University of California, San Francisco
CURRICULUM VITAE

Name: Roger Nicoll, MD

Position: Professor, Step A/S
Cellular & Molecular Pharmacology
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EDUCATION

1959 - 1959	Princeton High School, Princeton, New Jersey	Graduated Diploma	General Education
1963 - 1965	Lawrence University,	Wisconsin B.A.	(Biology and Chemistry)
1965 - 1966	Public Health Service, Research Fellowship, Laboratory of Neuropharmacology,		NIMH (Chief, G.C. Salmoiraghi,
1966 - 1968	University of Rochester School of Medicine	M.D., with honors,	(Thesis: Integrative Mechanisms in the Olfactory Bulb)
1968 - 1969	University of Chicago Hospitals and Clinics	Intern	
1969 - 1973	Public Health Service	Research Associate	NIMH (Chief, F.E. Bloom, M.D.)

PRINCIPAL POSITIONS HELD

1968 - 1969	University of Chicago Hospitals and Clinics	Intern in Medicine	
1969 - 1973	Public Health Service:	Research Associate,	Laboratory of Neuropharmacology, NIMH (Chief: F.E. Bloom, M.D.)

1969 - 1973	Public Health Service, Saint Elizabeths' Hospital	MILITARY SERVICE	
1973 - 1975	Research Associate Professor, Laboratory of Neurobiology, SUNY at Buffalo (with J.C. Eccles, M.D., Ph.D.)		
1975 - 1976	University of California, San Francisco	Assistant Professor	Departments of Pharmacology and Physiology,
1976 - 1976	Salk Institute for Biological Studies, La Jolla,	Visiting Associate Professor	
1977 - 1980	University of California, San Francisco	Associate Professor	Departments of Pharmacology and Physiology,
1980 - present	University of California, San Francisco	Professor	Departments of Cellular & Molecular Pharmacology and Physiology
1991 - 1993	University of California, San Francisco	Interim Chairman	Department of Pharmacology,
2007 - 2008	University of California, San Francisco	Interim Chairman	Department of Cellular and Molecular Pharmacology,

HONORS AND AWARDS

1968	Borden Award: Best Medical Research Completed During Medical School
1973	Dr. Henry C. and Bertha H. Buswell Fellowship
1977	NINCDS Research Career Development Award
1981	Klingenstein Senior Fellowship Award
1983	NIMH Research Scientist Development Award
1987	NINCDS Javits Award
1987	NIMH Merit Award
1988	NIMH Research Scientist Award
1989	Alden Spencer Award
1990	Neuroscience Research Program Associate
1993	Luigi Galvani Award
1994	National Academy of Sciences
1997	NIMH Merit Award (second)
1998	Lucie R. Briggs Distinguished Achievement Award, Lawrence University

1999	Bristol Meyers Squibb Investigator
1999	Fellow, American Academy of Arts and Sciences
1999	Forty-Second Faculty Research Lecture, UCSF
1999	Morris Herzstein Endowed Chair
2002	Sherrington Lecture
2004	Heinrich-Wieland-Preis
2004	Honorary Member, The Physiological Society, London
2005	Perl/UNC Neuroscience Award (with Robert Malenka)
2006	Gruber Award for distinguished accomplishments in Neuroscience (with M. Ito)
2007	NIMH Merit Award (third)
2008	First Kavli Lecture (Columbia University)
2008	24th Annual J. Allyn Taylor International Prize in Medicine (with Michael Greenberg)Institute of Medicine
2009	National Academy of Science - Neuroscience Award
2010	Hodgkin-Huxley-Katz Prize Lecture - Physiological Society, London
2011	23rd Annual Pasarow Award in Neuroscience (with Charles Stevens and Robert Malenka)
2011	Kuffler Lectures, UCSD
2011	Axelrod Prize, awarded by the Society for Neuroscience
2012	Scolnick Prize, MIT
2014	The Society for Neuroscience Grass Lecture
2014	Ralph W. Gerard Prize
2014	Warren Alpert Foundation Prize

