CURRICULUM VITAE

VITAL STATISTICS

NAME: George E. Billman

DEGREES HELD

5/30/75 — B.S., Natural Science
Xavier University, Cincinnati, OH

1/27/80 — Ph.D., Physiology and Biophysics
University of Kentucky, Lexington
Dissertation Title: "The Neural Control of the Coronary Circulation During Behavioral Stress in Conscious Dogs"

FULL TITLES

2/80 - 6/82 — Research Associate: Department of Physiology and Biophysics, University of Oklahoma Health Sciences Center, Oklahoma City

7/82 - 6/84 — Assistant Professor of Research: Department of Physiology and Biophysics, University of Oklahoma Health Sciences Center, Oklahoma City

7/84 - 6/90 — Assistant Professor: Department of Physiology, The Ohio State University, Columbus, Ohio

7/90 - 6/96 — Associate Professor: Department of Physiology, The Ohio State University, Columbus, Ohio

7/96 - pres — Professor: Department of Physiology, The Ohio State University, Columbus Ohio

COMPETITIVE FELLOWSHIPS

8/75 - 6/76 — Academic Year Fellowship

8/77 - 4/78 — Haggin Fellowship

8/78 - 5/79 — Dissertation Year Fellowship

SOCIETIES AND HONORS

Behavior and Brain Sciences Associate
Member, American Physiological Society
Member, Society of Sigma Xi
Member, American Heart Association, Basic Sciences Council

Associate Editor, Pharmacology & Therapeutics Cardiovascular Section 1999-2002

Referee, Acta Physiologica Scandinavica
American Journal of Physiology: Heart and Circulatory Physiology
American Journal of Physiology: Regulatory, Integrative and Comp. Physiology
Behavior and Brain Research
Biochimica et Biophysica Acta
British Journal of Pharmacology
Canadian Journal of Physiology and Pharmacology
Cardiovascular Research
Circulation
Circulation Research
Comparative Biochemistry and Physiology
European Journal of Pharmacology
Exercise Science and Sports Medicine
FASEB Journal
Heart and Lung
IEEE Trans Biomedical Engineering
Journal of Applied Physiology
Journal of Cardiovascular Pharmacology
Journal of Developmental Physiology
Journal of Laboratory and Clinical Medicine
Journal of Molecular and Cellular Cardiology
Journal of Pharmacology and Experimental Therapeutics
Journal of the Autonomic Nervous System
Physiology and Behavior
Proceedings of the Society for Experimental Biology

American Heart Association Ohio Affiliate:
Study section 1989, 1991-1998
American Heart Association Southern and Ohio Valley Affiliates: Study section 1999-pres.
AHA Research Peer Review Committee 1993-1997
NIH Research Training Study section 1993
NIH SCOR in Heart Failure 1994
Contract Proposal Reviewer, NIDA 1990, 1991
NHLBI Special Emphasis Panel for Review of Minority Training Applications 1994

Graduated cum laude from Xavier University

Who's Who of Rising Young American 1991, 1992
Who's Who in the Midwest, 1992

FUNDING

Past Support			First Year/ Total Direct Costs
7/01/82 - 6/30/84	American Heart Association	Control of Coronary Blood Flow During Behavioral Stress	$25,410/$46,420
7/01/83 - 6/30/86	NIH	Behavioral Stress and Myocardial Ischemia	$36,749/$107,488
7/01/86 - 6/30/87	University Seed Grant	Left Ventricular Dysfunction and Sudden Cardiac Death	$15,000
3/01/87 - 2/29/88	Eli Lilly Company	Vital Signs Monitor Evaluation	Approx. $20,000
7/01/86 - 6/30/89	NIH	Cardiac Dysfunction and Sudden Death, Modified by Exercise	$91,233/$277,950
1/01/90 - 12/31/90	Glaxo Research Laboratories	Evaluation of Novel Cardiotonic Drugs	$15,000
1/01/90 - 6/30/91	F. Hoffmann-LaRoche & Co Ltd.	Evaluation of the Anti-arrhythmic and Hemodynamic Properties of Ro 40-5967: a Comparison with Verapamil & Diltiazem	$34,800
4/01/90 - 3/31/94	NIDA	Cocaine-Induced Ventricular Fibrillation	$95,212/$270,361
2/01/92 - 1/31/95	F. Hoffmann LaRoche & Co Ltd.	Evaluation of the Effects of Ro 40-5967 on Refractory Period and Electrically Inducible Extrasystoles: A Comparison with Verapamil and Diltiazem	$55,867/$167,600
1/01/94 - 12/31/94	Pronova-Biocare	The Effect of Omega-3 Fatty Acids on Susceptibility to Ventricular Fibrillation	$11,100

