

CURRICULUM VITAE

Jerrel Louis Yakel, Ph.D.

Address: National Institute of Environmental Health Sciences (NIEHS)
P.O. Box 12233
Research Triangle Park, N.C. 27709
Phone: (919) 541-1407 / FAX: (919) 316-4653
E-mail: yakel@niehs.nih.gov
Web: 'http://www.niehs.nih.gov/research/atniehs/labs/ln/icp/index.cfm'
'http://neuroscience.nih.gov/Lab.asp?Org_ID=473'

Biographical: Nationality- American (of Native American descent)

Education: Ph.D. - University of California, Los Angeles, 1988.
Department of Biology. Thesis Advisor - Meyer B. Jackson
B.S. - Oregon State University, Corvallis, Oregon, 1982
Major: Developmental Biology

Positions Held:

7/93 to present	NIEHS/NIH Senior Investigator Lab Chief Ion Channel Physiology Group Leader Neurobiology Laboratory (NL) NIEHS, F2-08 P.O. Box 12233 Research Triangle Park, N.C. 27709
4/91 to 7/93	Postdoctoral Associate Vollum Institute, OHSU 3181 S.W. Sam Jackson Park Road Portland, OR 97201 Advisor- Thomas Soderling, Associate Director
9/88 to 4/91	Postdoctoral Associate Laboratoire de Neurobiologie Ecole Normale Supérieure 46 rue d'Ulm 75230 Paris Cedex 05 France Advisor- Hersch Gerschenfeld
9/83 to 9/88	Research Associate / Graduate Student UCLA Dept. of Biology 405 Hilgard Ave. Los Angeles, CA. 90024 Advisor- Meyer Jackson

Other appointment:

6/00 to 6/10 Adjunct Assistant Professor
Department of Neurobiology
Duke University Medical Center

02/13 to present Adjunct Professor
Department of Pharmacology
UNC-Chapel Hill

Research Interests and Experience:

Employing electrophysiological (patch-clamp and two-electrode voltage-clamp) and imaging techniques to study the properties of ligand- (i.e. nicotinic ACh, 5-HT₃ and glutamate) and voltage-activated ion channels, as well as GPCRs, in a variety of preparations, including brain slices, dissociated neurons and clonal cell lines, and expressed channels and receptors in *Xenopus* oocytes.

Fellowships and Awards:

Andrea Marie Andrade Memorial Scholarship, 1977.
Dorothy Danforth Compton Fellowship, 1983-1987.
Graduate Affirmative Action Research Grant, 1985-1986.
Dissertation Year Fellowship, 1987-1988.
Otto Scherbaum Award for the most outstanding graduate student research,
UCLA Department of Biology, 1988.
NIH French CNRS Program postdoctoral fellowship, 1988.
NSF Long-Term Research Program postdoctoral fellowship, 1989.
NATO-NSF Postdoctoral Fellowships in Science, 1990.
FORD Foundation Postdoctoral Fellowship, 1991
Society for Neuroscience Travel Fellowship for Minorities, 1992
National Research Service Award, NIH (NRSA), 1992
Human Frontiers Short-Term Fellowship, 1995
Fellow of the American Association for the Advancement of Science (AAAS), 2008
E. E. Just Lecturer Award, American Society of Cell Biology, 2009
Senior Biomedical Research Service (SBRs), NIH, 2011

Societal Memberships and Panels:

Advisory Committee Member for Society for Neuroscience's Minority Neuroscience Fellowship Program (MNFP)
Advisory Committee Member (Former) for Society for Neuroscience's Minority Education, Training, and Professional Advancement Committee (METPAC)
Advisory Committee Member (Former) for the Minority Fellowship Program, American Psychological Association
Society for Neuroscience
Serotonin Club
SACNAS- Society for the Advancement of Chicanos and Native Americans in Science
Panelist Chair for the Ford Foundation Predoctoral Fellowship Program administered by the National Research Council
Panelist for the Howard Hughes Medical Institute Fellowship Program administered by the National Research Council

Neuroscience Scholars Fellowship Committee of Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)
Physiological Society (UK)
NIH Academy Selection Committee
American Association for the Advancement of Science (AAAS)
International Society for Neurochemistry (ISN)

Editorial Boards:

