BIOGRAPHICAL SKETCH

Give the following information for all key personnel, consultants, and collaborators.

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NAME	POSITION TITLE
Gary L. Westbrook (D.O.B. 8/26/48)	Senior Scientist, Professor of Neurology

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE (*if applicable)*	YEAR(s)	FIELD OF STUDY
Miami University, Oxford OH	BA	1970	Zoology
Case Western Reserve University, Cleveland OH	MSE	1974	Bioengineering
Case Western Reserve University, Cleveland OH	MD	1976	Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

CLINICAL TRAINING

Mt. Auburn Hospital, Harvard, Cambridge, MA 1976-78 Intern, Resident in Internal Medicine
Barnes Hospital, Washington Univ. St. Louis 1978-81Resident in Neurology

RESEARCH AND PROFESSIONAL EXPERIENCE

PRAT Fellow, Pharmacol Sci Program, NIGMS, NIH, Bethesda, MD (1981-83); Staff & Sr Staff Fellow, Lab Developmental Neurobiol, NIH, Bethesda, MD (1983-87); Asst Prof (Neurology); Asst Scientist (Vollum Inst), Oregon Health Sci Univ, Portland OR (1987-); Associate Professor of Neurology (1988-); Attending Neurologist, University Hospital, Portland OR (1988-), Physician, Epilepsy Program (1989-); Senior Scientist, Vollum Institute (1990-); Professor of Neurology and Physiology & Pharmacology (1992-).

AWARDS AND HONORS

magna cum laude, Phi Beta Kappa, Omicron Delta Kappa, Miami University (1970); NIH Predoctoral Trainee in Biomedical Engineering (1970-73); Diplomate, American Board of Internal Medicine (1979); Irwin Levy Resident Teaching Award, Dept. Neurology, Washington University (1980); American Board of Psychiatry & Neurology, Part I (1982); McKnight Endowment Fund for Neuroscience Development Award (1988); Klingenstein Fellowship in Neuroscience (1990); Excellence in Teaching Award, Graduate Program, Oregon Health Sciences University (1993); Javits Neuroscience Investigator Award, NINDS, NIH (1993); MERIT Award, NIMH, NIH (1997); Special Lecturer, Japan Neuroscience Society (1999); Special Lecturer, Society for Neuroscience meeting (2000).

PROFESSIONAL SERVICE

Associate Editor, Cellular Neuroscience Section, *Journal of Neuroscience* (1988-93); Behavioral & Neuroscience Study Section, Subcommittee 1, DRG, NIH (1988-91); Ad hoc, Neurological Sciences I and NINDS Program Project A Study Section (1993-94); Cellular and Molecular Neuroscience Study Section, NIMH, NIH (1995-96); Editorial Board, *Molecular Pharmacology* (1995-98); Section Editor, Cellular Neuroscience, *Journal of Neuroscience* (1995-97); Program Committee, Society for Neuroscience (1996-99); NIH CSR Working Group on MDCN study sections, 2000; Senior Editor, Cellular and Molecular Neuroscience, *Journal of Neuroscience* (1997-2002). Editor-In-Chief, *Journal of Neuroscience* (2003-

SELECTED PUBLICATIONS (from a total of 100)

7. Mayer ML, **Westbrook GL**, Guthrie PB (1984) Voltage dependent block by magnesium ions of NMDA responses in spinal cord neurones. *Nature* 309, 261-263.
13. MacDermott AB, Mayer ML, **Westbrook GL**, Smith SJ, Barker JL (1986) NMDA-receptor activation increases cytoplasmic calcium concentration in cultured spinal cord neurones. *Nature* 321, 519-522.
20. **Westbrook GL**, Mayer ML (1987) Micromolar concentrations of zinc antagonize NMDA and GABA responses on hippocampal neurones. *Nature* 328, 640-643.