KEYWORDS/AREAS OF INTEREST

neurons, synapses, brain, learning, memory, hippocampus

PROFESSIONAL ACTIVITIES

SERVICE TO PROFESSIONAL PUBLICATIONS

1987 - 1993	Proc. Royal Soc. Series (B)
1988 - present	Neuron
1989 - 1996	Journal of Physiology
1989 - 2004	Journal of Neurophysiology
1989 - 1996	Journal of Neuroscience
1990 - 2004	Science (Board of Reviewing Editors)
1991 - present	Current Opinion in Neurobiology
1992 - 1994	Neuron (Senior Editor)
1993 - present	Hippocampus
1996 - present	Molecular and Cellular Neurobiology
1998 - 2003	Physiological Reviews
2000 - 2006	Proc. Natl. Acad. Sci. U.S.A.

UNIVERSITY AND PUBLIC SERVICE

UNIVERSITY SERVICE

PUBLIC SERVICE

-	American Association for the Advancement of Science	
-	American Physiological Society	
-	American Society for Pharmacology and Experimental Therapeutics	
-	European Brain Research Organization, Member of the Governing Council	
-	Society for Neuroscience	
-	The Physiological Society (U.K.)	Honorary Member
-	National Academy of Sciences	
-	American Academy of Arts & Sciences	
1998 - 2007	Howard Hughes Medical Institute	Review Board
2009 - present	Member of the Neuroscience student admission committee	
2012 - 2016	Director of the Neuroscience Graduate Program	

PEER REVIEWED PUBLICATION

1. Nicoll RA. Inhibitory mechanisms in the rabbit olfactory bulb: dendrodendritic mechanisms. Brain Res. 1969 Jun; 14(1):157-72. PMID: 5783107

2. Nicoll RA. Identification of tufted cells in the olfactory bulb. Nature. 1970 Aug. 8; 227:632-5. PMID: 5429297

3. Nicoll RA. Recurrent excitatory pathways of anterior commissure and mitral cell axons in the olfactory bulb. Brain Res. 1970 May 4; 19(3):491-3. PMID: 4315456

4. Barker JL, Crayton JW, Nicoll RA. Supraoptic neurosecretory cells: adrenergic and cholinergic sensitivity. Science. 1971 Jan 15; 171(3967):208-10. PMID: 4395231

5. Barker JL, Crayton JW, Nicoll RA. Supraopticneurosecretory cells: autonomic modulation. Science. 1971 Jan 15; 171(3967):206-7. PMID: 5538831

6. Nicoll RA. Recurrent excitation of secondary olfactory neurons: a possible mechanism for signal amplification. Science. 1971 Feb 26; 171(3973):824-6. PMID: 5541166

7. Barker JL, Crayton JW, Nicoll RA. Noradrenaline and acetylcholine responses of supraoptic neurosecretory cells. J Physiol. 1971 Oct; 218(1):19-32. PMID: 4399777

8. Nicoll RA, Barker JL. Excitation of supraoptic neurosecretory cells by angiotensin II. Nat New Biol. 1971 Oct 6; 233(40):172-4. PMID: 4330552

9. Barker JL, Crayton JW, Nicoll RA. Antidromic and orthodromic responses of paraventricular and supraoptic neurosecretory cells. Brain Res. 1971 Oct 29; 33(2):353-66. PMID: 5134925

10. Nicoll RA. Pharmacological evidence for GABA as the transmitter in granule cell inhibition in the olfactory bulb. Brain Res. 1971 Dec 10; 35(1):137-49. PMID: 4332422

11. Nicoll RA, Barker JL. The pharmacology of recurrent inhibition in the supraoptic neurosecretory system. Brain Res. 1971 Dec 24; 35(2):501-11. PMID: 4400088

12. Nicoll RA. Olfactory nerves and their excitatory action in the olfactory bulb. Exp Brain Res. 1972; 14(2):185-97. PMID: 5016588

13. Bloom FE, Hoffer BJ, Siggins GR, Barker JL, Nicoll RA. Effects of serotonin on central neurons: microiontophoretic administration. Fed Proc. 1972 Jan-Feb; 31(1):97-106. PMID: 4333253

