



CURRICULUM VITAE
RICHARD A. MEYER

EDUCATION: B.S. Electrical Engineering, Valparaiso University, 1968
M.S. Applied Physics, The Johns Hopkins University, 1971

APPOINTMENTS:

1968-1974 Associate Staff, Applied Physics Laboratory, Johns Hopkins University

1974-1983 Senior Staff, Applied Physics Laboratory, Johns Hopkins University

1977-1982 Special Advisor to the Director of Biomedical Programs (APL)

1980-1983 Instructor in Neurological Surgery, School of Medicine, Johns Hopkins University

1982-1991 Biomedical Programs Coordinator, Applied Physics Laboratory, Johns Hopkins University

1983- Principal Professional Staff, Applied Physics Laboratory, Johns Hopkins University

1983-1987 Assistant Professor of Neurological Surgery and of Biomedical Engineering, School of Medicine, Johns Hopkins University

1983-1994 Program Director, Neurosensory Interdisciplinary Program, Applied Physics Laboratory, Johns Hopkins University

1987-1994 Associate Professor of Neurological Surgery and of Biomedical Engineering, School of Medicine, Johns Hopkins University

1994- Professor of Neurological Surgery and of Biomedical Engineering, School of Medicine, Johns Hopkins University

1996- Chairman, Blaustein Pain Center Research Committee, School of Medicine, Johns Hopkins University

MEMBERSHIPS: Institute of Electrical and Electronics Engineers - 1966
Sigma Xi - 1976
Society for Neuroscience - 1978
International Association for the Study of Pain - 1983
American Pain Society - 1986

COMMITTEES: Basic Science Task Force, American Pain Society (1992)
Finance Committee, American Pain Society (1994-1997)
Frank T. McClure Fellowship Committee, JHU (1993-)
Scientific Program Committee, American Pain Society (2000)
Blaustein Pain Research Committee, JHU (1996 -)

HONORS: Tau Beta Pi - 1967
Lutheran Layman's League Award, Academic Excellence (1968)
Listed in: "Outstanding Young Men in America" (1982)
"Who's Who in the East, 17th Edition"
"Who's Who in Frontier Science & Technology" (1982)
"American Men & Women of Science (1986)
Jacob Javits Neuroscience Research Grant (Co-PI with J.N.Campbell) -
1988
R.W. Hart Prize for excellence in research - 1993

MAJOR RESEARCH INTEREST:

Neurophysiological and psychophysical mechanisms underlying acute and chronic pain; Application of advanced technology to problems in the neurosciences.

PATENTS:

Therapeutic method with capsaicin and capsaicin analogues (with J.N. Campbell and M. Pappagallo), U.S. Patent number: 5962532, Date of patent: 10/5/99

Device for thermal stimulation of small neural fibers (with J.C. Murphy, R.P. Szczepanowski, W. Schneider, J.C.McArthur, and M. Polydefkis), World Patent # WO03/040672 A2, 5/15/03

STUDENTS:

Doctoral students:

Donna Bea Tillman, Ph.D., "Heat response properties of unmyelinated nociceptors," 1992 Co-advisor, Johns Hopkins University; 2002: Deputy Director, Division of Cardiovascular Devices, Office of Device Evaluation, Center for Devices and Radiological Health, U.S. Food and Drug Administration, Rockville, MD.

David Blake, Ph.D., "Neural coding mechanisms in tactile pattern recognition" 1995, (Ken Johnson), Thesis committee, Johns Hopkins University

M. Allen McAlexander, "Modulation of airway sensory nerve activity" 1999, (Brad Udem) Thesis committee, Johns Hopkins University

Nada Lawand, Ph.D., "Glutamate Receptors: A Key Role in Peripheral Nociceptive Transduction" 2001, (Karin Westlund High) Thesis committee, University of Texas Medical Branch at Galveston.

