

ANATOMY AND EXPERIMENTAL SURGERY

Overview

Over the past year, Anatomy reorganized its medical anatomy course to better prepare medical students for their clinical years. Funds for the project were obtained from the FIPSE program of the US Dept of Education. The entire course is based on common surgical and medical cases to highlight the most clinically relevant anatomical concepts. Members of every section of every surgical department at Yale contributed cases. Based on our previous research on how students use electronic resources, we designed a highly-interactive electronic dissector to guide students in their preparation for the dissection lab. With the help of faculty from the Department of Diagnostic Imaging, the course fully integrates basic plain film, CT and MRI imaging studies. To test the efficacy of the new course, clerkship faculty helped design an examination for rising third year students to test their recall of essential, fundamental clinical anatomy. The test was administered this year to establish baseline data. The results highlighted the need for the revised course, which was implemented in September of 2004.

Our faculty also teach anatomy to the Yale Physician Associate Program, the Norwalk Surgical Physician Associate Residency Program and the Quinnipiac University Physician Assistant Program. For twelve years, we have led a community outreach program that brings inner city high school students to the gross anatomy laboratories.

Ongoing Research: **Dr. Rizzolo** is a leading authority on the development and function of the outer blood-retinal barrier. His studies have revealed tissue interactions between the retina and retinal pigment epithelium that regulate the function of the blood-retinal barrier. These tissue interactions are important for improving the efficacy of retinal transplantation and understanding the pathophysiology of proliferative retinopathies and macular degeneration. In the past year, his research group has demonstrated how the neural retina and choroid secrete distinct factors that act synergistically to regulate the structure and function of the epithelial tight junctions. Current work focuses on identifying those signaling pathway in order to improve the efficacy of retinal transplantation. **Dr. Stewart** directs the animal model component of a program project examining the basis for the neurologic deficits resulting from perinatal hypoxia. In the past year behavioral studies have shown hyperactivity and memory deficits in hypoxically reared mice. Studies have also begun with diffusion tensor imaging studies on the white matter of the developing brain.

FACULTY

	<i>Academic Rank</i>	<i>Academic Interests</i>
William B. Stewart, Ph.D.	Associate Professor	Neuroscience / Education
Harry Briggs, M.D.	Lecturer	Education
Shukrulla Ghofrany, M.D.	Lecturer	Education
Shanta Kapadia, M.D.	Lecturer	Cell Biology / Education
Michael O'Brien, M.D., Ph.D.	Lecturer	Education
Christoph Rahner, M.D.	Associate Research Scientist	Cell Biology / Education
Lawrence Rizzolo, Ph.D.	Associate Professor	Cell Biology / Education

STAFF

	<i>Position</i>
Deborah Lyons	Administrative Assistant
Philip Lapre	Donor Coordinator

POST-DOCTORAL RESEARCH ASSOCIATES

	<i>Position</i>	<i>Institution of Last Degree</i>
Masayuki Fukuhara, M.D.	Postdoctoral Research Associate	Kitasato Univ, Japan
Yan Luo, M.D., Ph.D.	Postdoctoral Research Associate	Sun Yat-sen U, China

CURRENT GRANT SUPPORT

	<i>Title</i>	<i>Funding Agency</i>	<i>Dates</i>
Lawrence J. Rizzolo, Ph.D.	Apical Junctional Complexes of the RPE	NEI (R01 EY 08694)	3/1/03 to 2/28/07
William B. Stewart, Ph.D. (L.Ment, M.D., P.I.)	Adaptive Mechanisms of the Developing Brain	NIH/NINDS (PO1 NS35476)	2/1/03 to 1/30/08
Lawrence J. Rizzolo, Ph.D.	Anatomy Transformed: A multimodular multimedia approach to teaching anatomy.	Department of Education. US Dept of Ed: FIPSE (P116B0311017)	9/01/03 to 8/30/06
Lawrence J. Rizzolo, Ph.D. (M. Drickamer, M.D., PI)	Yale Program to Strengthen Physicians' Training in Geriatrics	Donald W. Reynolds Foundation	7/1/01-6/30/05

TEACHING ACTIVITIES

Major Invited Lectures

Lawrence J. Rizzolo, Ph.D. Development and Testing of a Shortened, Clinically Focused Anatomy Course; American Assoc Anatomists Annual Meeting

Lawrence J. Rizzolo, Ph.D. A Novel Method of Anatomy Instruction; Baylor School of Medicine

Major Yale Lectures

William B. Stewart, Ph.D. Keynote Speaker: Bring Your Child to Work Day, Yale University

Original Publications

Original articles

Turner CP, Seli M, Ment L, **Stewart WB**, Yan H, Johansson B, Fredholm BB, Blackburn M, Rivkees SA. "A1 adenosine receptors mediate hypoxia-induced ventriculomegaly." *Proc Natl Acad Sci* 100:11718-22, 2003.

Weiss J, Takizawa B, McGee A, **Stewart WB**, Zhang H, Ment L, Schwartz M, Strittmatter S. "Neonatal hypoxia suppresses oligodendrocyte Nogo-A and increases axonal sprouting in a rodent model for human prematurity" *Exp Neurol* 189: 141-149, 2004.

Rahner C, Fukuhara M., Peng S., Kojima S. and **Rizzolo LJ** "The apical and basal environments of the retinal pigment epithelium regulate the formation of tight junctions during development". *J Cell Science*, 117:3307-3318, 2004.

Chapters

Schwartz ML, Vaccarino F, Chacon M, Yan WL, Ment LR, **Stewart WB**. "Chronic neonatal hypoxia leads to long term decreases in the volume and cell number of the rat cerebral cortex. *Semin Perinatol* 28:379-88, 2004.