Journal of Physiology (Reviewing Editor, 2007-2009; Senior Editor, 2010-2014)
Journal of Molecular Neuroscience (2004-
Frontiers in Neuropharmacology, Associate Editor (2009-
Pflügers Archives (2013-

Ad Hoc Reviewer:

Neuron, Nature Neuroscience, Nature Structural & Molecular Biology, Science, Journal of Neuroscience, Journal of Physiology, PNAS, TIPS, Journal of Neurophysiology, Physiological Reviews, British Journal of Pharmacology, European Journal of Neuroscience, Neuroscience, Molecular Pharmacology, Neuropharmacology, Hippocampus, Journal of Membrane Biology, Journal of Neurochemistry, Receptors and Channels, Biophysical Journal, Learning and Memory, Journal of General Physiology, Neuroscience Letters, Journal of Biological Chemistry, Progress in Neurobiology, Neurobiology of Aging, FASEB Journal, Cerebral Cortex

Publications (Peer-Reviewed):

1. **Yakel, J.L.**, L.O. Trussell & M.B. Jackson (1988) Three serotonin responses in cultured mouse hippocampal and striatal neurons. *J. Neurosci.* 8:1273-1285.
2. **Yakel, J.L.** & M.B. Jackson (1988) 5-HT₃ receptors mediate rapid responses in cultured hippocampus and a clonal cell line. *Neuron* 1:615-621.
3. **Yakel, J.L.**, X.M. Shao & M.B. Jackson (1990) The selectivity of the channel coupled to the 5-HT₃ receptor. *Brain Res.* 533:46-52.
4. Gerschenfeld, H.M., D. Paupardin-Tritsch & **J.L. Yakel** (1991) Muscarinic enhancement of the voltage-dependent calcium current in an identified snail neuron. *J. Physiol.* 434:85-105.
5. Shao, X.M., **J.L. Yakel** & M.B. Jackson (1991) Differentiation of NG108-15 cells alters the channel conductance and desensitization kinetics of the 5-HT₃ receptor. *J. Neurophysiol.* 65:630-638.
6. **Yakel, J.L.**, X.M. Shao & M.B. Jackson (1991) Activation and desensitization of the 5-HT₃ receptor in a rat glioma X mouse neuroblastoma hybrid cell. *J. Physiol.* 436:293-308.
7. **Yakel, J.L.** (1991) The neuropeptide FMRFa both inhibits and enhances the Ca²⁺ current in dissociated *Helix* neurons via independent mechanisms. *J. Neurophysiol.* 65:1517-1527.

