

# *CURRICULUM VITAE*

## *JOHN JOSEPH MITCHELL, Ph.D.*

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### **EDUCATION:**

B.A. - Chemistry	University of Hartford	1972
B.S. - Biology	University of Hartford	1972
	Graduated Magna Cum Laude	
Ph.D. - Biochemistry	University of Connecticut	1979
	Elected - Phi Kappa Phi Honor Society	1978

### **PROFESIONAL POSITIONS:**

Postdoctoral Fellow	Dept. of Dermatology, Johns Hopkins Medical Inst.	1979-81
Postdoctoral Associate	Dept. of Biochemistry, University of Vermont	1981-84
Postdoctoral Associate	Dept. of Physiology & Biophysics, Univ. of Vermont	1984-87
Research Assistant	Dept. of Physiology & Biophysics, Univ. of Vermont	1987-
Professor		
Faculty	College of Medicine	1987-
Faculty	Graduate College	1987-
Member	Cell and Molecular Biology Program	1991-
Lecturer	Dept. of Biology (secondary appointment)	1994
Instructor	Community College of Vermont (secondary appointment)	1994-99
Lecturer	Depts. of Biology and Molecular Physiology, UVM	1999-07
Senior Lecturer	Biology Department UVM	2007-
Senior Lecturer (Retired)	Biology Department, continuing Part Time Lecturer UVM	Jun 2020

## **EDITORIAL SERVICE:**

Ad Hoc Reviewer: American Review Respiratory Disease,  
Experimental Lung Research,  
American Journal of Respiratory Cell and Molecular Biology  
American Journal of Physiology,  
Laboratory Investigation,  
Journal of Histochemistry and Cytochemistry

## **SOCIETIES:**

American Association for the Advancement of Science  
American Society for Cell Biology

## **TEACHING:**

**Previous instructional involvement in:** (at Hartford, UCONN, Johns Hopkins, UVM)

Undergraduate: General Biology, Genetics, Biochemistry, Anatomy, Physiology

Human Biology (CCV, Bio-126)

Survey course covering principles of general biology and Human Physiology  
Serving 15-20 non-traditional students per semester who are seeking entrance  
into allied health related programs. Fall, Spring, Summer 1994 – 1999

Human Anatomy and Physiology (CCV, Bio-124-5)

A two semester lecture/laboratory course covering all systems.  
Designed for those in or planning allied health/nursing programs or further work  
in the biosciences. 20 students per semester, 4 credits/semester  
1996-7, 97-8, 98-9

Comparative Animal Physiology (UVM, Zool-104)

Core course in Biology curriculum, enrolling 60-70 students  
Lecture and Laboratory (4 credits) Spring, 1994

Human Physiology (UVM, MPBP-101-2)

Two semester team taught course. Introductory level course for students in  
Bioengineering and Physical Therapy Programs.  
Lecture and Lab/conference, 50-60 students. 1994-8  
Responsible for initial, cell physiology and sensory system related sections

Graduate: Cell Biology, Molecular Biology, Cell Differentiation (at UVM)

**Recent (~ 2000 →) instructional participation in:**

- Graduate: Cell Biology (UVM, CLBI-301, Biol-301)  
Fundamental course of the interdisciplinary Cell and Molecular Biology Program. Initially team taught -  
Responsible for the sections on Cytoskeleton and Extracellular Matrix. 1987-95
- Primary instructor/coordinator, new advanced literature/survey format.  
Main topics covered include; membranes and transport mechanisms, mitochondria and energy transduction, protein synthesis and targeting, as well as cytoskeleton and motility. 20-35 students from multiple disciplines  
1997- 2003
- Specialized Cells and Processes (UVM, CLBI-302, Biol-302)  
Initial team taught: Topic - Cells involved in the tissue repair response. 1989
- Primary instructor/coordinator, new advanced literature/survey format.  
Second course in the Cell and Molecular Biology graduate sequence.  
Emphasis is on cell signaling mechanisms, transcriptional regulation and differentiation, replication and cell cycle control. Discussion includes treatment of diverse cell types including yeast, insect, plant as well as mammalian muscle, endocrine, immune, nervous etc. 10-25 students from diverse disciplines  
2000- 2003
- Cell Physiology/Advanced Cell Biology (UVM, Biol-295x)  
New single semester literature/survey course covering selected topics in modern Cell/Molecular/Structural Biology. Offered for incoming Biology graduate students and advanced undergraduates. Serves 15 -25 students Fall 2003-7

## Undergraduate: (by Topic)

### Service and Non-Majors

#### Science as a Way of Knowing (Biol 009)

A TAP (Teacher/Advisor Program) course for Freshmen level students.

