

CURRICULUM VITA
JAY B. DEAN

January 21, 2014
(short form)

WORK:

Dept. of Molecular Pharmacology and Physiology
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- 1974 – 79 Central Michigan University; Mount Pleasant, MI 48859
B.S., 08/79; Major, Biology (Mentor: Dr. Roy F. Burlington, Environmental Physiologist);
Minors, 1) Chemistry, 2) Conservation
- 1979 – 81 Michigan Technological University, Dept. of Biological Sciences, Houghton, MI 49931
M.S., Biol. Sci. (emphasis: Comparative Physiology/Respiration Physiology), 05/81
Thesis topic: *Effects of temperature and CO₂ on the acid-base status and ventilation of the
northern water snake, Nerodia sipedon sipedon* (Advisor, Dr. Ronald K. Gratz)
- 1981 - 86 The Ohio State University, Dept. of Physiology, Columbus, OH 43210
Ph.D., Physiology (emphasis: Physiology/Neurophysiology/Thermoregulation), 12/86
Dissertation topic: *An electrophysiological analysis of temperature reception and integration in
hypothalamic tissue slices* (Advisor, Dr. Jack A. Boulant)

POSTDOCTORAL EXPERIENCE (Mentor, Dr. David E. Millhorn, University of North Carolina at Chapel Hill; area of research: neurophysiology and cardio-respiratory control):

- 1986 – 88 NINCDS Postdoctoral Fellow, Department of Physiology, Curriculum for Neurobiology
1988 – 90 NRSA Postdoctoral Fellow, Department of Physiology
1990 – 91 Parker B. Francis Fellow in Pulmonary Research, Department of Physiology

EMPLOYMENT:

- 1991 Research Assist. Prof., Dept. of Physiology, Univ. of North Carolina, Chapel Hill, NC 27599
- 12/01/91-
06/30/97 Assist. Professor, Department of Physiology and Biophysics, Wright State University (WSU)
School of Med. (SOM), College of Science and Math. (CoSM), Dayton, OH 45435
- 07/01/97-
06/30/02 Associate Professor (with tenure), Department of Physiology and Biophysics, WSU-
SOM/CoSM, Dayton, OH
- 2000-
06/30/06 Director, Environmental & Hyperbaric Cell Biology Facility, WSU-Boonshoft School of
Medicine (BSOM), Dayton, OH
- 07/01/02-
06/30/03 Professor, Department of Physiology and Biophysics, WSU-SOM/CoSM, Dayton, OH
- 02/01/03-
2008 Adjunct Professor, Department of Military and Emergency Medicine, Uniformed Services
University of the Health Sciences (USUHS), Bethesda, MD 20814
- 07/01/03-
10/31/04 Acting-Chairman and Professor, Dept. of Anatomy and Physiology (administrative merger of
Dept. of Physiology & Biophysics with Dept. of Anatomy), WSU-SOM/CoSM, Dayton, OH
- 11/01/04-
03/21/05 Vice-Chairman of Administration and Professor, Dept. of Anatomy and Physiology, WSU-
SOM/CoSM, Dayton, OH

- 03/22/05-06/30/06 Vice-Chair of Administration and Professor, WSU-SOM/CoSM (Department renamed Neuroscience, Cell Biology and Physiology, WSU Boonshoft School of Medicine)
- 07/01/06-present Professor (with tenure), Dept. of Molecular Pharmacology & Physiology, Morsani College of Medicine, University of South Florida, Tampa, FL 33612; Director, USF Hyperbaric Biomedical Research Laboratory
- 07/1/10-10/31/11 Acting-Chairman, Dept. of Molecular Pharmacology & Physiology, College of Medicine, University of South Florida, Tampa, FL 33612

ADMINISTRATIVE EXPERIENCE:

