

CURRICULUM VITAE

Richard Francis Hoyt, Jr.

EDUCATION

1964 B.S. (Biology), Bates College, Lewiston, Maine
1970 Ph.D. (Anatomy), Harvard University, Cambridge, Massachusetts

MAJOR RESEARCH INTERESTS

Origin, development, and function of pulmonary endocrine cells
Development and capabilities of macrophages in mammalian fetal lungs

RESEARCH AND/OR PROFESSIONAL EXPERIENCE

1982-present Associate Professor of Anatomy and Neurobiology
 Boston University School of Medicine

1973-1982 Assistant Professor of Anatomy
 Boston University School of Medicine

1971-1972 Research Fellow in Pharmacology
 Harvard School of Dental Medicine, Boston, Massachusetts

1970 Research Fellow in Bacteriology and Immunology
 Harvard Medical School, Boston, Massachusetts

1965 (Summer) Visiting Research Fellow, Otorhinonasehals Klinik
 Kantonsspital Zurich, Zurich, Switzerland

1964 (Summer) Research Assistant, Department of Otolaryngology
 Massachusetts Eye and Ear Infirmary, Boston, Massachusetts

1963 (Summer) Research Technician, Department of Otolaryngology
 Massachusetts Eye and Ear Infirmary, Boston, Massachusetts

TEACHING EXPERIENCE (Boston University)

Medical Gross Anatomy:
 Lectures and laboratory (*1973-present*)
 Unit Manager, 1975-1990; 1994-2000; 2008
 Course Director, 1986-1990

Advanced Clinical Anatomy (4th-year medical elective):
Laboratory (1999-present)
Co-founder, and Co-director, 1999-present

Vesalius Program for Teaching the Morphological Sciences (Graduate School):
Mentor (2006)

Medical Histology
Lecture and laboratory (1974)
Lecture only (1976, 1993, 1994)

Research Practicum in Anatomy and Neurobiology (Graduate School):
Laboratory (1992-1993)

Advanced Dissection and Teaching in Anatomy (4th-year medical elective):
Laboratory (1980-1990)
Director, 1986-1990

Endocrinology:
Histology lectures and laboratory (1975-1985)
Manager of the Histology Component (1976-1984)

Neuroanatomical Techniques (Graduate School):
Lecture (1980-1981)

Quantitative Techniques for Biological Investigation (Graduate School):
Lecture (1979-1980)

TEACHING EXPERIENCE (Harvard University)

The Human Body (1st-year anatomy course, Harvard Medical School):
Dissection Laboratory Instructor (2001-2007)
Laboratory Captain, 2003-2006

The Anatomy Club (Student-led extended dissection program, Harvard Medical School):
Advisor and Laboratory Instructor (2001)

Continuing Dissection Elective for 1st-year students (Harvard Medical School):
Laboratory Instructor (2002-2005)

Faculty Development Program in Gross Anatomy (Harvard Medical School):
Mentor and Laboratory Instructor (2003-2006)

Pulmonary Cell Biology (Department of Physiology, Harvard School of Public Health):
Guest Lecturer:
“Diffuse Endocrine Cell Systems in the Lungs” (*March, 1977*)
“Regulation of Cellular Activity: General Considerations” (*Fall, 1977*)
“Endocrine Regulation of Pulmonary Function” (*Fall, 1977; Fall, 1979*)

Anatomy Tutorial (Harvard Medical School)
Co-organizer, 1975-1976

Pharmacology 212 (Harvard Medical School):
Guest Lecturer:
“Morphological Techniques in Endocrine Research” (*1974, 1976*)

Human Biology I - Respiration (Harvard Medical School):
Laboratory Section Leader (April 15, 1974)
“Morphology of the Human Respiratory System”

Gross Anatomy (Harvard Medical School):
Laboratory Instructor (1973)

Histology (Harvard Medical School):
Graduate Teaching Assistant (1966-1968)
Demonstration Room

Neuroanatomy (Harvard Medical School):
Graduate Teaching Assistant – Laboratory (1966)

TEACHING EXPERIENCE (University of Massachusetts Medical School)

Gross Anatomy
Visiting Instructor, Head and Neck
Laboratory Section Leader and Lecturer, 1980