1/01/95-12/31/95	Pronova-Biocare	Further Studies on the Effects of Omega-3 FA's on the Susceptibility to Ventricular Fibrillation	$15,000
7/01/94 - 6/30/97	American Heart Association - Ohio Affiliate	Extracellular Potassium Accumulation and Susceptibility to Ventricular Fibrillation	$29,722/$89,166
1/01/95-6/30/97	F. Hoffmann-LaRoche & Co Ltd.	The Effect of Ro 40-5967 on Intracellular Free Calcium in Cardiac and Smooth Muscle Myocytes (Dr.Ruth Altshuld, is Co-PI Dept of Med. Biochem, Ohio State Univ.)	$34,520
1/01/97-12/31/97	Merck & Co Inc.	The Effects of a Novel I_{Ks} blocker on Susceptibility to Ventricular Fibrillation	$40,640
2/01/95-6/30/98	Hoechst AG	The Effects of the Cardio-selective ATP-sensitive Potassium Channel Antagonist, S 3883, on Susceptibility to Venticular Fibrillation	$269,122
Total Direct Costs			$1,414,167

ACTIVE SUPPORT

7/01/98-6/30/00	Hoechst Marion Roussel	The Effect of Novel Potassium channel Antagonists on Ventriuclar Fibrillation Induced by Myocardial Ischemia	$183,215
3/01/00-2/28/01	Hoechst Marion Roussel	The Effect ATP-sensitive Channel Antagonists on Ischemically-Induced Ventricular Fibrillation	$75,000
10/01/95-9/30/99	NIH	Cardiac Myocytes and the Cellular Response to Ischemia (Co-investigator with Dr. Ruth Altschuld Dept. Med. Biochem Ohio State University)	$170,819/$804,393

7/01/98- 6/30/00	American Heart Assn Ohio Affiliate	Effect of Kinin, Neuro-kinin and Angiotension Peptides on Coronary Blood Flow Regulation (Co-investigator with Dr. Patrick Ward Dept. of Physiol. Ohio State University)	$30,000/ $60,000
01/01/99 12/31/99	Proctor & Gamble, Inc.	Antiarrhythmic Drug Testing	$50,370
Total Direct Costs			$1,173,524

PENDING (under Review)

07/01/00- 06/30/05	NIH	Exercise,β_2-adrenergic Receptors & Ventricular Fibrillation (Co-PI with Dr. Ruth Altschuld, Dept. of Med. Biochem. Ohio state University)	$250,000/ $1,250,000

Invited Presentations

1. Department of Pharmacology, University of Minnesota, Duluth MN. "The Mechanism Mediating the Coronary Vascular Response to Behavioral Stress." December 5, 1982

2. Department of Physiology, The Ohio State University, Columbus OH. "The Effect of Daily Exercise on Baroreceptor Reflex control of Heart Rate and Susceptibility to Ventricular Fibrillation." May 10, 1983
3. Department of Pharmacology, University of Indiana, Indianapolis IN. "Sudden Cardiac Death: Its Prediction and Prevention." November 12, 1984

4. Ohio Valley Section of the American Toxicology Society, annual meeting Indianapolis IN. "The Use of an Animal Model of Sudden Cardiac Death in Risk Assessment." November 13, 1984

5. Department of Physiology and Biophysics, University of Kentucky, Lexington KY. "The Effects of Daily Exercise on Susceptibility to Sudden Cardiac Death." April 12, 1985

6. Dalton Research Center, University of Missouri, Colombia MO. "The Effects of Daily Exercise on Sudden Cardiac Death: Protection from Ventricular Fibrillation." October 23, 1986

7. North American Society of Pacing and Electrophysiology, annual meeting Los Angeles CA. "Role of the Autonomic Nervous System in Arrhythmia Development." May 12, 1988

8. Pharmacology Division, Glaxo Holding, Research Triangle Park NC. "Intracellular Factors Responsible for Ventricular Fibrillation." September 11, 1989