Eric Moulton, Ph.D., "Neuroimaging of cross-modal pain intensity encoding and pain modulation," 2006, (Joel Greenspan) Thesis committee, University of Maryland

Post-doctoral fellows:

Gabriele Koschorke (1985 - 1990)

Karen D. Davis (1988 - 1991); 2002: Associate Professor, Canada Research Chair in Brain and Behaviour, University of Toronto, Toronto, Canada

Donald Manning (1986 - 1988)

Robert Van Boven (1989)

Robert Slugg (1992 - 1996)

Sherif Meleka (1994)

Yoon Choi (1994 - 1995)

Zahid Ali (1993 - 1997)

Matthias Ringkamp (1995-1997); 2002: Assistant Professor, Dept. Neurosurgery, Johns Hopkins University, Baltimore, MD

Perry N. Fuchs (1996 -1998); 2002: Assistant Professor of Psychology, University of Texas at Arlington, Arlington, TX

Yuan Bo Peng (1996 - 1998); 2002: Assistant Professor of Psychology, University of Texas at Arlington, Arlington, TX

Yongbo Li (1998 - 2000)

Heikki Mansikka (1998 - 1999)

Rishi N. Sheth (1998 - 2000)

Carolina Rosa (1997, 1999)

Gang Wu (1999 - 2001); 2002: Research Scientist, Department of Molecular Pharmacology, Purdue Pharma L.P. Cranbury, NJ

Beth B. Murinson (1999 - 2001)

Zijie Zhang (2000 - 2001)

Chenshui Zhao (2000 -)

Jill Tall (2001 - 2003)

Esther Pogatzki (2001 - 2002)

Lun Chen (2001 -)

Beom Shim (2002 - 2006)

Yun Guan (2003-)

Jasenska Borzan (2003 -)

Jacob Schwarz (2003 -)

Medical students and undergraduate students:

Susan Lancellotta (1979 -81)
Rodney Willoughby (1980 - 82)
Susan Jaffe (1981 - 1982)
Sheila Frost (1984 -86)
Steven Miller (1985)
Ira Spool (1993)
David K. Selig (1993)
Mary Pat Lancellotta (1996 -1997)
Daniel Oberer (1997)
Eric Grethel (1995 - 1997)
Jason Silver (1995 - 1997)
Brian Vannozzi (1998)
Jason Huang (1997 - 1999)
Michael Dorsi (1998 -)
Joseph Lin (2001 -)
Himali Weerahandi (2001)
George Lambrinos (2003 -)

PEER REVIEWED PUBLICATIONS:

1. R. A. Meyer, "Optical Beam Steering using a Multi-Channel Lithium Tantalate Crystal", Applied Optics, March 1972, Vol. II, No. 3, p. 613-616 (Also reprinted in : I. P. Kaminow, An Introduction to Electro-optic Devices, Academic Press, New York, 1974, p. 312-315).
2. R. A. Meyer, S. F. Haase, S. E. Poduslo, G. M. McKhann, "Light Scattering Patterns of Isolated Oligodendroglia", Journal of Histochemistry and Cytochemistry, 22, No. 7, July 1974, p. 594-597.
3. R. A. Meyer and A. Brunsting, "Light Scattering from Nucleated Biological Cells", Biophysical Journal, Vol. 15, March 1975, p. 191-203.
4. R. A. Meyer, R. E. Walker, V. B. Mountcastle, "A Laser Stimulator for the Study of Cutaneous Thermal and Pain Sensations", IEEE Biomedical Engineering, BME-23, No. 1, January 1976, p. 54-60.
5. R. A. Meyer, "Light Scattering from Red Blood Cell Ghosts: Sensitivity of Angular Dependent Structure to Membrane Thickness and Refractive Index", Applied Optics, Vol. 16, No. 9, August, 1977, p. 2036-2038.
6. R. A. Meyer and M. H. Friedman, "An Interferometric Technique for the Simultaneous Measurement of Passive Membrane Transport Coefficients", Review of Scientific Instruments, Vol. 48, No. 10, October, 1977, p. 1317-1321.

