

CURRICULUM VITAE
KAREN MASULLO HARNETT

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EDUCATION:

Undergraduate: Providence College, Providence, RI, B.S., Chemistry, 1978.

Graduate School: Boston University, Boston, MA, Ph.D., Pharmacology, 1988.

POSTGRADUATE TRAINING

Fellowship: Post-doctoral Research Fellow, Department of Pharmacology
University of Rhode Island, Laboratory of Zahir A. Shaikh, Ph.D.
1988.

ACADEMIC APPOINTMENTS

1997-1998 Investigator, Department of Medicine, Brown University

1998-2004 Assistant Professor (Research), Department of Medicine, Brown University and
Department of Molecular Pharmacology, Physiology and Biotechnology, Brown
University.

HOSPITAL APPOINTMENTS

1989-present Research Associate, Department of Medicine, Rhode Island Hospital.

OTHER APPOINTMENTS

1978-1982 Assistant Scientist, Pfizer Central Research, Groton CT, Department of Drug
Safety Evaluation.

MEMBERSHIP IN SOCIETIES

2000-present American Society For Pharmacology and Experimental Therapeutics

2003-present American Gastroenterological Association

PUBLICATIONS:

1. Walsh CT, Harnett KM: Inhibitory effect of lead acetate on contractility of longitudinal smooth muscle from rat ileum. *Tox. Appl. Pharmacol.* 83: 62-68, 1986.
2. Harnett KM, Walsh CT, Zhang L: Effects of Bay o 2752 , a hypocholesterolemic agent, on intestinal taurocholate absorption and cholesterol esterification. *J. Pharmacol. Exp. Ther.* 251: 502-509, 1989.
3. Shaikh ZA, Harnett KM, Perlin SA, Huang PC: Chronic cadmium intake results in dose-related excretion of metallothionein in urine. *Experientia* 45: 146-148, 1989.
4. Sohn UD, Harnett KM, Behar J, Biancani P: Distinct muscarinic receptors and G-proteins in esophageal and lower esophageal sphincter (LES) circular muscle. *J. Pharmacol. Exp. Ther.* 267: 1205-1214, 1993.
5. Yu P, Harnett KM, Biancani P, DePetris G, Behar J: Interaction between signal transduction pathways contributing to gallbladder tonic contraction. *Am. J. Physiol.* 265: G1082-G1089, 1993
6. Biancani P, Harnett KM, Sohn UD, Rhim BY, Behar J, Hillemeier C, and Bitar KN: Differential signal transduction pathways in LES tone and response to ACh. *Am. J. Physiol.* 266: G767-G774, 1994.
7. Yu P, Chen Q, Harnett KM, Amaral J, Biancani P, Behar J: G-protein activation reverses impaired CCK-signaling in human gallbladders with cholesterol stones. *Am. J. Physiol* 269: G659-665, 1995.
8. Sohn UD, Zoukhri D, Dartt D, Sergheraert C, Harnett KM, Biancani P: Different PKC isozymes mediate lower esophageal sphincter (LES) tone and phasic contraction of esophageal (ESO) circular smooth muscle in the cat. *Mol. Pharmacol.* 51: 462-470, 1997.

9. Biancani P, Sohn UD, Rich H, Harnett KM, Behar J: Signal transduction pathways in esophageal and lower esophageal sphincter circular muscle. *Am. J. Med.* 103: 23S-28S, 1997.
10. Sohn UD, Harnett KM, Cao W., Rich H, Kim N, Behar J, Biancani P: Acute esophagitis activates a second signal transduction pathway in cat LES. *J. Pharmacol. Exp. Ther.* 283: 1293-1304, 1997.
11. Kim N, Cao W, Song S, Kim CY, Sohn UD, Harnett KM, Biancani P: Leukotriene D4-induced contraction of cat esophageal and lower esophageal sphincter circular smooth muscle. *Gastroenterology* 115: 919-928, 1998.
12. Yu P, Chen Q, Xiao Z, Harnett KM, Biancani P, Behar J: Signal transduction pathways mediating cholecystokinin induced contraction in gallbladder muscle. *Am. J. Physiol* 275: G203-211, 1998.
13. Cao W, Harnett KM, Chen Q, Jain M, Behar J, Biancani P: Group I secreted phospholipase A2 and arachidonic acid metabolites in the maintenance of cat LES tone. *Am. J. Physiol* 277: G585-G598, 1999.
14. Cao W, Harnett KM, Behar J, Biancani P: Group I secreted phospholipase A2 in the maintenance of human LES tone. *Gastroenterology* 119: 1243-1252, 2000.
15. Cao W, Chen Q, Sohn UD, Kim N, Kirber MT, Harnett KM, Behar J, Biancani P: Ca²⁺-induced contraction of cat esophageal circular smooth muscle cells. *Am. J. Physiol* 280:C980-C992, 2001.
16. Sohn UD, Cao W, Tang D-C, Stull JT, Haeberle JR, Wang C-LA, Harnett KM, Behar J. Biancani P: Myosin light chain kinase dependent and independent contractions of LES and esophageal smooth muscle. *Am. J. Physiol.* 281:G467-G478, 2001.
17. Cao W, Harnett KM, Behar J, Biancani: PGF₂α-Induced Contraction Of Cat Esophageal And Lower Esophageal Sphincter Circular Smooth Muscle. *Am. J. Physiol.* 283:G282-91, 2002.