9. Invited participant, Glaxo Partners in Research Meeting, Boca Raton Fl. February 16-19, 1990

10. Cardiovascular Pharmacology Division, Merck Sharp & Dohme Research Laboratories, West Point Pa. "The Role Autonomic and Cellular factors Play in Sudden Death: an In Vivo Approach." May 9, 1990

11. Department of Physiology, Northeastern Ohio Universities, College of Medicine, Rootstown OH. "Sudden Cardiac Death: Autonomic and Cellular Factors." September 10, 1990

12. 2nd International Symposium on Calcium Antagonist in Cardiovascular Care, Basel Switzerland. "Antiarrhythmic and Antifibrillatory Effects on Calcium Antagonists." February 12, 1991

13. Department of Physiology and Biophysics, University of Oklahoma Health Sciences Center, Oklahoma City OK. "Cardiovascular Effects of Cocaine." April 2, 1991

14. Pre-clinical Pharmacology Cardiovascular Division, F. Hoffmann-La Roche LTD, Basel Switzerland. "The Hemodynamic and Electro-physiological Effects of a Novel Calcium Channel Antagonist, Ro 40-5967." December 4, 1991

15. 3rd International Bayer Workshop on Atherosclerosis, Stressa Italy. "Calcium Channel Blockers and Ventricular Fibrillation." October 1, 1992

16. Department of Pharmacological and Physiological Science, St. Louis University, St. Louis MO. "Autonomic and Cellular Factors in Sudden Cardiac Death." September 28, 1993

17. Department of Physiology, Medical College of Virginia, Virginia Commonwealth University, Richmond VA. "Role of the Autonomic Nervous System in Ventricular Fibrillation." February 24, 1994

18. American Heart Association Scientific Conference: Omega-3 Fatty Acids in Nutrition, Vascular Biology and Medicine, Houston TX. "The Effect of Omega-3 Fatty Acids on Myocardial Calcium Transport: Possible Protection from Ventricular Arrhythmias." April 18, 1994

19. Department of Physiology, Northeastern Ohio Universities, College of Medicine, Rootstown OH. "Mechanisms Responsible for the Cardiotoxic Effects of Cocaine." November 21, 1994

20. Cardiovascular Drug Development Group, Proctor and Gamble Pharmaceuticals, Norwich MY. "Mechanisms Responsible for Ventricular Fibrillation." March 14, 1995

21. Satellite Symposium XVth Nordic Congress of Cardiology: The Prevention and Treatment of Cardiovascular Disease with Omega-3 Fatty Acids, Malmo Sweden. "The Control of Cardiac Rhythm by Omega-3 Fatty Acids." June 6, 1995

22. Department of Physiology and Biophysics, University of Kentucky, Lexington KY. "Mechanisms Responsible for Ventricular Fibrillation." September 20, 1995

23. 20th Annual Meeting Cardiovascular Pharmacology Discussion Group Forum on Congestive Heart Failure, Princeton NJ. "Mechanisms responsible for Sudden Cardiac Death." October 1, 1995

24. Cardiovascular Agents Group, Hoechst AG, Frankfurt Germany, "Role of the Autonomic Nervous System in an Animal Model of Ventricular Fibrillation." October 12, 1995

25. Cardiovascular Agents Group, Hoechst Marion Roussel, Frankfurt Germany, "The Effects of HMR 1883, a Cardioselective ATP-sensitive antagonist on Ventricular Fibrillation induced by Myocardial Ischemia." February 28, 1997

26. Department of Physiology, Northeastern Ohio Universities, College of Medicine, Rootstown OH, "Cardiac $Beta_2$-adrenergic receptors and susceptibility to ventricular fibrillation." October 6, 1997.

27. Greek Congress of Cardiology meeting, Salonika Greece "Pharmacological profile of the selective T-type calcium channel blocker, mibefradil." October 23, 1997

28. American Heart Association Basic Sciences Council Cardiovascular Seminar, Orlando FL. "Cardiac Beta$_2$-adrenergic Receptors and Sudden Death." November 8, 1997

29. National Institute on Drug Abuse, Rockville MD, "Mechanisms Responsible for Cocaine Induced Ventricular Fibrillation." December 9, 1997.

