

Curriculum Vitae - Donald J. Marsh

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EDUCATION

Postdoctoral Fellow Physiologisches Institut, Goettingen, West Germany,
 1961-1962
 Postdoctoral Fellow Department of Physiology, New York University School
 of Medicine, 1959-1960
 Intern, Medicine U.C.L.A. Hospital, 1958-1959
 M.D. University of California, San Francisco, 1958
 A.B. University of California, Berkeley, 1955

APPOINTMENTS

Professor (Research) Department of Molecular Pharmacology, Physiology,
 and Biotechnology, Brown University, 2003–
 Dean of Medicine and Biological Sciences Brown University, 1992-2003
 Frank L. Day Professor of Biology Brown University, 1995-2003
 Professor Department of Molecular Pharmacology, Physiology,
 and Biotechnology, Brown University, 1992-2003
 Professor Department of Medicine, University of Southern Cali-
 fornia School of Medicine, 1982 - 1992
 Professor and Chairman Department of Physiology and Biophysics, University
 of Southern California School of Medicine, 1978 - 1992
 Professor Department of Biomedical Engineering, School of Engi-
 neering, University of Southern California, 1971 - 1992
 Associate Professor Department of Physiology and Biophysics, New York
 University School of Medicine, 1967 - 1971
 Assistant Professor Department of Physiology and Biophysics, New York
 University School of Medicine, 1963 - 1967
 Instructor Department of Physiology, New York University School
 of Medicine, 1960-1961

FIELDS OF MAJOR PROFESSIONAL INTEREST

Renal physiology, mathematical biology, biomedical engineering, microcirculation, nonlinear dynamics and control; medical informatics; health care policy; medical and scientific leadership; institutional advancement.

SOCIETIES

AAAS, Fellow
Council of Deans, Association of American Medical Colleges
American Society of Nephrology
American Physiological Society
Biophysical Society
Microvascular Society
Society of General Physiologists
Society of Mathematical Biology

HONORS AND AWARDS

Alpha Omega Alpha
N.I.H. Postdoctoral Fellow 1959-62
Career Scientist of the Health Research Council of New York, 1964-71
N.I.H. Special Fellow, 1970-71.
Outstanding Teacher Award, Biomedical Engineering, USC, 1972-73
Visiting Scientist, Laboratory of Kidney and Electrolyte Metabolism,
National Heart, Lung, and Blood Institute,
National Institutes of Health, Bethesda, MD, 1983-84
Frank L. Day Professor of Biology, Brown University, 1995-2003
Robert W. Berliner Award of the American Physiological Society
for Excellence in Renal Physiology, 2003.

SOCIETY ASSIGNMENTS

American Physiological Society:
Committee on Committees, 1980-83
Chairman, Renal Section, 1982-83
Long Range Planning Committee, 1990-93
Senior Physiologists Committee, Chair, 2003-
Biomedical Engineering Society:
Member, Board of Directors, 1974-78
Society of Mathematical Biology:
Nominating Committee, 1983
Publications Committee, 1984 - 5
Member, Board of Directors, 1986-88
Association of Chairmen of Departments of Physiology,
Member, Council, 1987-90
President Elect, 1990
President, 1991

EDITORIAL ASSIGNMENTS

Managing Editor, *Annals of Biomedical Engineering*, 1974-78
Editorial Board, *Annals of Biomedical Engineering*, 1972-74
Editorial Board, *American Journal of Physiology* and *Journal of Applied Physiology*, 1972-76
Editorial Board, *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*, 1977-79
Editorial Board, *American Journal of Physiology: Renal, Fluid, and Electrolyte Physiology*, 1977-1982, 1988-94
Editorial Board, *American Journal of Physiology: Modeling Methodology Forum*, 1984 - 1991.

Guest Reviewer:

Biophysical Journal
Circulation Research
Journal of Clinical Investigation
Journal of Theoretical Biology
Kidney International
Science
Pfluegers Archiv European Journal of Physiology

NATIONAL AGENCY ASSIGNMENTS

National Institutes of Health

Member, Engineering in Medicine and Biology Training Committee, 1973
Ad Hoc Member, Medical Laboratory Sciences Review Committee, 1976
Ad Hoc Member, Institute of General Medical Sciences Advisory Committee, 1982
Member, Cardiovascular Renal Study Section, 1983-86
Various site visits, Special Study Sections, and outside reviews

National Science Foundation

Ad Hoc Reviewer

American Heart Association, Greater Los Angeles Affiliate

Member, Research Committee, 1979-82
Member, Review Committees for Grants-in-aid, Postdoctoral Fellowships, and Investigative Group Awards
Public Affairs Committee, 1986-88

National Research Council - Institute of Medicine

Consultant, Committee on Interdisciplinary Research, 1989.