7. R. C. Benson, R. A. Meyer, M. E. Zaruba, G. M. McKhann, "Cellular Autofluorescence: Is it Due to Flavins", J. Histochemistry & Cytochemistry, 27 (1979) 44-48.
8. R. A. Meyer, "Light Scattering from Biological Cells: Dependence of Backscatter Radiation on Membrane Thickness and Refractive Index", Applied Optics, 18 (1979) 585-588.
9. J. N. Campbell, R. A. Meyer, R. H. LaMotte, "Sensitization of Myelinated Nociceptive Afferents that Innervate the Monkey Hand", J. Neurophysiology, 42 (Nov. 1979) 1669-1679.
10. R. A. Meyer, M. E. Zaruba, and G. M. McKhann, "Flow Cytometry of Isolated Cells from Brain", Analytical and Quantitative Cytology Journal, Vol. 2, No. 1, March-April 1980, p. 66-74.
11. R. A. Meyer, E. C. Hills, and M. H. Friedman, "Tracer Permeabilities Underestimate Transmembrane Solute Flux under a Concentration Gradient", J. Membrane Science, 8 (1981) 247-253.
12. M. H. Friedman and R. A. Meyer, "Transport Across Homoporous and Heteroporous Membranes in Nonideal, Nondilute Solutions: I. Inequality of Reflection Coefficients for Volume Flow and Solute Flow", Biophysical J., 34 (1981) 535-544.
13. M. H. Friedman and R. A. Meyer, "Transport Across Homoporous and Heteroporous Membranes in Nonideal, Nondilute Solutions: II. Inequality of Phenomenological and Tracer Solute Permeabilities", Biophysical J., 34 (1981) 545-557.
14. R. A. Meyer and J. N. Campbell "Peripheral Neural Coding of Pain Sensation" Johns Hopkins APL Technical Digest, 2 (1981) 164-171.
15. R. A. Meyer and J. N. Campbell, "Myelinated Nociceptive Afferents Account for the Hyperalgesia that follows a Burn Applied to the Hand", Science, 213 (1981) 1527-29.
16. R. A. Meyer and J. N. Campbell, "Evidence for Two Distinct Classes of Unmyelinated Nociceptive Afferents in the Monkey", Brain Research, 224 (1981) 149-152.
17. J. N. Campbell and R. A. Meyer, "Sensitization of Unmyelinated Nociceptive Afferents in the Monkey Varies with Skin Type", J. Neurophysiology, 49 (1983) 98-110.
18. J. N. Campbell, S. N. Raja and R. A. Meyer, "Halothane Sensitizes Cutaneous Nociceptors in Monkey", J. Neurophysiology, 52 (1984) 762-770.
19. R. A. Meyer, J. D. Mandell and M. H. Friedman, "Changes in Aortic Bifurcation Geometry During a Cardiac Cycle", J. Biomechanics, 17 (1984) 637-638.
20. S. N. Raja, J. N. Campbell, and R. A. Meyer, "Evidence for Different Mechanisms of Primary and Secondary Hyperalgesia Following Heat Injury to the Glabrous Skin", Brain, 107 (1984) 1179-1188.

21. R. A. Meyer, S. N. Raja, and J. N. Campbell, "Coupling of Action Potential Activity Between Unmyelinated Fibers in the Peripheral Nerve of Monkey", Science, 227 (1985) 184-187.
22. R. A. Meyer, S. N. Raja, J. N. Campbell, S. E. Mackinnon, and A. L. Dellon, "Neural Activity Originating from a Neuroma in the Baboon", Brain Research, 325 (1985) 255-260.
23. S. N. Raja, R. A. Meyer, J. N. Campbell, and A. A. Khan "Narcotics do not alter the heat response of unmyelinated primary afferents in monkey," Anesthesiology, 65 (1986) 468-473.
24. R. A. Meyer and J. N. Campbell, "Coupling Between Unmyelinated Peripheral Nerve Fibers does not Involve Sympathetic Efferent Fibers", Brain Research, 437 (1987) 181-182.
25. S. N. Raja, R. A. Meyer, and J. N. Campbell, "Peripheral Mechanisms of somatic pain", Anesthesiology, 68 (1988) 571-590.
26. R. A. Meyer and J. N. Campbell, "A Novel Electrophysiological Technique for Locating Cutaneous Nociceptive and Chemospecific Receptors", Brain Research, 441 (1988) 81-86.
27. R. A. Meyer, J. N. Campbell, and S. N. Raja, "Antidromic Nerve Stimulation in Monkey does not Sensitize Unmyelinated Nociceptors to Heat", Brain Research, 441 (1988) 168-172.
28. J. N. Campbell, S. N. Raja, R. A. Meyer, and S. E. Mackinnon, "Myelinated Afferents Signal the Hyperalgesia Associated with Nerve Injury", Pain, 32 (1988) 89-94.
29. J. N. Campbell, A. A. Khan, R. A. Meyer, and S. N. Raja, "Response to Heat of C-Fiber Nociceptors in Monkey are Altered by Injury in the Receptive Field but not by Adjacent Injury", Pain, 32 (1988) 327-332.
30. R. -D. Treede, R. A. Meyer, K. D. Davis, and J. N. Campbell, "Intradermal Injections of Bradykinin or Histamine Cause a Flare-Like Vaso-dilatation in Monkey. Evidence From Laser Doppler Studies" Neuroscience Letters, 115 (1990) 201-206.
31. R. -D. Treede, R. A. Meyer, and J. N. Campbell, "Comparison of heat and mechanical receptive fields of cutaneous C-fiber nociceptors in monkey," J. Neurophysiology, 64 (1990) 1502-1513.
32. N. A. Blum, B. G. Carkhuff, H. K. Charles, Jr., R. L. Edwards, and R. A. Meyer, "Multi-site microprobes for neural recordings" I.E.E.E. Trans. Biomed. Engr., 38 (1991) 68-74.
33. G. M. Koschorke, R. A. Meyer, D. B. Oakland, and J. N. Campbell, "Ectopic excitability of injured nerves in monkey: Entrained responses to vibratory stimuli," J. Neurophysiology, 65 (1991) 693-701.