30. International symposium on Blockade of T-type calcium channels: a new concept in cardiovascular therapy. "Mibefradil: first and only selective blocker of T-type calcium channels." Gaudalajara, Mexico January 28, 1998.

31. International symposium on Blockade of T-type calcium channels: a new concept in cardiovascular therapy. "Mibefradil: first and only selective blocker of T-type calcium channels." Monterrey, Mexico January 29, 1998.

32. International symposium on Blockade of T-type calcium channels: a new concept in cardiovascular therapy. "Mibefradil: first and only selective blocker of T-type calcium channels." Mexico City, Mexico January 30, 1998.

33. Cardiovascular Research Division, Proctor & Gamble Pharmaceuticals Health Care Research Center. "The ischemic myocardium as a novel target for antiarrhythmic drugs." Mason OH December 4, 1998.

34. International Expert meeting on A novel compound for the prevention of sudden cardiac death: HMR 1098 Invited speaker "Effects of HMR 1098 in a canine model of sudden cardiac death." European Heart House Sophia Antipolis, France March 25, 1999.

35. Gill Heart Institute, University of Kentucky “Intracellular calcium and sudden death enhanced calcium entry during myocardial ischemia may trigger ventricular fibrillation.” Lexington KY, April 29, 1999.

PUBLICATIONS

1. **Billman GE**, Hasson DM and Randall DC. Acquisition and discrimination of appetitively and aversively conditioned heart rate responses in rhesus monkey. Pavlov J Biol Sci 13: 145-150, 1978.

2. **Billman GE** and Randall DC. Classical aversive conditioning of coronary blood flow in dogs. Pavlov J Biol Sci 15: 93-101, 1980.

3. **Billman GE** and Randall DC. Mechanisms mediating the coronary vascular response to behavioral stress in the dog. Circ Res 48: 214-223, 1981.

4. Randall DC, Evans JM, **Billman GE**, Ordway GA and Knapp CF. Neural, hormonal and intrinsic mechanisms of cardiac control during acute coronary occlusion in intact dog. J Autonom Nerv Sys 3: 87-99, 1981.

5. **Billman GE**. Coronary artery vasospasm and emotional stress: A hypothetical link to atherosclerosis. Med Hypothesis 7: 511-514, 1981.

6. **Billman GE**, Dickey DT, Teoh KK and Stone HL. The effects of central blood volume shifts on the baroreceptor reflex control of heart rate. Am J Physiol (Heart Circ Physiol 10) 241: H571-H575, 1981.

7. Dickey DT, **Billman GE**, Teoh KK, Sandler H and Stone HL. The effects of horizontal body casting on blood volume, drug responsiveness, and $+G_Z$ acceleration tolerance in the rhesus monkey. Aviat Space and Environ Med 53: 142-146, 1982.

8. **Billman GE**, Dickey DT and Stone HL. A description of the upper thoracic autonomic nervous system in the rhesus monkey (Macaca mulatta). Am J Primatol 2: 159-166, 1982.

9. Ordway GA, Charles JB, Randall DC, **Billman GE** and Wekstein DR. Heart rate adaptation to exercise training in cardiac denervated dogs. J Appl Physiol 52: 1586-1590, 1982.

10. **Billman GE**, Dickey DT, Sandler H and Stone HL. The effects of horizontal body casting on the baroreceptor reflex control of heart rate in the primate. J Appl Physiol 52: 1552-1556, 1982.

11. **Billman GE**, Schwartz, PJ and Stone HL. Baroreceptor reflex control of heart rate: A predictor of sudden death. Circulation 66: 874-880, 1982.

12. Brown RD, **Billman GE**, Kem DC, Stone HL, Jians NS, Kao P and Hegstad R. Comparison of the effect of metoclopramide, with and without dopamine, on plasma aldosterone concentration in normal man and rhesus monkeys (Macaca mulatta): A new model to study dopamine control of aldosterone secretion. J Clin Endocrinol Metab 55: 818-832, 1982.

13. **Billman GE**, Keyl MJ, Dickey DT, Kem DC, Keil, LC and Stone HL. The hormonal and renal response to plasma volume expansion in the primate (Macaca mulatta). Am J Physiol (Heart circ Physiol 13) 244: H210-H205, 1983.