Gross Anatomy
Visiting Lecturer:
“Development of the Branchial Apparatus” (*1983-1988*)
“Early Embryology I” (*1984*)

“Early Embryology II” (1986, 1987)
“Pelvic Walls and Floor” (1988)

TEACHING EXPERIENCE (New England College of Optometry)

Visiting Lecturer in Gross Anatomy:
“The Skull” (1988-1990, 1992)

TEACHING EXPERIENCE (Bates College)

Laboratory Teaching Assistant in Biology: various courses (1961-1964)

ADVISING OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS (Boston University)

Graduate Students:

Stephen N. Sarikas, Ph.D. (1979-1983) Major Advisor, First Reader
Victor H. Carabba, M.A. (1980-1984) Major Advisor, First Reader
Joanna Ku, M.M.S. (1994-1995) Advisor
Monica A. Pessina, Ph.D. (2001-2005) Major Departmental Advisor, First Reader
Tulay Cushman, Ph.D. (2004-2009) Major Departmental Advisor, Second Reader
Joshua Stefanik, Ph.D. (2009-2010): Research Committee
William Pearson, Ph.D. Candidate (2010-present): Research Committee
Kelley Erb, Ph.D. Candidate (2010-present): Research Committee

Postdoctoral Fellows:

Allan D. Pearsall, Ph.D. (1980-1984) Advisor
Masahito Ebina, M.D., Ph.D. (1990-1992) Advisor

SCHOLASTIC HONORS AND AWARDS

Bausch & Lomb Science Medal, Reading High School, Reading, Mass. (1960)

Benjamin Bates Scholarship, Bates College (1960-1964)

High Honors for Independent Study in Biology, Bates College (1964)

Phi Beta Kappa, Bates College (1964)

USPHS Predoctoral Traineeship in Physiology (1964-1965)

USPHS Predoctoral Traineeship in Anatomy (1965-1969)

USPHS Postdoctoral Fellowship in Bacteriology and Immunology (1970)

Research Fellowship in Pharmacology-Morphology of the Pharmaceutical Manufacturers Association Foundation, Washington, D.C. (1971-1972)

TEACHING HONORS AND AWARDS

Student-Faculty Citation for Excellence in Teaching (Gross Anatomy)
Harvard Medical School (1973)

Class of 1977 Teaching Award (Best Professor, Honorable Mention)
Boston University School of Medicine (1974)

Student Committee on Medical School Affairs Award for Excellence in Teaching
Boston University School of Medicine (1980)

Stanley L. Robbins Award for Excellence in Teaching
Boston University School of Medicine (1985)

Nomination for Metcalf Cup and Prize Awards
Boston University (1988, 1989, 1990)

Thomas Robitscher Faculty Award for Excellence in Teaching the Preclinical Sciences
Boston University School of Medicine (1990)

Educator of the Year Award for Teaching in Preclinical Sciences
Boston University School of Medicine (2003)

THESES AND JOURNAL ARTICLES

1. Igarashi, M., and R. F. Hoyt, Jr. Selection of feline subjects for auditory testing: an examination of behavior during basic conditioning of the response. *J. Auditory Res.* 3:169-174, 1963.
2. Hoyt, R. F., Jr. The Histochemical Localization of Acetylcholinesterase in the Cochlear Duct of the Domestic Fowl. Thesis. Bates College, Lewiston, Maine. pp., 1964.
3. Balogh, K., Jr., D. A. Pragay, and R. F. Hoyt, Jr. Myocardial enzymes in plasmocid-poisoned rabbits: a correlative histochemical and biochemical study. *Lab. Invest.* 16: 211-219, 1967.