14. Nicoll RA. The effects of anaesthetics on synaptic excitation and inhibition in the olfactory bulb. J Physiol. 1972 Jun; 223(3):803-14. PMID: 5045741

15. Barker JL, Nicoll RA. Gamma-aminobutyric acid: role in primary afferent depolarization. Science. 1972 Jun 2; 176(4038):1043-5. PMID: 4338197

16. Barker JL, Nicoll RA. The pharmacology and ionic dependency of amino acid responses in the frog spinal cord. J Physiol. 1973 Jan; 228(2):259-77. PMID: 4346988

17. Nicoll RA, Barker JL. Effect of strychnine on dorsal root potentials and amino acid responses in frog spinal cord. Nat New Biol. 1973 Dec 19; 246(155):224-5. PMID: 4519608

18. Barker JL, Nicoll RA, Padjen A. Studies on convulsants in the isolated frog spinal cord. I. Antagonism of amino acid responses. J Physiol. 1975 Mar; 245(3):521-36. PMID: 1079871

19. Barker JL, Nicoll RA, Padjen A. Studies on convulsants in the isolated frog spinal cord. II. Effects on root potentials. J Physiol. 1975 Mar; 245(3):537-48. PMID: 167156

20. Nicoll RA. Presynaptic action of barbiturates in the frog spinal cord. Proc Natl Acad Sci U S A. 1975 Apr; 72(4):1460-3. PMID: 1079349

21. Eccles JC, Nicoll RA, Táboríková H, Willey TJ. Medial recticular neurons projecting Rostrally. J Neurophysiol. 1975 May; 38(3):531-8. PMID: 1127455

22. Eccles JC, Nicoll RA, Schwarz WF, Táboriková H, Willey TJ. Reticulospinal neurons with and without monosynaptic inputs from cerebellar nuclei. J Neurophysiol. 1975 May; 38(3):513-30. PMID: 1127454

23. Nicoll RA. Gamma-aminobutyrylcholine and GABA receptors on primary afferents in the frog spinal cord. J Pharm Pharmacol. 1975 Jul; 27(7):529-31. PMID: 239160

24. Nicoll RA. Pentobarbital: action on frog motoneurons. Brain Res. 1975 Oct 10; 96(1):119-23. PMID: 1174993

25. Nicoll RA. The action of acetylcholine antagonists on amino acid responses in the frog spinal cord in vitro. Br J Pharmacol. 1975 Dec; 55(4):449-58. PMID: 1082355

26. Nicoll RA, Eccles JC, Oshima T, Rubia F. Prolongation of hippocampal inhibitory postsynaptic potentials by barbiturates. Nature. 1975 Dec 18; 258(5536):625-7. PMID: 1207741

27. Nicoll RA, Padjen A. Pentylenetetrazol: an antagonist of GABA at primary afferents of the isolated frog spinal cord. Neuropharmacology. 1976 Jan; 15(1):69-71. PMID: 1256642

28. Eccles JC, Nicoll RA, Schwarz DW, Táborková H, Willey TJ. Medial reticular and perihypoglossal neurons projecting to cerebellum. J Neurophysiol. 1976 Jan; 39(1):102-8. PMID: 1249595

29. Eccles JC, Nicoll RA, Rantucci T, Táboríková H, Willey TJ. Topographic studies on medial reticular nucleus. J Neurophysiol. 1976 Jan; 39(1):109-18. PMID: 1249596

30. Nicoll RA, Padjen A, Barker JL. Analysis of amino acid responses on frog motoneurones. Neuropharmacology. 1976 Jan; 15(1):45-53. PMID: 1256640

31. Nicoll RA. The interaction of porphyrin precursors with GABA receptors in the isolated frog spinal cord. Life Sci. 1976 Aug 15; 19(4):521-5. PMID: 1085395

32. Nicoll RA. The excitatory actions of GABA [proceedings]. Psychopharmacol Bull. 1977 Jan; 13(1):31-2. PMID: 834813

33. Nicoll RA. Excitatory action of TRH on spinal motoneurones. Nature. 1977 Jan 20; 265(5591):242-3. PMID: 401949

34. Nicoll RA. The effect of conformationally restricted amino acid. Analogues on the frog spinal cord in vitro. Br J Pharmacol. 1977 Feb; 59(2):303-9. PMID: 837017

