

**CURRICULUM VITAE**  
**Andrew A. Amoscato**  
**University of Pittsburgh**

<b>Business Address:</b>	Graduate School of Public Health Department of Environmental and Occupational Health 130 DeSoto Street 4104 PUBHL Pittsburgh, PA 15261	<b>Business Phone:</b>	(412) 624-9985
<b>Email Address:</b>	amoscatoaa@upmc.edu aaa5@pitt.edu	<b>Birthplace:</b>	New York City, NY

**EDUCATION and TRAINING**

<b>Undergraduate</b> 1974 - 1978	Long Island University Greenvale, New York	BS Biology and Chemistry
<b>Graduate</b> 1978 - 1984	University of Texas Health Science Center at Houston Graduate School of Biomedical Sciences Houston, Texas	PhD Biochemistry
<b>Postgraduate</b> 1984 - 1989	Department of Surgery University of Cincinnati	Biochemistry

**APPOINTMENTS and POSITIONS**

<b>Academic</b> 1989 - 2001	School of Medicine University of Pittsburgh	Instructor Pathology
2001 - 2006	School of Medicine University of Pittsburgh	Assistant Professor Pathology (non-tenure stream)
2006 - 2010	School of Medicine University of Pittsburgh	Associate Professor Pathology (non-tenure stream)
2010 – Present	Graduate School of Public Health University of Pittsburgh Pittsburgh, PA	Research Associate Professor (visiting, non-tenure stream) Department of Environmental

		and Occupational Health
2014 - Present	Graduate School of Public Health University of Pittsburgh Pittsburgh, PA	Research Associate Professor Department of Environmental and Occupational Health

### MEMBERSHIP in PROFESSIONAL and SCIENTIFIC SOCIETIES

Member, American Association of Immunologists  
 Member, American Association for the Advancement of Science  
 Member, American Chemical Society  
 Member, American Association for Cancer Research  
 Member, American Society for Mass Spectrometry

### HONORS and AWARDS

1978 Academic Excellence  
 Division of Science  
 Long Island University

### PROFESSIONAL ACTIVITIES

#### Teaching

<b>Year(s)</b>	<b>Course Number &amp; Title</b>	<b>Role</b>
1992-1993	Introduction to Clinical Medicine/Oncology section	Lecturer; responsible for section on tumor immunology
1992-1992	Pathology Graduate course	Lectured on aminopeptidase and NK cells
2007-2008	Fall Biologic Therapy of Cancer series	Responsible for "section" on Principles of Mass Spectrometry and Its Applications

### MENTORING AND ADVISING

#### Major Advisor for Graduate Student Essays, Theses and Dissertations

##### Undergraduate Students

<b>Year(s)</b>	<b>Student's Name &amp; Degree/Discipline</b>	<b>Advisor's Role</b>
2005-2009	Oriana Hunter, Ph.D. 2009; Mechanical cyclic strain induces ceramide generation in endothelial cells	Major advisor

##### Service on Masters or Doctoral committees

<b>Year(s)</b>	<b>Student's Name &amp; Degree/Discipline</b>	<b>Advisor's Role</b>
2008-2009	Siuwah Tang	Member of Masters Thesis Committee



Amoscato Role on Grant: Co-Investigator  
Years Inclusive: 9/1/2010 - 8/31/2015  
Percent Effort: 45.0 %  
Total Direct Costs: \$207,723

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Funding Agency: NIH  
Grant Number: RO1 NS061817  
Title of Grant: Oxidative Lipidomics in Pediatric Traumatic Brain Injury  
Principal Investigator: H. Bayir  
Amoscato Role on Grant: Co-Investigator  
Percent Effort: 20.0%

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Funding Agency: UPCI Pilot Project Grant Program: Department of Radiation Oncology  
Title of Grant: The role of ceramide, phosphatidylglycerol and cardiolipin in radiation-induced apoptosis  
Principal Investigator: Amoscato  
Amoscato Role on Grant: PI (sole)  
Total Direct Costs: \$20,000

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Funding Agency: Competitive Medical Research Foundation  
Title of Grant: Peptide Acquisition and Delivery to Dendritic Cells  
Principal Investigator: Amoscato  
Amoscato Role on Grant: PI (sole)  
Total Direct Costs: \$114,000

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Funding Agency: The Shriners Hospital for Crippled Children. #15877  
Title of Grant: Receptors for Synthetic Peptide Immunomodulators on Leukocytes for Normal Individuals and Burn Patients.  
Amoscato Role on Grant: Co-Investigator

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Funding Agency: American Cancer Society Institutional Research Grant  
Grant Number: IN-58-29  
Title of Grant: The role of Aminopeptidases in NK Cell Function.  
Amoscato Role on Grant: PI (sole)  
Total Direct Costs: \$5,500

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Funding Agency: National Leukemia Association.  
Title of Grant: Surface Aminopeptidases as Potential Modulators of CD2 Expression in NK Cells.  
Amoscato Role on Grant: PI (sole)  
Total Direct Costs: \$15,000

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Funding Agency: National Leukemia Association.  
Title of Grant: Regulation of NK cell cytotoxicity and CD2 expression by cell surface aminopeptidases.  
Amoscato Role on Grant: PI (sole)  
Total Direct Costs: \$20,000

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Funding Agency: NIH  
Grant Number: 5P30 CA 47904-17  
Title of Grant: Cancer Center Support Grant Other Faculty Support  
Proteomics/Mass Spectrometry Facility  
Principal Investigator: Herberman  
Amoscato Role on Grant: Co-Investigator  
Years Inclusive: 8/1/1997 - 7/31/2009  
Percent Effort: 3.0 %  
Total Direct Costs: \$3,367,676

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Funding Agency: NIH  
Title of Grant: Radiation-induced ceramide generation  
Principal Investigator: Amoscato  
Amoscato Role on Grant: PI (sole)  
Years Inclusive: 4/2003 - 3/2008  
Percent Effort: 40.0 %  
Total Direct Costs: \$260,196

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## PUBLICATIONS

### Peer-reviewed Publications

1. **Amoscato AA**, Babcock GF, Nishioka K. Analysis of contaminants in commercial preparations of the tetrapeptide tuftsin by high-performance liquid chromatography. *Journal of chromatography*. 1981 Jan 23; 205 (1):179-84. PMID: 6894150.
2. Nishioka K, **Amoscato AA**, Babcock GF. Tuftsin: a hormone-like tetrapeptide with antimicrobial and antitumor activities. *Life sciences*. 1981 Mar 9; 28 (10):1081-90. PMID: 6262587.
3. Babcock GF, **Amoscato AA**, Nishioka K. Effect of tuftsin on the migration, chemotaxis, and differentiation of macrophages and granulocytes. *Annals of the New York Academy of Sciences*. 1983; 419:64-74. PMID: 6585173.
4. Nishioka K, Babcock GF, Phillips JH, Banks RA, **Amoscato AA**. In vivo and in vitro antitumor activities of tuftsin. *Annals of the New York Academy of Sciences*. 1983; 419:234-41. PMID: 6324636.
5. **Amoscato AA**, Davies PJ, Babcock GF, Nishioka K. Receptor-mediated internalization of tuftsin. *Annals of the New York Academy of Sciences*. 1983; 419:114-34. PMID: 6324633.
6. **Amoscato AA**, Davies PJ, Babcock GF, Nishioka K. Receptor-mediated internalization of tuftsin by human polymorphonuclear leukocytes. *Journal of the Reticuloendothelial Society*. 1983 Jul; 34 (1):53-67. PMID: 6308252.
7. Nishioka K, **Amoscato AA**, Babcock GF, Banks RA, Phillips JH. Tuftsin: an immunomodulating peptide hormone and its clinical potential as a natural biological response modifier. *Cancer investigation*. 1984; 2 (1):39-49. PMID: 6322938.
8. **Amoscato AA**, Babcock GF, Nishioka K. Synthesis and biological activity of [L-3,4-dehydroproline<sup>3</sup>]-tuftsin. *Peptides*. 1984; 5:489. PMID: 6548023.
9. **Amoscato AA**, Babcock GF, Sramkoski RM, Hynd BA, Alexander JW. Synthesis of two biologically active fluorescent probes of thymopentin. *International journal of peptide and*