- 9/97-9/99 Vice-Chairman, WSU-Laboratory Animal Care and Use Committee
- 10/99-2/03 Chairman, WSU- Laboratory Animal Care and Use Committee
- '02-03, '05-06 Faculty representative, WSU-School of Medicine Executive Committee
- 2002-03 Acting-Chairman (for Dr. P.K. Lauf), Department of Physiology and Biophysics, WSU-SOM/CoSM; at various intervals ranging from a few days up to 1 month during Chair's absence
- 07/01/03-10/31/04 Acting-Chairman and Professor, Department of Anatomy and Physiology, WSU-SOM/CoSM, Dayton, OH
- 10/10-15/03 Participant, Executive Development Seminar for Associate Deans and Department Chairs, Ft. Lauderdale, FL; jointly sponsored by the Association of American Medical Colleges and Harvard Medical School, Department of Continuing Education
- 12/16/03 Participant, Seminar: Criticism and Discipline Skills for Managers, Dayton, OH; sponsored by CareerTrack, Fred Pryor Seminars
- 11/01/04-06/30/06 Vice-Chair of Administration and Professor, Dept. of Anatomy and Physiology (renamed Dept. of Neuroscience, Cell Biology & Physiology, 03/22/05), WSU-SOM/CoSM, Dayton, OH
- 01/01/09-Present Chairman, USF Institutional Animal Care and Use Committee
- 7/1/10- Acting-Chairman and Professor, Dept. of Molecular Pharmacology & Physiology, USF

AWARDS & HONORS:

- 1984-85 Presidential Predoctoral Fellow, The Ohio State University, Columbus, OH
- 1990-91 Clifford W. Perry Award (UNC-CH); for the highest priority score on the North Carolina Affiliate American Lung Association Grant-in-Aid of Research
- 1993-95 named as an Edward Livingston Trudeau Scholar; for grant proposal to American Lung Association being in top 3% of grants reviewed. The award was declined by J.B. Dean due to scientific overlap of the ALA grant with an NIH FIRST Award that also was funded.
- 1999 Award for Outstanding Excellence in Research and Medical Education, Academy of Medicine, Wright State University, SOM
- 07/01/03-06/30/06 Brage Golding Distinguished Professor of Research, Wright State University
- 3/2004 SW Ohio Council for Higher Education (SOCHE) Faculty Excellence Award Winner

- 12/03/07 Special lecture, Dept. of Space Medicine; Reparto Medicina Aeronautic e Spaziale, Pratica di Mare AFB, Rome, Italy (“*A Jay B. Dean con stima ed amicizia—To Jay B. Dean with respect and friendship, Pratica di Mare 03.12.2007*”)
- 05/11/11 Smith Ames Memorial Lecture, Aerospace Physiology Society, Aerospace Medical Association (sponsored by David Clark Co. Inc.), AsMA Annual Scientific Meeting, Anchorage, Alaska
- 05/13/13 One of six faculty members nominated by the USF Health graduate students for the Robert J. Grasso Award for Outstanding Graduate-Level Education

RESEARCH INTERESTS:

CO₂-, O₂- and baro-sensitivity of the mammalian CNS. The J.B. Dean Lab studies the effects of respiratory gases (O₂ and CO₂) and barometric pressure on the function of the mammalian central nervous system (CNS), with an emphasis on the cardio-respiratory and gastro-esophageal control systems. Ongoing research in my laboratory, which is funded by the Office of Naval Research’s Undersea Medicine Program and Diver’s Alert Network (DAN) focuses on understanding how hyperoxia and hypercapnia (CO₂ retention) interact to generate reactive oxygen and nitrogen species that, in turn, activate neuronal activity in the caudal brain stem. This research has relevance to understanding normal and abnormal function in cardio-respiratory control during periods of disordered breathing and in understanding neurological problems arising from the use of oxygen (hyperoxia) in clinical medicine and combat operations. We are particularly interested in the following three areas of research: 1) the neurophysiology of CNS oxygen toxicity (CNS-OT; i.e., seizures); that is, identifying physiological markers that predict onset of an impending CNS-OT seizure, conditions that increase the risk for CNS-OT, and therapeutic interventions that delay onset of CNS-OT; 2) understanding how CO₂ and H-ions are “sensed” by central chemoreceptor neurons in the caudal brain stem; and 3) understanding how gastro-esophageal CO₂ ventilation supplements pulmonary CO₂ ventilation during chronic systemic respiratory acidosis and contributes, we postulate, to gastro-esophageal reflux disease and peptic ulcer disease.