35. Nicoll RA, Siggins GR, Ling N, Bloom FE, Guillemin R. Neuronal actions of endorphins and enkephalins among brain regions: a comparative microiontophoretic study. Proc Natl Acad Sci U S A. 1977 Jun; 74(6):2584-8. PMID: 267951

36. Eccles J, Nicoll RA, Oshima T, Rubia FJ. The anionic permeability of the inhibitory postsynaptic membrane of hippocampal pyramidal cells. Proc R Soc Lond B Biol Sci. 1977 Sep 19; 198(1133):345-61. PMID: 21395

37. Allen GI, Eccles J, Nicoll RA, Oshima T, Rubia FJ. The ionic mechanisms concerned in generating the i.p.s.ps of hippocampal pyramidal cells. Proc R Soc Lond B Biol Sci. 1977 Sep 19; 198(1133):363-84. PMID: 21396

38. Guillemin R, Ling N, Lazarus L, Burgus R, Minick S, Bloom F, Nicoll R, Siggins G, Segal D. The endorphins, novel peptides of brain and hypophysial origin, with opiate-like activity: biochemical and biologic studies. Ann N Y Acad Sci. 1977 Oct 28; 297:131-57. PMID: 279259

39. Nicoll RA. Pentobarbital: differential postsynaptic actions on sympathetic ganglion cells. Science. 1978 Jan 27; 199(4327):451-2. PMID: 202032

40. Nicoll RA, Iwamoto ET. Action of pentobarbital on sympathetic ganglion cells. J Neurophysiol. 1978 Jul; 41(4):977-86. PMID: 210265

41. Nicoll RA. The blockade of GABA mediated responses in the frog spinal cord by ammonium ions and furosemide. J Physiol. 1978 Oct; 283:121-32. PMID: 722571

42. Nicoll RA. The action of thyrotropin-releasing hormone, substance P and related peptides on frog spinal motoneurons. J Pharmacol Exp Ther. 1978 Dec; 207(3):817-24. PMID: 104026

43. Nicoll RA, Alger BE. Presynaptic inhibition: transmitter and ionic mechanisms. Int Rev Neurobiol. 1979; 21:217-58. PMID: 43844

44. Nicoll RA. Dorsal root potentials and changes in extracellular potassium in the spinal cord of the frog. J Physiol. 1979 May; 290(2):113-27. PMID: 224169

45. Alger BE, Nicoll RA. GABA-mediated biphasic inhibitory responses in hippocampus. Nature. 1979 Sep 27; 281(5729):315-7. PMID: 551280

46. Nicoll RA, Schenker C, Leeman SE. Substance P as a transmitter candidate. Annu Rev Neurosci. 1980; 3:227-68. PMID: 6158283

47. Jahr CE, Nicoll RA. Dendrodendritic inhibition: demonstration with intracellular recording. Science. 1980 Mar 28; 207(4438):1473-5. PMID: 7361098

48. Nicoll RA, Wojtowicz JM. The effects of pentobarbital and related compounds on frog motoneurons. Brain Res. 1980 Jun 2; 191(1):225-37. PMID: 6247012

49. Nicoll RA, Alger BE, Jahr CE. Enkephalin blocks inhibitory pathways in the vertebrate CNS. Nature. 1980 Sep 4; 287(5777):22-5. PMID: 6251377

50. Alger BE, Nicoll RA. Spontaneous inhibitory post-synaptic potentials in hippocampus: mechanism for tonic inhibition. Brain Res. 1980 Oct 27; 200(1):195-200. PMID: 7417806

51. Nicoll RA, Alger BE, Jahr CE. Peptides as putative excitatory neurotransmitters: carnosine, enkephalin, substance P and TRH. Proc R Soc Lond B Biol Sci. 1980 Oct 29; 210(1178):133-49. PMID: 6159651