A “seminar” style course dealing with critical thinking skills as applied to college work and the development of scientific (especially biological) thought throughout history. Usually limited to about 14 students. Fall 2004

#### Human Biology (UVM, Biol-003a and z sections)

A one semester non-laboratory science course for non-science majors.

Covering general science principles, a survey of biology concepts, overview of human physiology with an emphasis on genetics, disease and environmental interactions. Serving 200+ students. 1999 - present

A modified online, asynchronous, version created, (2018) initially for Summer Session, and later used generally.

#### The Human Body (UVM, Biol-004a and z sections)

A one semester course for non-science students.

General principles of human anatomy and physiology are covered with a view to promoting a basic understanding of health related issues and the scientific basis medical practice. Serving 200+ students 2000 - present

Moved partially online 2020 and fully online 2021.

#### The Human Body Lab (UVM, Biol-096 a and z sections, now Biol 014)

A one semester Laboratory Course to accompany Biol 004, The Human Body. This course section is designed to provide the laboratory experience for non-science students, who require such work for their academic program. The lab is computer-based in order to better appeal to the student population and provide access to topics, which are difficult to deal with in an ordinary “wet-lab” setting. Currently Serving 60-80 students (120 in 2021) 2005 - present  
This course will be constantly evolving in response to student feedback. This will be accomplished in cooperation with colleagues, CTL and commercial software suppliers. Completely new version in 2018.

Approved in 2012 for inclusion in standard college offerings as Biol 014.

#### Human Biology Lab (UVM, Biol 096, A&S and CE sections, now Biol 013)

A one semester laboratory Course to accompany Biol 003, Human Biology.

A computer based lab designed for the non-science student. The exercises demonstrate basic science concepts and experimental design and emphasize the role of inheritance in biological systems. Serving 70-80 students Fall 2007-

Approved in 2012 for inclusion in standard college offerings as Biol 013.

## Introductory Biology

### Principles of Biology (UVM, Biol 001C/Z)

This is the first of two courses in the introductory sequence for the general student. Originally designed simply as the “Continuing Education” section offered to all students needing an evening presentation, it evolved into a section for particularly motivated students, like those in the Post-Bac Pre-Med program. As such it offers more challenging material and a corresponding lab derived from the majors BCOR program.

Serving up to 40 students. Fall semester

2005

### Principles of Biology (UVM, Biol 001/002 A and B plus Z sections)

The two semester Introductory Biology sequence. This was originally intended for non-science majors who needed a science for a distribution requirement. However, over the years it has grown and the students are now decidedly “mixed majors” with about one third affiliated with some “life science” department. Thus the course attempts to present both lecture and laboratory materials capable of supporting and enhancing the academic experience of both student populations. Serving ~ 400 students per semester (both sections)  
Participation in 2009/10, 10/11, 15/16

### Exploring Biology (UVM, BCOR 11)

This course, developed from the original Biol 11, is the first semester of the two semester fundamental introductory sequence for all “Bio-Science” majors. The 400+ enrollment is divided into multiple 45 student sections to provide better student instructor contact. BCOR 11 covers basic chemistry, cell structure and function as well as the basic molecular genetic mechanisms of living systems. In 2015 the syllabus added plant and animal structure/function topics.

2006 – 8, 16-19

### Exploring Biology (UVM, BCOR 12)

This is the second course in the introductory biology sequence for “Bio-Science” majors. It covers topics in genetics, evolution, systematics, a survey of plant and animal groups (physiology moved to 11 in 2015) and environment/ecology. Like BCOR 11 it is divided into multiple lecture sections and has a companion lab. Each section is 45 students.