14. Stone HL, **Billman GE** and Schwartz PJ. Exercise and sudden death. IN: The First Year Post-Myocardial Infarction. by HE Kulbertus and HJJ Wellens (eds). Futura Press, Inc., Mountkisco , NY. Chapter 24 (1983), pp. 353-366.

15. Schwartz PJ, **Billman GE** and Stone HL. Analysis of the mechanisms by which left stellectomy might be useful in secondary prevention after myocardial infarction. IN: The First Year Post-Myocardial Infarction. HE Kulbertus and HJJ Wellens (eds). Futura Press, Inc., Mountkisco, NY. Chapter 25, (1983), pp. 367-380.

16. Schwartz PJ, **Billman GE** and Stone HL. Autonomic mechanisms in ventricular fibrillation due to acute myocardial ischemia during exercise in dogs with healed myocardial infarction: An experimental model for sudden cardiac death. Circulation 69: 790-800, 1984.

17. **Billman GE**, Schwartz PJ and Stone HL. The effects of daily exercise on susceptibility to sudden cardiac death. Circulation 69: 1182-1189, 1984.

18. Schwartz PJ, **Billman GE** and Stone HL. Mechanismi nervosi della morte cardiaca improvvisa. Boll Soc It Cardiol 29: 27-42, 1984.

19. Randall DC, Skinner TL and **Billman GE**. A comparison of the autonomic nervous control of the heart during classical aversive and appetitive conditioning in dogs. J Auton Nerv Sys 13: 125-136, 1985.

20. **Billman GE**, Schwartz PJ, Gagnol JP and Stone HL. The cardiac response to submaximal exercise in dogs susceptible to sudden cardiac death. J Appl Physiol 59: 890-897, 1985.

21. **Billman GE**. Left ventricular dysfunction and altered autonomic activity: a possible link to sudden cardiac death. Med Hypotheses 20: 65-77, 1986.

22. **Billman GE**. Behavioral stress and myocardial ischemia: an example of conditional response modification. Behavior Brain Sci 9: 295-296, 1986.

23. **Billman GE** and Bickerstaff LV. Regulation of the right coronary circulation during a controlled behavioral stress in the conscious dog. J Auton Nerv Sys 17: 45-62, 1986.

24. **Billman GE**, Dickey DT, Keyl MJ, Sandler H and Stone HL. The effect of plasma volume expansion on the response to carotid occlusion in the non-human primate. J Auton Nerv Sys 19: 21-30, 1987.

25. **Billman GE**. Effects of aminophylline on behaviorally induced coronary blood flow increases. Am J Physiol (Heart Circ Physiol 22) 253: H548-H555, 1987.

26. **Billman GE**. The effect of coronary artery occlusion on the cardiovascular response to an aversive stress. J Auton Nerv Sys 22: 41-48, 1988.

27. Vallance SR, Fitzovich DE, **Billman GE** and Randall DC. Effect of Innovar upon the autonomic control of the heart in intact dog. J Auton Nerv Sys 23: 47-54, 1988.

28. Schwartz PJ, Vanoli E, Stramba-Badiale M, DeFerrari GM, **Billman GE** and Foreman RD. Autonomic mechanisms and sudden death, new insight from the analysis of baroreceptor reflexes in conscious dogs with and without a myocardial infarction. Circulation 78: 969-979, 1988.

29. **Billman GE** and Hoskins RS. Cocaine induced ventricular fibrillation: Protection afforded by the calcium channel antagonist verapamil. FASEB J 2: 2990-2995, 1988.

30. **Billman GE** and Hoskins RS. Prevention of ventricular fibrillation with magnesium sulfate. Eur J Pharmacol 158: 167-171, 1988.

31. **Billman GE** and Marsh DH. Effect of myocardial ischemia on the hemodynamic response to carotid occlusion. Am J Physiol (Heart Circ Physiol 25) 256: H672-H680, 1989.

32. **Billman GE**, Hoskins RS, Randall DC, Randall WC, Hamlin RL and Lin YC. Selective vagal postganglionic innervation of the sinoatrial and atrio-ventricular nodes in the non-human primate. J Auton Nerv Sys 26: 27-36, 1989.

33. **Billman GE**. The effect of calcium channel antagonists on susceptibility to sudden cardiac death: protection from ventricular fibrillation. J Pharmacol Exp Therap 248: 1334-1342, 1989.