American Medical Association - Medical Schools Section Task Force, 1994-.

UNIVERSITY ASSIGNMENTS

New York University School of Medicine

- a. Admissions Committee, 1965-1970
- b. Curriculum Committee, 1968-1969
- c. President, Faculty Council, 1969
- d. Search Committee for the Dean of the School, 1969

University of Southern California – University Park Campus

- a. Search Committee for the Dean of the Medical School, 1975
- b. Faculty Senate, 1974
- c. Biomedical Research Grant Award Committee, 1975-77
- d. Faculty Research and Innovation Fund Award Committee
1983-86. Chairman, 1984-86.
- e. Chairman, University Bio-hazards Committee, 1986 - 88
- f. University Research Committee, 1986 - 90
Chairman, 1987 - 89
- g. Academic Program Review Committee, 1987 - 1992
Chairman, 1989 - 1992

University of Southern California School of Medicine

- a. Faculty Executive Committee, 1978 - 1992
- b. Vivarium Committee, 1978 - 1986
- c. Year I Curriculum Committee, 1978 - 1992
- d. AAMC Self Study Task Force, 1980
- e. Faculty Appointments and Promotions Committee,
1978-1981
- f. University Faculty Appointments and Promotions
Committee, Health Sciences Panel, 1981-1983
- g. Chairman, Biochemistry Search Committee, 1982
- h. Committee for the Acquisition of a University
Hospital, 1983
- i. Medical Education and Curriculum Committee, 1985-87
- j. Long term planning committee; chairman of the
subcommittee on research, 1985 -86
- k. Chairman, M.D. - Ph.D Committee, 1986
- l. Chairman, Academic Computing Committee, 1987 - 1992
- m. Neuroscience Task Force, 1988.
- n. Basic Science Task Force, 1988.
- o. Transition Management Task Force, 1990-91
- p. Search Committee, Dean of the School of Medicine, 1991.
- q. Trans-departmental Strategic Planning, 1992-3.

Brown University, Division of Biology and Medicine

- a. Academic Council
- b. Biology Executive Committee, Chair
- c. Biomedical Faculty Council, Chair
- d. Brown University Research Foundation, Board of Directors
- e. Committee on Faculty Reappointment, Appointment, and Tenure

- f. Committee on Medical Faculty Affairs, Chair
 - g. Council of Clinical Chairs, Chair
 - h. Graduate Council
- Lifespan Academic Medical Center
- a. Academic Council, Chair
 - b. Academic Redesign Committee

OTHER ASSIGNMENTS

1. Technical Program Committee 1976 Summer Computer Simulation Conference
2. Symposium Organizer - Society of Mathematical Biology-American Physiological Society 1978
3. Symposium Organizer - Society of Mathematical Biology American Physiological Society 1984
4. IXth International Congress of Nephrology, Los Angeles, 1984
 - a. Co-Chairman, Scientific Program Committee
 - b. Member, Organizing Committee
5. Committee to Review the Graduate Program in Physiology, University of California, San Francisco. Chairman, 1985.
6. Symposium Organizer - Biomedical Engineering Society-American Physiological Society, 1987.
7. Task-force of the University of California on Alternatives to Animal Use in Research, 1987 - 1988.
8. FASEB Summer Research Conference : *Renal Hemodynamics: Integrative and Cellular Control Mechanisms*, Saxtons River, Vermont, 1989. Co-Chair.
9. American Society of Nephrology, Program Committee, Co-Chair, 1991-2.
10. Symposium Co-Chairman - American Physiological Society 1992
11. Conference Organizer - Theoretical Renal Physiology 1992
12. FASEB Summer Research Conference : *Renal Hemodynamics: Integrative and Cellular Control Mechanisms*, Saxtons River, Vermont, 1992. Co-Chair.
13. Chair, Board of Scientific Advisors, NASA Program Project Grant at MIT, Division of Health Sciences and Technology, 1993-95.
14. Board of Scientific Advisors, National Space Biomedical Research Institute, Baylor College of Medicine, 1996-2000.