Participation in 2009, 12 -17

## “Cell” Biology

### Cell Function and Structure (UVM, Biol-103a and/or z sections)

Core sophomore level course of the Biology curriculum - lecture and laboratory, Enrolling 80-100 students per semester, Fall or Spring 1995-8, 2001-2006

### Cell Structure and Function (UVM, Biol 106)

New replacement for Biol 103. This version is designed for those students needing a “Cell Biology” course, who are not affiliated with a BCOR department – including education majors, Post-Bac Pre Meds etc. 2007-8

### Molecular and Cell Biology (UVM, BCOR-103)

The new Core “Cell” course for the Integrated Biology Curriculum. This is a replacement for and an extension of, Biol-103, adding some topics on modern Genomic studies. Enrolling 200+ students per year Spring 2006-15

## Physiology

### Human Physiology (UVM, MPBP 201,2)

Two semester team taught course. Intended for upper level undergraduates or graduate students enrolled in the Physical Therapy Masters Degree Program. Responsible for the section on "Excitable Cells" (Neurophysiology) 2001- 2

### Human Anatomy and Physiology (UVM, ANPS 19-20)

Primary A&P for Nursing and other Allied Health Students.

Team taught, Fall/Spring sequence, 100+ students

Responsible for Respiratory Biology Section

1997- 2008

### Advanced Animal Physiology, Comparative Physiology (UVM, Biol-295, 255)

A one semester advanced survey of the major “systems” of the animal body. Selected mammalian systems are emphasized with discussion of comparative information derived from other branches of the animal world.

Considered a “capstone” course (post core offerings) of the new Biology Curriculum. Lecture with computer controlled investigative laboratory

experience. (Originally 30 now 90 students)

Spring: 2004, Fall: 2010-14

## Histology

### Comparative Animal Histology (UVM, Biol 212) Spring 2018, 19

This is a lecture/laboratory and student presentation course. It is intended for upper level undergraduate students in the life science. Many of the participants are planning for a health profession career (MD, Vet, Dental, Nursing etc.) and looking for some early experience in clinical related studies. The course combines formal presentations on the detailed cellular and matrix components of the various tissues and organ systems of the mammalian body, with additional information covering some non-mammalian animals. The intent is to help the student integrate information obtained in cell and molecular biology with that from physiology within a practical and hands on clinically relevant context.

## STUDENT ADVISEES:

### GRADUATE

Alastair Mackay Degree Ph.D. 1989

Associate Advisor Thesis Research  
Thesis: The co-expression of cytokeratins and vimentin by mesothelial cells and Mesotheliomas in the rat.

Susan Edmonson Degree Ph.D. 1990

Associate Advisor Thesis Research  
Thesis: Regulation of keratin expression by vitamin A and benzo(a)pyrene in the Tracheal epithelium of the hamster.

Jean Wong Degree M.S. 1992

Associate Advisor and Chair Thesis Defense Committee  
Thesis: Smooth muscle actin and myosin expression in cultured airway smooth muscle cells.

Sheryl White Degree Ph.D. 1993

Associate Advisor and Chair Thesis Defense Committee  
Thesis: Smooth muscle myosin heavy chain isoforms:  
Identification of a novel isoform and developmental expression in smooth muscle.

### UNDERGRADUATE

TAP advisor for 14 incoming Freshmen students Fall 2004

## PUBLICATIONS:

Mitchell, J.J. and Lucas-Lenard, J.M. The effect of alcohols on guanosine 5'-diphosphate- 3'-diphosphate metabolism in stringent and relaxed *Escherichia coli*. J. Biol. Chem. 255:6307-6313, 1980

Sterling, K.M., Harris, M.J., Mitchell, J.J., DiPetrillo, T.A., Delaney, G.L. and Cutroneo, K.R. Dexamethasone decreases the amounts of Type I procollagen mRNAs *in vivo* and in fibroblast cell cultures. J. Biol. Chem. 258:7644-7647, 1983.

Sterling, K.M., Harris, M.J., Mitchell, J.J. and Cutroneo, K.B. Bleomycin treatment of chick fibroblasts causes an increase of polysomal Type I procollagen mRNAs. J. Biol. Chem. 258: 14438-14444, 1983.