18. Cao W, Sohn UD, Bitar KN, Behar J, Biancani P, Harnett KM. Mitogen Activated Protein Kinase Mediates Protein Kinase C-Dependent Contraction Of Cat Esophageal And Lower Esophageal Sphincter Circular Smooth Muscle. *Am. J. Physiol.* 285:G86-95, 2003.
19. Kim Nayoung, Cao Weibiao, Song In Sung, Kim Chung Yong, Harnett Karen M, Cheng Ling, Walsh Michael P, and Biancani Piero. Distinct Kinases Are Involved In Contraction Of Cat Esophageal And Lower Esophageal Sphincter Smooth Muscles. *Am. J. Physiol.* 287: C384-394, 2004.
20. Cao W, Vrees MD, Potenti FM, Harnett KM, Fiocchi C, Pricolo V. Interleukin 1beta-induced production of H₂O₂ contributes to reduced sigmoid colonic circular smooth muscle contractility in ulcerative colitis. *J. Pharmacol. Exp Ther* 311: 60-70, 2004
21. Cao W, Cheng L, Behar J, Fiocchi C, Biancani P, and Harnett KM. Proinflammatory cytokines alter/reduce esophageal circular muscle contraction in experimental cat esophagitis. *Am. J. Physiol.* 287: G1131-1139, 2004.
22. Cheng L, Cao W, Behar J, Biancani P, and Harnett KM. Inflammatory changes in arachidonic acid metabolism in cat LES circular muscle. *Am. J. Physiol.* 288: G787-797, 2005
23. Cao W, Harnett KM, Cheng L, Kirber MT, Behar J, and Biancani P. H₂O₂ a mediator of esophagitis induced damage to calcium-release mechanisms in cat lower esophageal sphincter (LES). *Am. J. Physiol.* 288(6):G1170-1178, 2005
24. Cheng L, Cao W, Fiocchi C, Behar J, Biancani P, Harnett KM. Platelet-activating factor and prostaglandin E2 impair esophageal ACh release in experimental esophagitis. *Am J Physiol* 289(3):G418-428, 2005.
25. Cheng L, Cao W, Fiocchi C, Behar J, Biancani P, Harnett KM. In vitro model of acute esophagitis in the cat. *Am J Physiol.* 289(5):G860-9, 2005.
26. Cheng L, Harnett KM, Cao W, Liu F, Behar J, Fiocchi C, Biancani P. Hydrogen peroxide reduces lower esophageal sphincter tone in human esophagitis. *Gastroenterology.* 129(5):1675-1685, 2005.

27. Cheng L, Cao W, Fiocchi C, Behar J, Biancani P, Harnett KM. HCl-induced inflammatory mediators in cat esophageal mucosa and inflammatory mediators in esophageal circular muscle in an in vitro model of esophagitis. *Am J Physiol*. 290(6):G1307-1317, 2006.
28. Cao W, Harnett KM, Pricolo VE. NK2 receptor-mediated spontaneous phasic contractions in normal and ulcerative colitis human sigmoid colon. *J Pharmacol Exp Ther*. 317(3):1349-1355, 2006.
29. Cao W, Cheng L, Behar J, Biancani P, Harnett KM. IL-1 {beta} Signaling in Cat Lower Esophageal Sphincter (LES) Circular Muscle. *Am J Physiol* 2006 Apr 27; [Epub ahead of print]