TECHNICAL EXPERTISE:

Electrophysiological measurements of central neurons using *in vitro* (rat brain) and *in vivo* (rat) animal preparations. Specific techniques include: whole-cell/perforated-patch recordings with patch-clamp micropipettes; intracellular recording with sharp microelectrodes; intracellular dye injection and reconstruction of neuronal morphology; stereotaxic neurosurgery; immunohistochemistry; confocal/fluorescence/light microscopy; ratiometric fluorescence imaging of pH_i, reactive oxygen species (ROS) and reactive nitrogen species (RNS) in living brain slices; polarographic measurements of tissue slice PO₂, extracellular pH and ROS/RNS; and hyperbaric/hypobaric technology and methods: conducting intracellular recordings and measuring pH_i and ROS/RNS from neurons in rat brain slices during compression and decompression and exposure to hyperbaric/hypobaric gases; hyperbaric atomic force microscopy; hyperbaric radio telemetry; and whole-animal exposure to hyperbaric/hypobaric gases as a means of barometric and oxidative preconditioning.

EXTRAMURAL RESEARCH GRANTS AWARDED (J.B. DEAN, P.I.):

- 1988-89 NC Affiliate American Heart Grant-in-Aid of Research (UNC-CH): \$3,726
- 1990-91 NC Affiliate American Lung Association Grant-in-Aid of Research; recipient of the Clifford W. Perry Award for highest priority score (UNC-CH): \$10,000
- 1991-93 National Science Foundation Grant (NSF); *Electrophysiology & Morphology of CO₂/H⁺-Chemosensitive Neurons in Brainstem* (awarded while at UNC-CH & transferred to WSU in 1991): \$74,861 (direct costs), \$91,964 (total costs)

- 1993-95 American Lung Association/American Thoracic Society Research Grant; *Cellular Properties of CO₂/H⁺-Chemosensitive Neurons*: \$49,907; named as an Edward Livingston Trudeau Scholar due to P.I.'s application falling in the top 3% of grants reviewed. The grant and named award were declined by JBD due to funding of the alternative NIH FIRST Award cited above.
- 1993-98 NIH FIRST Award (R-29); *Mechanisms of CO₂/H⁺-Sensitivity in Brainstem Neurons*: \$349,392 (direct costs), \$493,231 (total costs)
- 1997-01 National Institutes of Health (NIH) Research (R01 HL 56683) Grant; *Intracellular pH responses of central chemoreceptors*. \$627,933 (total direct costs for years 1-4: 1997-01), \$883,896 (total costs for first 4 yrs); Co-PI.: R.W. Putnam. Please note: this grant was renewed in 2001 for 4 more years; however, now Dr. Putnam is the P.I. and Dr. Dean is the Co-P.I. (see below).
- 1999-00 Kettering Hyperbaric and Wound Care Center; Kettering Hospital, Medical Multiplex, Inc., and Wright-Patterson Air Force Base; *Effects of Hyperbaric Oxygen and Helium on Neurotransmitters*: \$5,000 total costs.
- 10/00-12/03 ONR, Undersea Medicine Program (N000140110179); *Cellular mechanisms of oxygen toxicity in the mammalian central nervous system*. \$ 491,410 (direct costs), \$702,717 (total costs)
- 2002-03 Defense University Research Instrumentation Program (DURIP) Grant, DOD/ONR (N000140210643); *Hyperbaric Imaging Equipment: Fluorescence microscopy for in vitro studies of oxygen toxicity*. \$ 243,514 (total costs, equipment funds)
- 12/03-12/06 ONR, Undersea Medicine Program (N000140410172); *Cellular Mechanisms of CNS and Pulmonary Oxygen Toxicity*. \$ 521,233 (direct costs), \$739,705 (total costs)
- 4/5/05-4/30/06 Defense University Research Instrumentation Program (DURIP; N000140510519), Department of Defense (DOD), Undersea Medicine Program; *Hyperbaric Atomic Force Microscopy (AFM) Studies of Oxygen Toxicity*. \$ 378,000 (total costs, equipment funds)
- 2006-09 ONR, Undersea Medicine Program (N000140710890); *Cellular mechanisms of CNS oxygen toxicity*. \$ 524,804 (direct costs), \$729,830 (total costs)
- 2009-12 ONR, Undersea Medicine Program; *Mechanisms of CNS oxygen toxicity and oxidative preconditioning in a rat model*. \$575,102 (direct costs), \$838,312 (total costs)
- 2010-13 Divers' Alert Network (DAN); *Sudafed and CNS oxygen toxicity*. \$69,453 (direct costs), \$79,195 (total costs)
- 2012-15 ONR, Undersea Medicine Program; *Postdoctoral fellowship: The Role of Gastric Ventilation during Hypercapnia*. \$201,342 (direct costs), \$210,000 (total costs)
- 2013-2015 ONR, Undersea Medicine Program; *Mechanisms of CNS and Pulmonary Oxygen Toxicity: Predicting and Delaying oxygen toxicity in rats*. \$929,749 (total costs)