34. **Billman GE** and Hoskins RS. Time series analysis of heart rate variability during submaximal exercise: evidence for reduced cardiac vagal tone in animals susceptible to ventricular fibrillation. Circulation 80: 146-157, 1989.

35. Collins MN and **Billman GE**. Autonomic response to coronary occlusion in animals susceptible to ventricular fibrillation. Am J Physiol (Heart Circ Physiol 26) 257: H1886-H1894, 1989.

36. **Billman GE**, McIlroy B and Johnson JD. The role of elevated intracellular calcium in the susceptibility to ventricular fibrillation. Prog Clin Biol Res 327: 755-764, 1990.

37. **Billman GE** and Dujardin J-P. Dynamic changes in cardiac vagal tone as measured by time series analysis. Am J Physiol (Heart Circ Physiol 27) 258: H896-H902, 1990.

38. **Billman GE**, Randall DC, Brown DR, Hall SK and Zolman JF. Hemodynamic and arrhythmogenic effects of aversive stress during myocardial ischemia J Auton Nerv Sys 29: 193-202, 1990.

39. **Billman GE**. The effect of carbachol and cyclic GMP on susceptibility to ventricular fibrillation. FASEB J 4: 1668-1673, 1990.

40. **Billman GE**. Mechanisms responsible for the cardiotoxic effects of cocaine. FASEB J 4: 2469-2475, 1990.

41. **Billman GE**. Anti-Arrhythmische und Anti-Fibrillatorische Wirkungen der Ca^{+2} Antagonisten. Arzte Zeitung/Forshung und Praxis 120: 23-24, 1991. (invited brief review)

42. **Billman GE**. The antiarrhythmic and antifibrillatory effects of calcium antagonists. J Cardiovasc Pharmacol 18(Suppl 10): S107-S117, 1991.

43. **Billman GE**. Cellular mechanisms for sudden cardiac death: elevated myocardial calcium provokes ventricular fibrillation. OSU Res Forum 5: 79-82, 1991.

44. **Billman GE**. Cocaine-induced ventricular fibrillation: a proposed mechanism of action. OSU Res Forum 5: 32-35, 1991.

45. **Billman GE**, McIlroy B and Johnson JD. Elevated myocardial calcium and its role in sudden cardiac death. FASEB J 5: 2586-2592, 1991.

46. **Billman GE**. The antiarrhythmic effects of calcium antagonists. IN: Epstein M (ed), Calcium Antagonists in Clinical Medicine. Hanley & Belfus, Inc, Philadelphia PA, Chapter 10, pp 183-212, 1992.

47. **Billman GE**. The effect of unilateral stellectomy on the regulation of heart rate during behavioral stress. Integ Physiol Behav Sci 27: 23-31, 1992.

48. **Billman GE**. The calcium antagonist, flunarizine, protects against ventricular fibrillation. Eur J Pharmacol 212: 231-236, 1992.

49. **Billman GE**. Cellular mechanisms for ventricular fibrillation. NIPS (News in Physiological Sciences) 7: 254-259, 1992.

50. Halliwill JR and **Billman GE**. The effect of general anesthesia on cardiac vagal tone. Am J Physiol (Heart Circ Physiol 31) 262: H1719-H1724, 1992.

51. **Billman GE**, Avendano CE and Halliwill JR. The effect of calcium channel antagonists on the cardiac vagal tone response to submaximal exercise. Drug Dev Res 27: 89-106, 1992.

52. **Billman GE**. Ro 40-5967, a novel calcium channel antagonist protects against ventricular fibrillation. Eur J Pharmacol 229: 179-187, 1992.

53. **Billman GE**, Avendano CE, Halliwill JR and Burroughs JM. The effects of the ATP-dependent potassium channel antagonist glyburide on coronary blood flow and susceptibility to ventricular fibrillation. J Cardiovasc Pharmacol 21: 197-204, 1993.

54. **Billman GE**. Calcium channel antagonists protect against ventricular fibrillation: evidence that calcium entry provokes malignant arrhythmias. Atherosclerosis Reviews 25: 129-149, 1993.

55. **Billman GE**. The effect of calcium channel antagonists on cocaine-induced malignant arrhythmias: protection against ventricular fibrillation. J Pharmacol Exp Therap 266: 407-416, 1993.