REVIEWS

1. Harnett KM, Cao W, Kim N, Sohn UD, Rich H, Behar J, Biancani P. Signal Transduction in esophageal and LES circular muscle contraction. *Yale J Med. Biol*. 72:153-168, 1999.
2. Harnett KM, Biancani P. Calcium-Dependent And Calcium-Independent Contractions In Smooth Muscles Of The Esophagus. *Am. J Med* 115 Suppl 3A:24S-30S ,2003.
3. Harnett KM, Cao W, and Biancani P. Signal-transduction pathways that regulate smooth muscle function I. Signal transduction in phasic (esophageal) and tonic (gastroesophageal sphincter) smooth muscles. *Am. J. Physiol*. 288:G407-416, 2005.
4. Biancani P, Harnett KM. Signal transduction in LES Circular muscle. *In GI Motility Online* May 2006. Raj Goyal and Reza Shaker editors. Nature Publishing Group.

BOOK CHAPTERS

1. Biancani, P, Harnett, KM, Behar J. Esophageal motor function. In Textbook of Gastroenterology, T. Yamada ed. Third edition. 1999.
2. Biancani, P, Harnett, KM, Behar J. Esophageal motor function. In Textbook of Gastroenterology, T. Yamada ed. Fourth edition. 2003.

ABSTRACTS

1. Swindell AC, Dooley JF, Torchia AJ, Masullo KM: Enzyme leakage induced by chlorpromazine and digitoxin from cultured liver cells. *Fed. Proc*. 40: 739, 1981.

2. Dooley JF, Swindell AC, Masullo KM, Torchia AJ: Patterns of enzyme release by chlorpromazine and digitoxin from cultured liver cells. Abstract of Presentation at the XI International Congress of Clinical Chemistry in Vienna, August, 1981.
3. Dooley JF, Masullo KM: Hepatocellular aspartate aminotransferase activity and isoenzyme distribution after acute thioacetamide poisoning in several laboratory animals. *Clin. Chem.* 27:1038, 1981.
4. Dooley JF, Masullo KM: Activation of serum aspartate aminotransferase (AST) in rats after acute thioacetamide hepatotoxicity by use of Pyridoxal 5'-phosphate (PLP). *Clin. Chem.* 28:1640, 1982.
5. Walsh CT, Harnett KM, Ryden EB: Lead-induced impairment of contractility in longitudinal smooth muscle from the rat ileum. *The Pharmacologist* 27:130, 1985.
6. Walsh CT, Harnett KM: Sucrase inhibitors and bile acid absorption in the rat. *Fed Proc* 45: 340, 1986.
7. Harnett KM and Walsh CT: Effect of Bay o 2752 on bile acid uptake from the rat ileum. *The Pharmacologist* 24: 284, 1987.
8. Harnett KM and Walsh CT: ACAT inhibition: Mechanism of the hypocholesterolemic effect of Bay o 2752. *Fed Proc* 2(4)A618,1988.
9. Rich H, Sohn UD, Harnett KM, Behar J, Biancani P: Signal transduction pathways in a chronic cat model of experimental esophagitis. *Gastroenterology* 106:A559, 1994.
10. Sohn UD, Harnett KM, Behar J, Biancani P: Differential phospholipases and PKC isozymes mediate phasic contraction of esophageal circular muscle and lower esophageal sphincter (LES) tone. *Gastroenterology* 106:A570, 1994.
11. Rich H, Sohn UD, Harnett KM, Cao WB, Chrostek C, Amaral J, Migliori S, Behar J, Biancani P. Ranitidine prevents/reverses reflux-induced changes in signal transduction in cat LES in a chronic model of experimental esophagitis. *Gastroenterology* 112:A813, 1997.
12. Cao WB, Chen Q, Sohn UD, Harnett KM, Rich H, Behar J, Biancani P. Depletion of intracellular Ca²⁺ stores mimics changes induced by acute experimental esophagitis (AE) in the cat LES. *Gastroenterology* 112:A708, 1997.