- protein research. 1987 Feb; 29 (2):177-86. PMID: 2883150.
10. **Amoscato AA**, Babcock, GF, and Nishioka, K. Synthesis and biological activity of L-3-4-dehydroproline 3-tuftsins. *Peptides* 5:489-494.
  11. **Amoscato AA**, Balasubramaniam A, Alexander JW, Babcock GF. Degradation of thymopentin by human lymphocytes: evidence for aminopeptidase activity. *Biochimica et biophysica acta*. 1988 Jul 20; 955 (2):164-74. PMID: 3293664.
  12. **Amoscato AA**, Alexander JW, Babcock GF. Surface aminopeptidase activity of human lymphocytes. I. Biochemical and biologic properties of intact cells. *Journal of immunology* (Baltimore, Md: 1950). 1989 Feb 15; 142 (4):1245-52. PMID: 2915119.
  13. **Amoscato AA**, Sramkoski RM, Babcock GF, Alexander JW. Neutral surface aminopeptidase activity of human tumor cell lines. *Biochimica et biophysica acta*. 1990 Dec 5; 1041 (3):317-9. PMID: 2268678.
  14. **Amoscato AA**, Brumfield AM, Sansoni SB, Herberman RB, Chambers WH. Natural killer cell cytolytic granule-associated enzymes. I. Purification, characterization, and analysis of function of an enzyme with sulfatase activity. *Journal of immunology* (Baltimore, Md: 1950). 1991 Aug 1; 147 (3):950-8. PMID: 1861083.
  15. **Amoscato AA**, Spiess RR, Sansoni SB, Herberman RB, Chambers WH. Degradation of enkephalins by rat lymphocyte and purified rat natural killer cell surface aminopeptidases. *Brain, behavior, and immunity*. 1993 Jun; 7 (2):176-87. PMID: 8347898.
  16. **Amoscato AA**, Spiess RR, Brumfield AM, Herberman RB, Chambers WH. Surface aminopeptidase activity of rat natural killer cells. I. Biochemical and biological properties. *Biochimica et biophysica acta*. 1994 Apr 28; 1221 (3):221-32. PMID: 8167143.
  17. Yasumura S, **Amoscato A**, Hirabayashi H, Lin WC, Whiteside TL. Proliferation of hematopoietic cell lines induced by a soluble factor derived from human squamous cell carcinomas of the head and neck. *Cancer immunology, immunotherapy: CII*. 1994 Dec; 39 (6):407-15. PMID: 8001029.
  18. Chambers WH, **Amoscato AA**, Smith MS, Kenniston TW, Herberman RB, Appasamy PM. Prolactin receptor expression by rat NK cells. *Natural immunity*. 1995; 14 (3):145-56. PMID: 8832898.
  19. Rabinowich H, Lin WC, **Amoscato A**, Herberman RB, Whiteside TL. Expression of vitronectin receptor on human NK cells and its role in protein phosphorylation, cytokine production, and cell proliferation. *Journal of immunology* (Baltimore, Md. 1950). 1995 Feb 1; 154 (3):1124-35. PMID: 7529790.
  20. Hirabayashi H, Yasumura S, Lin WC, **Amoscato A**, Johnson JT, Herberman RB, Whiteside TL. Production by human squamous cell carcinoma of a factor inducing activation and proliferation of immune cells. *Archives of otolaryngology--head & neck surgery*. 1995 Mar; 121 (3):285-92. PMID: 7873144.
  21. Lotze MT, Shurin M, Davis I, **Amoscato A**, Storkus WJ. Dendritic cell based therapy of cancer. *Advances in experimental medicine and biology*. 1997; 417:551-69. PMID: 9286419.
  22. Appasamy PM, Kenniston TW Jr, **Amoscato AA**. Requirement for surface aminopeptidase activities during development of CD8+ fetal thymocytes. *Cellular immunology*. 1997 Apr 10; 177 (1):1-8. PMID: 9140090.
  23. **Amoscato AA**, Prenovitz D, Lotze MT. Rapid extracellular degradation of synthetic class I peptides by human dendritic cells. *Journal of Immunology*. 1998; 161:4023.
  24. Herr W, Ranieri E, Gambotto A, Kierstead LS, **Amoscato AA**, Gesualdo L, Storkus WJ. Identification of naturally processed and HLA-presented Epstein-Barr virus peptides recognized by CD4(+) or CD8(+) T lymphocytes from human blood. *Proceedings of the National Academy of Sciences of the United States of America*. 1999 Oct 12; 96 (21):12033-

8. PMID: PMC18407. PMID: 10518571.
25. Thomas RL, Matsko CM, Lotze MT, **Amoscato AA**. Mass spectrometric identification of increased C16 ceramide levels during apoptosis. *Journal of Biological Chemistry*. 1999; 274:30580.
  26. Weigel TL, Lotze MT, Kim PK, **Amoscato AA**, Luketich JD, Odoux C. Paclitaxel-induced apoptosis in non-small cell lung cancer cell lines is associated with increased caspase-3 activity. *Journal of Thoracic and Cardiovascular Surgery*. 2000; 119:795-803.
  27. Dong X, An B, Salvucci Kierstead L, Storkus WJ, **Amoscato AA**, Salter RD. Modification of the amino terminus of a class II epitope confers resistance to degradation by CD13 on dendritic cells and enhances presentation to T cells. *Journal of immunology (Baltimore, Md. : 1950)*. 2000 Jan 1; 164 (1):129-35. PMID: 10605003.
  28. Johnson DE, Gastman BR, Wieckowski E, Wang GQ, **Amoscato A**, Delach SM, Rabinowich H. Inhibitor of apoptosis protein hILP undergoes caspase-mediated cleavage during T lymphocyte apoptosis. *Cancer research*. 2000 Apr 1; 60 (7):1818-23. PMID: 10766165.
  29. Leite JF, **Amoscato AA**, Cascio M. Coupled proteolytic and mass spectrometry studies indicate a novel topology for the glycine receptor. *The Journal of biological chemistry*. 2000 May 5; 275 (18):13683-9. PMID: 10788487.
  30. Matsko CM, Hunter O, Rabinowich H, Lotze MT, **Amoscato AA**. Alterations in mitochondrial lipids during Fas- and radiation-induced apoptosis. *Biochemical and Biophysical Research Communications*. 2001; 287:1112-20.
  31. Lee YJ, Chen JC, **Amoscato AA**, Bennouna J, Spitz DR, Suntharalingam M, Rhee JG. Protective role of Bcl2 in metabolic oxidative stress-induced cell death. *Journal of cell science*. 2001 Feb; 114:677-84. PMID: 11171373.
  32. Kao H, **Amoscato AA**, Ciborowski P, Finn OJ. A new strategy for tumor antigen discovery based on in vitro priming of naive T cells with dendritic cells. *Clinical cancer research: an official journal of the American Association for Cancer Research*. 2001 Mar; 7:773s-780s. PMID: 11300472.
  33. Ostrander DB, Sparagna GC, **Amoscato AA**, McMillin JB, Dowhan W. Decreased cardiolipin synthesis corresponds with cytochrome c release in palmitate-induced cardiomyocyte apoptosis. *The Journal of biological chemistry*. 2001 Oct 12; 276 (41):38061-7. PMID: 11500520.
  34. Kanto, T. M., P. Kalinski, O. Hunter, M. T. Lotze and **A. A. Amoscato**. 2001. Ceramide mediates tumor-induced dendritic cell apoptosis. *J. Immunol*. 167: 3773-84.
  35. Nam SY, **Amoscato AA**, Lee YJ. Low glucose-enhanced TRAIL cytotoxicity is mediated through the ceramide-Akt-FLIP pathway. *Oncogene*. 2002 Jan 17; 21 (3):337-46. PMID: 11821946.
  36. Odoux C, Albers A, **Amoscato AA**, Lotze MT, Wong MK. TRAIL, FasL and a blocking anti-DR5 antibody augment paclitaxel-induced apoptosis in human non-small-cell lung cancer. *International journal of cancer. Journal international du cancer*. 2002 Feb 1; 97 (4):458-65. PMID: 11802207.
  37. Pu L, **Amoscato AA**, Bier ME, Lazo JS. Dual G1 and G2 phase inhibition by a novel, selective Cdc25 inhibitor 6-chloro-7-[corrected](2-morpholin-4-ylethylamino)-quinoline-5,8-dione. *The Journal of biological chemistry*. 2002 Dec 6; 277 (49):46877-85. PMID: 12356752.
  38. Zhang M, Su X, Mileykovskaya E, **Amoscato AA**, Dowhan W. Cardiolipin is not required to maintain mitochondrial DNA stability or cell viability for *Saccharomyces cerevisiae* grown at elevated temperatures. *The Journal of biological chemistry*. 2003 Sep 12; 278 (37):35204-10. PMID: 12840009.
  39. Eto M, Bennouna J, Hunter OC, Hershberger PA, Kanto T, Johnson CS, Lotze MT,