Gilmartin, M.E., Mitchell, J.J., Vidrich, A. and Freedberg, I.M. Dual regulation of intermediate filament phosphorylation. J. Cell Biol. 98:1144-1149, 1984.

Vidrich, A., Gilmartin, M.A., Mitchell, J.J. and Freedberg, I.M. Postsynthetic modifications of epithelial keratins. In "Intermediate Filaments" Wang, E., Fishman, D., Leim, R.K.H. and Sun, TT Eds. Annals of the New York Academy of Sciences, 455:345-370, 1985.

Low, R.B., Woodcock-Mitchell, J., Mitchell, J.J., Arnold, J. and Absher, P.M. Synthesis of cytoskeletal and contractile proteins by cultured IMR-90 fibroblasts. J. Cell Biol. 101:500-505, 1985.

Woodcock-Mitchell, J., Burkhardt, A.L., Mitchell, J.J., Rannels, S.R., Rannels, D.E., Chiu, J-F and Low, R.B. Keratin isoforms in Type II Pneumocytes in culture and during lung injury. Am. Rev. Respir. Dis. 134:566-571, 1986.

Coflesky, J.T., Adler, K.B., Woodcock-Mitchell, J.L., Mitchell, J. and Evans, J. Proliferative changes in the arterial wall during short-term hyperoxic injury to the lung. Am. J. Path. 132(3):563-573, 1988.

Woodcock-Mitchell, J., Mitchell, J.J., Low, R.B., Sengel, P., Rubbia, L., Skalli, O., Jackson, B, and Gabbiani, G. Alpha-smooth muscle actin is transiently expressed in embryonic rat cardiac and skeletal muscles. Differentiation, 39:161-166, 1988.

Woodcock-Mitchell, J., Rannels, S.R., Mitchell, J., Rannels, D.E. and Low, R.B. Modulation of keratin expression in Type II Pneumocytes by the extracellular matrix. Am. Rev. Respir. Dis. 139: 343-351, 1989.

Absher, M., Woodcock-Mitchell, J., Mitchell, J., Baldor, L., Low, R. and Warshaw, D. Characterization of vascular smooth muscle cell phenotype in long term culture. In Vitro. 25:183-191, 1989.

Adler, K.B., Low, R.B., Leslie, K.O., Mitchell, J. and Evans, J.N. Contractile cells in normal and fibrotic lung. Lab. Invest., 60: 473-485, 1989.



Mitchell, J., Woodcock-Mitchell, J., Reynolds, S., Low, R., Leslie, K., Adler, K., Gabbiani, G. and Skalli, O. Alpha-Smooth muscle actin in parenchymal cells of bleomycin-injured rat lung. *Lab. Invest.*, 60: 643-650, 1989.

Burkhardt, A.L., Woodcock-Mitchell, J.L., Mitchell, J.J., and Chiu, J-F. The enhanced association of keratin with hepatoma cell nuclei. *Cancer Biochem. Biophys.* 10: 207-217, 1989.

Leslie, K.O., Mitchell, J.J., Woodcock-Mitchell, J.L. and Low, R.B. Contractile cells in developing adult human lung. *Differentiation*, 44: 143-149, 1990.

Mitchell, J., Low, R.B. and Woodcock-Mitchell, J.L. Cytomatrix synthesis in MDCK epithelial cells. *J. Cell. Physiol.*, 143: 501-511, 1990.

Mitchell, J.J., Reynolds, S.E., Leslie, K.O., Low, R.B. and Woodcock-Mitchell, J. Smooth Muscle cell markers in developing rat lung. *Am. J. Respir. Cell Molec. Biol.*, 3: 515-523, 1990.

Woodcock-Mitchell, J., Mitchell, J.J., Reynolds, S.E., Leslie, K.O. and Low, R.B. Alveolar epithelial cell keratin expression during lung development. *Am. J. Respir. Cell Molec. Biol.*, 2:503-514, 1990.

Mitchell, J.J., Woodcock-Mitchell, J., Leslie, K., Rannels, D.E. and Low, R.B. Cytoskeletal and contractile protein distribution in lung development and injury. *Chest* 99: Suppl., 18s-20s, 1991.