52. Alger BE, Nicoll RA. Epileptiform burst afterhyperolarization: calcium-dependent potassium potential in hippocampal CA1 pyramidal cells. Science. 1980 Dec 5; 210(4474):1122-4. PMID: 7444438

53. Alger BE, Jahr CE, Nicoll RA. Electrophysiological analysis of GABAergic local circuit neurons in the central nervous system. Adv Biochem Psychopharmacol. 1981; 26:77-91. PMID: 7457236

54. Nicoll RA, Alger BE. Synaptic excitation may activate a calcium-dependent potassium conductance in hippocampal pyramidal cells. Science. 1981 May 22; 212(4497):957-9. PMID: 6262912

55. Nicoll RA, Alger BE. A simple chamber for recording from submerged brain slices. J Neurosci Methods. 1981 Aug; 4(2):153-6. PMID: 7278366

56. Jahr CE, Nicoll RA. Primary afferent depolarization in the in vitro frog olfactory bulb. J Physiol. 1981 Sep; 318:375-84. PMID: 6976427

57. Nicoll RA. Responses of central neurons to opiates and opioid peptides. Adv Biochem Psychopharmacol. 1982; 33:337-46. PMID: 6751034

58. Wojtowicz JM, Nicoll RA. Selective action of piretanide on primary afferent GABA responses in the frog spinal cord. Brain Res. 1982 Mar 18; 236(1):173-81. PMID: 6279234

59. Nicoll RA, Jahr CE. Self-excitation of olfactory bulb neurones. Nature. 1982 Apr 1; 296(5856):441-4. PMID: 6278326

60. Jahr CE, Nicoll RA. An intracellular analysis of dendrodendritic inhibition in the turtle in vitro olfactory bulb. J Physiol. 1982 May; 326:213-34. PMID: 7108788

61. Jahr CE, Nicoll RA. Noradrenergic modulation of dendrodendritic inhibition in the olfactory bulb. Nature. 1982 May 20; 297(5863):227-9. PMID: 7078637

62. Alger BE, Nicoll RA. Pharmacological evidence for two kinds of GABA receptor on rat hippocampal pyramidal cells studied in vitro. J Physiol. 1982 Jul; 328:125-41. PMID: 7131310

63. Alger BE, Nicoll RA. Feed-forward dendritic inhibition in rat hippocampal pyramidal cells studied in vitro. J Physiol. 1982 Jul; 328:105-23. PMID: 7131309

64. Nicoll RA, Madison DV. General anesthetics hyperpolarize neurons in the vertebrate central nervous system. Science. 1982 Sep 10; 217(4564):1055-7. PMID: 7112112

65. Madison DV, Nicoll RA. Noradrenaline blocks accommodation of pyramidal cell discharge in the hippocampus. Nature. 1982 Oct 14; 299(5884):636-8. PMID: 6289127

66. Alger BE, Nicoll RA. Ammonia does not selectively block IPSPs in rat hippocampal pyramidal cells. J Neurophysiol. 1983 Jun; 49(6):1381-91. PMID: 6875629

67. Cole AE, Nicoll RA. Acetylcholine mediates a slow synaptic potential in hippocampal pyramidal cells. Science. 1983 Sep 23; 221(4617):1299-301. PMID: 6612345

68. Newberry NR, Nicoll RA. A bicuculline-resistant inhibitory post-synaptic potential in rat hippocampal pyramidal cells in vitro. J Physiol. 1984 Mar; 348:239-54. PMID: 6716285

69. Newberry NR, Nicoll RA. Direct hyperpolarizing action of baclofen on hippocampal pyramidal cells. Nature. 1984 Mar 29-Apr 4; 308(5958):450-2. PMID: 6709051

70. Cole AE, Nicoll RA. Characterization of a slow cholinergic post-synaptic potential recorded in vitro from rat hippocampal pyramidal cells. J Physiol. 1984 Jul; 352:173-88. PMID: 6747887

71. Cole AE, Nicoll RA. The pharmacology of cholinergic excitatory responses in hippocampal pyramidal cells. Brain Res. 1984 Jul 9; 305(2):283-90. PMID: 6331600