22. Mayer ML, **Westbrook GL** (1987) The physiology of excitatory amino acids in the mammalian central nervous system. *Prog Neurobiol* 28, 197-276.
33. Lester RAJ, Clements JD, **Westbrook GL**, Jahr CE (1990) Channel kinetics determine the time course of NMDA receptor-mediated synaptic currents. *Nature* 346, 565-567.
38. Clements JD, **Westbrook GL** (1991) Activation kinetics reveal the number of ligand binding sites on the NMDA receptor. *Neuron* 7, 605-613.
44. Clements JD, Lester RAJ, Tong G, Jahr CE, **Westbrook GL** (1992) The time course of glutamate in the synaptic cleft. *Science* 258, 1498-1501.
47. Rosenmund C, **Westbrook GL** (1993) Calcium-induced actin depolymerization reduces NMDA channel activity. *Neuron* 10, 805-814.
50 Rosenmund C, Clements JD and **Westbrook GL** (1993). Nonuniform probability of glutamate release at a hippocampal synapse. *Science* 262, 764-767.
52. Rosenmund C, Carr DW, Bergeson SE, Nilaver G, Scott JD and **Westbrook GL** (1994). Anchoring of protein kinase A is required for modulation of AMPA/kainate receptors on hippocampal neurons. *Nature* 368, 853-855.
61. Jones MV, **Westbrook GL** (1995). Desensitized states prolong GABAA channel responses to brief agonist pulses. *Neuron* 15, 181-191.
62. Jones MV, **Westbrook** GL (1996). The impact of receptor desensitization on fast synaptic transmission. *Trends Neurosci* 19,96-101.
65. **Westbrook GL** (2000). Seizures and epilepsy. In Principles of Neural Science, 4th Edition (ER Kandel, JH Schwartz, TM Jessell, eds.), pp 910-935.
69. Jones MV, **Westbrook GL** (1997). Shaping of inhibitory postsynaptic currents by endogenous calcineurin activity. *J Neurosci* 76,7626-7633.
74. Clements JD, Feltz A, Sahara Y and **Westbrook GL** (1998). Activation kinetics of AMPA receptors reveal the number of agonist binding sites. *J Neurosci* 18, 119-127.
75. Krupp JJ, Vissel B, Heinemann SF and **Westbrook GL** (1998). N-terminal domains in the NR2 subunit control desensitization of NMDA receptors. *Neuron* 20, 317-327.
76. Jones MV, Dzubay JA, Sahara Y and **Westbrook GL** (1998). Defining affinity with the GABAA receptor. *J Neurosci* ,18, 8590-8604.
77. Schoppa NE, Kinzie JM, Sahara Y, Segerson TP and **Westbrook GL** (1998). Dendrodendritic inhibition at reciprocal synapses in the olfactory bulb is driven by NMDA receptor activity. *J Neurosci*, 18, 6790-6802.
78. Tovar KR and **Westbrook GL** (1999). The incorporation of NMDA receptors with a distinct subunit composition at nascent hippocampal synapses in vitro. *J Neurosci* 19, 4180-4188.
79. Krupp JJ, Vissel B, Thomas, CG, Heinemann SF and **Westbrook GL** (1999). Interactions of calmodulin and alpha-actinin with the NR1 subunit modulate Ca^{2+}-dependent inactivation of NMDA receptors. *J Neurosci* 19, 1165-1178.
80. Tovar KR and **Westbrook GL** (2000). NMDA EPSCs in NR2B-knockout mice show rapid kinetics. *J Neurophysiol.* 83, 616-620
81. Schoppa NE, **Westbrook GL** (1999). Regulation of synaptic timing in the olfactory bulb by an A-type potassium current. *Nature Neurosci* 2, 1106-1113.
82. Krupp JJ and**Westbrook GL** (2000). An orphan glutamate channel points the way to the gates. *Nature Neurosci* 3, 301-302.
84. Overstreet LO, Jones MV, **Westbrook GL** (2000). Slow desensitization regulates the availability of synaptic $GABA_A$ receptors. *J Neurosci* 20, 7914-7921.
85. Jones MV, Jonas P, **Westbrook GL** (2001). $GABA_A$ receptor agonists perform more work at the binding site than antagonists. *Biophysical J* 81, 2660-2670.
86. Chavis P, **Westbrook GL** (2001). Integrin-mediated maturation of presynaptic and postsynaptic compartments at a hippocampal synapse. *Nature* 411, 317-321.
87. Krupp JJ, Vissel B, Heinemann SF and **Westbrook GL** (2001). Use-dependent tyrosine dephosphorylation regulates NMDA receptor activity. *Nature Neurosci* 4, 587-596.
88. Christie JM, Schoppa NE, **Westbrook GL** (2001). Tufted cell dendrodendritic inhibition is dependent on interneuronal NMDA receptor activity. *J Neurophysiol* 85, 169-173.
89. Tovar KR, Westbrook GL (2002). Mobile NMDA receptors at hippocampal synapses. *Neuron* 34, 255-264.
91. Vissel B, Krupp JJ, Heinemann SF and **Westbrook GL** (2002). Intracellular domains of NR2 alter calcium-dependent inactivation of NMDA receptors. *Mol Pharmacol* 61, 595-605
92. Schoppa NE and **Westbrook GL** (2001). Glomerulus-specific synchronization of mitral cells in the olfactory bulb*Neuron* , 31, 639-651.
93. **Westbrook GL** (2000). Ligand-gated ion channels. In Cell Physiology Source Book, 3rd Edition (N Sperelakis, ed.), Academic Press, pp. xxx-xxx.
94. Overstreet LS and **Westbrook GL** (2001). Paradoxical reduction of synaptic inhibition by vigabatrin. *J Neurophysiol*. 86, 596-603.

95. Krupp JJ, Vissel B, Thomas CG, Heinemann SF and **Westbrook GL** (2002). Calcineurin acts via the C-terminus of NR2A to modulate desensitization of NMDA receptors. *Neuropharmacology*, 42, 593-602.
96. Schoppa NE and **Westbrook GL** (2001). NMDA receptors turn to another channel for inhibition. *Neuron* 877-879.
97. Overstreet LO and **Westbrook GL** (2003). Synaptic density regulates independence at unitary inhibitory synapses. *J Neurosci*, 23, 2618-2626.
98. Schoppa NE and **Westbrook GL** (2002). AMPA autoreceptors drive correlated spiking in olfactory bulb glomeruli. *Nature Neuroscience* 5, 1194-1202.
99. Christie JM and **Westbrook GL** (2003). Regulation of backpropagating action potentials in mitral cell lateral dendrites by A-type potassium currents. *J Neurophysiol* 89, 2466-2472.
100. Overstreet LO, **Westbrook GL** and Jones MV (2002). Measuring and modeling the spatiotemporal profile of GABA at the synapse. In Transmembrane transporters (M.V. Quick, ed.), Wiley-Liss Inc, pp. 259-275.

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