34. R. A. Meyer, K. D. Davis, R. H. Cohen, R. -D. Treede, and J. N. Campbell, "Mechanically insensitive afferents (MIAs) in cutaneous nerves of monkey," Brain Research, 561 (1991) 252-261.
35. R. A. Meyer, G. M. Koschorke, D. B. Oakland, and J. N. Campbell, "Neural mechanisms for the abnormal sensations that follow a nerve injury," Johns Hopkins APL Tech. Dig., 12 (1991) 129-136.
36. K. D. Davis, R. -D. Treede, S. N. Raja, R. A. Meyer, J. N. Campbell, "Topical application of clonidine relieves hyperalgesia in patients with sympathetically maintained pain," Pain, 47 (1991) 309-317.
37. D. C. Manning, S. N. Raja, R. A. Meyer, and J. N. Campbell, "Pain and hyperalgesia after intradermal injection of bradykinin in humans," Clinical Pharmacology and Therapeutics, 50 (1991) 721-729.
38. N. A. Blum, B. G. Carkhuff, H. K. Charles, JR., R. L. Edwards, A. S. Francomacaro, and R. A. Meyer, "Neural Microprobes for multisite recording," Johns Hopkins APL Tech. Digest, 12 (1991) 159-165.
39. R. -D. Treede, R. A. Meyer, S. N. Raja, and J. N. Campbell, "Peripheral and central mechanism of cutaneous hyperalgesia," Progress in Neurobiology, 38 (1992) 397-421.
40. J. N. Campbell, R. A. Meyer, and S. N. Raja, "Is nociceptor activation by alpha-1 adrenergic receptors the culprit in sympathetically maintained pain (SMP)?" American Pain Society Journal, 1 (1992) 3-11.
41. S. N. Raja, J. N. Campbell, R. A. Meyer, and R. W. Colman, "Role of kinins in pain and hyperalgesia: Psychophysical studies in a patient with kininogen deficiency." Clinical Science, 83 (1992) 337-341.
42. A. A. Khan, S. N. Raja, D. C. Manning, J. N. Campbell, and R. A. Meyer, "The effects of bradykinin and sequence-related analogs on the response properties of cutaneous nociceptors in monkey," Somatosensory and Motor Research, 9 (1992) 97-106.
43. R. A. Meyer, K. D. Davis, S. N. Raja, and J. N. Campbell, "Sympathectomy does not abolish bradykinin-induced hyperalgesia in man," Pain, 51 (1992) 323-327.
44. R. A. Meyer, R. -D. Treede, S. N. Raja, and J. N. Campbell, "Peripheral versus central mechanisms for secondary hyperalgesia: Is the controversy resolved?" American Pain Society Journal, 1 (1992) 127-131.
45. K. D. Davis, R. A. Meyer, and J. N. Campbell "Chemosensitivity and sensitization of nociceptive afferents that innervate the hairy skin of monkey," J. Neurophysiology, 69 (1993) 1071-1081.