8. Kavanaugh, M.P., R.S. Hurst, **J. Yakel**, M.D. Varnum, J.P. Adelman & R.A. North (1992) Multiple subunits of a voltage-dependent potassium channel contribute to the binding site for tetraethylammonium. *Neuron* 8:493-497.
9. **Yakel, J.L.** (1992). Inactivation of the Ba²⁺ current in dissociated *Helix* neurons: Voltage-dependence and the role of phosphorylation. *Pflügers Arch.* 420:470-478.
10. Hurst, R.S., M.P. Kavanaugh, **J. Yakel**, J.P. Adelman & R.A. North (1992) Cooperative interactions among subunits of a voltage-dependent potassium channel: Evidence from expression of concatenated cDNAs. *J. Biol. Chem.* 267:23742-23745.
11. **Yakel, J.L.**, R.A. Warren, S.M. Reppert & R.A. North (1993) Functional expression of adenosine A_{2b} receptor in *Xenopus* oocytes. *Mol. Pharm.* 43:277-280.
12. **Yakel, J.L.**, A. Lagrutta, J.P. Adelman & R.A. North (1993) Single amino acid substitution affects desensitization of the 5-HT₃ receptor expressed in *Xenopus* oocytes. *P.N.A.S.* 90:5030-5033.
13. **Yakel, J.L.**, P. Vissavajhala, V. Derkach, D. Brickey, & T.R. Soderling (1995) Identification of a CaM-Kinase II regulatory phosphorylation site in non-NMDA glutamate receptors. *P.N.A.S.* 92:1376-1380.
14. Gilon, P., G.St.J. Bird, X. Bian, **J.L. Yakel**, and J.W. Putney, Jr. (1995) The Ca²⁺-mobilizing actions of a Jurkat cell extract on mammalian cells and *Xenopus laevis* oocytes. *J. Biol. Chem.* 270:8050-8055.
15. Gilon, P., & **Yakel, J.L.** (1995) Activation of 5-HT₃ receptors expressed in *Xenopus* oocytes does not increase cytoplasmic Ca²⁺ levels. *Receptors and Channels* 3:83-88.
16. **Yakel, J.L.** (1996) Desensitization of the 5-HT₃ receptor expressed in *Xenopus* oocytes: Dependence on voltage and primary structure. *Behav. Brain Research* 73:269-272.
17. Andjus, P., Khiroug, L., **Yakel, J.L.**, Cherubini, E., & Nistri, A. (1996) Changes in intracellular calcium induced by NMDA in cultured hippocampal neurons require exogenous glycine. *Neurosci. Lett.* 210:25-28.
18. Gilon, P., **Yakel, J.**, Gromada, J., Zhu, Y., Henquin, J-C., & Rorsman, P. (1997) G-protein-dependent inhibition of L-type Ca²⁺ currents by acetylcholine in mouse pancreatic B-cells. *J. Physiology* 499:65-76.
19. **Yakel, J.L.** (1997) Calcineurin regulation of synaptic function: From ion channels to transmitter release and gene transcription. *Trends in Pharmacological Sciences* 18:124-134.
20. Zhu, Y., & **Yakel, J.L.** (1997) Modulation of Ca²⁺ currents by various G protein-coupled receptors in sympathetic neurons of male rat pelvic ganglia. *J. Neurophysiol.* 78:780-789.
21. Zhu, Y., & **Yakel, J.L.** (1997) Calcineurin modulates G protein-mediated inhibition of N-type calcium channels in rat sympathetic neurons. *J. Neurophysiol.* 78:1161-1165.
22. Jones, S., & **Yakel, J.L.** (1997) Functional nicotinic ACh receptors on interneurons in the rat

- hippocampus. *J. Physiology* 504:603-610.
23. Jones, S., & **Yakel, J.L.** (1998) Ca^{2+} influx through voltage-gated Ca^{2+} channels regulates 5-HT₃ receptor channel desensitization in rat glioma X mouse neuroblastoma hybrid NG108-15 cells. *J. Physiology* 510:361-370.
 24. van Hooft, J.A., Spier, A.D., **Yakel, J.L.**, Lummis, S.C.R., & Vijverberg, H.P.M. (1998) Promiscuous coassembly of serotonin 5-HT₃ and nicotinic α 4 receptor subunits into Ca^{2+} permeable ion channels. *P.N.A.S.* 95:11456-11461.
 25. Kriegler, S., Sudweeks, S., & **Yakel, J.L.** (1999) Communication: The nicotinic α 4 receptor subunit contributes to the lining of the ion channel pore when expressed with the 5-HT₃ receptor subunit. *Journal of Biological Chemistry*. 274: 3934-3936.
 26. Jones, S., & **Yakel, J.L.** (1999) Inhibitory interneurons in the hippocampus: sites for rapid regulation of information flow by neurotransmitters. *Cell Biochem. Biophys.* 31:207-218.
 27. Kriegler, S., Sudweeks, S., & **Yakel, J.L.** (1999) MTSEA potentiates 5-HT₃ receptors containing the nicotinic α 4 subunit. *Neuropharmacology* 38: 1913-1915.
 28. Jones, S., Sudweeks, S. & **Yakel, J.L.** (1999) Nicotinic receptors in the brain: correlating physiology with function. *Trends in Neurosciences* 22: 555-561.
 29. Sudweeks, S., & **Yakel, J.L.** (2000) Functional and molecular characterization of neuronal nicotinic ACh receptors in rat CA1 hippocampal neurons. *J. Physiology* 527: 515-528.
 30. Shao, Z. & **Yakel, J.L.** (2000) Single channel properties of neuronal nicotinic ACh receptors in stratum radiatum interneurons of rat hippocampal slices. *J. Physiology* 527: 507-513.
 31. Pettit, D.L., Shao, Z. & **Yakel, J.L.** (2001) β -Amyloid_{1-42}} peptide directly modulates nicotinic receptors in the rat hippocampal slice. *J. Neuroscience (Rapid Communication)* 21:RC120:1-5.
 32. Khiroug, S.S., Harkness, P.C., Lamb, P.W., Sudweeks, S.N., Khiroug, L., Millar, N.S., & **Yakel, J.L.** (2002) Rat nicotinic ACh receptor α 7 and β 2 subunits co-assemble to form functional heteromeric nicotinic receptor channels. *J. Physiology* 540: 425-434.
 33. Sudweeks, S.N., van Hooft, J.A., & **Yakel, J.L.** (2002) Serotonin 5-HT₃ Receptors in Rat CA1 Hippocampal Interneurons: Functional and Molecular Characterization. *J. Physiology* 544:715-726.
 34. van Hooft, J.A. & **Yakel, J.L.** (2003) 5-HT₃ receptors in the CNS: 3b or not 3b? *Trends in Pharmacological Sciences* 24:157-160.
 35. Jones, S., & **Yakel, J.L.** (2003) Casein kinase II (protein kinase CK2) regulates serotonin 5-HT₃ receptor channel function in NG108-15 cells. *Neuroscience* 119: 629-634.
 36. Khiroug, L., Giniatullin, R., Klein, R.C., Fayuk, D. & **Yakel, J.L.** (2003) Functional mapping and Ca^{2+} regulation of nicotinic acetylcholine receptor channels in rat hippocampal CA1 neurons. *J. Neuroscience* 23: 9024-9031.