CURRENT RESEARCH SUPPORT

NIH - EB003508. Nonlinear regulation of renal blood flow.

10/1/05 to 9/1/08. \$472,500 - direct costs only.

There have been additional grants from the NIH, the American Heart Association, and the Health Research Council of New York. One NIH grant, DK 15968, ran continuously for 38 years, and was designated as MERIT award for its last eight years.

BOARDS OF DIRECTORS

University Medicine Foundation, Providence, R.I., 1992–2002.

University Orthopedics Foundation, Providence, R.I., 1992–2002.

University Neurosurgical Foundation, Providence, R.I., 1992–2002.

University Surgical Associates, Providence, R.I., 1994–2002.

University Emergency Medicine Foundation, Providence, R.I., 1995–2002.

Rhode Island Chamber Music Concerts, 1998–2000.

TEACHING EXPERIENCE

A. Undergraduate:

1. Hunter College of the City of New York, Department of Biology. Introductory Biology, 1968-69
2. USC Department of Biomedical Engineering, BME 403 ab. Introduction to Physiological Systems, 1971-1979

B. Graduate:

1. New York University, Department of Physiology and Biophysics, Comparative Physiology. 1963-1969
2. USC Department of Biomedical Engineering
 - a. BME 519 Experimental Projects, 1971-1978
 - b. BME 503 ab, Advanced Studies in Physiological Systems
3. USC Department of Physiology and Biophysics
 - a. PhBi 582 Endocrinology and Metabolism
 - b. PhBi 583 Cardiovascular, Respiratory and Renal Physiology
 - c. PHBi 618 Mathematical Modelling in Endocrinology

C. Professional:

1. School of Medicine, Free University of West Berlin. Renal Physiology, 1962
2. New York University School of Medicine, Renal Physiology, Circulatory Physiology, Endocrinology. 1963-1969.
3. USC School of Medicine, Cell Physiology, Renal Physiology, 1978-1992.

DOCTORAL STUDENTS

NAME	YEAR Ph.D. Conferred	Department	Institution
Norman E. Levine	1969	Physiology/Biophysics	N.Y.Univ.
Murad Ookhtens	1974	Biomed.Engineering	USC
Ronald E. Huss	1975	Biomed.Engineering	USC
Leon C. Moore	1977	Biomed.Engineering	USC
Stephen Shimada	1978	Biomed.Engineering	USC
Charles Bowden	1978	Biomed.Engineering	USC
Michael Quinn	1978	Biomed.Engineering	USC
Kenneth Mease	1979	Biomed.Engineering	USC
David K.L.Young	1980	Physiology/Biophysics	USC
Harvey J. Cohen	1982	Physiology/Biophysics	USC
Eileen Hallman	1985	Physiology/Biophysics	USC
Chung-Lin Chou	1987	Physiology/Biophysics	USC
Daniel Yip	1991	Physiology/Biophysics	USC
Anthony J. Wagner	1996	Physiology/Biophysics	USC

POST DOCTORAL FELLOWS AND VISITING FACULTY

NAME	INSTITUTION OF ORIGIN	DATES
Klaus Thurau, M.D.	Professor, Goettingen University, West Germany	1966
Richard E. Laurence, Ph.D.	University of Indiana	1967-69
T. Lewis Mingori, Ph.D.	Assoc.Prof.UCLA	1975-76
Richard E. Riemke, Ph.D.	U.C. Berkeley	1976-77
Tenei Sakai, M.D.	Kitasato University, Japan	1979-81
Katarzyna Blinowska, Ph.D	Warsaw University	1980-82
Kazoh Kaizu, M.D.	Assist.Prof. University of Occupational and Environmental Health, Kitakyushu, Japan	1981-83
William A. Cupples, Ph.D.	University of Toronto	1984-86
Bo-Eric Persson, M.D.	Assist.Professor, Uppsala University, Sweden	1985-86
Dan J. Welling, Ph.D.	Professor, University of Kansas	1987-88
Örjan Källskog, M.D.	Assoc. Professor Uppsala University, Sweden	1988 1989
N.-H. Holstein-Rathlou, M.D.	Assist.Professor Copenhagen University, Denmark	1988-89
Peter Koch Jensen, M.D.	Assist. Professor Aarhus University, Denmark	1989-90

Gregory T. Smedley, Ph.D.	Calif. Inst. Tech.	1990-91
Jichen He, M.D., Ph.D.	Heidelberg Univ.	1991-3
Kay-Pong Yip, Ph.D.	USC	1991-3

RECENT INVITED ADDRESSES

1. Keynote Speaker, Society of Industrial and Applied Mathematics, Montreal, Quebec, Canada. June 16-20, 2003.
2. Invited Address, Society of Mathematical Biology, Ann Arbor, Michigan, June, 2004.
3. Seminar, Department of Biomedical Engineering, University of Southern California, November, 2004.
4. Seminar. Department of Physics, Danish Technical University, April, 2005.

