depression
2000	National Alliance for Research on Schizophrenia and Depression Young Investigator Award
1999	Hans Prochaska Research Prize (Johns Hopkins University)
1993	Medical Scientist Training Program (Johns Hopkins)
1989	National Merit Scholar

Publications

1. **Jaffrey, S.R.**, Haile, D.J., Klausner, R.D., Harford, J.B. The interaction between the iron-responsive element binding protein and its cognate RNA is highly dependent upon both RNA sequence and structure. *Nucleic Acids Research*, 21:4627-4631, 1993.
2. **Jaffrey, S.R.**, Cohen, N.A., Rouault, T.A., Klausner, R.D., Snyder, S.H. The iron-responsive element binding protein: A target for synaptic actions of nitric oxide. *Proc. Natl. Acad. Sci. USA*, 91:12994-8, 1994.
3. **Jaffrey, S.R.**, Snyder, S.H. Nitric oxide: A neural messenger. *Annu. Rev. Cell and Dev. Biol.*, 11:471-40, 1995.
4. **Jaffrey, S.R.**, Snyder, S.H. PIN: An associated protein inhibitor of neuronal nitric oxide synthase. *Science*, 274:774-7, 1996.
5. Zakhary, R., Poss, K.D., **Jaffrey, S.R.**, Ferris, C.D., Tonegawa, S, Snyder, S.H. Targeted deletion of heme oxygenase-2 reveals neural role for carbon monoxide. *Proc. Natl. Acad. Sci. U.S.A.*, 94:14848-53, 1997.
6. **Jaffrey, S.R.**, Snowman, A.M., Eliasson, M.J.L., Cohen, N.A., Snyder, S.H. CAPON: A protein associated with neuronal nitric oxide synthase that regulates its interactions with PSD95. *Neuron*, 20:115-24, 1998.
7. Snyder, S.H., **Jaffrey, S.R.**, Zakhary, R. Nitric oxide and carbon monoxide: parallel roles as neural messengers. *Brain Research Reviews*, 26:167-175, 1998.

8. Liang, J, **Jaffrey, S.R.**, Guo, W., Snyder, S.H., Clardy, J. Structure of PIN/LC8 dimer with a bound peptide. *Nature Structural Biology*, 6:735-740, 1999.
9. Ferris, C.D., **Jaffrey, S.R.**, Sawa, A., Takahashi, M., Brady, S.D., Barrow, R.K., Tysoe, S.A., Wolosker, H., Baranano, D., Dore, S., Snyder, S.H. Heme oxygenase-1 prevents cell death by regulating cellular iron. *Nature Cell Biology*, 1:152-157, 1999.
10. Snyder, S.H., **Jaffrey, S.R.** Vessels vivified by Akt acting on NO synthase. *Nature Cell Biology*, 1:E95-E96, 1999.
11. Watkins, C.C., Sawa, A., **Jaffrey, S.R.**, Blackshaw, S., Barrow, R.K., Snyder, S.H., Ferris, C.D. Insulin restores neuronal nitric oxide synthase expression and function that is lost in diabetic gastropathy. *J. Clin. Invest.*, 106:373-384, 2000.
12. Fang, M., **Jaffrey, S.R.***, Sawa, A., Ye, K., Snyder, S.H. Dexras1: A G-protein coupled to neuronal nitric oxide synthase via CAPON. *Neuron*, 28:183-193, 2000. (*co-first author).
13. **Jaffrey, S.R.**, Erdjument-Bromage, H., Ferris, C.D., Tempst, P., Snyder, S.H. Protein S-nitrosylation: A physiologic signal for neuronal nitric oxide. *Nature Cell Biology*, 3:193-197, 2001.
14. **Jaffrey, S.R.**, Snyder, S.H. The biotin switch method for the detection of S-nitrosylated proteins. Science STKE, www.stke.org/cgi/content/full/OC_sigtrans;2001/86, 2001.
15. **Jaffrey, S.R.**, Benfenati, F, Snowman, A.S., Snyder, S.H. Neuronal nitric oxide synthase localization mediated by a ternary complex with synapsin and CAPON. *Proc. Natl. Acad. Sci. U.S.A.*, 99:3199-3204, 2002.
16. **Jaffrey, S.R.**, Fang, M., Snyder, S.H. Nitrosopeptide mapping: A novel methodology reveals S-nitrosylation of Dexras1 on a single cysteine residue. *Chem. & Biol.*, 9:1329-1335, 2002.
17. He, X., Gerona-Navarro, G., **Jaffrey, S.R.**, Ligand discovery using small-molecule microarrays. *J. Pharm. Exp. Therap.*, 313:1-7, 2005.
18. **Jaffrey, S.R.** Detection and quantification of protein nitrosothiols. *Methods in Enzymology*, 396:105-118, 2005.
19. Wu, K.Y., Hengst, U, Macosko, E., Cox, L., Urquhart, E., Jeromin, A., **Jaffrey, S.R.** Local translation of RhoA regulates growth cone collapse. *Nature*, 436:1020-1024, 2005.
20. Hengst, U., Cox, L.J., Macosko, E.Z., **Jaffrey, S.R.** Functional and selective RNA interference in developing axons and growth cones. *Journal of Neuroscience*, 26:5727-32, 2006.
21. Wu, K., Stessin, A., Kaminetsky, M., Hengst, U., Zippin, J., Buck, J., Levin, L.R., **Jaffrey, S.R.** Soluble adenylyl cyclase is required for netrin-1 signaling in nerve growth cones. *Nature Neuroscience*, 9:1257-1264, 2006.
22. Paige, J.S., **Jaffrey, S.R.** Pharmacologic manipulation of nitric oxide signaling: Targeting NOS dimerization and protein-protein interactions. *Curr. Topics Med. Chem.* 7:97-114, 2007.
23. Hengst, U.H., **Jaffrey, S.R.** Function and translational regulation of mRNA in developing axons. *Semin. Cell & Dev. Biol.* 18:209-15, 2007. PMCID: PMC3153311
24. Cox, L.J., Hengst, U., Gurskaya, N.G., Lukyanov, K.A., **Jaffrey, S.R.** Intra-axonal translation and retrograde trafficking of CREB promotes neuronal survival. *Nature Cell Biology*, 10:149-159, 2008. PMCID: PMC3153364