13. Cao WB, Harnett KM, Jain MK, Rich H, Behar J, Biancani P. Group I secreted phospholipase A2 (sPLA2) mediates LES tone in the cat. *Gastroenterology* 114:A730, 1998
14. Kim N, Cao W, Song S, Kim CY, Sohn UD, Harnett KM, Biancani P. Contraction induced by phosphatase inhibitors in esophageal and LES smooth muscle. *Gastroenterology* 114:A777, 1998.
15. Rich H, Cao W, Harnett KM, Migliori S, Amaral J, Chrostek C, Behar J, Biancani P. PLA2 and arachidonic acid (AA) in contraction of esophageal smooth muscle (ESO) in chronic esophagitis. *Gastroenterology* 116:A1070, 1999.
16. Rich H, Cao W, Harnett KM, Migliori S, Amaral J, Chrostek C, Behar J, Biancani P. PLA2 and arachidonic acid- (AA) induced contraction of lower esophageal sphincter smooth muscle cells (LES) in chronic esophagitis. *Gastroenterology* 116:A1070, 1999.
17. Cao WB, Harnett KM, Sohn UD, Behar J, Biancani P. Mitogen activated protein kinase (MAPK) mediates PKC-dependent contraction of human esophageal circular smooth muscle (HESO). *Gastroenterology* 116:A968, 1999.
18. Cao WB, Harnett KM, Behar J, Biancani P. G13 and the monomeric G-proteins RhoA and ARF1 contribute to prostaglandin PGF2 α -induced contraction of esophageal circular smooth muscle. *Gastroenterology* 116:A968, 1999.
19. Cao WB, Jain MK, Harnett KM, Behar J, Biancani P. Group I secreted phospholipase A2 (sPLA2-1) mediates human lower esophageal sphincter (HLES) tone. *Gastroenterology* 116:A968, 1999.
20. Cao WB, Harnett KM, Behar J, Biancani P. Kirker M. Hydrogen peroxide (H₂O₂) decreases cat lower esophageal sphincter (LES) tone: possible role in acute experimental esophagitis (AE). *Gastroenterology* 118:A709, 2000.
21. Cao WB, Cheng L, Harnett KM, Fiocchi C., Behar J, Biancani P. Interleukin 1B-induced reduction of LES tone. *Gastroenterology* 118:A709, 2000.
22. Cao WB, Harnett KM, Behar J, Biancani P. Hydrogen peroxide (H₂O₂) mimics esophagitis-induced changes in signal transduction in the cat LES. *Gastroenterology* 118:A1101, 2000.

23. Cao WB, Harnett KM, Behar J, Biancani P. Thromboxane A₂-induced contraction of cat esophageal and lower esophageal sphincter circular smooth muscle. *Gastroenterology* 118:A1102, 2000.
24. Cao WB, Cheng L, Harnett KM, Behar J, Biancani P. H₂O₂-induced damage to intracellular LES Ca²⁺ stores in acute experimental esophagitis (AE) in the cat. *Gastroenterology* 120:A58, 2001.
25. Cheng L, Cao WB, Harnett KM, Behar J, Biancani P. Inflammation-Induced Changes in Arachidonic Acid Metabolism in Cat LES. *Gastroenterology* 120:A219, 2001.
26. Cao WB, Harnett KM, Cheng L, Behar J, Biancani P. P38 Mapk and Hsp27 in ACh-Induced Contraction of Cat Esophageal (ESO) Circular Smooth Muscle. *Gastroenterology* 120:A219, 2001.
27. Cao WB, Harnett KM, Behar J, Biancani P. Prostaglandin F_{2α} (PGF_{2α})-Induced Contraction of Human Esophageal and Lower Esophageal Sphincter Circular Smooth Muscle. *Gastroenterology* 120:A210, 2001.
28. Cheng L, Harnett KM, Cao WB, Behar J, Biancani P. Platelet Activating Factor (PAF) Contributes to Decreased Cat Lower Esophageal Sphincter (LES) Tone in Acute Experimental Esophagitis (AE). *Gastroenterology* 122:A165, 2002.
29. Cheng L, Harnett KM, Cao WB, Liu F, Behar J, Biancani P. Hydrogen Peroxide Reduces Lower Esophageal Sphincter (LES) Tone in Human Esophagitis. *Gastroenterology* 122:A187, 2002.
30. Cheng L, Harnett KM, Cao WB, Fiocchi C, Behar J, Biancani P. Platelet Activating Factor (PAF) and Prostaglandin E₂ (PGE₂) Impair ACh Release in the Body of the Esophagus in Experimental Esophagitis. *Gastroenterology* 122:A190, 2002.
31. Cao WB, Li JS, Cheng L, Harnett KM, Behar J, Biancani P. Pancreatic (Group I B) Phospholipase A₂ (PLA₂) in the Lower Esophageal Sphincter (LES). *Gastroenterology* 124:A349, 2003.
32. Cheng L, Harnett KM, Cao WB, Behar J, Fiocchi C, Biancani P. In Vitro Model of Acute Esophagitis in the Cat. *Gastroenterology* 124:A160, 2003.
33. Cao WB, Cheng L, Harnett KM, Deng JT, Behar J, Walsh MP, Biancani P. Integrin Linked Kinase (ILK) in ACh-Induced Contraction of Cat Esophageal Circular Smooth Muscle (ESO). *Gastroenterology* 124:A161, 2003.
34. Cheng L, Harnett KM, Cao WB, Behar J, Biancani P. HCl-induced IL-6 and H₂O₂ in Cat LES in an in vitro Model of Experimental Esophagitis. *Gastroenterology* 126:A634, 2004.