37. **Yakel, J.L.** & Shao, Z. (2004) Functional and Molecular Characterization of Neuronal Nicotinic ACh Receptors in Rat Hippocampal Interneurons. *Progress in Brain Research* 145: 95-107.
38. Khiroug, S., Khiroug, L., & **Yakel, J.L.** (2004) Rat nicotinic ACh receptor $\alpha 2\beta 2$ channels: Comparison of functional properties with $\alpha 4\beta 2$ channels in *Xenopus* oocytes. *Neuroscience* 124: 817-822.
39. Klein, R.C. & **Yakel, J.L.** (2004) Inhibition of nicotinic acetylcholine receptors by Apolipoprotein E-derived peptides in rat hippocampal slices. *Neuroscience (Rapid Report)* 127: 563-567.
40. Fayuk, D. & **Yakel, J.L.** (2004) Regulation of nicotinic acetylcholine receptor channel function by acetylcholinesterase inhibitors in rat hippocampal CA1 interneurons. *Mol. Pharm.* 66: 658-666.
41. Lamb, P.W., Melton, M.A. & **Yakel, J.L.** (2005) Inhibition of neuronal nicotinic acetylcholine receptor channels expressed in *Xenopus* oocytes by β -amyloid₁₋₄₂ peptide. *J. Mol. Neuroscience* 27: 13-22.
42. Giniatullin, R., Nistri, A. & **Yakel, J.L.** (2005) Desensitization of Nicotinic ACh Receptors: Shaping Cholinergic Signaling. *Trends in Neurosciences* 28: 371-378.
43. Fayuk, D. & **Yakel, J.L.** (2005) Ca²⁺ permeability of nicotinic acetylcholine receptors in rat hippocampal CA1 interneurons. *J. Physiology* 566: 759-768. PMID:PMC1464780
44. Klein, R.C. & **Yakel, J.L.** (2005) Paired-pulse potentiation of $\alpha 7$ -containing nAChRs in rat hippocampal CA1 stratum radiatum interneurons. *J. Physiology* 568: 881-889.
45. Gay, E.A., Klein, R.C. & **Yakel, J.L.** (2006) Apolipoprotein E-derived peptides block $\alpha 7$ neuronal nicotinic acetylcholine receptors expressed in *Xenopus* oocytes. *J. Pharm. Exp. Ther.* 316: 835-842.
46. Klein, R.C. & **Yakel, J.L.** (2006) Functional somato-dendritic $\alpha 7$ -containing nicotinic acetylcholine receptors in the rat basolateral amygdala complex. *J. Physiology* 576: 865-872.
47. Fayuk, D. & **Yakel, J.L.** (2007) Dendritic Ca²⁺ signaling due to activation of $\alpha 7$ -containing nicotinic acetylcholine receptors in rat hippocampal neurons. *J. Physiology* 582: 597-611. PMID:PMC2075347
48. Gay, E.A., Bienstock, R. J., Lamb, P.W. & **Yakel, J.L.** (2007) Structural determinates for apolipoproteinE-derived peptide interaction with the $\alpha 7$ nicotinic acetylcholine receptor. *Mol. Pharm* 72:838-849.
49. Gay, E.A. & **Yakel, J.L.** (2007) Gating of nicotinic ACh receptors; new insights into structural transitions triggered by agonist binding that induce channel opening. *J. Physiology (Topical Review)* 584: 727-733.
50. Gay, E.A., Giniatullin, R., Skorinkin, A. & **Yakel, J.L.** (2008) Aromatic residues at position 55 of rat $\alpha 7$ nAChRs are critical for maintaining rapid desensitization. *J. Physiology* 586:1105-1115.