EXTRAMURAL RESEARCH GRANTS AWARDED (J.B. DEAN, CO-I.):

- 1996-97 American Heart Association, Ohio Affiliate; *Regulation of intracellular pH in central CO₂-sensitive neurons involved in cardiorespiratory control*. PI: R.W. Putnam, Co-I.: J.B. Dean; \$28,380 first year (2nd and 3rd years of funding returned to the AHA due to overlapping funds obtained in NIH HL 56683)

- 2001-05 Competitive renewal of NIH R01 HL 56883 with Dr. R.W. Putnam. \$730,000 total direct costs and \$1,022,400 total costs for years 5-8; P.I., R.W. Putnam; Co-I., J.B. Dean
- 2005-06 1 year WSU subcontract with University of California San Diego, R01 HL081823-01 (P.I., Frank Powell, UCSD), *Neural plasticity during acclimatization to hypoxia* (2005-10). \$77,278. Co-Is at WSU: R.W. Putnam and J.B. Dean
- 2005-08 (P.I., Dominic D'Agostino; Sponsor/Co-I: J.B. Dean) Postdoctoral Research Grant, Office of Naval Research, Undersea Medicine Program; *Real-time molecular and cellular studies of CNS O₂ toxicity using hyperbaric atomic force microscopy (HAFM)*. \$302,564
- 2006-10 NIH R01 HL 56683-09; *Intracellular pH responses of central chemoreceptors*: P.I., R.W. Putnam; Co-I., J.B. Dean Subcontract to J.B. Dean, USF: \$109,403/year for 4 years; TDC=\$322,834/4 yrs.; TC=\$454,073/4 yrs.
- 10/07-9/10 ONR *Biophysical analysis of antagonistic relationship between inert gases and hyperbaric pressure in isolated CA1 hippocampal neurons*. P.I., D.G. Colomb, LT, MSC, USN (NEDU, Panama City, FL); Co-I., J.B. Dean; Assoc.-I, J. Briggs, LT, MSC, USN (NEDU). Subcontract to J.B. Dean, USF: total direct costs =\$67,863/3 yrs., and total costs =\$98,401/3 yrs.
- 2008-11 ONR Undersea Medicine Program, *Hyperoxia-Induced Oxidative Stress and Its Ultrastructural Correlates in CNS Cells* (PI, Dominic D'Agostino). \$460,830 (direct costs), \$677,420 (total costs); currently in 1 yr no cost extension with renewal soon to be funded
- 2012-2015 ONR Undersea Medicine Program, *Efficacy and Anticonvulsant Mechanism of Ketogenesis in CNS Oxygen Toxicity* (PI, Dominic D'Agostino). \$675,846 (direct costs), \$933, 643 (total costs)
- 2011-16 NIH/NINDS R01 NS019814, *Brainstem respiratory neuron interactions* (PI, Bruce Lindsey) \$1,784,307 (direct costs), \$2,634,756 (total costs)