72. Madison DV, Nicoll RA. Control of the repetitive discharge of rat CA 1 pyramidal neurones in vitro. J Physiol. 1984 Sep; 354:319-31. PMID: 6434729

73. Newberry NR, Nicoll RA. Comparison of the action of baclofen with gamma-aminobutyric acid on rat hippocampal pyramidal cells in vitro. J Physiol. 1985 Mar; 360:161-85. PMID: 3989713

74. Pennefather P, Lancaster B, Adams PR, Nicoll RA. Two distinct Ca-dependent K currents in bullfrog sympathetic ganglion cells. Proc Natl Acad Sci U S A. 1985 May; 82(9):3040-4. PMID: 2581262

75. Otis LC, Madison DV, Nicoll RA. Folic acid has a disinhibitory action in the rat hippocampal slice preparation. Brain Res. 1985 Nov 4; 346(2):281-6. PMID: 2996706

76. Malenka RC, Madison DV, Andrade R, Nicoll RA. Phorbol esters mimic some cholinergic actions in hippocampal pyramidal neurons. J Neurosci. 1986 Feb; 6(2):475-80. PMID: 3456434

77. Madison DV, Nicoll RA. Actions of noradrenaline recorded intracellularly in rat hippocampal CA1 pyramidal neurones, in vitro. J Physiol. 1986 Mar; 372:221-44. PMID: 2873241

78. Madison DV, Nicoll RA. Cyclic adenosine 3',5'-monophosphate mediates beta-receptor actions of noradrenaline in rat hippocampal pyramidal cells. J Physiol. 1986 Mar; 372:245-59. PMID: 2425084

79. Malenka RC, Madison DV, Nicoll RA. Potentiation of synaptic transmission in the hippocampus by phorbol esters. Nature. 1986 May 8-14; 321(6066):175-7. PMID: 3010137

80. Madison DV, Malenka RC, Nicoll RA. Phorbol esters block a voltage-sensitive chloride current in hippocampal pyramidal cells. Nature. 1986 Jun 12-18; 321(6071):695-7. PMID: 2423884

81. Malenka RC, Nicoll RA. Dopamine decreases the calcium-activated afterhyperpolarization in hippocampal CA1 pyramidal cells. Brain Res. 1986 Aug 6; 379(2):210-5. PMID: 3017510

82. Andrade R, Malenka RC, Nicoll RA. A G protein couples serotonin and GABAB receptors to the same channels in hippocampus. Science. 1986 Dec 5; 234(4781):1261-5. PMID: 2430334

83. Malenka RC, Ayoub GS, Nicoll RA. Phorbol esters enhance transmitter release in rat hippocampal slices. Brain Res. 1987 Feb 10; 403(1):198-203. PMID: 2881605

84. Madison DV, Lancaster B, Nicoll RA. Voltage clamp analysis of cholinergic action in the hippocampus. J Neurosci. 1987 Mar; 7(3):733-41. PMID: 3559710

85. Andrade R, Nicoll RA. Novel anxiolytics discriminate between postsynaptic serotonin receptors mediating different physiological responses on single neurons of the rat hippocampus. Naunyn Schmiedebergs Arch Pharmacol. 1987 Jul; 336(1):5-10. PMID: 2888027

86. Lancaster B, Nicoll RA. Properties of two calcium-activated hyperpolarizations in rat hippocampal neurones. J Physiol. 1987 Aug; 389:187-203. PMID: 2445972

87. Andrade R, Nicoll RA. Pharmacologically distinct actions of serotonin on single pyramidal neurones of the rat hippocampus recorded in vitro. J Physiol. 1987 Dec; 394:99-124. PMID: 3443977

88. Dutar P, Nicoll RA. Stimulation of phosphatidylinositol (PI) turnover may mediate the muscarinic suppression of the M-current in hippocampal pyramidal cells. Neurosci Lett. 1988 Feb 15; 85(1):89-94. PMID: 3362417

89. Madison DV, Nicoll RA. Norepinephrine decreases synaptic inhibition in the rat hippocampus. Brain Res. 1988 Feb 23; 442(1):131-8. PMID: 2834010