25. Paige, J.S., Xu, G., Stancevic, B., **Jaffrey, S.R.** Nitrosothiol reactivity profiling identifies S-nitrosylated proteins with unexpected stability. *Chemistry & Biology*, 15:1307-1316, 2008. PMCID: PMC2628636
26. Hengst, U., Deglincerti, A., Kim, H.J., Jeon, N.L., **Jaffrey, S.R.** Axonal elongation triggered by stimulus-induced local translation of a polarity complex protein. *Nature Cell Biology*, 11:1024-30, 2009. PMCID: PMC2724225
27. Riviuccio, M.A., Brochier, C., Willis, D.E., Walker, B.A., D'Annibale, M.A., McLaughlin, K., Siddiq, A., Kozikowski, A.P., **Jaffrey, S.R.**, Twiss, J.L., Ratan, R.R., Langley, B. HDAC6 is a target for protection and regeneration following injury in the nervous system. *Proc. Natl. Acad. Sci. USA*, 46:19599-19604, 2009. PMCID: PMC2780768
28. Xu, G., Shin, S.Y., **Jaffrey, S.R.** Global profiling of protease cleavage sites by chemoselective labeling of protein N-termini. *Proc. Natl. Acad. Sci. USA*, 46:19310-19315, 2009. PMCID: PMC2780798
29. Xu, G., Paige, J.S., **Jaffrey, S.R.** Global analysis of lysine ubiquitination by ubiquitin remnant immunoaffinity profiling, *Nature Biotechnology*, 28:868-873, 2010. PMCID: PMC2946519
30. Shin, S.Y., Almeida, R.D., Gerona-Navarro, G., Bracken, C., **Jaffrey, S.R.** Assembling ligands *in situ* using bioorthogonal boronate ester synthesis. *Chemistry & Biology*, 17: 1171-1176, 2010. PMCID: PMC3149976
31. Xu, G., **Jaffrey, S.R.** N-CLAP: Global Profiling of N-Termini by Chemoselective Labeling of the α -Amine of Proteins. *Cold Spring Harbor Protocols*, doi:10.1101/pdb.prot5528, 2010. PMID: 21041401
32. Cohen, M.S., Bas Orth, C., Kim, H.J. Jeon, N.L., **Jaffrey, S.R.** Neurotrophin-mediated dendrite-to-nucleus signaling revealed by microfluidic compartmentalization of dendrites. *Proc. Natl. Acad. Sci. USA*, 108:11246-11251, 2011. PMCID: PMC3131323
33. Paige, J.S., Wu, K.Y., **Jaffrey, S.R.** RNA mimics of green fluorescent protein. *Science*, 333:642-646, 2011.
34. Xu, G., Shin, S.Y., **Jaffrey, S.R.** Chemoenzymatic labeling of protein C-termini for positive selection of C-terminal peptides. *ACS Chem Biol*, 6:1015-1020, 2011. PMCID: PMC3199308
35. Xu, G., **Jaffrey, S.R.** The new landscape of protein ubiquitination. *Nature Biotechnology*, 29:1098-1100, 2011. PMCID: PMC324807
36. Baeza, J.L., de la Torre, B.G., Santiveri, C.M., Almeida, R.D., García-López, M.T., Gerona-Navarro, G., **Jaffrey, S.R.**, Jiménez, M.A., Andreu, D., González-Muñiz, R., Martín-Martínez, M. Cyclic amino acid linkers stabilizing key loops of brain derived neurotrophic factor. *Bioorg. Chem. Med. Lett.*, 22:444-448, 2012.
37. Cohen, M.S., Ghosh, A.K., Kim, H.J., Jeon, N.L., **Jaffrey, S.R.** Chemical genetic-mediated spatial regulation of protein expression in neurons reveals an axonal function for Wld^S. *Chemistry & Biology*, 19:179-187, 2012. PMCID: PMC3292772
38. Walker, B.A., Hengst, U., Kim, H.J., Jeon, N.L., Schmidt, E.F., Heintz, N., Milner, T.A., **Jaffrey, S.R.**, Reprogramming axonal behavior by axon-specific viral transduction. *Gene Therapy*, 19:947-55, 2012. PMCID: PMC3426632
39. Paige, J.S., Ngyuen-Duc, T., Song, W., **Jaffrey, S.R.** Fluorescence imaging of cellular metabolites with RNA. *Science*, 335:1194, 2012. PMCID: PMC3303607
40. Ji, S.-J., **Jaffrey, S.R.** Intra-axonal translation of SMAD1/5/8 mediates retrograde regulation of trigeminal ganglia subtype specification. *Neuron*, 74:95-107, 2012. PMCID: PMC3328135