56. Park J-W, **Billman GE** and Means GE. Transnitrosation as a predominant mechanism in the hypotensive effect of s-nitrosoglulathione. Biochem Mol Biol Int 30: 885-891, 1993.

57. **Billman GE**. The intracellular calcium chelator BAPTA-AM prevents cocaine-induced ventricular fibrillation. Am J Physiol (Heart Circ Physiol 34) 265: H1529-H1535, 1993.

58. Lappi MD and **Billman GE**. The effect of ryanodine on ventricular fibrillation induced by myocardial ischemia. Cardiovasc Res 27: 2152-2159, 1993.

59. **Billman GE** and Lappi MD. The effects of cocaine on cardiac vagal tone before and during coronary artery occlusion: cocaine exacerbates the autonomic response to myocardial ischemia. J Cardiovasc Pharmacol 22: 869-876, 1993.

60. **Billman GE**. The pharmacologic modulation of the ATP-sensitive potassium channel: a dilemma whether to preserve cardiac mechanical function or to enhance cardiac electrical stability. Cardiovasc Res 28: 137-139, 1994.

61. Avendano CE and **Billman GE**. Effect of interventions that increase cyclic AMP on susceptibility to ventricular fibrillation in unanesthetized dogs. Eur J Pharmacol 255: 99-109, 1994.

62. **Billman GE**. The effect of adrenergic antagonists on cocaine-induced ventricular fibrillation: alpha-adrenergic but not beta-adrenergic antagonists prevent malignant arrhythmias independent of heart rate. J Pharmacol Exp Therap 269: 409-416, 1994.

63. **Billman GE**, Hallaq H and Leaf A. Prevention of ischemia-induced ventricular fibrillation by omega-3 fatty acids. Proc Natl Acad Sci 91: 4427-4430, 1994.

64. **Billman GE**. The role of the ATP-sensitive K^+ channel in K^+ accumulation and cardiac arrhythmias during myocardial ischemia. Cardiovasc Res 28: 762-769, 1994.

65. **Billman GE**. The effect of $alpha_1$-adrenergic receptor antagonists on susceptibility to malignant arrhythmias: protection from ventricular fibrillation. J Cardiovasc Pharmacol 22: 394-402, 1994.

66. **Billman GE** and Leaf A. The effects of omega-3 fatty acids on ventricular fibrillastion induced by myocardial ischemia. Proceeding from the Scientific Conference on Omega-3 Fatty Acids in Nutrition, Vascular Biology and Medicine. American Heart Assn Dallas Tx 1995, pp 159-165.

67. **Billman GE**. Cocaine: a review of its toxic actions on cardiac function. CRC Crit Rev Toxicol 25: 113-132, 1995.

68. Altschuld RA, Starling RC, Hamlin RL, **Billman GE**, Hensley J, Castillo L, Fertel RH, Hohl CM, Robitaille P-M L, Jones LR, Xiao R-P and Lakatta EG. Response of failing canine and human heart cells to $beta_2$-adrenergic stimulation. Circulation 92: 1612-1618, 1995.

69. **Billman GE** and Hamlin RL. The effects of a novel calcium channel antagonist, mibefradil, on refractory period and arrhythmias induced by programmed electrical stimulation and myocardial ischemia: A comparison with diltiazem and verapamil. J Pharmacol Exp Therap 277: 1517-1526, 1996.

70. **Billman GE** and Altschuld RA. Agents for Myocardial Infarction. In: Burger's Medicinal Chemistry and Drug Discovery, Fifth Edition, Volume 4: Therapeutics Ed by Wolff ME John Wiley & Sons, Inc. New York, NY Chap 47 pp 73-99, 1997.

71. Hensley J, **Billman GE**, Johnson JD, Hohl CM and Altshuld RA. Effects of calcium channel antagonists on free Ca^{2+} transients in rat and canine cardiomyocytes. J Mol Cell Cardiol 29: 1037-1043, 1997.

72. **Billman GE**, Castillo LC, Hensley J, Hohl CM, and Altschuld RA. β_2-adrenergic receptor antagonists protect against ventricular fibrillation: in vivo evidence and in vitro evidence for enhanced sensitivity to β_2-adrenergic stimulation in animals susceptible to sudden death. Circulation 96: 1914-1922, 1997.