- Amoscato AA.** C16 ceramide accumulates following androgen ablation in LNCaP prostate cancer cells. *The Prostate*. 2003 Sep 15; 57 (1):66-79. PMID: 12886525.
40. Lee YJ, **Amoscato AA.** TRAIL and ceramide. *Vitamins and hormones*. 2004; 67:229-55. PMID: 15110180.
  41. Borisenko GG, Martin I, Zhao Q, **Amoscato AA,** Tyurina YY, Kagan VE. Glutathione propagates oxidative stress triggered by myeloperoxidase in HL-60 cells. Evidence for glutathionyl radical-induced peroxidation of phospholipids and cytotoxicity. *The Journal of biological chemistry*. 2004 May 28; 279 (22):23453-62. PMID: 15039448.
  42. Kim TH, Zhao Y, Ding WX, Shin JN, He X, Seo YW, Chen J, Rabinowich H, **Amoscato AA,** Yin XM. Bid-cardiolipin interaction at mitochondrial contact site contributes to mitochondrial cristae reorganization and cytochrome C release. *Molecular biology of the cell*. 2004 Jul; 15 (7):3061-72. PMCID: PMC452564. PMID: 15107464.
  43. Borisenko GG, Martin I, Zhao Q, **Amoscato AA,** Kagan VE. Nitroxides scavenge myeloperoxidase-catalyzed thiyl radicals in model systems and in cells. *Journal of the American Chemical Society*. 2004 Aug 4; 126 (30):9221-32. PMID: 15281811.
  44. Kagan VE, Borisenko GG, Tyurina YY, Tyurin VA, Jiang J, Potapovich AI, Kini V, **Amoscato AA,** Fujii Y. Oxidative lipidomics of apoptosis: redox catalytic interactions of cytochrome c with cardiolipin and phosphatidylserine. *Free radical biology & medicine*. 2004 Dec 15; 37 (12):1963-85. PMID: 15544916.
  45. Kagan VE, Tyurin VA, Jiang J, Tyurina YY, Ritov VB, **Amoscato AA,** Osipov AN, Belikova NA, Kapralov AA, Kini V, Vlasova II, Zhao Q, Zou M, Di P, Svistunenko DA, Kurnikov IV, Borisenko GG. Cytochrome c acts as a cardiolipin oxygenase required for release of proapoptotic factors. *Nature chemical biology*. 2005 Sep; 1 (4):223-32. PMID: 16408039.
  46. Eto M, Bennouna J, Hunter OC, Lotze MT, **Amoscato AA.** Importance of C16 ceramide accumulation during apoptosis in prostate cancer cells. *International journal of urology : official journal of the Japanese Urological Association*. 2006 Feb; 13 (2):148-56. PMID: 16563140.
  47. Kagan VE, Tyurina YY, Bayir H, Chu CT, Kapralov AA, Vlasova II, Belikova NA, Tyurin VA, **Amoscato A,** Epperly M, Greenberger J, Dekosky S, Shvedova AA, Jiang J. The "pro-apoptotic genies" get out of mitochondria: oxidative lipidomics and redox activity of cytochrome c/cardiolipin complexes. *Chemico-biological interactions*. 2006 Oct 27; 163:15-28. PMID: 16797512.
  48. Bayir H, Fadeel B, Palladino MJ, Witas E, Kurnikov IV, Tyurina YY, Tyurin VA, **Amoscato AA,** Jiang J, Kochanek PM, DeKosky ST, Greenberger JS, Shvedova AA, Kagan VE. Apoptotic interactions of cytochrome c: redox flirting with anionic phospholipids within and outside of mitochondria. *Biochimica et biophysica acta*. 2006. 1757:648. PMID: 16740248.
  49. Jiang J, Kurnikov I, Belikova NA, Xiao J, Zhao Q, **Amoscato AA,** Braslau R, Studer A, Fink MP, Greenberger JS, Wipf P, Kagan VE. Structural requirements for optimized delivery, inhibition of oxidative stress, and antiapoptotic activity of targeted nitroxides. *The Journal of pharmacology and experimental therapeutics*. 2007 Mar; 320 (3):1050-60. PMID: 17179468.
  50. Kanai A, Zabbarova I, **Amoscato AA,** Epperly M, Wipf P. Mitochondrial targeting of radioprotectants using peptidyl conjugates. *Organic and Biomolecular Chemistry*. 2007; 5 (2):307-9.
  51. Bayir H, Tyurin VA, Tyurina YY, Viner R, Ritov V, **Amoscato AA,** Zhao Q, Zhang XJ, Janesko-Feldman KL, Alexander H, Basova LV, Clark RS, Kochanek PM, Kagan VE. Selective early cardiolipin peroxidation after traumatic brain injury: an oxidative lipidomics analysis. *Annals of neurology*. 2007 Aug; 62 (2):154-69. PMID: 17685468.
  52. Visus C, Ito D, **Amoscato A,** Maciejewska-Franczak M, Abdelsalem A, Dhir R, Shin DM,



- Donnenberg VS, Whiteside TL, DeLeo AB. Identification of human aldehyde dehydrogenase 1 family member A1 as a novel CD8+ T-cell-defined tumor antigen in squamous cell carcinoma of the head and neck. *Cancer research*. 2007 Nov 1; 67 (21):10538-45. PMID: 17974998.
53. Lotze MT, Zeh HJ, Rubartelli A, Sparvero LJ, **Amoscato AA**, Washburn NR, Devera ME, Liang X, Tör M, Billiar T. The grateful dead: damage-associated molecular pattern molecules and reduction/oxidation regulate immunity. *Immunological reviews*. 2007 Dec; 220:60-81. PMID: 17979840.
  54. Komita H, Zhao X, Taylor JL, Sparvero LJ, **Amoscato AA**, Alber S, Watkins SC, Pardee AD, Wesa AK, Storkus WJ. CD8+ T-cell responses against hemoglobin-beta prevent solid tumor growth. *Cancer research*. 2008 Oct 1; 68 (19):8076-84. PMCID: PMC2597529. PMID: 18829566.
  55. Tyurina YY, Tyurin VA, Kapralova VI, **Amoscato AA**, Epperly MW, Greenberger JS, Kagan VE. Mass-spectrometric characterization of phospholipids and their hydroperoxide derivatives in vivo: effects of total body irradiation. *Methods in molecular biology (Clifton, N.J.)*. 2009; 580:153-83. PMID: 19784599.
  56. Sparvero LJ, Asafu-Adjei D, Kang R, Tang D, Amin N, Im J, Rutledge R, Lin B, **Amoscato AA**, Zeh HJ, Lotze MT. RAGE (Receptor for Advanced Glycation Endproducts), RAGE ligands, and their role in cancer and inflammation. *Journal of translational medicine*. 2009; 7:17. PMCID: PMC2666642. PMID: 19292913.
  57. Bayir H, Kapralov AA, Jiang J, Huang Z, Tyurina YY, Tyurin VA, Zhao Q, Belikova NA, Vlasova II, Maeda A, Zhu J, Na HM, Mastroberardino PG, Sparvero LJ, **Amoscato AA**, Chu CT, Greenamyre JT, Kagan VE. Peroxidase mechanism of lipid-dependent cross-linking of synuclein with cytochrome C: protection against apoptosis versus delayed oxidative stress in Parkinson disease. *The Journal of biological chemistry*. 2009 Jun 5; 284 (23):15951-69. PMCID: PMC2708890. PMID: 19351880.
  58. Liang X, Chavez AR, Schapiro NE, Loughran P, Thorne SH, **Amoscato AA**, Zeh HJ, Beer-Stolz D, Lotze MT, de Vera ME. Ethyl pyruvate administration inhibits hepatic tumor growth. *Journal of leukocyte biology*. 2009 Sep; 86 (3):599-607. PMID: 19584311.
  59. Tyurin VA, Tyurina YY, Ritov VB, Lysytsya A, **Amoscato AA**, Kochanek PM, Hamilton R, Dekosky ST, Greenberger JS, Bayir H, Kagan VE. Oxidative lipidomics of apoptosis: quantitative assessment of phospholipid hydroperoxides in cells and tissues. *Methods in molecular biology (Clifton, N.J.)*. 2010; 610:353-74. PMID: 20013189.
  60. Tang D, Kang R, Cheh CW, Livesey KM, Liang X, Schapiro NE, Benschop R, Sparvero LJ, **Amoscato AA**, Tracey KJ, Zeh HJ, Lotze MT. HMGB1 release and redox regulates autophagy and apoptosis in cancer cells. *Oncogene*. 2010 Sep 23; 29 (38):5299-310. PMCID: PMC2945431. PMID: 20622903.
  61. Otsuka M, Marks SA, Winnica DE, **Amoscato AA**, Pearce LL, Peterson J. Covalent modifications of hemoglobin by nitrite anion: formation kinetics and properties of nitrihemoglobin. *Chemical research in toxicology*. 2010 Nov 15; 23 (11):1786-95. PMID: 20961082.
  62. Sparvero LJ, **Amoscato AA**, Kochanek PM, Pitt BR, Kagan VE, Bayir H. Mass-spectrometry based oxidative lipidomics and lipid imaging: applications in traumatic brain injury. *Journal of neurochemistry*. 2010 Dec; 115 (6):1322-36. PMCID: PMC3285274. PMID: 20950335.
  63. Atkinson J, Kapralov AA, Yanamala N, Tyurina YY, **Amoscato AA**, Pearce L, Peterson J, Huang Z, Jiang J, Samhan-Arias AK, Maeda A, Feng W, Wasserloos K, Belikova NA, Tyurin VA, Wang H, Fletcher J, Wang Y, Vlasova II, Klein-Seetharaman J, Stoyanovsky DA, Bayir H, Pitt BR, Epperly MW, Greenberger JS, Kagan VE. A mitochondria-targeted inhibitor of