46. S. N. Raja, R. A. Meyer, and J. N. Campbell "Clonidine: effects on pre- vs. post-junctional adrenoceptors," Pain, 54 (1993) 361-2.
47. F. Cervero, R. A. Meyer, and J. N. Campbell "A psychophysical study of secondary hyperalgesia: evidence for increased pain to input from nociceptors" Pain, 58 (1994), 21-28.
48. G. M. Koschorke, R. A. Meyer, and J. N. Campbell "Cellular components necessary for mechano-electrical transduction are conveyed to primary afferent terminals by fast axonal transport" Brain Research 641 (1994) 99-104.
49. R. -D. Treede, R. A. Meyer, S. N. Raja, and J. N. Campbell "Evidence for two different heat transduction mechanisms in nociceptive primary afferents innervating monkey skin" J. Physiol., 483.3 (1995), 747-758.
50. D.-B. Tillman, R.-D. Treede, R. A. Meyer, and J. N. Campbell "Response of C-fiber nociceptors in the anesthetized monkey to heat stimuli: estimates of receptor depth and threshold." J. Physiol. , 485.3 (1995) 753-765.
51. D.-B. Tillman, R.-D. Treede, R. A. Meyer, and J. N. Campbell "Response of C-fiber nociceptors in the anesthetized monkey to heat stimuli: Correlation with pain threshold in humans" J. Physiol. , 485.3 (1995) 767-774.
52. K. D. Davis, R. A. Meyer, J. L. Turnquist, T. G. Filloon, M. Pappagallo, and J. N. Campbell, "Cutaneous injection of the capsaicin analog, NE-21610, produces analgesia to heat but not to mechanical stimuli in man," Pain 61 (1995) 17-26.
53. K. D. Davis, R. A. Meyer, J. L. Turnquist, T. G. Filloon, M. Pappagallo, and J. N. Campbell, "Cutaneous pretreatment with the capsaicin analog, NE-21610, prevents the pain and subsequent hyperalgesia following a burn," Pain 62 (1995) 373-378..
54. A. J. Belzberg, and R. A. Meyer "Management of sympathetically maintained pain," Neuroscience Forum, 4 (1994) 11-15.
55. W. Schneider, R. M. Slugg, B. P. Turnquist, R. A. Meyer, and J. N. Campbell, " An electromechanical stimulator system for neurophysiological and psychophysical studies of pain," J. Neuroscience Methods , 60 (1995) 61-68.
56. W. Schneider, T. J. Harris, I. E. Feldberg, J. T. Massey, A. P. Georgopoulos, and R. A. Meyer, "System for projection of a three-dimensional, moving virtual target for studies of eye-hand coordination," J. Neurosci. Methods , 62 (1995) 135-140.
57. Z. Ali, R. A. Meyer, and J. N. Campbell, "Secondary hyperalgesia to mechanical but not heat stimuli following a capsaicin injection in hairy skin," Pain 68 (1996) 401-411.