PUBLICATIONS

1. Marsh, D.J., S. Suzuki and F.H. Meyers. Role of afferent activity from the bladder in regulating its activity. *Am.J.Physiol.*, 196:351-53,1959.
2. Marsh, D.J., K.J. Ullrich and G. Rumrich. Micropuncture analysis of the behavior of potassium ions in rat renal cortical tubules. *Pflugers Archiv d. ges. Physiol.* 277:107-119,1963.
3. Ullrich, K.J. and D.J. Marsh. Kidney, Water and Electrolyte Metabolism. *Ann. Rev. Physiol.* 25:91-142,1963.
4. Marsh, D.J. and S. Solomon. Relationship of electrical potential differences to net ion fluxes in rat proximal tubules. *Nature* 201:714-715,1964.
5. Marsh, D.J., C. Frasier, and J. Decter. Measurement of urea concentrations in nanoliter specimens of renal tubular fluid and capillary blood. *Analytical Biochemistry* 11:73-80,1965.
6. Marsh, D.J. and S. Solomon. Analysis of electrolyte movement in thin Henle's loops of the hamster papilla. *Am.J.Physiol.* 208:1119-1128,1965.
7. Marsh, D.J. and C. Frasier. The reliability of inulin for determining volume flow in rat renal cortical tubes. *Am.J.Physiol.* 209:283-286,1965.
8. Skinner, D.M., D.J. Marsh and J.S. Cook. Physiological salt solution for the land crab. *Gecarcinus lateralis*. *Biol.Bull.* 129-355,1965.
9. Marsh, D.J. Hypoosmotic reabsorption due to active salt transport in perfused collecting ducts of the rat renal medulla. *Nature* 210:1179-1180,1966.

10. Kelman, R.B., D.J. Marsh and H.C. Howard. Nonmonotonicity of solutions of linear differential equations occurring in the theory of urine formation. *Soc.Ind.Appl.Math.Revs.* 8:463-478,1966.
11. Marsh, D.J., R.B. Kelman and H.C. Howard. The theory of urine formation in water diuresis with implications for anti-diuresis. *Bull. Math. Biophysics* 29:67-89,1967.
12. Marsh, D.J. Mechanisms of osmotic concentration and dilution of urine, in *The Kidney: Morphology, Biochemistry, Physiology*" (Volume III, Chapter 2), Rouiller, and A. Meuller, Eds.), Academic Press, New York,1969.
13. Morel, F., C. de Rouffignac, D. Marsh, M. Guinnebault, and C. Lechene. Etude par microponction de l'elaboration de l'urine chez le Psammomys non- diuretique. *Nephron* 6:553-570,1969.
14. Marsh, D.J. The entry of urea into loop of Henle tubular fluid in desert rodents. "Urea and the Kidney," B. Schmidt-Nelson, Ed., *Excerpta Medica International Congress Series* 195:385-392,1970.
15. Marsh, D.J. Countercurrent properties of the renal medulla. *Proc. Fourth Internat. Congress of Nephrology*, Vol. 1, 149-155,1969.
16. Marsh, D.J. Solute and water flows in thin limbs of Henle's loop in the hamster kidney. *Amer.J.Physiol.* 218:824-831,1969.
17. Leber, P.D. and D.J. Marsh. Micropuncture study of concentration and fate of albumin in rat nephron. *Amer.J.Physiol.* 219:358-363,1970.
18. Levine, N. and D.J. Marsh. Micropuncture studies of the electrochemical aspects of fluid and electrolyte transport in individual seminiferous tubules, the epididymis and the vas deferens in rats. *J.Physiol. (London)* 213:557-570,1971.
19. Laurence, R. and D.J. Marsh. Effect of diuretic states on hamster collecting duct electrical potential differences. *Amer.J.Physiol.* 220:1610-1616,1971.
20. Marsh, D.J. and L.A. Segel. Analysis of countercurrent diffusion exchange in blood vessels of the renal medulla. *Amer.J.Physiol.* 221:817-828, 1971.
21. Yates, F.E., D.J. Marsh and J.W. Maran. The Adrenal Cortex: In: *Medical Physiology*, 13th Edition (V.B. Mountcastle, ed.) C.V. Mosby, 1972. Vol. 2, pp 1696-1740.
22. Yates, F.E., D.J. Marsh, A.S. Iberall. Integration of the whole organism: A foundation for a Theoretical Biology. In: Behnke, J.A. (ed.), *Challenging Biological Problems: Directions Towards Their Solution*, AIBS 25 year Celebration Volume, Oxford Press, 1972, pp 110-132.