- cytochrome c peroxidase mitigates radiation-induced death. *Nature communications*. 2011; 2:497. PMID: 21988913.
64. Kim H, Bernard ME, Epperly MW, Shen H, **Amoscato AA**, Dixon TM, Doemling AS, Li S, Gao X, Wipf P, Wang H, Zhang X, Kagan VE, Greenberger JS. Amelioration of radiation esophagitis by orally administered p53/Mdm2/Mdm4 inhibitor (BEB55) or GS-nitroxide. *In Vivo*. 2011; 25 (6):841-8. PMID: 22021675.
  65. Tyurina YY, Kisin ER, Murray A, Tyurin VA, Kapralova VI, Sparvero LJ, **Amoscato AA**, Samhan-Arias AK, Swedin L, Lahesmaa R, Fadeel B, Shvedova AA, Kagan VE. Global phospholipidomics analysis reveals selective pulmonary peroxidation profiles upon inhalation of single-walled carbon nanotubes. *ACS nano*. 2011 Sep 27; 5 (9):7342-53. PMID: PMC3321726. PMID: 21800898.
  66. Samhan-Arias AK, Ji J, Demidova OM, Sparvero LJ, Feng W, Tyurin V, Tyurina YY, Epperly MW, Shvedova AA, Greenberger JS, Bayir H, Kagan VE, **Amoscato AA**. Oxidized phospholipids as biomarkers of tissue and cell damage with a focus on cardiolipin. *Biochimica et biophysica acta*. 2012 Mar 23. PMID: 22464971.
  67. Kapralov AA, Feng WH, **Amoscato AA**, Yanamala N, Balasubramanian K, Winnica DE, Kisin ER, Kotchey GP, Gou P, Sparvero LJ, Ray P, Mallampalli RK, Klein-Seetharaman J, Fadeel B, Star A, Shvedova AA, Kagan VE. Adsorption of surfactant lipids by single-walled carbon nanotubes in mouse lung upon pharyngeal aspiration. *ACS nano*. 2012 May 22; 6 (5):4147-56. PMID: PMC3358590. PMID: 22463369.
  68. Sparvero LJ, **Amoscato AA**, Dixon CE, Long JB, Kochanek PM, Pitt BR, Bayir H, Kagan VE. Mapping of phospholipids by MALDI imaging (MALDI-MSI): realities and expectations. *Chemistry and physics of lipids*. 2012 Jul; 165 (5):545-62. PMID: PMC3642772. PMID: 22692104.
  69. Ji J, Kline AE, **Amoscato A**, Samhan-Arias AK, Sparvero LJ, Tyurin VA, Tyurina YY, Fink B, Manole MD, Puccio AM, Okonkwo DO, Cheng JP, Alexander H, Clark RS, Kochanek PM, Wipf P, Kagan VE, Bayir H. Lipidomics identifies cardiolipin oxidation as a mitochondrial target for redox therapy of brain injury. *Nature neuroscience*. 2012 Oct; 15 (10):1407-13. PMID: 22922784.
  70. Benz OS, Yuan Q, **Amoscato AA**, Pearce LL, Peterson J. Metalloporphyrin Co(III)TMPyP ameliorates acute, sublethal cyanide toxicity in mice. *Chemical research in toxicology*. 2012 Dec 17; 25 (12):2678-86. PMID: 23148604.
  71. Schlattner U, Tokarska-Schlattner M, Ramirez S, Tyurina YY, **Amoscato AA**, Mohammadyani D, Huang Z, Jiang J, Yanamala N, Seffouh A, Boissan M, Epand RF, Epand RM, Klein-Seetharaman J, Lacombe ML, Kagan VE. Dual function of mitochondrial Nm23-H4 protein in phosphotransfer and intermembrane lipid transfer: a cardiolipin-dependent switch. *The Journal of biological chemistry*. 2013 Jan 4; 288 (1):111-21. PMID: PMC3537004. PMID: 23150663.
  72. Kim H, Bernard ME, Epperly MW, Shen H, **Amoscato A**, Dixon TM, Doemling AS, Li S, Gao X, Wipf P, Wang H, Zhang X, Kagan VE, Greenberger JS. Amelioration of radiation esophagitis by orally administered p53/Mdm2/Mdm4 inhibitor (BEB55) or GS-nitroxide. *In vivo (Athens, Greece)* 2013. PMID: 22021675.
  73. Chu, CT, Ji J, Dagda RK, Jiang JF, Tyurina YY, Kapralov AA, Tyurin VA, Yanamala N, Shrivastava IH, Mohammadyani D, Wang, KZK, Zhu J, Klein-Seetharaman J, Balasubramanian K, **Amoscato AA**, Borisenko G, Huang Z, Gusdon AM, Cheikhi A, Steer EK, Wang R, Baty C, Watkins S, Bahar I, Bayir H and Kagan VE. Cardiolipin externalization to the outer mitochondrial membrane acts as an elimination signal for mitophagy in neuronal cells. *Nat. Cell Biol*. 2013 15:1197-1205.

74. Stoyanovsky, DA, Sparvero, LJ, **Amoscato, AA**, He, RR, Watkins, S, Pitt, BR, Bayir, H, and Kagan, VE Improved spatial resolution of MALDI imaging of lipids in the brain by alkylated derivatives of 2,5-dihydroxybenzoic acid. *Rapid Comm. Mass Spectrom.* 2014. 28:403-412
75. Cao, W, Ramakrishnan, R, Tyurin, VA, Veglia, F, Condamine, T, **Amoscato, A**, Mohammadyani, D, Johnson, JJ, Zhang, LM, Judith Klein-Seetharaman, J, Celis, E, Valerian E. Kagan, VE and Gabrilovich, DI. Oxidized lipids block antigen cross-presentation by dendritic cells in cancer. *J. Immunol.* 2014 192:2920-31.
76. Jiang, J, Bakan, A, Kapralov, AA, Ishara, KI, Huang, Z, **Amoscato, AA**, Peterson, J, Garapati, VK, Saxena, SK, Bayir, H, Atkinson, J, Bahar, I, Kagan, VE. Designing Inhibitors of Cytochrome c/Cardiolipin Peroxidase Complexes: Mitochondria-Targeted Imidazole-Substituted Fatty Acids. *Free Rad Biol Med.* 2014. 71:221-230.
77. Tyurina, YY, Domingues, RM, Tyurin, VA, Maciel, E, Domingues, P, **Amoscato, AA**, Bayir, H, and Kagan, VE Characterization of cardiolipins and their oxidation products by LC-MS analysis. *Chem. Phys. Lipids.* 2014. 179:3-10.
78. **Amoscato, AA**, Sparvero, LJ, He, RR, Watkins, SW, Bayir, H and Kagan, VE. Imaging mass spectrometry of diversified cardiolipin molecular species in the brain. *Analytical Chemistry* 2014. 86:6587-95.
79. Mohammadyani, D., Tyurin, V. A., **Amoscato, A. A.**, Gabrilovich, D. I., Klein-Seetharaman, J. and Kagan, V. E. *Biophysical Journal* 2015. 106:8061-806a.
80. Rolyan, H., Tyurina, Y., Hernandez, M., **Amoscato, A.**, Sparvero, L., Nmezi, B., Lu, Y., Estécio, M., Lin, K., Chen, J., He, R., Pin Gong, Rigatti, L., Dupree J., Bayir, H., Kagan, V., Casaccia, P., and Padiath, Q., Defects of lipid synthesis underlie the age dependent demyelination caused by lamin B1 Over expression. 2015. *J. Neuroscience* 35:12002-12017.
81. Mao, G., Qu, F., St. Croix, C., Tyurina, Y., Jiang, J., Huang, Z., **Amoscato, A. A.**, Cheikhi, A., Bayir, H. and Kagan, V. Mitochondrial redox opto-lipidomics reveals selectively mono-oxygenated cardiolipins as pro-apoptotic death signals. *ACS Chem. Biol.* 2016. 11:530-40.
82. Buland, J., Wasserloos, K, Tyurin, V., Tyurina, Y., **Amoscato, A. A.**, Ofori-Acquah, S. Kagan, V., and Pitt, B. Biosynthesis of Oxidized Lipid Mediators via Lipoprotein Associated Phospholipase A2 Hydrolysis of Extracellular Cardiolipin Induces Endothelial Toxicity. *Am J Physiol Lung Cell Mol Physiol* 2016 Aug 27;311(2):L303-16.
83. Valerian E. Kagan, Gaowei Mao, Feng Qu, Jose Pedro Friedmann Angeli, Sebastian Doll Claudette St Croix, Haider Dar, Bing Liu, Vladimir A. Tyurin, Vladimir B. Ritov<sup>1</sup>, Olexandr A. Kapralov, **Andrew A. Amoscato**, Jianfei Jiang, Tamil Anthonymuthu, Dariush Mohammadyani, Qin Yang, Judith Klein-Seetharaman, Simon Watkins, Ivet Bahar, Joel Greenberger, Rama Mallampalli, Brent R. Stockwell, Yulia Y. Tyurina, Marcus Conrad, Hülya Bayir. Oxidized arachidonic and adrenic PEs navigate cells to ferroptosis. *Nat. Chem. Biol.* 13, 81-90, 2017
84. L. J. Sparvero, **A. A. Amoscato**, A. B. Fink, T. Anthonymuthu, S. Watkins, V.E. Kagan, and H. Bayir. Imaging Mass Spectrometry Reveals a Massive Loss of Polyunsaturated Cardiolipins in the Immediate Cortical Contusion Area and in the Distal Hippocampal and Thalamic Regions after Traumatic Brain Injury *J. Neurochemistry* 139:659-75, 2016.
85. John Maguire, Yulia Tyurina, Dariush Mohammadyani, Aleksandr A Kapralov, Tamil S Anthonymuthu, Feng Qu, **Andrew A Amoscato**, Louis J Sparvero, Vladimir A Tyurin, Joan Planas-Iglesias, Rong-Rong He, Judith Klein-Seetharaman, Hülya Bayir, Valerian E. Kagan. Known Unknowns of Cardiolipin Signaling: The Best Is Yet To Come. *Biochim. Biophys. Acta*, 1862:8-24 2016.
86. Hua Tian, Louis J. Sparvero, **Andrew A. Amoscato**, Anna Bloom, Hülya Bayir, Valerian E. Kagan, and Nicholas Winograd. Gas Cluster Ion Beam Time-of-Flight Secondary Ion Mass