4. Hoyt, R. F., Jr. Morphological and Physiological Studies of Thyrocalcitonin in the White Carneau Pigeon. Thesis. Harvard University. 106 pp., 1970.
5. Amos, H., R. F. Hoyt, Jr., and M. Horisberger. A putative "Ribonucleic Acid Migration Factor" in serum. *In Vitro* 6: 190-196, 1970.
6. Hoyt, R. F., Jr., A. H. Tashjian, Jr., and D. W. Hamilton. Distribution of thyroid, parathyroid and ultimobranchial hypocalcemic factors in birds: I. Thyroid and ultimobranchial calcitonins in pigeons and pullets. *Endocrinology* 91: 770-783, 1972.
7. Gautvik, K. M., R. F. Hoyt, Jr., and A. H. Tashjian, Jr. Effects of colchicine and 2-Br- α -ergocryptine-methane-sulphonate (CB 154) on the release of prolactin and growth hormone by functional pituitary cells in culture. *J. Cell. Physiol.* 82: 401-410, 1973.
8. Hoyt, R. F., Jr., D. W. Hamilton, and A. H. Tashjian, Jr. Distribution of thyroid, parathyroid and ultimobranchial hypocalcemic factors in birds: II. Morphology, histochemistry and hypocalcemic activity of pigeon thyroid glands. *Anat. Rec.* 176:1-34, 1973.
9. Sorokin, S. P., and R. F. Hoyt, Jr. PAS-lead hematoxylin as a stain for small-granule endocrine cell populations in the lungs, other pharyngeal derivatives and the gut. *Anat. Rec.* 192: 245-260, 1978.
10. Hoyt, R. F., Jr., S. P. Sorokin, and R. A. Bartlett. A simple fluorescence method for serotonin-containing endocrine cells in plastic embedded lung, gut and thyroid gland. *J. Histochem. Cytochem.* 27: 721-727, 1979.
11. Hoyt, R. F., Jr., and A. H. Tashjian, Jr. Immunocytochemical analysis of prolactin production by monolayer cultures of GH₃ rat anterior pituitary tumor cells: I. Long-term effects of stimulation with thyrotropin-releasing hormone (TRH). *Anat. Rec.* 197: 153-162, 1980.
12. Hoyt, R. F., Jr., and A. H. Tashjian, Jr. Immunocytochemical analysis of prolactin production by monolayer cultures of GH₃ rat anterior pituitary tumor cells: II. Variation in prolactin content of individual colonies, and dynamics of stimulation with thyrotropin-releasing hormone (TRH). *Anat. Rec.* 197: 163-181, 1980.
13. McDowell, E. M., S. P. Sorokin, R. F. Hoyt, Jr., and B. F. Trump. An unusual bronchial carcinoid tumor. Light and electron microscopy. *Human Pathology* 12 (4): 338-348, 1981.
14. Sorokin, S. P., R. F. Hoyt, Jr., and E. M. McDowell. An unusual bronchial carcinoid tumor analyzed by conjunctive staining. *Human Pathology* 12 (4): 302-313, 1981.

15. Hoyt, R. F., Jr., S. P. Sorokin, and H. Feldman. Number, subtypes, and distribution of small-granule (neuro)endocrine cells in the infracardiac lobe of a hamster lung. *Exp. Lung Res.* 3: 273-298, 1982.
16. Hoyt, R. F., Jr., H. Feldman, and S. P. Sorokin. Neuroepithelial bodies (NEB) and solitary endocrine cells in the hamster lung. *Exp. Lung Res.* 3: 299-311, 1982.
17. Sorokin, S. P., R. F. Hoyt, Jr., and M. M. Grant. Development of neuroepithelial bodies in fetal rabbit lungs. I. Appearance and functional maturation as demonstrated by high-resolution light microscopy and formaldehyde-induced fluorescence. *Exp. Lung Res.* 3: 237-259, 1982.
18. Sorokin, S. P., and R. F. Hoyt, Jr. Development of neuroepithelial bodies and solitary endocrine cells in fetal rabbit lungs. II. Nonspecific esterase as an indicator of early maturation. *Exp. Lung Res.* 3: 261-272, 1982.
19. Sorokin, S. P., R. F. Hoyt, Jr., and A. D. Pearsall. Comparative biology of small-granule cells and neuroepithelial bodies in the respiratory system: short review. *Am. Rev. Resp. Dis.* 128 (Part 2): S26-S31, 1983.
20. Sorokin, S. P., R. F. Hoyt, Jr., and M. M. Grant. Development of macrophages in the lungs of fetal rabbits, rats, and hamsters. *Anat. Rec.* 208: 103-121, 1984.
21. Carabba, V. H., S. P. Sorokin, and R. F. Hoyt, Jr. Development of neuroepithelial bodies in intact and cultured lungs of fetal rats. *Am. J. Anat.* 173: 1-27, 1985.
22. Pearsall, A. D., R. F. Hoyt, Jr., and S. P. Sorokin. Three-dimensional reconstruction of a small-granule paracrine cell cluster in an adult hamster bronchus. *Anat. Rec.* 212: 132-142, 1985.
23. Sarikas, S. N., R. F. Hoyt, Jr., and S. P. Sorokin. Ontogeny of small-granule cells in hamster lungs: A morphological study. *Anat. Rec.* 213: 396-409, 1985.
24. Sarikas, S. N., R. F. Hoyt, Jr., and S. P. Sorokin. Small-granule APUD cells in relation to airway branching and growth: A quantitative, cartographic study in Syrian golden hamsters. *Anat. Rec.* 213: 410-420, 1985.
25. Hoyt, R. F., Jr., S. P. Sorokin, E. M. McDowell, and B. F. Trump. Periodic acid-Schiff lead hematoxylin as a marker for the endocrine phenotype in human lung tumors. *Arch. Path. Lab. Med.* 110: 943-951, 1986.
26. Sorokin, S. P., and R. F. Hoyt, Jr. Pure population of nonmonocyte derived macrophages arising in organ cultures of embryonic rat lungs. *Anat. Rec.* 217: 35-52, 1987.