Taatjes, D.J., Leslie, K.O., von Turkovich, M., Woodcock-Mitchell, J., Mitchell, J. and Low, R.B. Alveolocapillary remodeling in bleomycin-induced rat lung injury: interpretation from lectin-binding studies. *Prog. Histochem. Cytochem.*, 23: 194-199, 1991.

Leslie, K.O., Mitchell, J. and Low, R. Lung Myofibroblasts. *Cell Motility and the Cytoskeleton.* 22: 92-98. 1992.

Woodcock-Mitchell, J., White, S., Stirewalt, W., Periasamy, M., Mitchell, J.J. and Low, R.B. Myosin isoform expression in developing and remodeling rat lung. *Am. J. Respir. Cell Molec. Biol.* 8:617-625, 1993.

Mitchell, J.J., Woodcock-Mitchell, J., Perry, L., Zhao, J., Low, R.B., Baldor, L. and Absher, P.M. *In Vitro* expression of the alpha-smooth muscle actin isoform by rat mesenchymal cells: regulation by culture condition and TGF $\beta$ . *Am. J. Respir. Cell Molec. Biol.* 9: 10-18, 1993.

Bishop, J.E., Mitchell, J.J., Absher, P.M., Baldor, L., Geller, H.A., Woodcock-Mitchell, J., Hamblin, M.J., Vacek, P. and Low, R.B. Cyclic mechanical deformation stimulates fibroblast proliferation and growth factor production. *Am. J. Respir. Cell Molec. Biol.* 9: 126-133, 1993.

Babij, P., Zhao, J., White, S., Woodcock-Mitchell, J., Mitchell, J. Absher, M., Baldor, L., Periasamy, M. and Low, R.B. Smooth muscle myosin regulation by serum and density in cultured rat lung connective tissue cells. *Am. J. Physiol.* 265: L127-L132, 1993.

Wong, J.Z., Woodcock-Mitchell, J., Mitchell, J., Rippetoe, P., White, S., Absher, M., Baldor, L., Evans, J., McHugh, K.M. and Low, R.B. Smooth muscle actin and myosin expression in cultured airway smooth muscle cells. *Am. J. Physiol. (Lung Cell Mol. Physiol.)* 274: L786-L792, 1998.

Okada, H., Woodcock-Mitchell, J., Mitchell, J., Sakamoto, T., Marutsuka, K., Sobel, B.E. and Fujii, S. Induction of plasminogen activator inhibitor type I and Type I collagen expression in rat cardiac microvascular endothelial cells by interleukin-1 and its dependence on oxygen-centered free radicals. *Circulation.* 97:2175-2182, 1998.

Panche J.C., Christakos P.G., Gannon D.E., Mitchell J.J., Low R.B. and Leslie K.O. Myofibroblasts in diffuse alveolar damage of the lung. *Modern Pathology* 11:1064-70, 1998.

Low, R.B., Mitchell, J., Woodcock-Mitchell, J., Rovner, A.S. and White, S.L. Smooth muscle myosin heavy chain SM-B isoform expression in developing and adult rat lung. *Am. J. Respir. Cell Molec Biol.* 20:651-7, 1999.

Sakamoto T., Woodcock-Mitchell J., Marutsuka K., Mitchell J.J., Sobel B.E. and Fujii S. TNF-alpha and insulin, alone and synergistically, induce plasminogen activator inhibitor-1 expression in adipocytes. *Am. J. of Physiology* 276:C1391-7, 1999.

Sun XJ., Goldberg J.L., Qiao LY. and Mitchell J.J. Insulin-induced insulin receptor substrate-1 degradation is mediated by the proteasome degradation pathway. *Diabetes* 48:1359-64, 1999.

Zhande, R., Mitchell, J.J., Wu, J., and Sun, XJ. Molecular Mechanism of Insulin-Induced Degradation of Insulin Receptor Substrate 1. *Molecular and Cellular Biology* 22:1016-1026, 2002.

All articles are in Peer Reviewed Journals/Publications appropriate to the particular sub-discipline involved.

**ABSTRACTS** of the above publications and additional related work have also appeared in the literature as a result of presentations at national and international meetings.

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