58. R. A. Meyer "Cutaneous hyperalgesia and primary afferent sensitization," *Pulmonary Pharmacology*, 8 (1995) 187-193.
59. Z.Ali, M. Ringkamp, T.V.Hartke, H.F.Chien, N.A.Flavahan, J.N.Campbell, and R.A.Meyer, "Uninjured C-fiber nociceptors develop spontaneous activity and alpha adrenergic sensitivity following L6 spinal nerve ligation in the monkey," *J. Neurophys.* 81 (1999) 455-466.
60. R.-D. Treede, J.N.Campbell, and R.A.Meyer, Myelinated mechanically-insensitive afferents from monkey hairy skin: Heat response properties, *J. Neurophys.* 80 (1998): 1082-1093.
61. R.M.Slugg, R.A.Meyer, and J.N.Campbell, "Response of cutaneous A- and C-fiber nociceptors in the monkey to controlled force stimuli," *J. Neurophysiol.* 83 (2000):2179-91.
62. M. Ringkamp, S. Eschenfelder, E. J. Grethel, H.-J. Häbler, R. A. Meyer, W. Jänig, and S. N. Raja, "Lumbar sympathectomy failed to reverse mechanical allodynia- and hyperalgesia-like behavior in rats with L5 spinal nerve injury," *Pain* 79 (1999) 143-153.
63. M. Ringkamp, E. J. Grethel, Y. Choi, R. A. Meyer, and S. N. Raja, "Mechanical hyperalgesia after spinal nerve ligation in rat is not reversed by intraplantar or systemic administration of adrenergic antagonists," *Pain* 79 (1999) 135-141.
64. P. N. Fuchs, M. Pappagallo, and R. A. Meyer, "Topical EMLA pre-treatment fails to decrease the pain induced by 1% topical capsaicin," *Pain* 80 (1999) 637-642.
65. A. L. Oaklander, K. Romans, S. Horasek, A. Stocks, P. Hauer, and R. A. Meyer, "Unilateral postherpetic neuralgia is associated with bilateral sensory neurite damage," *Annals of Neurology* 44 (1998) 789-95.
66. J. H. Huang, Z. Ali, J. N. Campbell, and R. A. Meyer, "Spatial mapping of the zone of secondary hyperalgesia reveals a gradual decline of pain with distance but sharp borders," *Pain* 86 (2000) 33-42.
67. W. Magerl, Z. Ali, J. Ellrich, R. A. Meyer, and R.-D. Treede, "C- and A δ -fiber components of heat-evoked cerebral potentials in healthy human subjects," *Pain*, 82 (1999) 127-137.
68. Z. Ali, R. A. Meyer, and A. J. Belzberg, "Neuropathic pain after C7 spinal nerve transection in man," *Pain* 96 (2002) 41-47.
69. Y.N. Peng, M. Ringkamp, J.N. Campbell, and R.A. Meyer, "Electrophysiological assessment of the cutaneous arborization of A δ -fiber nociceptors," *J.Neurophysiol.* 82 (1999) 1164-1177.
70. P.N. Fuchs, J. N.Campbell, and R.A. Meyer, "Secondary hyperalgesia persists in capsaicin desensitized skin," *Pain* 84 (2000) 141-149.

71. R.M. Slugg, J. N. Campbell, R. A. Meyer "The population response of A- and C-fiber nociceptors in monkey encodes high intensity mechanical stimuli," J. Neuroscience 24 (2004) 4649-4656.
72. R.M. Slugg, J.N. Campbell, R. A. Meyer "Mechanical sensitization is localized to the region of a mechanical injury for cutaneous A-fiber nociceptors in the monkey" J. Neurophysiology (in preparation).
73. Y. B. Peng, M. Ringkamp, R.A. Meyer, and J. N. Campbell, "Fatigue and paradoxical enhancement of heat response in C-fiber nociceptors from cross-modal excitation" J. Neuroscience 23 (2003) 4766 - 4774.
74. E.A. Ziegler, W. Magerl , R.A. Meyer and R.-D. Treede Secondary hyperalgesia to punctate mechanical stimuli: Central sensitization to A-fibre nociceptor input, Brain 122 (1999) 2245-2258.
75. J. Silver, R.A. Meyer, J.N. Campbell, "Hyperalgesia to mechanical but not chemical stimuli during a selective A-fiber block" (in preparation)
76. W. Magerl, P.N. Fuchs, R.A. Meyer, R.-D. Treede, Roles of capsaicin-insensitive nociceptors in cutaneous pain and secondary hyperalgesia, Brain 124 (2001) 1754-1764.
77. Z. Ali, U. Wesselmann, P. Fuchs, R.A. Meyer, J.N.Campbell, and S. N. Raja "Intradermal injection of norepinephrine evokes pain in patients with sympathetically maintained pain" Pain 88 (2000) 161-168.
78. U. Wesselmann, Z. Ali, R. A. Meyer, J.N. Campbell, and S. N. Raja, "Topical clonidine attenuates cutaneous hyperalgesia in patients with sympathetically maintained pain" (in preparation).
79. P. N. Fuchs, R. A. Meyer, and S. N. Raja, "Heat, but not Mechanical Hyperalgesia, Following Adrenergic Injections in Normal Human Skin, Pain 90 (2001) 15-23.
80. Y. Li, M.J. Dorsi, R.A. Meyer, A.J. Belzberg, "Mechanical hyperalgesia after an L5 spinal nerve lesion is not dependent on input from injured nerve fibers" Pain 85 (2000) 493-502.
81. P.N. Fuchs, S.N.Raja, and R.A. Meyer "Topical Capsaicin for the Treatment of Neuropathic Pain" Analgesia 5 (2000) 1-8.
82. G. Wu, J. N. Campbell, and R. A. Meyer "Effects of baseline skin temperature on pain ratings to suprathreshold temperature-controlled stimuli" Pain 90 (2001) 151 - 156.
83. M. P. Lancelotta, R. N. Sheth,, R. A. Meyer, A.J. Belzberg, J. W. Griffin, J. N. Campbell "Severity and duration of hyperalgesia in rat varies with type of nerve lesion" Neurosurgery 53 (2003) 1200-9.