51. Poisik, O.V., Shen, J., Jones, S. & **Yakel J. L.** (2008) Functional $\alpha 7$ -containing Nicotinic Acetylcholine Receptors Localize to Cell Bodies and Proximal Dendrites in the Rat Substantia Nigra pars Reticulata. *J. Physiology* 586: 1365-1378.
52. Gay, E.A, Klein, R.C., Melton, M.A., Blackshear, P.J. & **Yakel, J.L.** (2008) Inhibition of Native and Recombinant Nicotinic Acetylcholine Receptors by the Myristoylated Alanine-Rich C Kinase Substrate Peptide. *J. Pharm. Exp. Ther.* 327: 884-890.
53. Shen, J., Tu, B. & **Yakel, J.L.** (2009) Inhibition of $\alpha 7$ -containing nicotinic ACh receptors by muscarinic M₁ ACh receptors in rat hippocampal CA1 interneurons in slices. *J. Physiology* 587: 1033-1042.
54. Eddins, D., Klein, R.C., **Yakel, J.L.** & Levin, E.D. (2009) Hippocampal infusions of apolipoprotein E peptides induce long-lasting cognitive impairment. *Brain Res. Bull.* 79:111-115.
55. Tu, B., Gu, Z., Shen, J., Lamb, P.W. & **Yakel, J.L.** (2009) Characterization of a nicotine-sensitive neuronal population in rat entorhinal cortex. *J. Neuroscience* 29:10436 –10448. PMID: PMC2765695
56. Shen, J.X. & **Yakel, J.L.** (2009) Nicotinic acetylcholine receptor-mediated calcium signaling in the nervous system. *Acta Pharmacol Sin.*30:673-680.
57. Timofeeva, O.A., Eddins, D., **Yakel, J.L.**, Blackshear, P.J. & Levin ED. (2010) Hippocampal infusions of MARCKS peptides impair memory of rats on the radial-arm maze. *Brain Res.* 1308:147-152.
58. **Yakel, J.L.** (2010) Gating of nicotinic ACh receptors: latest insights into ligand binding and function. *J. Physiology* 588:597-602.
59. McCormack, T., Petrovich, R.M., Mercier, K.A., DeRose, E.F., Cuneo, M.J., Williams, J., Johnson, K.L., Lamb, P.W., London, R.E. & **Yakel, J.L.** (2010). Identification and Functional Characterization of a Novel Acetylcholine-binding Protein from the Marine Annelid Capitella teleta. *Biochemistry* 49:2279-2287.
60. Seipel, A.T. & **Yakel, J.L.** (2010). The frequency-dependence of the nicotine-induced inhibition of dopamine is controlled by the $\alpha 7$ nicotinic receptor. *J. Neurochemistry* 114: 1659-1666.
61. McCormack, T.J., Melis, C., Colón, J., Gay, E.A., Mike, A., Karoly, R., Lamb, P.W., Molteni, C. & **Yakel, J.L.** (2010). Rapid Desensitization of the Rat $\alpha 7$ nAChR is Facilitated by the Presence of a Proline Residue in the Outer β -Sheet. *J. Physiology*588:4415-4429.
62. Brams, M., Gay, E.A., Colón Sáez, J., Guskov, A., van Elk, R., van der Schors, R.C., Peigneur, S., Tytgat, J., Strelkov, S.V., Smit, A.B., **Yakel, J.L.** & Ulens, C. (2011). Crystal structures of a cysteine-modified mutant in loop D of acetylcholine binding protein. *Journal of Biological Chemistry* 286:4420-4428.