GOVERNMENT ADVISORY COMMITTEE/REVIEW PANEL MEMBER:

- 1992-94 NSF, Special Emphasis Panel, Research Planning Grants and Career Advancement Awards for Women
- 1998 NIH, Special Emphasis Panel (Respiratory Control)
- 03/00 Temporary Member NIH Study Section, Respiratory Applied Physiology Study Section
- 03/03 Grant review panel member to review the Sleep and Sleep Apnea responses to the NHLBI RFA "Scientific Centers of Research (SCOR) in Neurobiology of Sleep and Sleep Apnea and Airway Biology" (HL-02-013)
- 08/25/03- Regular member NIH Study Section, 'Respiratory Integrative Biology and Translational
06/30/07 Research (RIBT), Center for Scientific Review

EDITORIAL BOARDS:

- 2008-2010 Associate Editor, *Journal of Applied Physiology*
- 1999-present Editorial Board, *Journal of Applied Physiology*
- 2002-2013 Editorial Board, *Undersea and Hyperbaric Medicine*
- 2008-2010 Editorial Board, *American Journal of Biomedical Sciences*

PROFESSIONAL & HONORARY SOCIETIES:

1975-79 Tri Beta Biological Honor Society
1986 Sigma Xi
1987-present Society for Neuroscience
1997-present Undersea and Hyperbaric Medical Society
1997-present American Physiological Society
2000-present The Society for Free Radical Biology and Medicine
2004-present Aerospace Medical Association

TEACHING EXPERIENCE, UNIVERSITY OF SOUTH FLORIDA:

2007-pres. BMS 6500 Medical Physiology, Moderator for small group sessions (Med/PT students)
2007-pres. GMS 6461 Systems Physiology and Pharmacology, Lecturer
2008-pres. BMS 6500 Medical Physiology, Lecturer for respiratory physiology section (Med/PT students)
2008-pres. GMS 6461 Pharmacology and Physiology, Lecturer for environmental respiratory physiology
2008-pres. GMS 6765 Neuropharmacology, Lecturer for neuroinflammation

POSTDOCTORAL FELLOWS/TRAINEES SUPERVISED/CO-SUPERVISED:

Ren-Qi Huang, M.D./Ph.D. (11/93-5/96)
Joseph Erlichman, Ph.D. (7/94-6/96)
Nick Ritucci, Ph.D. (1997-7/99)
Carolyn Stunden, Ph.D. (1999-2001); Co-Supervisor with Dr. R. Putnam
Daniel Mulkey, Ph.D. (2002-03)
Dominic D'Agostino (Sept. 2004-2008)
Dr. Denis G. Colomb, Jr., LT, MSC, USN (2007-2010; NEDU, Panama City, FL)
Dr. Raffaele Pilla (2010-2013)
Dr. Heather E. Held (2011-present)

DOCTORAL STUDENTS SUPERVISED:

1995-97 Nick Ritucci (Co-supervisor with Dr. Robert Putnam)
1997-02 Daniel K. Mulkey
2001-06 Alfredo J. Garcia III
2007-2012 Mike Matott
2012-present Geoffrey Ciarlone

STUDENT RESEARCH COMMITTEES:

1989-present 18 PhD students
2000-2006 5 MS students
1992-2003 10 undergraduate students

PRINTED SCHOLARSHIP:

PUBLICATIONS—

Dean, J.B. and Gratz, R.K. (1983) The effect of body temperature and CO₂ breathing on ventilation and acid-base status in the Northern Water Snake, *Nerodia sipedon*, *Physiological Zoology* 56:290-301
Dean, J.B. (1984) A retrospective look through the camera of Fred A. Hitchcock, *The Physiologist* 27:128-130