35. Cheng L, Wang Lijuan , Harnett KM, Cao WB, Behar J, Biancani P. HCL-induced PAF and IL-6 in a Cat Model of Acute Esophagitis. *Gastroenterology* 126:A111, 2004.
36. Cao WB, Harnett KM, Cheng L, Behar J, Biancani P. Rho Kinase mediates Thromboxane A2 (TXA2)-Induced Sustained Contraction in Cat Lower Esophageal Sphincter (LES). *Gastroenterology* 126:A633, 2004.
37. Cheng L, Harnett KM, Cao WB, Behar J, Biancani P. Platelet Activating Factor Affects Esophageal Circular Smooth Muscle Contraction In A Human In Vitro Model Of Acute Esophagitis. *Gastroenterology* 128: A408, 2005
38. Cheng L, Harnett KM, Cao WB, Behar J, Biancani P. HCl-induced and taurodeoxycholic acid-induced inflammatory mediators in an in vitro model of acute esophagitis in the cat. *Gastroenterology* 128: A408, 2005
39. Cao WB, Harnett KM, Cheng L, Behar J, Biancani P. Rho Kinase And Human Lower Esophageal Sphincter Tone. *Gastroenterology* 128: A407, 2005
40. Cao W, Harnett KM, Cheng L, Behar J and Biancani P. IL-1 β -induced production of H₂O₂ and PGE₂ in Cat Lower Esophageal Sphincter (LES) circular muscle. *Gastroenterology* 128: A408, 2005.
41. Cheng L, Harnett KM, Cao W, Behar J, and Biancani P. Neural and non-neural pathways in vanilloid receptor (TRPV1)-mediated, acid-induced esophageal inflammation in the cat. *Gastroenterology* 130: A134, 2006.
42. Cheng L, Harnett KM, Cao W, Behar J, and Biancani P. PAF induced activation of NADPH oxidase is mediated by arachidonic acid and the myeloid-related proteins S100A8/A9. *Gastroenterology* 130: A731, 2006
43. Cheng L, Harnett KM, Cao W, Behar J, and Biancani P. Vanilloid receptor TRPV1-induced PAF production mediates acid-induced esophageal inflammation. *Gastroenterology* 130: A730, 2006.
44. Cao W, Harnett KM, Cheng L, Behar J and Biancani P. Different Ca²⁺ stores mediate acetylcholine (ACh)-induced contraction of cat LES and esophageal circular smooth muscle. *Gastroenterology* 130: A735, 2006.

45. Cao W, Harnett KM, Cheng L, Behar J and Biancani P. NADPH oxidase-derived H₂O₂ contributes to maintenance of human lower esophageal sphincter (LES) tone. *Gastroenterology* 130: A735, 2006.
46. Kunnath S, Pricolo VE, Harnett KM, Leleiko NS, Cao W. Platelet Activating Factor (PAF) affects Sigmoid Smooth Muscle contraction In Ulcerative Colitis (UC). *Gastroenterology* 130: A292, 2006.
47. Cao W, Guo Z, Harnett KM. Catalase overexpression in transgenic mice improves motor dysfunction of dextran sulfate sodium (DSS)-induced colitis. *Gastroenterology* 130: A23, 2006.
48. Cao W, Harnett KM, Pricolo VE. Hydrogen Peroxide Contributes to Decreased Spontaneous Phasic Contractions Of Human Sigmoid Circular Smooth Muscle in Ulcerative Colitis. *Gastroenterology* 130: A23, 2006.