84. M.J. Dorsi, Y. Li, B.B. Murinson R.A. Meyer, J.W. Griffin, and A.J. Belzberg, "Relationship between mechanical hyperalgesia and extent of cutaneous denervation following an L5 spinal nerve ligation" *Pain* (2005) submitted.
85. M. Ringkamp, Y. B. Peng, G. Wu, T.V. Hartke, J.N. Campbell and R. A. Meyer, "Capsaicin responses in heat-sensitive and heat-insensitive A- fiber nociceptors" *J. Neuroscience* 21 (2001) 4460-4468.
86. R.N.Sheth, H. Mansikka, M.Ringkamp, R.A.Meyer, S.N.Raja. "NT-3 +/- mice exhibit blunted responses to nociceptive stimuli but still develop hyperalgesia after nerve injury" (in preparation).
87. M. Ringkamp, G. Wu, B. Shim, T.V. Hartke, E.M. Pogatzi-Zhan, T.V. Hartke, J.N.Campbell, R.A.Meyer. "Conduction properties in the Cutaneous Branches of Unmyelinated Nociceptors in Monkey Differ from the Parent Axon" *J. Neuroscience* (2007) submitted.
88. G. Wu, M. Ringkamp, T.V. Hartke, B.B. Murinson, J.N.Campbell, J.W. Griffin, R.A. Meyer. "Early Onset of Spontaneous Activity in Uninjured C-Fiber Nociceptors after Injury to Neighboring Nerve Fibers" *J. Neuroscience* 21 (2001) RC140.
89. R.N. Sheth, C. A. Pardo, L. Vadlamudi, J.W. Griffin, and R.A. Meyer "Neuropathic pain behavior in MCP knockout mice" (in preparation).
90. Y. B. Peng, M. Ringkamp, J. N. Campbell, and R. A. Meyer, "Decreased excitability in cutaneous nociceptor terminals following antidromic action potential invasion: mechanism of fatigue," *J.Neurophysiology* (in preparation).
91. R. N. Sheth, M. J. Dorsi, Y. Li, B. Murinson, A. J. Belzberg, J. W. Griffin, and R. A. Meyer "Mechanical hyperalgesia after an L5 ventral rhizotomy or an L5 ganglionectomy in the rat" *Pain* 96 (2002) 63-72.
92. G. Wu, M. Ringkamp, B. B. Murinson, E. M. Pogatzki, T. V. Hartke, H. M. Weerahandi, J. N. Campbell, J. W. Griffin, R. A. Meyer, "Degeneration of myelinated efferent fibers induces spontaneous activity in uninjured C-fiber afferents" *J. Neuroscience* 22 (2002) 7746-7753.
93. C. Zhao, P.W. Wacnik, J.M. Tall, D.C.Johns, G.L.Wilcox, R.A. Meyer, S.N.Raja, "Analgesic effects of a soy-containing diet in three murine bone cancer pain models," *J. Pain* 5 (2004), 104-110.
94. B.B. Murinson, P.N.Hoffman, M.R.Banihashemi, R.A. Meyer, J.W.Griffin, "C-fiber (Remak) bundles contain IB4-binding and CGRP-positive axons," *J. Comparative Neurology* 48 (2005) 392-402.
95. C. Zhao, J.M. Tall, R.A. Meyer, S.N.Raja, "Antiallodynic effects of systemic and intrathecal morphine in spared nerve injury model of neuropathic pain in rats," *Anesthesiology* 100 (2004) 905-911.