73. **Billman GE**, Kang JX and Leaf A. Prevention of ischemia-induced sudden death by n-3 polyunstaturated fatty acids in dogs. Lipids 32: 1161-1168, 1997.

74. **Billman GE** Potential usefulness of calcium channel antagonists in the treatment of ventricular arrhythmias: Can their actions be targeted in myocardial ischemia? IN: Epstein M (ed), Calcium Antagonists in Clinical Medicine, 2nd Edition, Hanley and Belfus, Inc., Philadelphia, Pa Chap 7; pp 113-133, 1998.

75. Leaf A, Kang JX, Xiao Y-F and **Billman GE**. Dietary n-3 fatty acids in the prevention of cardiac arrhythmias. Curr Opin Clin Nutr Metab Care 1:225-228, 1998.

76. Halliwill JR, **Billman GE** and Eckberg DE. Effect of a "vagomimetic" dose of atropine on cardiac vagal tone and susceptibiltiy to sudden cardiac death. Clin Auton Res 8: 155-164, 1998.

77. **Billman GE**, Englert HC and Schoelkins BA. HMR 1883, a novel cardioselective inhibitor of the ATP-sensitive potassium channel; Part II: effects on susceptibility to ventricular fibrillation induced by myocardial ischemia in conscious dogs. J Pharmacol Exp Therap 286:1465-1473, 1998.

78. **Billman GE** and Altschuld RA. Activation of β_2-adrenergic receptors and ventriucular fibrillation. Cardiologia 43: 811-818, 1998.

79. Houle MS and **Billman GE**. The low frequency component of the heart rate variability spectrum: a poor marker of sympathetic activity. Am J Physiol (Heart Circ Physiol 45)276: H215-H223, 1999.

80. Leaf A, Kang JX, Xiao Y-F and **Billman GE**. Functional and electrophysiological effects of polyunsaturated fatty acids on excitable tissues: heart and brain. Prostagladins, Luekotrienes, and Essential Fatty Acids 60: 307-312, 1999.

81. **Billman GE**, Kang JX and Leaf A. Prevention of sudden cardiac death by dietary pure n-3 polyunsaturated fatty acids in dogs. Circulation 99: 2452-2457, 1999.

82. Leaf A, Kang JX, Xiao Y-F, Billman GE. n-3 fatty acids in the prevention of cardiac arrhythmias. Lipids 34(suppl S): S187-S189, 1999.

83. Leaf A, Kang JX, Xiao Y-F, **Billman GE** and Voskuyl RA. Experimental studies on the antiarrhythmic and antiseizure effects of polyunsaturated fatty acids in excitable tissues. J Nutr Biochem 10: 440-448, 1999.

84. Lynch JJ, Houle MS, Stump GL, Wallace AA, Gilberto DB, Jahansouz H, Smith GR, Tebben AJ, Liverton Nj, Selnick HG, Claremon DA and **Billman GE**. Antiarrhythmic efficacy of selective blockade of the cardiac slowly activating delayed rectifier current I_{Ks} in canine models of malignant ischemic ventricular arrhythmia. Circulation 100:1917-1923, 1999.

85. Leaf A, Kang JX, Xiao Y-F, **Billman GE** and Voskuyl RA. The antiarrhythmic and anticonvulsant effects of dietary n-3 fatty acids J Membrane Biol 172: 1-11, 1999.

86. **Billman GE** Nibentan Curr Opin CV Pulm Ren Invest Drugs 2: 72-76, 2000

87. Altschuld RA and **Billman GE**. β_2-adrenorecptors and Ventricular Fibrillation. Pharmacolgy & Therapeutic (In Press)

Submitted

1. Houle MS, Altschuld RA, and **Billman GE**. Enhanced in vivo responses to β2-adrenergic receptor stimulation in dogs susceptible to lethal arrhythmias. Am J Physiol (Heart Circ Physiol)

BOOK REVIEWS

1. Review of "Neurohumoral Regulation of Coronary Flow: Role of The Endothelium (Developments in Cardiovascular Medicne Vol 150) Edited by W. H. van Gilst and K. I. Lie Kluwer Academic Publishers, Dordrecht The Netherlands 1993 appeared in Cardiovasc Res 30: 312, 1995.

ABSTRACTS

* indicates peer reviewed

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