90. Dutar P, Nicoll RA. A physiological role for $GABA_B$ receptors in the central nervous system. Nature. 1988 Mar 10; 332(6160):156-8. PMID: 2831457

91. Nicoll RA, Kauer JA, Malenka RC. The current excitement in long-term potentiation. Neuron. 1988 Apr; 1(2):97-103. PMID: 2856092

92. Madison DV, Nicoll RA. Enkephalin hyperpolarizes interneurones in the rat hippocampus. J Physiol. 1988 Apr; 398:123-30. PMID: 3392667

93. Kauer JA, Malenka RC, Nicoll RA. NMDA application potentiates synaptic transmission in the hippocampus. Nature. 1988 Jul 21; 334(6179):250-2. PMID: 2840582

94. Nicoll RA. The coupling of neurotransmitter receptors to ion channels in the brain. Science. 1988 Jul 29; 241(4865):545-51. PMID: 2456612

95. Dutar P, Nicoll RA. Pre- and postsynaptic GABAB receptors in the hippocampus have different pharmacological properties. Neuron. 1988 Sep; 1(7):585-91. PMID: 2856099

96. Malenka RC, Kauer JA, Zucker RS, Nicoll RA. Postsynaptic calcium is sufficient for potentiation of hippocampal synaptic transmission. Science. 1988 Oct 7; 242(4875):81-4. PMID: 2845577

97. Dutar P, Nicoll RA. Classification of muscarinic responses in hippocampus in terms of receptor subtypes and second-messenger systems: electrophysiological studies in vitro. J Neurosci. 1988 Nov; 8(11):4214-24. PMID: 3141594

98. Kauer JA, Malenka RC, Nicoll RA. A persistent postsynaptic modification mediates long-term potentiation in the hippocampus. Neuron. 1988 Dec; 1(10):911-7. PMID: 2908443

99. Dutar P, Nicoll RA. Pharmacological characterization of muscarinic responses in rat hippocampal pyramidal cells. EXS. 1989; 57:68-76. PMID: 2533106

100. Nicoll RA, Malenka RC, Kauer JA. The role of calcium in long-term potentiation. Ann N Y Acad Sci. 1989; 568:166-70. PMID: 2560896

101. Dutar P, Lamour Y, Nicoll RA. Galanin blocks the slow cholinergic EPSP in CA1 pyramidal neurons from ventral hippocampus. Eur J Pharmacol. 1989 May 19; 164(2):355-60. PMID: 2474449

102. Malenka RC, Kauer JA, Perkel DJ, Mauk MD, Kelly PT, Nicoll RA, Waxham MN. An essential role for postsynaptic calmodulin and protein kinase activity in long-term potentiation. Nature. 1989 Aug 17; 340(6234):554-7. PMID: 2549423

103. Malenka RC, Kauer JA, Perkel DJ, Nicoll RA. The impact of postsynaptic calcium on synaptic transmission--its role in long-term potentiation. Trends Neurosci. 1989 Nov; 12(11):444-50. PMID: 2479146

104. Sah P, Hestrin S, Nicoll RA. Tonic activation of NMDA receptors by ambient glutamate enhances excitability of neurons. Science. 1989 Nov 10; 246(4931):815-8. PMID: 2573153

105. Kauer JA, Malenka RC, Perkel DJ, Nicoll RA. Postsynaptic mechanisms involved in long-term potentiation. Adv Exp Med Biol. 1990; 268:291-9. PMID: 1963741

106. Hestrin S, Perkel DJ, Sah P, Manabe T, Renner P, Nicoll RA. Physiological properties of excitatory synaptic transmission in the central nervous system. Cold Spring Harb Symp Quant Biol. 1990; 55:87-93. PMID: 1966773

107. Hestrin S, Nicoll RA, Perkel DJ, Sah P. Analysis of excitatory synaptic action in pyramidal cells using whole-cell recording from rat hippocampal slices. J Physiol. 1990 Mar; 422:203-25. PMID: 1972190

108. Nicoll RA, Malenka RC, Kauer JA. Functional comparison of neurotransmitter receptor subtypes in mammalian central nervous system. Physiol Rev. 1990 Apr; 70(2):513-65. PMID: 1690904