- Boulant, J.A. and Dean, J.B. (1986) Temperature receptors in the central nervous system, *Annual Review of Physiology* 48:639-654 (Invited Review Article)
- Lawing, W.L., Millhorn, D.E., Bayliss, D.A., Dean, J.B., and Trzebski, A. (1987) Excitatory and inhibitory effects on respiration of L-glutamate microinjected superficially into the ventral aspects of the medulla oblongata in cat, *Brain Research* 435:322-326
- Dean, J.B. and Boulant, J.A. (1988) A diencephalic slice preparation and chamber for studying neuronal thermosensitivity, *Journal of Neuroscience Methods* 23:225-232
- Hokfelt, T., Meisner, B., Melander, T., Schalling, M., Staines, W., Millhorn, D., Seroogy, K., Tsuruo, Y., Holets, V., Ceccatelli, S., Villar, M., Ju, G., Freedman, J., Olson, L., Lindh, B., Bartfai, T., Fisone, G., Greves, P., Terenius, L., Post, C., Mollenholt, T.P., Dean, J.B., and Goldstein, M. (1988) *Coexistence of Multiple Neuronal Messengers: New Aspects on Chemical Transmission*. Fidia Research Foundation Award Lecturers, Volume 2, Raven Press, Ltd., NY
- Millhorn, D.E., Bayliss, D.A., Erickson, J.T., Gallman, E.A., Szymeczek, C.L., Czyzyk-Krzeska, M.F., and Dean, J.B. (1989) Cellular and molecular mechanisms of chemical synaptic transmission, *American Journal of Physiology* 257 (*Lung Cell. Mol. Physiol.* 1):L289-L310 (Invited Review Article)
- Dean, J.B. and Boulant, J.A. (1989) In vitro localization of thermosensitive neurons in the rat diencephalon, *American Journal of Physiology* 257 (*Regulatory Integrative Comp. Physiol.* 26):R57-R64
- Dean, J.B. and Boulant, J.A. (1989) Effects of synaptic blockade on thermosensitive neurons in rat diencephalon in vitro, *American Journal of Physiology* 257 (*Regulatory Integrative Comp. Physiol.* 26):R65-R73
- Boulant, J.A., Curras, M.C. and Dean, J.B. (1989) Neurophysiological Aspects of Thermoregulation. In: *Animal Adaptation to Cold, Advances in Comparative and Environmental Physiology, Vol. 24*, (Ed.) LCH Wang, Springer-Verlag, Heidelberg, pp. 117-160
- Dean, J.B., Lawing, W.L., and Millhorn, D.E. (1989) CO₂ decreases membrane conductance and depolarizes neurons in the nucleus tractus solitarii, *Experimental Brain Research* 76:656-661
- Dean, J.B., Czyzyk-Krzeska, M.F., and Millhorn, D.E. (1989) Experimentally induced postinhibitory rebound in rat nucleus ambiguus is dependent on hyperpolarization parameters and membrane potential, *Neuroscience Research* 6:487-493
- Dean, J.B., Bayliss, D.A., Erickson, J.T., Lawing, W.L., and Millhorn, D.E. (1990) Depolarization and stimulation of neurons in nucleus tractus solitarii by carbon dioxide does not require chemical synaptic input, *Neuroscience* 36:207-216
- Millhorn, D.E., Bayliss, D.A., Erickson, J.T., Gallman, E.A., Szymeczek, C.L., Czyzyk-Krzeska, M.F., and Dean, J.B. (1991) Neurotransmission and regulation of respiration. In: *The Lung: Scientific Foundations, Vol. 2*, (Eds.) RG Crystal, JB West, Raven Press, New York, pp. 1369-1382
- Dean, J.B., Kaple, L., and Boulant, J.A. (1992) Regional interactions between thermosensitive neurons in diencephalic slices, *American Journal of Physiology* 263 (*Regulatory Integrative Comp. Physiol.* 32):R670-R678
- Lawson, E.E., Czyzyk-Krzeska, M.F., Dean, J.B., and Millhorn, D.E. (1992) Developmental aspects of the neural control of breathing. In: *Respiratory Control Disorders in Infants and Children*, (Eds.) R Beckerman, C Hunt, RT Brouillette, C Hunt, Williams & Wilkins, pp. 1-15
- Dean, J.B. and Millhorn, D.E. (1992) CO₂-induced depolarization of neurons in nucleus tractus solitarii: A potential substrate for central chemoreceptors. In: *Cardiorespiratory and Motor Coordination*, (Eds.) HP Koepchen, T Huopaniemi, Springer-Verlag, Berlin, pp. 53-59
- Dean, J.B. and Boulant, J.A. (1992) Delayed firing rate responses to temperature in diencephalic slices, *American Journal of Physiology* 263 (*Regulatory Integrative Comp. Physiol.* 32):R679-R684