- Spectrometry High-Resolution Imaging of Cardiolipin Speciation in the Brain: Identification of Molecular Losses after Traumatic Injury *Anal. Chem.*, 2017, 89 (8), pp 4611–4619
87. Sally E. Wenzel, Yulia Y. Tyurina, Jinming Zhao, Claudette M. St. Croix, Haider H. Dar, Gaowei Mao, Vladimir A. Tyurin, Tamil S. Anthonymuthu, Alexandr A. Kapralov, **Andrew A. Amoscato**, Karolina Mikulska-Ruminska, Indira H. Shrivastava, Elizabeth M. Kenny, Qin Yang, Joel C. Rosenbaum, Louis J. Sparvero, David R. Emlet, Xiaoyan Wen, Yoshinori Minami, Feng Qu, Simon C. Watkins, Theodore R. Holman, Andrew P. VanDemark, John A. Kellum, Ivet Bahar, Hülya Bayır, and Valerian E. Kagan. PEBP wardens ferroptosis by enabling lipoxygenase generation of lipid death signals. *Cell* 2017, 171, 628-641.
  88. Laura K Cole; Jin Hee Kim; **Andrew A Amoscato**; Yulia Y Tyurina; Hulya Bayır; Benyamin Karimi; Tabrez Siddiqui; Valerian E Kagan; Grant Michael Hatch; Tiina M Kauppinen. Aberrant cardiolipin metabolism is associated with cognitive deficiency and hippocampal alteration in tafazzin knockdown mice. *BBA-Molecular Basis of Disease. Biochim. et Biophys. Acta: Molecular Basis of Disease.* 1864:3353-67, 2018.
  89. Anthonymuthu, Tamil; Kenny, Elizabeth; Shrivastava, Indira; Tyurina, Yulia; Hier, Zachary; Ting, Hsiu-Chi; Tyurin, Vladimir; Nesterova, Anastasia; **Amoscato, Andrew**; Mikulska-Ruminska, Karolina; Rosenbaum, Joel; Conrad, Marcus; Kellum, John; Wenzel, Sally ; VanDemark , Andrew; Bahar, Ivet; Kagan, Valerian; Bayır, Hulya. Empowerment of 15-lipoxygenase catalytic competence in selective oxidation of membrane ETE-PE to ferroptotic death signals, HpETE-PE. *J. Am. Chem Soc.* 2018, 140 (51), 17835-17839 **DOI:** 10.1021/jacs.8b09913
  90. Tamil S. Anthonymuthu, Elizabeth M. Kenny, Andrew M. Lamade, Hitesh Gidwani, Nicholas M. Krehel, Amalea Misse, Xiaotian Gao, **Andrew A. Amoscato**, Adam C. Straub, Valerian E. Kagan, Cameron Dezfulian, Hülya Bayır. Lipidomics Detection of Brain Cardiolipins in Plasma Is Associated with Outcome after Cardiac Arrest. *Critical Care Medicine* 2019, 47, e292-e300.
  91. Honglu Chao, Tamil S. Anthonymuthu, Elizabeth M. Kenny, **Andrew A. Amoscato**, Laura K. Cole, Grant M. Hatch, Jing Ji, Valerian E. Kagan and Hülya Bayır. Disentangling oxidation/hydrolysis reactions of brain mitochondrial cardiolipins in pathogenesis of traumatic injury. *J. Clin. Investigation. Insight.* 2018. 3(21), 1-15.
  92. Tian Hua, L.J. Sparvero, Paul Blenkinsopp, **Andrew A. Amoscato**, Simon C. Watkins, Hulya Bayır, Valerian E. Kagan and Nicholas Winograd. Secondary ion mass spectrometry images cardiolipins and phosphatidylethanolamines at the subcellular level. *Angewandte Chemie* 2019, 131(10), 3188-3193.
  93. Yulia Y. Tyurina, Claudette St.M. Croix, Simon C. Watkins, Alan M. Watson, Michael W. Epperly, Tamil S. Anthonymuthu, Elena R. Kisin, Irina I. Vlasova, Olga Krysko, Dmitri V. Krysko, Alexandr A. Kapralov, Haider H. Dar, Vladimir A. Tyurin, **Andrew A. Amoscato**, Elena N. Popova, Sergey B. Bolevich, Peter S. Timashev, John A. Kellum, Sally E. Wenzel, Ramapalla K. Mallampalli, Joel S. Greenberger, Hulya Bayır, Anna A. Shvedova, Valerian E. Kagan. Redox (phospho)lipidomics of signaling in inflammation and programmed cell death. 2019, *J. Leukocyte Biol.* 106: 57-81. doi: 10.1002/JLB.3MIR0119-004RR
  94. Anthonymuthu TS, Kenny EM, **Amoscato AA**, Lewis J, Kochanek PM, Kagan VE, Bayır H. Global assessment of oxidized free fatty acids in brain reveals an enzymatic predominance to oxidative signaling after trauma. *Biochim Biophys Acta Mol Basis Dis.* 2017 Oct;1863(10 Pt B):2601-2613. doi: 10.1016/j.bbadis.2017.03.015. Epub 2017 Mar 25.
  95. Anthonymuthu TS, Kenny EM, Lamade AM, Gidwani H, Krehel NM, Misse A, Gao X, **Amoscato AA**, Straub AC, Kagan VE, Dezfulian C, Bayır H. Lipidomics Detection of Brain

- Cardiolipins in Plasma Is Associated With Outcome After Cardiac Arrest. *Crit Care Med*. 2019 Apr;47(4):e292-e300. doi: 10.1097/CCM.0000000000003636.
96. Tyurina YY, Tyurin VA, Anthonymuthu T, **Amoscato AA**, Sparvero LJ, Nesterova AM, Baynard ML, Sun W, He R, Khaitovich P, Vladimirov YA, Gabrilovich DI, Bayir H, Kagan VE. "Redox lipidomics technology: Looking for a needle in a haystack". *Chem Phys Lipids*. 2019 Jul;221:93-107. doi: 10.1016/j.chemphyslip.2019.03.012. Epub 2019 Mar 27. Review.
  97. Tyurina YY, St Croix CM, Watkins SC, Watson AM, Epperly MW, Anthonymuthu TS, Kisin ER, Vlasova II, Krysko O, Krysko DV, Kapralov AA, Dar HH, Tyurin VA, **Amoscato AA**, Popova EN, Bolevich SB, Timashev PS, Kellum JA, Wenzel SE, Mallampalli RK, Greenberger JS, Bayir H, Shvedova AA, Kagan VE. Redox (phospho)lipidomics of signaling in inflammation and programmed cell death. *J Leukoc Biol*. 2019 Jul;106(1):57-81. doi: 10.1002/JLB.3MIR0119-004RR. Epub 2019 May 9. Review.
  98. Kagan VE, Tyurina YY, Sun WY, Vlasova II, Dar H, Tyurin VA, **Amoscato AA**, Mallampalli R, van der Wel PCA, He RR, Shvedova AA, Gabrilovich DI, Bayir H. Redox phospholipidomics of enzymatically generated oxygenated phospholipids as specific signals of programmed cell death. *Free Radic Biol Med*. 2020 Feb 1;147:231-241. doi: 10.1016/j.freeradbiomed.2019.12.028. Epub 2019 Dec 25. Review.
  99. Bayir H, Anthonymuthu TS, Tyurina YY, Patel SJ, **Amoscato AA**, Lamade AM, Yang Q, Vladimirov GK, Philpott CC, Kagan VE. Achieving Life through Death: Redox Biology of Lipid Peroxidation in Ferroptosis. *Cell Chem Biol*. 2020 Apr 16;27(4):387-408. doi: 10.1016/j.chembiol.2020.03.014. Epub 2020 Apr 9. Review.
  100. Yanjun Zhong, Anthony Cyr, Steven E. Reis, Tianmeng Chen, Lu Tang, Rami A. Namas, **Andrew Amoscato**, Brian Zuckerbraun, Yoram Vodovotz, Timothy R. Billiar. 2020. A Large-Scale Study of the Circulating Metabolome in Trauma Patients: Failure to Elevate Lipids is Associated with Worse Outcomes (in progress).

## Books, Book Chapters, Monographs

**Amoscato AA**, Brumfield AM, Herberman RB, Chambers WH. Isolation and characterization of a natural killer (NK) cell granule associated enzyme with sulfatase activity. In: Lotzvoa E, Herberman R, editors. *NK cell-mediated cytotoxicity: receptors, signaling and mechanisms*. Boca Raton, FL: CRC Press, 1992.

## Published Abstracts

1. L.J. Sparvero Hua Tian, **Andrew A Amoscato**, Anna Bloom, Nicholas Winograd, Valerian E Kagan, Hülya Bayir. GCIB-ToF-SIMS high resolution imaging of cardiolipin speciation in the brain: Identification of molecular losses after traumatic injury. ASMS 2017, Indianapolis, IN.
2. Hua Tian, Louis Sparvero, **Andrew A. Amoscato**, Valerian E. Kagan, Hülya Bayir, Nicholas Winograd. Submicron imaging of intact high mass biomolecules using high energy gas cluster ion beam secondary ion mass spectrometry (GCIB-SIMS). ASMS 2017, Indianapolis, IN.
3. Feng Qu, Yulia Yurjevna Tyurina, Jinming Zhao, Gaowei Mao, Vladimir A Tyurin, Tami Selvan Anthonymuthu, **Andrew A Amoscato**, David R Emlet, John A Kellum, Sally E Wenzel, Hülya Bayir, Valerian E Kagan. Accumulation of oxygenated phosphatidylethanolamines as ferroptotic death signals characterized by oxidative phospholipidomics. ASMS 2017, Indianapolis, IN.