63. Johnstone, T.B., Gu, Z., Yoshimura, R.F., Villegier, A.S., Hogenkamp, D.J., Whittemore, E.R., Huang, J.C., Tran, M.B., Belluzzi, J.D., **Yakel, J.L.** & Gee, K.W. (2011). Allosteric modulation of related ligand-gated ion channels synergistically induces long term potentiation in the hippocampus and enhances cognition. *J. Pharm. Exp. Ther.* 336:908-915.
64. Brams, M., Pandya, A., Kuzmin, D., van Elk, R., Krijnen, L., **Yakel, J.L.**, Tsetlin, V., Smit, A.B., & Ulens, C (2011). A Structural and Mutagenic Blueprint for Molecular Recognition of Strychnine and *d*-Tubocurarine by Different Cys-Loop Receptors. *PLoS Biology* 9: e1001034. PMID:PMC3066128
65. Colón-Sáez, J. & **Yakel, J.L.** (2011). The $\alpha 7$ nAChR function in hippocampal neurons is regulated by the lipid composition of the plasma membrane. *J. Physiology* 589: 3163-3174. PMID:PMC3145932
66. Gu, Z. & **Yakel, J.L.** (2011). Timing-dependent septal cholinergic induction of dynamic hippocampal synaptic plasticity. *Neuron* 71: 155-165. PMID:PMC3134790
67. Pandya, A. & **Yakel, J.L.** (2011) Allosteric modulators of the $\alpha 4\beta 2$ subtype of neuronal nicotinic acetylcholine receptors. *Biochem Pharmacol.* 82: 952-958.
68. Pandya, A. & **Yakel, J.L.** (2011) Allosteric modulator desformylflustrabromine relieves the inhibition of $\alpha 2\beta 2$ and $\alpha 4\beta 2$ nicotinic acetylcholine receptors by β -Amyloid1–42 peptide. *J. Mol. Neuroscience* 45: 42-47.
69. Shen, J.X. & **Yakel, J.L.** (2012) Functional $\alpha 7$ nicotinic ACh receptors on astrocytes in rat hippocampal CA1 slices. *J. Mol. Neuroscience* 48:14–21.
70. Billen, B., Spurny, R., Brams, M., van Elk, R., Valera-Kummer, S., **Yakel, J.L.**, Voets, T., Bertrand, D., Smit, A.B. & Ulens, C. (2012) Molecular actions of smoking cessation drugs at $\alpha 4\beta 2$ nicotinic receptors defined in crystal structures of a homologous binding protein. *P.N.A.S.* 109:9173-9178. PMID: PMC3384148
71. **Yakel, J.L.** (2012) Nicotinic ACh Receptors in the Hippocampus: Role in Excitability and Plasticity. *Nicotine Tob Res* 14:1249-1257.
72. Gu, Z., Lamb, P.W. & **Yakel, J.L.** (2012) Cholinergic coordination of presynaptic and postsynaptic activity induces timing-dependent hippocampal synaptic plasticity. *J. Neuroscience* 32: 12337-12348. PMID: PMC3474164
73. **Yakel, J.L.** (2013) Cholinergic Receptors: Functional Role of Nicotinic ACh Receptors in Brain Circuits and Disease. *Pflügers Arch.* 465:441-450. PMID: PMC3633680
74. Pandya, A. & **Yakel, J.L.** (2013) Activation of the $\alpha 7$ nicotinic ACh receptor induces anxiogenic effects in rats which is blocked by a 5-HT1a receptor antagonist. *Neuropharmacology* 70; 35-42. PMID: PMC3640667