- Derambure, P.S., Dean, J.B., and Boulant, J.A. (1994) Circadian changes in neuronal thermosensitivity in the rat suprachiasmatic nucleus. In: *Integrative and Cellular Aspects of Autonomic Functions*, (Eds.) K Pleska, R Gerstberger, K Fr Pierau, John Libbey, Eurtext Ltd., London, pp. 269-274
- Dean, J.B. and Reddy, R.B. (1995) Effects of intracellular dialysis on CO₂/H⁺-chemosensitivity in brainstem neurons. In: *Ventral Brainstem Mechanisms and Control Functions. Lung Biology in Health and Disease*, Chapter 28, (Eds.) O Trouth, R Millis, H Kiwull-Schone, ME Schlafke, Marcel Dekker, Inc., New York, pp. 453-461
- Ritucci, N.A., Erlichman, J.S., Dean, J.B., and Putnam, R.W. (1996) A fluorescence technique to measure intracellular pH of single neurons in brainstem slices, *Journal of Neuroscience Methods*, 68:149-163
- Ritucci, N.A., Dean, J.B., and Putnam, R.W. (1997) Intracellular pH response to hypercapnia in neurons from chemosensitive areas of the medulla, *American Journal of Physiology 273 (Regulatory Integrative Comp. Physiol. 42):R433-R441*
- Dean, J.B., Huang, R.Q., Erlichman, J.S., Southard, T.L., and Hellard, D.L. (1997) Cell-cell coupling occurs in dorsal medullary neurons after minimizing anatomical-coupling artifacts, *Neuroscience*, 80:21-40
- Huang, R.Q., Erlichman, J.S., and Dean, J.B. (1997) Cell-cell coupling between CO₂-excited neurons in the dorsal medulla oblongata, *Neuroscience*, 80:41-57
- Ritucci, N.A., Chambers-Kersh, L.C., Dean, J.B., Putnam, R.W. (1998) Intracellular pH regulation in neurons from chemosensitive and non-chemosensitive areas of the medulla, *American Journal of Physiology 275 (Regulatory Integrative Comp. Physiol. 44)*, R1152-R1163
- Mulkey, D.K., Henderson III, R.A., and Dean, J.B. (2000) Hyperbaric oxygen depolarizes solitary complex neurons in tissue slices of rat medulla oblongata. *Advances in Experimental and Medical Biology*, 475:465-476
- Chambers-Kersh, L., Ritucci, N.A., Dean, J.B., and Putnam, R.W. (2000) Response of intracellular pH to acute anoxia in individual neurons from chemosensitive and nonchemosensitive regions of the medulla. *Advances in Experimental and Medical Biology*, 475:453-464
- Dean, J.B. and Mulkey, D.K. (2000) Continuous intracellular recording from mammalian neurons exposed to hyperbaric helium, oxygen or air, *Journal of Applied Physiology* 89:807-822.
- Dean, J.B., Mulkey, D.K., and Arehart, J.A. (2000) Details on building a hyperbaric chamber for intracellular recording in brain tissue slices; cited by: *Journal of Applied Physiology*, published by: *National Auxiliary Publications*; also can be found at: <http://jap.physiology.org/cgi/content/full/89/2/807/DC1>
- Mulkey, D.K., Henderson III, R.A., Olson, J.E., Putnam, R.W., and Dean, J.B. (2001) Oxygen measurements in brainstem slices exposed to normobaric and hyperbaric oxygen, *Journal of Applied Physiology*, 90: 1887-1899
- Stunden, C.E., Filosa, J.A., Garcia III, A.J., Dean, J.B., and Putnam, R.W. (2001) Development of *in vivo* ventilatory and single chemosensitive neuron responses to hypercapnia in rats, *Respiration Physiology*, 127:135-155
- Dean, J.B., Kinkade, E.A., and Putnam, R.W. (2001) Cell-cell coupling of CO₂/H⁺-chemosensitive neurons in brainstem slices, *Respiration Physiology*, 129(1): 83-100
- Filosa, J.A., Dean, J.B., and Putnam, R.W. (2001) Role of intracellular pH and extracellular pH in the chemosensitive response of rat locus coeruleus neurones. *Journal of Physiology (Lond.)*, 541.2: 493-509
- Dean, J.B., Ballantyne, D., Cardone, D.L., Erlichman, J.S., Solomon, I.C. (2002) Role of gap junctions in CO₂ chemoreception and respiratory control, *Am. J. Physiol.*, 283:L665-L670
- Solomon, I.C., and Dean, J.B. (2002) Gap junctions in CO₂-chemoreception and respiratory control, *Respir. Physiol. Neurobiol.*, 131:155-173, 2002