4. Yulia Y Tyurina, Vladimir A Tyurin, **Andrew A Amoscato**, Tami Anthony Muthu, Michael W Epperly, Simon S Watkins, Joel S Greenberger, Hülya Bayir, Valerian E Kagan. Identification and quantification of esterified hepxilin A3 in the ileum of mice after total body irradiation using oxidative phospholipidomics. ASMS 2017, Indianapolis, IN.
5. Biochemical Microscopy of Brain Phospholipids by Matrix assisted laser desorption ionization (MALDI)-based Mass Spectrometry Imaging (MSI). Detcho A. Stoyanovsky, L.J. Sparvero, **Andrew A. Amoscato**, Rong-Rong He, Simon C. Watkins, Bruce R. Pitt, Valerian E. Kagan, Hülya Bayir Neurotrauma Meeting 2013 (Nashville, TN).
6. MALDI-Mass Spectrometry Based Biochemical Microscopy of Cardiolipin Molecular Species in Brain Tissue. **A.A. Amoscato**, L.J. Sparvero, R.R. He, B.R. Pitt, S. Watkins, H. Bayir and V.E. Kagan SOT Meeting 2014 (Phoenix, AZ).
7. Schlattner U, **Amoscato AA**, Tyurina Y, Tokarska-Schlattner M, Ramirex Rios S, Boissan M, Epand RM, Klein JH, Lacombe M, Kagan VE. Mitochondrial Nm23-H4 can switch between phosphotransfer and lipid transfer activities [abstract]. Freiburg, Germany 2012.
8. Schlattner U, Tokarska-Schlattner M, Ramirex Rios S, Tyurina Y, **Amoscato AA**, Huang Z, Jiang AND Kagan, Boissan M, Epand R, Mohammadsanyi D, Klein JH, Epand R, Lacombe M, Kagan VE. Mitochondrial Nm23-H4/NDPK-D: a novel function in intermembrane cardiolipin transfer linked to apoptosis [abstract]. University of Bern 2012.
9. Sparvero LJ, **Amoscato AA**, Pitt BR, Kagan VE. Maldi mass spectrometric imaging of cardiolipin and its oxidation products from tissue sections in a lung oxidative damage model [abstract]. San Francisco, CA 2012.
10. Samhan Arias A, Tyurin V, Tyurina Y, Bayir H, Kagan VE, **Amoscato AA**. Normal-phase/reverse-phase 2D-HPLC-MS analysis of oxidized lipid species: Application to the study of cardiolipin in apoptosis and damaged tissue [abstract]. San Francisco, CA 2012.
11. Jing Ji, Lina Du, **Andrew A. Amoscato**, Jianfei Jiang, Donna B. Stolz, Robert S.B. Clark, Patrick M. Kochanek, Valerian E. Kagan, Hülya Bayir. Temporal course of mitochondrial damage in primary cortical neurons after mechanical stretch injury: focus on mitophagy. 2011 Neurotrauma Meeting, Ft. Lauderdale, FL. (submitted).
12. Hyun Kim, Mark Bernard, Michael W. Epperly, Hongmei Shen, Tracy M. Dixon, **Andrew Amoscato**, Alexander S. Doemling, Song Li, Xiang Gao, Peter Wipf, Hong Wang, Xichen Zhang, Valerian E. Kagan, and Joel S. Greenberger. Intraesophageal administration of GS-Nitroxide (JP4-039) and p53/MDM2/MDM4 inhibitor (BEB55) ameliorates radiation esophagitis. 2011 ASTRO Meeting, Atlanta, GA.
13. LJ Sparvero, **A. Amoscato**, BR Pitt, H. Bayir, VE Kagan. Development of MALDI-TOF methodology for selective MS-analysis and imaging of cardiolipins in lipid extracts and tissues. 2011 Society of Toxicology Meeting, Washington, D.C.
14. L.J. Sparvero, Shelly A. Kucherer, Herbert J. Zeh, Michael E. DeVera, Michael T. Lotze, and **Andrew A. Amoscato**. Less is More: Isoelectric point based signal suppression in MALDI-TOF MS to identify cancer biomarkers such as the High Mobility Group Box Proteins [HMGB]. 2009. ASMS, Philadelphia, PA.
15. Constantina P. Hanse, Michael T. Lotze, Richard A. DeMarco, Katherine Horvath, Cécile Gouttefangeas, Anthony J. Demetris, Roger Day, Phillipe L Pereira, Obaid Shakil, **Andrew A. Amoscato**, and Michael E. DeVera. High Mobility Group B1 matures Dendritic Cells and is a DAMP Elevated in the Serum of Hepatoma Patients with Chronic Hepatitis C Diminishing Following Resection and Orthotopic Liver Transplantation or Radiofrequency Ablation [RFA].
16. L.J. Sparvero, Shelly A. Kucherer, Herbert J. Zeh, Michael T. Lotze, **Andrew A. Amoscato**. MALDI-TOF Mass Spectrometry Assessment of sRAGE and High Mobility Group Box Protein-1 [HMGB1] in Cancer and Healthy Tissues. Damage Associated Molecular

- Pattern Molecules (DAMPS) and Alarmins Symposim. August 30-September 2, 2008, Pittsburgh , PA
17. L.J. Sparvero, Judson Englert, Tim D. Oury, **Andrew A. Amoscato**, Michael T. Lotze. BioLayer Interferometry (BLI) for Label-Free Measurement of Ligand Binding of RAGE and HMGB1. Damage Associated Molecular Pattern Molecules (DAMPS) and Alarmins Symposim. August 30-September 2, 2008, Pittsburgh , PA
  18. L.J. Sparvero, Shelly A. Kucherer, Herbert J. Zeh, Michael T. Lotze, and **Andrew A. Amoscato**. Pancreatic Cancer Biomarkers: Post-Translational State of Nuclear and Cytosolic High Mobility Group Box Protein-1 [HMGB1] as determined by MALDI-TOF MS. American Society for Mass Spectrometry Conference, June 1-5, Denver, CO 2008
  19. L.J. Sparvero, Shelly A. Kucherer, Herbert J. Zeh, Michael T. Lotze, and **Andrew A. Amoscato** Assessment of High Mobility Group Box Protein-1 [HMGB1] in Pancreatic Cancer and Normal Pancreas by a Label-Free MALDI-TOF Mass Spectrometry Method. 11<sup>th</sup> Annual Meeting of the Regional Cancer Center Consortium for the Biological Therapy of Cancer. West Virginia University. February 21-22, 2008
  20. L. J. Sparvero, S. Kucherer. M. T. Lotze and **A. A. Amoscato**. Potential Biomarkers of Human HMGB1. Science 2007. University of Pittsburgh, Pittsburgh, PA
  21. Oriana Hunter, Timothy Maul, David Vorp, and **Andrew A. Amoscato**. Mechanical strain induces ceramide generation in endothelial cells. Departments of Surgery, Pathology, and Bioengineering and McGowan Institute for Regenerative Medicine. FASEB 2007, Washington DC
  22. Edward C. Nwanegbo, L. J. Sparvero, **Andrew A. Amoscato**, Jian Zhang, Kaori Okada and Andrea Gambotto. Rapid identification and classification of adenoviral serotypes by mass spectrometry. American Society of Gene Therapy, May 2007
  23. Kazuya Omoto, Oriana C. Hunter, L. J. Sparvero, Masatoshi Eto, **Andrew A. Amoscato**. Extended treatment with enzyme inhibitors for ceramide metabolism can select for a hormone-refractory population of human prostate cancer cells. American Urological Congress, May 2007
  24. V. A. Tyurin, H Bayir, Y.Y. Tyurina, W. Feng, R. Viner, **A. Amoscato**, Q. Zhao, K. Janesko-Feldman, H. Alexander, P.M. Kochanek, S.T. DeKosky, V.E. Kagan. Mass spectrometric analysis of phospholipids molecular species and their hydroperoxides in apoptotic neurons and injured rat brain. 46<sup>th</sup> Annual SOT Meeting & ToxExpo (March 25-29, 2007, Charlotte, NC).
  25. O. C. Hunter, T. Maul, D. Vorp and **A. A. Amoscato**. Mechanical strain-induced ceramide generation in endothelial cells. Center for Vascular Remodeling and Regeneration Spring Meeting. Spring 2006.
  26. L. J. Sparvero, O. Hunter, K. Omoto and **A. A. Amoscato**. Mass spectral analysis of peptides, proteins and lipids. Center for Vascular Remodeling and Regeneration Spring Meeting. Spring 2006.
  27. V. E. Kagan, V. A. Tyurin, **A. A. Amoscato**, R. Veiner, K. Miller, Y. Y. Tyurina, L. J. Sparvero, P. M. Kochanek, H. Bayir (submitted). Mass-spectrometric analyses of phospholipid oxidation after experimental brain trauma. Neuroscience 2006.
  28. Hülya Bayir, Vladimir Tyurin, **Andrew A. Amoscato**, Rosa Viner, Ken Miller, Yulia Tyurina, Patrick M. Kochanek, Valerian E. Kagan (submitted). Mass-spectrometric detection and quantification of cardiolipin oxidation after TBI: an early biomarker of apoptosis. National Neurotrauma Meeting.
  29. Kazuya Omoto, Michael W. Epperly, Oriana Hunter, Joel S. Greenberger and **Andrew A. Amoscato** (2006). Extended treatment with an acid ceramidase inhibitor modulates the

metabolism of ceramide and selects for a radiation-resistant population of human lymphoma cells. American Association of Cancer Research.