27. Sorokin, S. P., R. F. Hoyt, Jr., and N. A. McNelly. Nonimmune phagocytosis by “premedullary” lung macrophages: Effects of concanavalin A, tuftsin, and macrophage-inhibiting peptide. *Anat. Rec.*: 551-571, 1989.
28. Sorokin, S. P., L. Kobzik, R. F. Hoyt, Jr., and J. J. Godleski. Development of surface membrane characteristics of “premedullary” macrophages in organ cultures of embryonic rat and hamster lungs. *J. Histochem. Cytochem.* 37: 365-376, 1989.
29. Sorokin, S. P., and R. F. Hoyt, Jr. On the supposed function of neuroepithelial bodies in adult mammalian lungs. *News in Physiological Sciences* 5: 88-95, 1990.
30. Hoyt, R. F., Jr., N. A. McNelly, and S. P. Sorokin. Dynamics of neuroepithelial body (NEB) formation in developing hamster lung: light microscopic autoradiography after ³H-thymidine labeling in vivo. *Anat. Rec.* 227: 340-350, 1990.
31. Hoyt, R. F., Jr., N. A. McNelly, E. M. McDowell, and S. P. Sorokin. Neuroepithelial bodies stimulate proliferation of airway epithelium in fetal hamster lung. *Am. J. Physiol. (Lung Cell. Mol. Physiol.* 4): L234-L240, 1991.
32. Sorokin, S. P., and R. F. Hoyt, Jr. Macrophage development: I. Rationale for using *Griffonia simplicifolia* isolectin B₄ as a marker for the line. *Anat. Rec.* 232: 520-526, 1992.
33. Sorokin, S. P., R. F. Hoyt, Jr., D. G. Blunt, and N. A. McNelly. Macrophage development: II. Early ontogeny of macrophage populations in the brain, liver, and lungs of rat embryos as revealed by a lectin marker. *Anat. Rec.* 232: 526-550, 1992.
34. Sorokin, S. P., N. A. McNelly, D. G. Blunt, and R. F. Hoyt, Jr. Macrophage development: III. Transformation of pulmonary macrophages from precursors in fetal lungs and their later maturation in organ culture. *Anat. Rec.* 232: 551-571, 1992.
35. Sorokin, S. P., N. A. McNelly, and R. F. Hoyt, Jr. Macrophage development: IV. Effects of blood factors on macrophages from prenatal rat lung cultures. *Anat. Rec.* 233: 415-428, 1992.
36. Sorokin, S. P., N. A. McNelly, and R. F. Hoyt, Jr. CFU-rAM, the origin of lung macrophages, and the macrophage lineage. *Am. J. Physiol.* 263 (*Lung Cell. Mol. Physiol.* 7): L299-L307, 1992.
37. Hoyt, R. F., Jr., S. P. Sorokin, E. M. McDowell, and N. A. McNelly. Neuroepithelial bodies and growth of the airway epithelium in developing hamster lung. *Anat. Rec.* 236: 15-22, 1993.
38. Sorokin, S. P., M. Ebina, and R. F. Hoyt, Jr. Development of PGP 9.5- and calcitonin gene-related peptide-like immunoreactivity in organ cultured fetal rat lungs. *Anat. Rec.* 236: 213-225, 1993.