41. Meyer, K.D., Saletore, Y., Zumbo, P., Elemento, O., Mason, C.E., **Jaffrey, S.R.** Comprehensive analysis of mRNA methylation reveals enrichment in 3' UTRs and near stop codons. *Cell*, 149:1635-1646, 2012. PMCID: PMC3383396
42. Deglincerti A., **Jaffrey, S.R.** Insights into the roles of local translation from the axonal transcriptome. *Open Biology*, 2:120079, 2012. PMCID: PMC3390793
43. Walker, B.A., Ji, S.-J., **Jaffrey, S.R.** Intra-axonal translation of RhoA promotes axon growth inhibition by CSPG. *Journal of Neuroscience*, 32:14442-7, 2012. PMCID: PMC3509224
44. Xu, G., **Jaffrey, S.R.** Comprehensive Profiling of Protein Ubiquitination for Drug Discovery. *Current Pharmaceutical Design*, 19:3315-28. 2013.
45. Colak, D., Ji, S.-J., Porse, B.T., **Jaffrey, S.R.** Regulation of axon guidance by compartmentalized nonsense mediated mRNA decay. *Cell*, 6:1252-1265, 2013. PMCID: PMC3685487
46. Strack, R.L., **Jaffrey, S.R.** New approaches for sensing metabolites and proteins in live cells using RNA. *Current Opinion in Chemical Biology*, 17:651-655, 2013. PMCID: PMC3742595
47. Hess, M.E., Hess, S., Meyer, K.D., Verhagen, L.A.W., Koch, L., Brönneke, H.S., Dietrich, M.O., Jordan, S.D., Saletore, Y., Elemento, O., Belgardt, B.F., Franz, T., Horvath, T.L., Rüther, U., **Jaffrey, S.R.**, Kloppenburg, P., Brüning, J.C. The Fat Mass and Obesity Associated (Fto) Gene Regulates Activity of the Dopaminergic Midbrain Circuitry. *Nature Neuroscience*, 16:1042-1048, 2013.
48. Song, W., Strack, R.L., **Jaffrey, S.R.** Imaging bacterial protein expression using genetically encoded RNA sensors. *Nature Methods*, 10:873-5, 2013. PMCID: PMC3758421
49. Xu, G., **Jaffrey, S.R.** Proteomic Identification of Protein Ubiquitination Events. *Biotechnology and Genetic Engineering Reviews*, 29:73-109, 2013. PMCID: PMC3937853
50. Curanovic, D., Cohen, M., Slagle, C.E., Singh, I., Leslie, C.S., **Jaffrey, S.R.** Transcriptome-wide profiling of stimulus-induced polyadenylation in living cells using a poly(A) trap. *Nature Chemical Biology*, 9:671-3, 2013. PMCID: PMC3805764
51. Xu, G., Jiang, X. **Jaffrey, S.R.** A mental retardation-linked nonsense mutation in cereblon is rescued by proteasome inhibition. *Journal of Biological Chemistry*, 288:29573-29585, 2013. PMCID: PMC3795255
52. Strack, R.L., Disney, M.D., **Jaffrey, S.R.** A superfolding Spinach2 reveals the dynamic nature of trinucleotide repeat-containing RNA. *Nature Methods*, 10:1219-1224, 2013. PMCID: PMC3852148
53. Gerhardt, J., Tomishima, M.J., Zaninovic, N., Colak, D., Yan, Z., Zhan, Q., Rosenwaks, Z., **Jaffrey, S.R.**, and Schildkraut, C.L. The DNA replication program is altered at the FMR1 locus in fragile X embryonic stem cells. *Molecular Cell*, 53:19-31, 2014. PMCID: PMC3920742
54. Strack, R.L., Song, W., **Jaffrey, S.R.** Using Spinach-based sensors for fluorescence imaging of intracellular metabolites and proteins in living bacteria. *Nature Protocols*, 9:146-55, 2014.
55. Lundquist, M.R., Storaska, A., Liu, T.-C., Larsen, S.D., Evans, T., Neubig, R.R., **Jaffrey, S.R.** Redox modification of nuclear actin by MICAL-2 regulates SRF signaling. *Cell*, 156:563-576, 2014.
56. Song, W., Strack, R.L., Svensen, N., **Jaffrey, S.R.** Plug-and-play fluorophores extend the spectral properties of Spinach. *Journal of the American Chemical Society*, 136:1198-201, 2014. PMCID: PMC3929357

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