30. Michael W. Epperly, Valerian Kagan, Anthony Kanai, Peter Wipf, **Andrew Amoscato** and Joel S. Greenberger (2006). Development of small molecule antioxidants for radioprotection. American Association for Cancer Research.
31. Mastoshi Eto, Oriana Hunter, Michael Lotze and **Andrew A. Amoscato** (2005). A protective role for phosphatidylglycerol during apoptosis induced by androgen ablation in prostate cancer cells. American Urological Association.
32. Michael W. Epperly, Valerian E. Kagan, Vladimir A. Tyurin, Yulia Y. Tyurina, **Andrew A. Amoscato**, Anthony J. Kanai, Jim Peterson, Joel Greenberger. (2004). Reductions in nNOS activity decrease the magnitude of cardiolipin modification following irradiation. Radiation Research Society.
33. Valerian Kagan, Vladimir Tyurin, Yulia Tyurina, **Andrew Amoscato**, Anthony Kanai, Jim Peterson, Michael Epperly and Joel Greenberger (2004). Redox sensitization of tumor cells to apoptosis: radiation-induced oxidation of cardiolipin. Lung Spore.
34. Pu, L., **A. A. Amoscato**, M. E. Bier and J. S. Lazo (2004). Characterization of the binding stoichiometry of the catalytic domain of Cdc25A by the anti-proliferative agent 2-(2-hydroxyethylsulfanyl)-3-methyl-[1,4] naphthoquinone. AACR
35. Sparanga, G. C., D. B. Ostrander, **A. A. Amoscato**, W. Dowhan and J. B. McMillin (2001). Loss of cardiolipin correlates with cytochrome c release in palmitate-induced cardiomyocyte apoptosis. American Heart Association.
36. Kanto, T., Lotze, M. T., and A. A. Amoscato, (2001). Ceramide mediates tumor-induced dendritic cell apoptosis. Keystone Symposium.
37. Bennouna, J. Hunter, O., Eto, M. Lotze, M. T. and **A. A. Amoscato**. (2001) Elevation of two ceramides (C16:0 and C24:0) in colorectal carcinoma cell lines in response to CPT 11 exposure. American Association of Cancer Research.
38. **Amoscato, A. A.**, C. M. Matsko, H. Rabinowich and M. T. Lotze. (2001) Mitochondrial lipid alterations during apoptosis of Jurkat cells. (2001). FASEB.
39. H. Kao, J. A. Marto, **A. A. Amoscato**, P. Ciborowski, T. K. Hoffmann, J. Shabanowitz, J. M. Pilewski, T. L. Whiteside, S. D. Finkelstein, D. F. Hunt and O. J. Finn. (2001). Identification of cyclin B1 as an epithelial tumor antigen. FASEB.
40. H. Kao, **A. A. Amoscato**, and O. J. Finn. (1999). Priming CD4+ and CD8+ T cells against epithelial proteins and peptides using a dendritic cell-based tumor antigen discovery system. International Conference on Immunology.
41. H. Kao, **A.A. Amoscato**, and O.J. Finn. (1999) Priming CD4+ and CD8+ T cells against epithelial proteins and peptides using a dendritic cell-based tumor antigen discovery system. Federation of the American Society for Experimental Biology.
42. R.D. Salter, X. Dong, B. An and **A.A. Amoscato**. 1998. Dendritic cells and B cell lines differ in their ability to present class II-restricted antigens to T-cells and in degradation of exogenously supplied peptide antigens. J. Leukocyte Biol. Suppl. 2. 5th International Symposium on Dendritic Cells in Fundamental and Clinical Immunology.
43. C. Odoux, M. Lotze, P.K. Kim, **A. Amoscato**, J. Luketich and T. Weigel. (1999, submitted). Paclitaxel activates caspase-3 and induces apoptotic death in human lung cancer: Is it really Fas dependent? American Thoracic Society, April 23-8, San Diego, CA.
44. **A.A. Amoscato**, D. Prenovitz and M.T. Lotze. 1998. Rapid extracellular degradation of synthetic class I peptides by human dendritic cells. J. Leukocyte Biol. Suppl. 2. Presented at the 5th International Symposium on Dendritic Cells in Fundamental and Clinical Immunology.



45. J. Leite, **A. Amoscato**, and M. Cascio. 1998. Proteolytic studies indicate novel topology for the glycine receptor. Protein Society.
46. R.L. Thomas, M. Lotze and **A.A. Amoscato**. 1998. Mass spectrometric analysis of cellular lipids from tumor cells undergoing apoptosis. FASEB.
47. Couderc, F., **A. Amoscato**, W. J. Storkus, J. D. Hempel, and M. T. Lotze. 1996. MHC class I peptide identification in melanoma cells by micellar electrokinetic chromatography and laser induced fluorescence detection. Eighth International Symposium on High Performance Capillary electrophoresis. Orlando, FL.
48. Lotze, M. T., W. J. Storkus, H. Tahara, **A. Amoscato**, H. I. Mayordomo, L. Zitvogel. 1995. Molecular vaccines for cancer-role of IL-12. Joint Congress of the British Society of Immunology and the Nederlandse Vereniging voor Immunologie: Brighton, UK.
49. **Amoscato, A.A.**, W.J. Storkus and M.T. Lotze. 1996. Secretion of a 92 kDa gelatinase by human peripheral blood dendritic cells. FASEB.
50. Yasumura, S., H. Hirabayashi, **A. Amoscato**, W-c. Lin, K. Okaada, R.B. Herberman, and T.L. Whiteside. 1994. Activation and proliferation of normal lymphocytes and hematopoietic cell lines induced by human SCCHN-derived soluble factor. AACR.
51. Chambers, W.H., **A.A. Amoscato**, and P.M. Appasamy. 1992. Characterization of the NK cell receptor for prolactin and investigation of the influences of prolactin on IL-2 driven proliferation of NK cells. FASEB J. 6(4).
52. **Amoscato, A.A.**, R.R. Spiess, R.B. Herberman, and W.H. Chambers. 1992. Alteration of CD2 expression on activated NK cells in the presence of aminopeptidase inhibitors. 8th International Natural Killer Cell Workshop.
53. Sansoni, S.B., A.M. Brumfield, R.B. Herberman, W.H. Chambers and **A.A. Amoscato**. 1992. Degradation of Leu- and Met-enkephalin by surface enzymes of rat adherent -lymphokine activated killer (A-LAK) cells. FASEB.
54. **Amoscato, A.A.**, A.M. Brumfield, R.B. Herberman, and W.H. Chambers. 1992. Surface aminopeptidase activity of rat adherent-lymphokine activated killer (A-LAK) cells. FASEB.
55. **Amoscato, A.A.**, A.M. Brumfield. S.B. Sansoni, R.B. Herberman, and W.H. Chambers. 1991. Characterization of an NK cell cytolytic granule-associated enzyme with sulfatase activity. FASEB.
56. DeLeo, A.B., **A.A. Amoscato**, M.W. Olszowy, A.M. Brumfield, R.B. Herberman, and W.H. Chambers. 1991. Monoclonal antibody to a novel rIL-2 inducible marker on rat natural killer (NK) cells and T cells. FASEB.
57. **Amoscato, A.A.**, A.M. Brumfield, R.B. Herberman, and W.H. Chambers. 1990. A granule-associated enzyme of NK cells with sulfotransferase activity. The International Workshop on Cell-Mediated Cytotoxicity.
58. **Amoscato, A.A.**, A.M. Brumfield, R.B. Herberman, and W.H. Chambers. 1990. Functional analysis of a natural killer (NK) cell associated enzyme with sulfotransferase activity. FASEB.
59. **Amoscato, A.A.**, J.W. Alexander, and G.F. Babcock. 1989. A comparison of the surface aminopeptidase activities of human lymphocytes and two T-cell leukemia lines. FASEB.
60. **Amoscato, A.A.**, J.W. Alexander, and G.F. Babcock. 1988. Surface aminopeptidase activity of human lymphocytes. Mid-West Autumn Immunology Conference.
61. **Amoscato, A.A.**, G.F. Babcock, R.M. Sramkoski, B.A. Hynd, and J.W. Alexander. 1986. Synthesis and biological activity of fluorescent analogues of thymopentin. International Symposium on Immunological Adjuvants and Modulators of Non-specific Resistance to Microbiological Infections.

62. **Amoscato, A.A.**, G.F. Babcock, and J.W. Alexander. 1985. The interaction of TP-5 with human leukocytes. 17th International Leukocyte Culture Conference and 22nd National Meeting of The Reticuloendothelial Society.
63. **Amoscato, A.A.**, P.J.A. Davies, G.F. Babcock, and K. Nishioka. 1983. Receptor-mediated internalization of tuftsin. New York Academy of Sciences on Tuftsin.
64. Nishioka, K., G.F. Babcock, **A.A. Amoscato**, J.H. Phillips, and R.A. Banks. 1983. Antitumor activity of tuftsin, the naturally occurring immunopotentiating peptide. 5th International Congress of Immunology.
65. Nishioka, K. G.F. Babcock, **A.A. Amoscato**, J.H. Phillips, and R.A. Bamks. 1983. The immunopotentiating peptides hormone tuftsin. International Symposium on Immunomodulation by Chemically Defined Adjuvants.
66. **Amoscato, A.A.**, P.J.A. Davies, G.F. Babcock, and K. Nishioka. 1982. Receptor-mediated internalization of tuftsin, the natural immunopotentiating hormone. 12th International Congress of Biochemistry.

### **2018 abstracts:**

67. L.J. Sparvero, Hua Tian, **A. A. Amoscato**, S. Watkins, N. Winograd, V.E. Kagan and H. Bayir. High resolution single cell imaging of phospholipids by a combination of GCIB-ToF-SIMS with fluorescence microscopy. ASMS, 2018, San Diego, CA
68. T. Anthonymuthu, E. Kenny, A. Lamade, H. Gidwani, N. Krehel, **A. A. Amoscato**, A. Straub, V. E. Kagan, C. Dezfulian and H. Bayir. Lipidomics identifies brain cardiolipins in plasma as a prognostic marker after cardiac arrest. ASMS, 2018, San Diego, CA
69. Yulia Y. Tyurina, Sally E. Wenzel, Jinming Zhao, Claudette M. St. Croix, Haider H. Dar, Gaowei Mao, Vladimir A. Tyurin, Tamil S. Anthonymuthu, Alexandr A. Kapralov, **Andrew A. Amoscato**, Karolina Mikulska-Ruminska, Indira H. Shrivastava, Elizabeth M. Kenny, Qin Yang, Joel C. Rosenbaum, Louis J. Sparvero, David R. Emlet, Xiaoyan Wen, Yoshinori Minami, Feng Qu, Simon C. Watkins, Theodore R. Holman, Andrew P. VanDemark, John A. Kellum, Ivet Bahar, Hülya Bayır, and Valerian E. Kagan. PEBP1 enables 15-lipoxygenase 1 to generate ferroptotic cell death signals in primary human airway epithelial cells. LC/MS study. ASMS, 2018, San Diego, CA