23. Yates, F.E., D.J. Marsh, S.W. Smith, M. Ookhtens and R.N. Bergman. Stability of Biochemical Systems and the Attendant Data Handling Problem. In: Proceedings of the Third Symposium on Nonlinear Estimation Theory and Its Applications, Sept. 11-13, 1972, San Diego, California, pp 301-310.
24. Yates, F.E., D.J. Marsh, S.W. Smith, M. Ookhtens and R.N. Bergman. Modelling metabolic systems and the attendant data handling problem. Proceedings of the IFAC Symposium on Physiological Systems, August 22-24, Rochester, N.Y., (Instrument Society of America, Pittsburgh, PA.), 1972.
25. Marsh, D.J. Temporal hierarchies in the regulation of mammalian fluid and electrolyte balance. Proceedings of the IFAC Symposium on Physiological Systems, August 22-24. Rochester, N.Y. (Instrument Society of America, Pittsburgh, PA.), 1972.
26. Marsh, D.J. Temporal hierarchies in the regulation of mammalian fluid and electrolyte balance. ASME Trans.J.Dyn.Sys.Meas.Contr. 95 (G): 250-254, 1973.
27. Ookhtens, M., D.J. Marsh, S.W. Smith, R.N. Bergman, and F.E. Yates. Fluctuations of plasma glucose and insulin in conscious dogs receiving glucose infusions. Am.J.Physiol. 226:910-919, 1974.
28. Bucolo, R.J., R.N. Bergman, D.J. Marsh and F.E. Yates. Dynamics of glucose autoregulation of the isolated, blood perfused, canine liver. Am. J. Physiol. 227: 209-217, 1974.
29. Marsh, D.J., R.E. Huss, and L.E. Moore. Mathematical models of renal function. Proc. 1974 Summer Computer Simulation Conference, pp. 720-731, Instrument Society of America, 1974.
30. Marsh, D.J. and S.P. Azen. Mechanism of NaCl reabsorption by hamster thin ascending limbs of Henle's loop. Am.J.Physiol. 228:1, 71-79, 1975.
31. Marsh, Donald J. and Christine M. Martin. Effects of diuretic states on collecting duct fluid flow resistance in the hamster kidney. Am.J.Physiol. 229:1, 13-17, 1975.
32. Levine, Norman, and Donald J. Marsh. Micropuncture study of the fluid composition of "Sertoli-cell only" seminiferous tubules in rats. J. Reprod. Fert. 43:547-549, 1975.
33. Huss, R.E., D.J. Marsh and R.E. Kalaba. Two models of glomerular filtration rate and renal blood flow in the rat. Ann.Biomed.Eng. 3:72-99, 1975.
34. Huss, R.E. and D.J. Marsh. A model of NaCl and water flow through paracellular pathways of renal proximal tubules. J.Memb.Biol. 23:3/4, 305-347, 1975.