109. Zalutsky RA, Nicoll RA. Comparison of two forms of long-term potentiation in single hippocampal neurons. Science. 1990 Jun 29; 248(4963):1619-24. PMID: 2114039

110. Perkel DJ, Hestrin S, Sah P, Nicoll RA. Excitatory synaptic currents in Purkinje cells. Proc Biol Sci. 1990 Aug 22; 241(1301):116-21. PMID: 1978337

111. Hestrin S, Sah P, Nicoll RA. Mechanisms generating the time course of dual component excitatory synaptic currents recorded in hippocampal slices. Neuron. 1990 Sep; 5(3):247-53. PMID: 1976014

112. Sah P, Hestrin S, Nicoll RA. Properties of excitatory postsynaptic currents recorded in vitro from rat hippocampal interneurones. J Physiol. 1990 Nov; 430:605-16. PMID: 1982315

113. Lancaster B, Nicoll RA, Perkel DJ. Calcium activates two types of potassium channels in rat hippocampal neurons in culture. J Neurosci. 1991 Jan; 11(1):23-30. PMID: 1986065

114. Madison DV, Malenka RC, Nicoll RA. Mechanisms underlying long-term potentiation of synaptic transmission. Annu Rev Neurosci. 1991; 14:379-97. PMID: 1851607

115. Sah P, Nicoll RA. Mechanisms underlying potentiation of synaptic transmission in rat anterior cingulate cortex in vitro. J Physiol. 1991 Feb; 433:615-30. PMID: 1688165

116. Zalutsky RA, Nicoll RA. Comparison of two forms of long-term potentiation in single hippocampus neurons. Correction. Science. 1991 Feb 22; 251(4996):856. PMID: 2000487

117. Isaacson JS, Nicoll RA. Aniracetam reduces glutamate receptor desensitization and slows the decay of fast excitatory synaptic currents in the hippocampus. Proc Natl Acad Sci U S A. 1991 Dec 1; 88(23):10936-40. PMID: 1660156

118. Manabe T, Renner P, Nicoll RA. Postsynaptic contribution to long-term potentiation revealed by the analysis of miniature synaptic currents. Nature. 1992 Jan 2; 355(6355):50-5. PMID: 1346229

119. Zalutsky RA, Nicoll RA. Mossy fiber long-term potentiation shows specificity but no apparent cooperativity. Neurosci Lett. 1992 Apr 13; 138(1):193-7. PMID: 1357598

120. Kullmann DM, Nicoll RA. Long-term potentiation is associated with increases in quantal content and quantal amplitude. Nature. 1992 May 21; 357(6375):240-4. PMID: 1317014

121. Solís JM, Nicoll RA. Pharmacological characterization of GABAB-mediated responses in the CA1 region of the rat hippocampal slice. J Neurosci. 1992 Sep; 12(9):3466-72. PMID: 1326606

122. Solís JM, Nicoll RA. Postsynaptic action of endogenous GABA released by nipecotic acid in the hippocampus. Neurosci Lett. 1992 Nov 23; 147(1):16-20. PMID: 1336151

123. Kullmann DM, Perkel DJ, Manabe T, Nicoll RA. Ca2+ entry via postsynaptic voltage-sensitive Ca2+ channels can transiently potentiate excitatory synaptic transmission in the hippocampus. Neuron. 1992 Dec; 9(6):1175-83. PMID: 1361129

124. Bourne HR, Nicoll R. Molecular machines integrate coincident synaptic signals. Cell. 1993 Jan; 72 Suppl:65-75. PMID: 8094038

125. Isaacson JS, Solís JM, Nicoll RA. Local and diffuse synaptic actions of GABA in the hippocampus. Neuron. 1993 Feb; 10(2):165-75. PMID: 7679913

126. Weisskopf MG, Zalutsky RA, Nicoll RA. The opioid peptide dynorphin mediates heterosynaptic depression of hippocampal mossy fibre synapses and modulates long-term potentiation. Nature. 1993 Apr 1; 362(6419):423-7. PMID: 8096624

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