39. Ebina, M., R. F. Hoyt, Jr., S. P. Sorokin, and N. A. McNelly. Calcium and ionophore A23187 lower calcitonin gene-related peptide-like immunoreactivity in endocrine cells of organ cultured fetal rat lungs. *Anat. Rec.* 236: 226-230, 1993.
40. McDowell, E. M., S. P. Sorokin, and R. F. Hoyt, Jr. Ontogeny of neuroendocrine cells in the respiratory system of Syrian golden hamsters. I. Larynx and trachea. *Cell Tiss. Res.* 275: 143-156, 1994.
41. McDowell, E. M., R. F. Hoyt, Jr., and S. P. Sorokin. Ontogeny of endocrine cells in the respiratory system of Syrian golden hamsters. II. Intrapulmonary airways and alveoli. *Cell Tiss. Res.* 275: 157-167, 1994.
42. Sorokin, S. P., N. A. McNelly, and R. F. Hoyt, Jr. Early development of macrophages in intact and organ cultured hearts of rat embryos. *Anat. Rec.* 239: 306-314, 1994.
43. Sorokin, S. P., N. A. McNelly, R. F. Hoyt, Jr., and K. K. H. Svoboda. Precursors of macrophages in embryonic rat lungs fail to exhibit granulocyte-forming potential. *Anat. Rec.* 240: 387-397, 1994.
44. Sorokin, S. P., N. A. McNelly, and R. F. Hoyt, Jr. Exogenous cytokines enhance survival of macrophages from organ cultured embryonic rat tissues. *Anat. Rec.* 240: 398-406, 1994.
45. Sorokin, S. P., R. F. Hoyt, Jr., and N. A. F. McNelly. Factors influencing fetal macrophage development: I. Reactions of the tumor necrosis factor- α cascade and their inhibitors. *Anat. Rec.* 246: 481-497, 1996.
46. Sorokin, S. P., N. A. F. McNelly, and R. F. Hoyt, Jr. Factors influencing fetal macrophage development: II. Effects of the PDGF subfamily of protein-tyrosine kinase receptor ligands as studied in organ-cultured rat lungs. *Anat. Rec.* 246: 498-506, 1996.
47. Sorokin, S. P., R. F. Hoyt, Jr., W. R. Reenstra, and N. A. F. McNelly. Factors influencing fetal macrophage development: III. Immunocytochemical localization of cytokines and time-resolved expression of differentiation markers in organ-cultured rat lungs. *Anat. Rec.* 248: 93-103, 1997.
48. Ebina, M., R. F. Hoyt, Jr., N. A. F. McNelly, S. P. Sorokin, and R. I. Linnoila. Effects of hydrogen and bicarbonate ions on endocrine cells in fetal rat lung organ cultures. *Am. J. Physiol.* 272 (*Lung Cell. Mol. Physiol.* 16): L178-L186, 1997.
49. Sorokin, S. P., R. F. Hoyt, Jr., and M. J. Shaffer. Ontogeny of neuroepithelial bodies: Correlations with mitogenesis and innervation. *Microsc. Res. Tech.* 37: 43-61, 1997.

50. Pessina, M. A., R. F. Hoyt, Jr., I. Goldstein, and A. M. Traish. Differential effects of estradiole, progesterone, and testosterone on vaginal structural integrity. *Endocrinology* 147 (1): 61-69, 2006.
51. Ruberg, F. L., M. E. McDonnell, J. Trabb, R. J. Shemin, R. F. Hoyt, Jr., L. E. Braverman, and G. L. Balady. An intracardiac accessory thyroid gland. *Am. J. Cardiol.* 97 (6): 926-928, 2006.
52. Pessina, M. A., R. F. Hoyt, Jr., I. Goldstein, and A. M. Traish. Differential regulation of the expression of estrogen, progesterone, and androgen receptors by sex steroid hormones in the vagina. *J. Sexual. Med.* 3: 804-813, 2006.
53. Cushman, T., N. Kim, R. F. Hoyt, Jr., and A. M. Traish. Estradiole restores diabetes-induced reductions in sex steroid receptor expression and distribution in the vagina of db/db mouse model. *J. Steroid Biochem. Mol. Biol.* 114: 186-194, 2009.
54. Cushman, T. T., N. Kim, R. F. Hoyt, Jr., and A. M. Traish. Estradiole ameliorates diabetes-induced changes in vaginal structure of db/db mouse model. *J. Sexual Med.* : , 2009.