35. Moore, L.C., D.J. Marsh, and R.E. Kalaba. A simulation study of the mode of osmotic equilibration by descending limbs of Henle's loop in the kidney medulla. Proc. 1976 Summer Computer Simulation Conference, Instrument Society of America, July 12-14, Washington, D.C., 232:25-34, 1977.
36. Marsh, D.J. and C.M. Martin. Origin of Electrical PD's in hamster thin ascending limbs of Henle's loop. Am.J.Physiol. 232:348-357, 1977.
37. Marsh, D.J. Simulation of biological system: The Kidney. Simulation Today, Number 50, 197-200, 1977.
38. Andreoli, T.E., R.W. Berliner, J. Kokko, and D.J. Marsh. Questions and replies: renal mechanisms for urinary concentrating and diluting processes. Am.J.Physiol. 235:F1-F11, 1978.
39. Marsh, D.J., R. Kalaba, and J. Buell. On a boundary value problem in the theory of urine formation. Appl.Math. and Comp., 5:55-67, 1979.
40. Marsh, D.J. On the adequacy of hypotheses of thin ascending limb NaCl transport. Proc. VI Ann. Hoechst Workshop: New Developments in Renal Physiology. H.G. Vogel and K.J. Ullrich, eds., pp. 103-110, Excerpta Medica, Amsterdam, 1978.
41. Shimada, S., and D.J. Marsh. Oscillations in mean arterial pressure in conscious dogs. Circ.Res. 44:692-700, 1979.
42. Quinn, M.D., and D.J. Marsh. Peritubular control of proximal tubule reabsorption in the rat. Am.J.Physiol. 236:F478-F487, 1979.
43. Marsh, D.J. and R.E. Huss. A model of pressure-modulated fluid reabsorption by the renal proximal tubule: Implications for glomerulotubular balance. Fed.Proc. 38:2037-2042, 1979.
44. Marsh, D.J. and C.M. Martin. Lack of water or urea movement from pelvic urine to papilla in hydropenic hamsters. Mineral Electrolyte Metab. 3:81-86, 1980.
45. Cohen, H.J. and D.J. Marsh. In vitro Calibration of a video-based method for measuring blood velocity in kidney medulla and other tissues subject to respiratory motion. Microvascular Res. 19:277-287, 1980.
46. Bowden, Charles R., Donald J. Marsh and Richard N. Bergman. Cause of glucose oscillations during glucose infusion: periodic variation in glucose uptake. Am.J.Physiol. 238: E395-E407, 1980.
47. Moore, L.C., D.J. Marsh and C.M. Martin. The loop of Henle during the water-to-antidiuresis transition in Brattleboro rats. Am.J.Physiol. 239:F72-F83, 1980.

48. Moore, L.C. and D.J. Marsh. How descending limb of Henle's loop permeability affects hypertonic urine formation. *Am. J. Physiol.* 239:F57-F71, 1980.
49. Marsh, Donald J. Models of flow and pressure modulated isoosmotic reabsorption in mammalian proximal tubules. 28th International Congress of Physiological Sciences. Budapest, Hungary, pp. 47-55, 1980.
50. Young, D.K. and D.J. Marsh. Pulse wave propagation in rat renal tubules: implications for GFR autoregulation. *Am.J.Physiol.* 240: F446-F458, 1981.
51. Marsh, Donald J. Urinary concentration and dilution. *Textbook of Nephrology, Volume 2.* Edited by Massry, S.G., and Glassock, R.J. (Chapter), p. 2398-2404, 1982.
52. Navar, L.G., D.J. Marsh, R.C. Blantz, J. Hall, D.W. Ploth, and A. Nasjletti. Intrinsic control of renal hemodynamics. *Fed. Proc.* 41: 3022-3030, 1982.
53. Marsh, Donald J. Frequency response of autoregulation. *Kidney Int.* Vol. 22, Suppl. 12, pp. S165-S172, 1982.
54. Marsh, D.J. Computer simulation of renal countercurrent systems. *Fed. Proc.* 42: 2398-2402, 1983.
55. Cohen, H.J., D.J. Marsh and B. Kayser. Autoregulation in vasa recta of the rat kidney. *Am.J.Physiol.* 245: (Renal Fluid Electrolyte Physiol. 14) F32-F40, 1983.
56. Marsh, Donald J. *Renal Physiology*, Raven Press, N.Y., 1983.
57. Sakai, T., Harris, F.H., Marsh, D.J., Bennett, C.M. and Glassock, R.J. Hemodynamic alterations in experimental glomerular disease: The role of extracellular fluid volume expansion and of autoregulation in the adaptation to nephrotoxic serum nephritis in rats. *Kidney Internat.* 25:619-628, 1984.
58. Glassock, R.J., K. Kaizu, T. Sakai, R. Zipser, and D.J. Marsh. The renal hemodynamic consequences of experimental glomerulonephritis. *Trans. Am. Clin. Clin. Assn.* 96:176-184, 1984.
59. Marsh, D.J., Jensen, P.K., and Spring, K.R. Computer-based determination of size and shape in living cells. *J. of Microscopy*, Vol. 137: 281-292, 1985.
60. Kaizu, K., Marsh, D.J., Zipser, R., and Glassock, R.J. Role of prostaglandins and angiotensin II in experimental glomerulonephritis *Kidney International.* 28:629-635, 1985.
61. Marsh, D.J. and K.R. Spring. Polarity of volume regulatory increase by *Necturus gallbladder epithelium.* *Am.J.Physiol.:Cell.* 249:C471-C475, 1985.