75. Pandya, A. & **Yakel, J.L.** (2013) Effects of neuronal nicotinic acetylcholine receptor allosteric modulators in animal behavior studies. *Biochem Pharmacol.* 86:1054-1062. PMID: PMC3797251
76. Colón-Sáez, J. & **Yakel, J.L.** (2014) A mutation in the extracellular domain of the $\alpha 7$ nAChR reduces calcium permeability. *Pflügers Arch.* 466:1571-1579. PMID: PMC4007412
77. Cheng, Q. & **Yakel, J.L.** (2014). Presynaptic $\alpha 7$ nicotinic acetylcholine receptors enhance hippocampal mossy fiber glutamatergic transmission via PKA activation. *J. Neuroscience* 34:124-133. PMID: PMC3866480
78. **Yakel, J.L.** (2014). Nicotinic ACh receptors in the hippocampal circuit; functional expression and role in synaptic plasticity. *J. Physiology* 592: 4147-4153. PMID: PMC4215767
79. Hernandez, C.M., Cortez, I., Gu, Z., Colón-Sáez, J.O. , Lamb, P.W., Wakamiya, M, **Yakel, J.L.** & Dineley, K.T. (2014). Research tool: Validation of floxed $\alpha 7$ nicotinic acetylcholine receptor conditional knockout mice using in vitro and in vivo approaches. *J. Physiology* 592: 3201-3214. PMID: PMC4146370
80. Dineley, K.T., Pandya, A.A. & **Yakel, J.L.** (2015). Nicotinic ACh receptors as therapeutic targets in CNS disorders. *Trends in Pharmacological Sciences* 36: 96-108.

Publications (Book Chapters):

1. **Yakel, J.L.**, L.O. Trussell & M.B. Jackson (1988). Cytoplasmic modulation of transmitter gated K channels in cultured mammalian central neurons. In *Calcium and Ion Channel Modulation*, A.D. Grinnell, D.L. Armstrong & M.B. Jackson, eds., pp. 291-302, Plenum Press, New York, NY.
2. **Yakel, J.L.** (1992). 5-HT₃ receptors as cation channels. In *Central and Peripheral 5-HT₃ Receptors*, M. Hamon, ed., pp. 103-128, Academic Press, London, England.
3. Jackson, M.B. & **J.L. Yakel** (1995). The 5-HT₃ receptor channel. *Annu. Rev. Physiol.* 57:447-468.
4. Jones, S., & **Yakel, J.L.** (1998) Functional study of glutamate receptor channels in brain slices. In *Neurodegeneration Methods and Protocols*, J. Harry & H.A. Tilson, eds., pp. 247-256, Humana Press, Totowa, NJ.
5. Jones, S., & **Yakel, J.L.** (1998) Calcium influx through voltage-gated calcium channels regulates 5-HT₃ receptor channel desensitization in NG108-15 cells. *Ann N Y Acad Sci.* 861:253-254.
6. **Yakel, J.L.** (2000) The 5-HT₃ receptor channel: Function, activation and regulation. In *Pharmacology of Ionic Channel Function: Activators and Inhibitors*, M. Endo, ed., pp. 541-560, Springer-Verlag, Berlin, Germany.

Invited Presentations (since 2000): (*Symposia in italics*)

Pasteur Institute, Paris, France, 2000

Department of Neurobiology, Duke University, 2000

University of Texas-Austin, Neurobiology, 2000

Division of Neuroscience, Baylor College of Medicine, 2000

Memory Pharmaceuticals, New York, 2000

Department of Molecular Physiology, Baylor College of Medicine, 2000

***Synaptic transmission 100 years after Luigi Luciani: A symposium in honour of
Ricardo Miledi, Session Speaker, 2000***

***Nicotinic Receptor Conference, Erl Wood/Eli Lilly, Surrey, United Kingdom,
Session Speaker, 2000***

***Neuronal Nicotinic Receptors- 10th Neuropharmacology Conference, New Orleans,
Session Speaker, 2000***

National Institute of Aging, NIA/NIH, 2001

Pharmacia and Upjohn, 2001

University of Amsterdam, Swammerdam Institute, 2001

Biophysics Sector, SISSA, Trieste, Italy, 2001

Department of Pharmacology, University of Florence, Florence, Italy, 2001

European Society for Neurochemistry, Perugia, Italy, 2001

***XXIVth International Symposium, Centre for Research in Neurological Sciences, University of
Montreal, Canada, 2002***

Ion Channels in Drug Discovery & Development, Princeton, NJ., 2002

Duke University, Department of Neurobiology, Synapse Club, 2002

Marine Biological Laboratories, Woods Hole, Mass., 2003

Ion Channels in Drug Discovery & Development, Philadelphia, PA., 2003

Brigham Young University, Department of Physiology and Developmental Biology, 2003