INVITED PRESENTATIONS

Boston University School of Medicine, Boston MA. Two-hour workshops in the General Medical Pharmacology Course on Pharmacokinetics: September 18, 2000; September 10 and 17 2001; September 9 and 16, 2002; and September 8 and 15, 2003.

American Gastroenterological Association, San Francisco, California May 2002:

Platelet activating factor contributes to decreased cat LES tone in acute experimental esophagitis. Poster presentation.

Hydrogen peroxide reduces LES tone in human esophagitis. Poster presentation.

Platelet activating factor and prostaglandin E₂ impair Ach release in the body of the esophagus in experimental esophagitis. Poster presentation.

American Gastroenterological Association, Orlando, Florida May 2003:

Phospholipase A₂ (PLA₂) in the Lower Esophageal Sphincter (LES). Poster presentation

In Vitro Model of Acute Esophagitis in the Cat. Poster presentation

Integrin Linked Kinase (ILK) in ACh-Induced Contraction of Cat Esophageal Circular Smooth Muscle (ESO). Poster presentation.

American Gastroenterological Association, New Orleans, Louisiana May 2004.

HCL-induced PAF and IL-6 in a Cat Model of Acute Esophagitis. Oral Presentation.

Rho Kinase mediates Thromboxane A₂ (TXA₂)-Induced Sustained Contraction in Cat Lower Esophageal Sphincter (LES). Poster presentation.

HCL-induced IL-6 and H₂O₂ in Cat LES in an in vitro Model of Experimental Esophagitis. Poster presentation

American Gastroenterological Association, Chicago Illinois, May 2005

Platelet Activating Factor Affects Esophageal Circular Smooth Muscle Contraction In A Human In Vitro Model Of Acute Esophagitis. Poster Presentation

HCL-induced and taurodeoxycholic acid-induced inflammatory mediators in an in vitro model of acute esophagitis in the cat. Poster Presentation

Rho Kinase And Human Lower Esophageal Sphincter Tone. Poster presentation

American Gastroenterological Association, Los Angeles, May 2006

PAF induced activation of NADPH oxidase is mediated by arachidonic acid and the myeloid-related proteins S100A8/A9. Poster Presentation

Vanilloid receptor TRPV1-induced PAF production mediates acid-induced esophageal inflammation. Poster Presentation

Different Ca²⁺ stores mediate acetylcholine (ACh)-induced contraction of cat LES and esophageal circular smooth muscle. Poster Presentation

NADPH oxidase-derived H₂O₂ contributes to maintenance of human lower esophageal sphincter (LES) tone. Poster Presentation

GRANTS

1. Co-investigator: NIH RO1 grant DK028614-23 Biophysical Principles Of Peristaltic Phenomena 1989-present (Principal Investigator Piero Biancani)
2. Co-Principle Investigator: NIH RO1 grant DK57030-03 Inflammation And Signal Transduction In Esophagitis 2000-present (Principal Investigator Piero Biancani)

UNIVERSITY TEACHING ROLES

- 1985-1987: Teaching Fellowship, Boston University Graduate School, Department of Pharmacology. Teaching responsibilities included: three-hour pharmacology workshops and weekly tutorial sessions for medical and dental students.
- 1985-1987: Special lecturer, Goldman School of Graduate Dentistry, two one-hour lectures entitled: “Cardiovascular Agents and their Dental Implications.”
- 1998-present Lecturer, Brown University: Organ System Pharmacology Bio 273, lectures on pharmacokinetics, Organ System Pharmacology Bio 274, lectures on gastrointestinal pharmacology; Physiological Pharmacology Bio 126, lectures on pharmacokinetics; and Drug and Gene Delivery Bio 211, lectures on pharmacokinetics; Organ System Pharmacology Bio 273 and Bio 274 small group discussion leader with second-year medical students on topics including pharmacological management of patients with hypertension, asthma, schizophrenia, Parkinson’s disease and gastrointestinal disorders.
- 2000-present Lecturer, Boston University School of Medicine: two 2-hour workshops in Pharmacokinetics in the General Medical Pharmacology course for second-year medical students.
- 2000-present Lecturer, Brown University: Pathophysiology Bio 282, lecture on gastrointestinal motility