96. J.M. Tall, N. P. Seeram, C. Zhao, M. G. Nair, R. A. Meyer, S. N. Raja, "Tart cherry anthocyanins suppress inflammation-induced pain behavior in rat," *Behavioral Brain Research* 153 (2004) 181-188.
97. M. J. Dorsi, Lun Chen, R. A. Meyer, E. Pogatzki, A.J. Belzberg, "Ronald Tasker Award: a Novel Model of Neuroma Pain" *Clinical Neurosurgery* 50 (2003) 382 - 386.
98. C.S. Zhao, Y. X. Tao, J. M. Tall, D. M. Donovan, R. A. Meyer, S. N. Raja, "Role of μ -Opioid Receptors in Formalin-induced Pain Behavior in Mice," *Experimental Neurology* 184 (2003) 839-845.
99. A. E. Jann, J.N.Campbell, R.A. Meyer, Suppression of heat pain by noxious mechanical stimulation, *Pain* (2003) in preparation.
100. M. Ringkamp, B. Shim, E. M. Pogatzki, J.N. Campbell, R.A. Meyer "Increased conduction velocity in mechanoinsensitive C-fibers in response to a single twin stimulus," (2004) in preparation.
101. E.M. Pogatzki, M. Ringkamp, B. Shim, J.N. Campbell, R.A. Meyer, "Electrophysiological assessment of the cutaneous arborization of C-fiber nociceptors in monkey," (2004) in preparation.
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3. R. A. Meyer, "Neurophysiology of neuroma pain", 4th Annual Meeting American Pain Soc., Chicago, Ill., Nov. 1983.
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5. J. N. Campbell and R. A. Meyer, "Painful Sequelae of Peripheral Nerve Injury", Seminar, Dept. of Anesthesiology, Yale University School of Medicine, Jan. 15, 1985.
6. R. A. Meyer and J. N. Campbell, "The Effects of General Anesthetics on the Peripheral Nervous System", Grand Rounds, Dept. of Anesthesiology, Yale University School of Medicine, Jan. 16, 1985.

7. R. A. Meyer, "Peripheral Neural Basis of Pain Sensation", Dept. of Anatomy Seminar, M. S. Hershey Medical Center, Pennsylvania State University, Hershey, PA, March 14, 1985.
8. R. A. Meyer and J. N. Campbell, "Peripheral Neural Mechanisms of Pain", Neuroscience Council Meeting, The Johns Hopkins University, June 19, 1985.
9. R. A. Meyer, "Peripheral Pain Receptors", American Pain Society Fifth General Meeting, Dallas, Texas, Oct. 1985.
10. R. A. Meyer, "The Peripheral Signal for Pain", Food and Drug Administration, Rockville, MD., Nov. 13, 1985.
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19. R. A. Meyer, "Overview of pain mechanisms and pathways," Reflex Sympathetic Dystrophy: Current strategies in diagnosis and treatment, Jefferson Medical College, Philadelphia, PA, May 3-4, 1991.

20. R. A. Meyer, "Sensitization of mechanically insensitive afferents from the skin" Workshop on "What do nociceptors tell the brain?" Juan March Foundation, Madrid, Spain, February, 1992.
21. R. A. Meyer, "Noradrenergic excitation of cutaneous nociceptors two weeks after ligation of spinal nerve L₇ in monkey" Symposium on Mediators of Nociception, Akademie der Wissenschaften und der Literatur, Mainz, Germany, August, 1993.
22. R. A. Meyer, Discussant of plenary lecture entitled "Silent and active nociceptors: Structure, function, and clinical implications" by R.F.Schmidt, 7th World Congress on Pain, Paris, France, August, 1993.
23. R. A. Meyer, "Cutaneous hyperalgesia and sensitization of primary afferent nociceptors" Symposium of the contributions of airway nerves to bronchial hyperresponsiveness - similarities with hyperalgesia, Bermuda, June, 1995
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3. R. A. Meyer, J. N. Campbell, R. H. LaMotte, "Sensitization of A-Delta Nociceptive Afferents to Noxious Radiant Heat Delivered to the Monkey Hand", The 7th Annual Neurosciences Meeting, Anaheim, California, November 1977.
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23. R. A. Meyer, J. N. Campbell, S. N. Raja, "Coupling of Action Potential Activity Between Unmyelinated Fibers in the Normal Peripheral Nerve of Monkey", IVth World Congress on Pain, Seattle, Wash., Sept. 1984.
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