BOOKS AND CHAPTERS

1. Tashjian, A. H., Jr., and R. F. Hoyt, Jr. Transient Controls of Organ-specific Functions in Pituitary Cells in Culture. In: Molecular Genetics and Developmental Biology. M. Sussman, Ed. Prentice-Hall, Inc., Englewood Cliffs, New Jersey. pp. 353-387, 1972.
2. Sorokin, S. P., and R. F. Hoyt, Jr. Neuroepithelial Bodies and Solitary Small-granule Cells. In: Lung Cell Biology. D. Massaro, Ed. Monograph #41 of Lung Biology in Health and Disease, C. Lenfant, Principal Ed. Marcel Dekker, New York. Chap. 6., pp. 191-344, 1989.
3. Sorokin, S. P., and R. F. Hoyt, Jr., Eds. Workshop on Pulmonary Endocrine Cells in Health and Disease. National Heart, Lung, and Blood Institute. *Anat. Rec.* 236: 1-256, 1993.
4. Sorokin, S. P., R. F. Hoyt, Jr., and N. A. F. McNelly. Development of Cellular Host Defense Mechanisms. In: Lung Development. C. Gaultier, J. R. Bouron, and M. Post, Eds. Oxford University Press, New York. Chap. 8, pp. 221-254, 1999.
5. Hoyt, R. F., Jr. Innervation of the Vagina and Vulva. In: Womens' Sexual Function and Dysfunction: Study, Diagnosis, and Treatment. I. Goldstein, C. M. Meston, S. R. Davis, and A. M. Traish, Eds. Taylor and Francis, London. Chap. 4.2, pp. 113-124, 2006.

SERVICE TO BOSTON UNIVERSITY SCHOOL OF MEDICINE

Student Promotions Committee (First-year Medical)

Substitute member (1975-1976)

Regular member (1986-1990)

Student Promotions Committees' Subcommittee on Appeals

Member (1976-1987; 1992-1993; 2014-present)

Chairman pro tem (1979-1981)

Committee to Organize the Endocrinology Course for Medical Students

Anatomy Department Representative (1976-1984)

Admissions Committee, Six-year Medical Program

Interviewer and voting member (1977-1987; 1979-1984)

Admissions Committee, Modular Medical Integrated Curriculum (MMEDIC)

Interviewer and voting member (1977-1978; 1979-1984)

Promotions Committee, MMEDIC Program (1977-1978; 1979-1984)

Admissions Committee, Early Medical School Selection Program

Interviewer and voting member (1988-1990)

Joint Advisory Council, Six-year Medical Program (1981-1988)

First-year Course Managers Committee (1988-1990)

Library Committee (1990-1994)

Fund Raising Committee, McNary Learning Center (1990-1991)

Selection Committee, Stanley L. Robbins Award for Excellence in Teaching (1991-1994)

Selection Committee, William F. McNary, Jr., Award for a senior medical student

(1992-present)

Honors and Awards Committee – academic honors for graduating medical students

(1993-1995)

ad hoc Committees to consider Faculty Appointments/Promotions

Member, 2 (1982-1983; 1992-1993)

Chairman, 2 (1986-1987; 1994-1995)

ad hoc Committee on Student Promotions Policy

Chairman (1991-1995)

SERVICE TO THE DEPARTMENT OF ANATOMY AND NEUROBIOLOGY

Director of the Department Seminar Program *(1978-1980)*

Committee for the Dr. Giuseppina Raviola Memorial Service and Fund *(1986-1987)*

Departmental Search Committees for New Faculty Appointments
(1982-1983, 1983-1984, 1985-1986)

ad hoc Qualifying Examination Committees for Doctoral Candidates (15-20)
(1974-1998)

ad hoc Committee to Reform the Qualifying Examination for Doctoral Candidates
(2003-2004)

Qualifying Examination Committee *(2004-present)*

Selection Committee, William F. McNary, Jr., Graduate Student Award for Excellence in Teaching
Chairman (2006-present)