- Mulkey, D.K., Henderson III, R.A., Putnam, R.W., and Dean, J.B. (2003) Pressure (≤ 4 ATA) increases membrane conductance and firing rate in the rat solitary complex, *Journal of Applied Physiology*, 95(3): 922-930
- Mulkey, D.K., Henderson III, R.A., Putnam, R.W., and Dean, J.B. (2003) Hyperbaric oxygen and chemical oxidants stimulate CO_2/H^+ -sensitive neurons in rat brain stem slices, *Journal of Applied Physiology*, 95 (3): 910-921
- Dean, J.B., Mulkey, D.K., Garcia III, A.J., Putnam, R.W., and Henderson III, R.A. (2003) Neuronal sensitivity to hyperoxia, hypercapnia, and inert gases at hyperbaric pressures, *Journal of Applied Physiology* 95(3): 883-909
- Dean, J.B., Mulkey, D.K., Henderson III, R.A., Potter, S.J., and Putnam, R.W. (2004) Hyperoxia, Reactive O_2 Species, and Hyperventilation: O_2 -Sensitivity of Brain Stem Neurons, *Journal of Applied Physiology*, 96: 784-791.
- Mulkey, D.K., Henderson III, R.A., Putnam, R.W., and Dean, J.B. (2004) Oxidative stress decreases intracellular pH, Na^+/H^+ exchange and increases excitability of solitary complex neurons from rat brain slices, *American Journal of Physiology, Cell Physiology*, 286: C940-C951.
- Mulkey, D.K., Henderson III, R.A., Ritucci, N.A., Putnam, R.W., and Dean, J.B. (2004) Chemical oxidants acidify solitary complex (SC) neurons in rat. In: *Undersea and Hyperbaric Medicine*, 31(1): 107-111
- Ritucci, N.A., Dean, J.B., and Putnam, R.W. (2005) Somatic versus dendritic responses to hypercapnia in chemosensitive locus coeruleus neurons from neonatal rats. *Am. J. Physiol. Cell Physiol.*, 289: C1094-C1104
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J.B. DEAN WEBSITES:

Wright State University Brage Golding Distinguished Professor of Research;

http://www.wright.edu/cgibin/news_item.cgi?514

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<http://hscweb3.hsc.usf.edu/health/now/?p=96>

Hyperbaric chamber installation, USF-COM;

http://hscvideo2.hsc.usf.edu/asxroot/HSC/Public_Affairs/Hyperbaric.asx

Hyperbaric chamber research (WEDU Smart Health, Public TV)

http://www.wedu.org/Smart_Health/past.aspx.

Protecting Navy Divers and Submariners: the Undersea Medicine Solution; Office of Naval Research (ONR)
(duration = 00:09:38)

<http://www.youtube.com/watch?v=1TqYx5-HBEc> ; and <http://hscweb3.hsc.usf.edu/blog/2012/05/17/usf-hyperbaric-lab-featured-in-national-video-on-naval-research/>

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1999-present Member, History Group, American Physiological Society (APS)

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