62. Blinowska, K. and D.J. Marsh. Ultra-and circadian fluctuations in arterial pressure and EMG in conscious dogs. *Am. J. Physiol. Reg. Integ. Comp. Physiol.* 249:R720-R725, 1985.
63. Sakai, T., E. Hallman, and D.J. Marsh. Frequency domain analysis of renal autoregulation in the rat. *Am.J.Physiol.:Renal Fluid Electrolyte Physiol.* 250:F364-F373, 1986.
64. Marsh, B.D., Marsh, D.J. and Bergman, R.N. Oscillations enhance the efficiency and stability of glucose disposal. *Am.J.Physiol. Endocrinol. Metab.* 250: E551-E557, 1986.
65. Chou, C.-L. and D. J. Marsh. Role of proximal convoluted tubule in pressure diuresis in the rat. *Am.J.Physiol. Renal Fluid Electrolyte Physiol.* 251:F283-F289,1986.
66. Wexler,A.S., R.E. Kalaba, and D.J. Marsh, Automatic derivative evaluation in solving boundary value problems. The renal medulla. *Am.J.Physiol. Renal Fluid Electrolyte Physiol.* 251:F358-F378, 1986.
67. Sakai, T., D.A. Craig, A.S. Wexler, and D.J. Marsh. Fluid waves in renal tubules. *Biophys. J.* 50:805-813,1986.
68. Navar, L.G., R.V. Paul, P.K. Carmines, C.-L. Chou, and D.J. Marsh. Intrarenal mechanisms mediating pressure natriuresis: role of angiotensin and prostaglandins. *Fed. Proc.* 45:2885-2891, 1986.
69. Persson, B.-E., and D.J. Marsh. GFR regulation and flow dependent electrophysiology of early distal tubule in *Amphiuma*. *Am. J. Physiol. Renal Fluid Electrolyte Physiol.* 253: F263-F268, 1987.
70. Marsh, D.J. Functional transitions in the renal countercurrent system: implications for mechanisms of hypertonic urine formation. *Kidney Intern.* 31:668-672, 1987.
71. Chou, C.-L. and D.J. Marsh. Measurement of flow rate in rat proximal tubules with a non-obstructing optical method. *Am. J. Physiol. Renal Fluid Electrolyte Physiol.* 253: F366-F371, 1987.
72. Wexler, A.S., R.E. Kalaba, and D.J. Marsh. The one-dimensional, passive countercurrent model cannot explain hypertonic urine formation. *Am. J. Physiol. Renal Fluid Electrolyte Physiol.* 253:F1020-F1030,1987.
73. Cupples, W.A., T. Sakai, and D.J. Marsh. Angiotensin II and prostaglandins in control of vasa recta blood flow. *Am. J. Physiol.*254 (Renal Fluid Electrolyte Physiol.23):F417-F424, 1988.
74. Chou, C.-L. and D.J. Marsh. Time course of proximal tubule response to acute hypertension in the rat. *Am.J.Physiol.* 254 (Renal Fluid Electrolyte Physiol.23:) F601-F607, 1988.

75. Persson, B.-E., and D.J. Marsh. The flow sensor of tubuloglomerular feedback in the early distal tubule of *Amphiuma*. in The Juxtaglomerular Apparatus. Proc. 11th E.K. Fernstroem Symposium. Lund, Sweden, 1987, A.E.G Persson and U. Boberg, eds.,pp 121- 128, Elsevier, Amsterdam, 1988.
76. Marsh, D.J., B.-E. Persson, and T. Sakai. Timing of events in tubuloglomerular feedback. in The Juxtaglomerular Apparatus. Proc. 11th E.K. Fernstroem Symposium. Lund, Sweden, 1987, A.E.G Persson and U. Boberg, eds.,pp 129- 136, Elsevier, Amsterdam, 1988.
77. Persson, B.-E., and D.J. Marsh. Juxtaglomerular interstitial hypertonicity in *Amphiuma*: distal tubule origin - renal vascular signal. Am. J. Physiol.254 (Renal Fluid Electrolyte Physiol.23:)F445-F449, 1988.
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