Texas A&M University, Neuroscience Seminar Series, 2003

Serotonin EPHAR Satellite Meeting, Porto, Portugal, Speaker and Session Chair, 2004

Ion Channel Drug Targets, San Diego, CA., 2004

Barrows Neurological Institute, Phoenix, AZ., 2005

Albert Einstein College of Medicine, Department of Neuroscience, 2005

Duke University, Integrated Toxicology Program, 2005

Department of Biology, University of N. Carolina-Pembroke, 2005

St. Augustine's Biology Department, Raleigh, North Carolina, 2005

Ion Channels in Drug Discovery & Development- 5th Annual, Philadelphia, PA, 2005

***Society for Neuroscience Satellite Symposium: The 5-HT₃ Receptor: A Model Cys-Loop Ligand-Gated
Ion Channel, Washington DC, 2005***

University of Helsinki, Neuroscience Center, Helsinki, Finland, 2005

Ion Channels in Drug Discovery & Development- 6th Annual, Philadelphia, PA, 2006

Serotonin IUPHAR Satellite Meeting, Sapporo, Japan, Session Co-Chair, 2006

Brody School of Medicine, East Carolina University, 2007

St. Augustine's Biology Department, Raleigh, North Carolina, 2007

Nicotinic Acetylcholine Receptors 2008, Wellcome Trust Conference, Cambridge, UK, 2008

UCLA, Dept. of Physiological Sciences, 2008

Targacept, 2008

Aurora Biomed 6th Annual Ion Channel Retreat, Vancouver, BC, 2008

Society for Neuroscience, Session Chair, 2008

University of Montana, Biomedical and Pharmaceutical Sciences, Missoula, MT, 2009

University of Southern California, Molecular and Computational Biology, LA, Calif., 2009

Journal of Physiology symposium, 'Advances and hold-ups in the study of structure, function and regulation of Cys-loop ligand-gated ion channels and receptors', Organizer and speaker, 2009

E.E. Just Lecturer, American Society of Cell Biology meeting, 2009

Brown University, Providence, RI, 2010

Duke University, Department of Neurobiology, Synapse Club, 2010

SACNAS annual meeting, Anaheim, Calif., 2010

Nicotinic Acetylcholine Receptors 2011, Wellcome Trust Conference, Cambridge, UK, 2011

NIAAA/NIH, Rockville, MD, 2011

SFN Satellite Symposium: nAChR 2011: Emerging Frontiers in Basic Research & Clinical Science, Washington DC, 2011

University of North Carolina, Neuroscience Program, Chapel Hill, NC, 2012

Northwestern University, Chicago, IL, 2012

National Institute of Aging, NIA/NIH, 2012

UNC-Chapel Hill, Department of Pharmacology, 2012

University of California-San Diego, Neurobiology Seminar, Division of Biological Sciences, 2012

Keynote Speaker, Tenth Annual STEM Research Day, Saint Augustine's University, 2013

International Society of Neurochemistry session entitled "From Optogenetics to microRNA revelations in Cholinergic signaling", Cancun, Mexico, 2013

FENS Featured Regional Meeting- Neuroscience in Prague, Czech Republic, 2013

Nicotinic Acetylcholine Receptor-Based Therapeutics: Emerging Frontiers in Basic Research &

Clinical Science- 4th Satellite Meeting to the Society for Neuroscience, San Diego CA, 2013

Society for Neuroscience Symposium entitled "Synaptic Properties and Functional Consequences of Cholinergic Transmission in the CNS", Co-Chair and Speaker, San Diego, 2013

UCLA Integrative Biology Program, 2014

University of California- Irvine, Department of Pharmacology, 2014

Georgetown University School of Medicine, Department of Physiology and Biophysics, 2014

Duke University, Integrated Toxicology and Environmental Health Program, 2015

American Society for Neurochemistry session entitled "Cys-loop Receptors in Neurotransmission: Structural Aspects of Regulation by Exogenous and Endogenous Compounds", Co-Chair and Speaker, Atlanta, Georgia, 2015

University of Victoria, Department of Biology, Victoria, British Columbia, Canada, 2015