### **2019 abstracts**

70. L.J. Sparvero, Hua Tian, **A. A. Amoscato**, S. Watkins, N. Winograd, V.E. Kagan and H. Bayir. Subcellular imaging of cardiolipin and phosphatidylethanolamine using GCIB-ToF-SIMS. ASMS, 2019, Atlanta, GA
71. V.A. Tyurin, Y.Y. Tyurina, **A. Amoscato**, L. Sparvero, M. Epperly, C. St. Croix, A. Watson, S. Watkins, J.S. Greenberger, H. Bayir and V.E. Kagan. Inhibitor of iPLA2 gamma R-BEL prevents lipid mediator generation in the ileum and leads to radiomitigation after total body irradiation. ASMS, 2019, Atlanta, GA
72. Y.Y. Tyurina, H. Dar, V. Tyurin, **A. Amoscato**, J. Pilewski, R. Mallampalli, H. Bayir and V. Kagan. PEBP1 P. aeruginosa lipoxygenase (pLosA) generates ferroptotic cell death signals in host human bronchial epithelial cells. LC/MS study. ASMS, 2019, Atlanta, GA

### **2020 abstracts**

73. Hua Tian, Louis J. Sparvero, **Andrew A. Amoscato**, Valerian E. Kagan, Hülya Bayır, Nicholas Winograd. Low abundant metabolites and oxidized lipids imaging in single cells undergoing ferroptosis using novel H<sub>2</sub>O gas cluster ion beam secondary ion mass spectrometry (H<sub>2</sub>O-GCIB-SIMS). ASMS, 2020, Houston, TX

74. Louis J. Sparvero, Hua Tian, Wanyang Sun, **Andrew A. Amoscato**, Simon C. Watkins, Nicholas Winograd, Valerian E. Kagan, Hülya Bayır. Gas Cluster Ion Beam Secondary Ion Mass Spectrometry (GCIB-SIMS) subcellular imaging of low abundance phosphatidylethanolamine metabolites in traumatized brain neurons. ASMS, 2020, Houston, TX
75. Louis J. Sparvero, Matthew Baynard, **Andrew A. Amoscato**, Valerian E. Kagan, Hülya Bayır. Separation and analysis of biological lipid extracts using disposable reverse-phase pipette tips and Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry (MALDI-MS). ASMS, 2020, Houston, TX

## RESEARCH INTERESTS

**Research Interests:** Mass spectrometry of lipids (lipidomics), peptides, proteins (proteomics) and small molecules (metabolomics); imaging mass spectrometry; lipid-protein/protein-protein interactions as assessed by mass spectrometry; lipid alterations and phospholipid signaling during apoptosis and autophagy; mechanisms of apoptosis and autophagy; the role of sphingolipids in radiation-induced apoptosis; the role of sphingolipids in androgen ablation induced apoptosis of prostate cancer cells; the role of lipids and lipid signaling in endothelial cell apoptosis; the role of lipid DAMPS in inflammation and cancer; mitochondrial and redox biochemistry.

## OTHER SCHOLARLY ACTIVITIES

### Manuscript Reviewer

Expert Review of Proteomics  
 Journal and Cancer Chemotherapy and Pharmacology  
 Journal of Biochemical Pharmacology  
 Journal of Biological Chemistry  
 The Journal of Immunology  
 Biochemistry  
 Cellular Immunology  
 Biochimica et Biophysica Acta  
 Melanoma Research  
 Journal of Cellular Physiology  
 Free Radical Biology and Medicine  
 Kidney International  
 Nature Chemistry  
 Chemistry and Physics of Lipids  
 Analytical Chemistry

### Grant Reviewer

Postdoctoral Review Committee, University of Pittsburgh Cancer Institute  
 Grant Reviewer, Allegheny-Singer Research Institute  
 Grant Reviewer, Barth Syndrome Foundation

## PATENTS

1. Deleo AB, Visus C, Ito D, **Amoscato AA**, Whiteside TL Identification of human aldehyde dehydrogenase 1 family member A1 as a novel CD8+ Tcell-defined tumor antigen.

## INVITED PRESENTATIONS

- 2007 Jiang J, Belikova NA, Xiao J, Zhao Q, Kurnikov IV, **Amoscato AA**, Fink MP, Wipf P, Greenberger JS, Kagan VE. Mitochondria Targeted Hemi-Gramicidin S Conjugated Nitroxide Inhibited Irradiation Induced Apoptosis and Cardiolipin Oxidation in Mouse Embryonic Cells. Poster presented at: 46th Annual Meeting of the Society of Toxicology; 2007 Mar 25-29; Charlotte, NC.
- 2004 **Amoscato AA**. Radiation-Induced apoptosis: mitochondrial mechanisms and strategies to enhance therapy. Presented at: Regional Consortium for the Biological Therapy of Cancer. 7th Annual Meeting, 2004 Feb.

## SERVICE

Dr. Amoscato has a wealth of experience in lipidomics, proteomics and metabolomics and their applications. In addition, Dr. Amoscato has extensive experience in the following mass spectrometry platforms: triple quadrupole, ion trap (including linear ion-traps), Q-TOF, MALDI-TOF/TOF (including use in imaging), quadrupole/orbitrap mass spectrometers and gas chromatography/mass spectrometry with a variety of LC interfaces. He has extensive experience in hardware repair for a variety of these MS platforms and has extensive experience in LC and nano-LC applications and an excellent working knowledge of Xcalibur and Masslynx mass spectrometry software.

## INTERACTIONS WITH THE UNIVERSITY OF PITTSBURGH FACULTY INVOLVING MASS SPECTROMETRY

Dr. Amoscato's past research in mass spectrometry involved extensive collaborations between Dr. Amoscato's lab and the University of Pittsburgh/UPCI research community.

- Dr. Joel Greenberger, Chairman-Department of Radiation Oncology, University of Pittsburgh School of Medicine and the Hillman Cancer Center (UPCI). One aspect of Dr. Greenberger's research involves targeting the critical cardiolipin/cytochrome c interactions in the mitochondria in a strategy for combating cardiolipin oxidation in new drug discovery and dietary issue. Dr. Amoscato's lab will utilize electrospray ionization mass spectrometric (ESI-MS) technology to structurally analyze cardiolipin and its oxidation products.
- Dr. Xiao-Ming Yin, formerly of the Department of Pathology, University of Pittsburgh School of Medicine. In conjunction with Dr. Amoscato and the Mass Spectrometry Facility, Dr. Yin and Dr. Amoscato were able to determine that the pro-apoptotic molecule Bid was able to interact with cardiolipin species on intact mitochondria utilizing electrospray ionization mass spectrometry (ESI-MS).

- Dr. Reza Zarnegar, Department of Pathology, University of Pittsburgh School of Medicine. Dr. Zarnegar's research interests lie in understanding the cellular and molecular biology of a polypeptide growth factor called Hepatocyte Growth Factor (HGF). The focus of his lab is to dissect the regulatory regions of the HGF and Met (the HGF receptor) genes. In conjunction with Dr. Amoscato's lab and the Mass Spectrometry facility, Dr. Zarnegar is mapping potential caspase cleavage sites (in vitro) in the HGF polypeptide. These results will now be applied to cell lysates and will utilize MALDI-TOF mass spectrometry.
- Dr. Robert Bridges, formerly of the Department of Cell Biology, University of Pittsburgh School of Medicine. One aspect of Dr. Bridges's research involves understanding the chemistry and biology of the serine protease prostatic acid phosphatase. In conjunction with Dr. Amoscato's lab, they have been able to determine the presence or absence of the light chain of the protease in native prostatic acid phosphatase and in various mutants, utilizing on-plate reduction techniques and MALDI-TOF mass spectrometry.
- Dr. David Vorp, Department of Surgery and Bioengineering, University of Pittsburgh School of Medicine. Dr. Vorp's laboratory is focused on studying the effects of biomechanical forces in vascular disease. In conjunction with Dr. Amoscato's lab and the Mass Spectrometry Facility, they are taking a proteomics approach in identifying proteins that are up-regulated in response to various biomechanical forces. Dr. Amoscato's lab is employing both MALDI-TOF and ESI-MS mass spectrometry for identification and sequencing of proteins from gels.
- Dr. Albert DeLeo, formerly of the Department of Pathology, University of Pittsburgh School of Medicine and The Hillman Cancer Center (UPCI). One main area of Dr. DeLeo's research involves the identification of tumor associated antigens. In conjunction with Dr. Amoscato's lab and the Mass Spectrometry Facility, they have been able to identify and sequence tumor-associated peptides utilizing a microcapillary hplc tandem mass spectrometry approach.
- Dr. Eric Weiner, Department of Radiology/UPCI, Hillman Cancer Center. Dr. Weiner's lab has been utilizing Dr. Amoscato's Mass Spectrometry Facility for structural analysis of novel compounds for use in radiological studies. Both ESI-MS and MALDI-TOF mass spectrometry have been applied for these studies.
- Dr. John Lazo, formerly of the UPCI Drug Discovery Group, Department of Pharmacology, University of Pittsburgh School of Medicine and The Hillman Cancer Center. One area of Dr. Lazo's research involves the design of novel inhibitors of cdc kinases. In conjunction with the Mass Spectrometry Facility and Dr. Amoscato's lab, they have been able to identify the inhibitor's binding site on the cdc kinase protein using a combination of MALDI-TOF and ESI-MS mass spectrometry.
- Dr. Valerian Kagan, Vice Chairman, Department of Environmental and Occupational Health, Graduate School of Public Health. One area of Dr. Kagan's research involves antioxidant and prooxidant signaling in apoptosis and its relation to lipid oxidation. In conjunction with Dr. Amoscato's lab and the Mass Spectrometry Facility, they have been able to structurally characterize anti and pro-oxidant compounds as well as lipid oxidation products.
- Dr. Y. Lee, Department of Surgery, University of Pittsburgh School of Medicine/UPCI. In conjunction with Dr. Amoscato's lab and The Mass Spectrometry Facility, Dr. Lee's lab has

been able to investigate the role of ceramide in metabolic oxidative stress, especially as it relates to TRAIL. These studies utilized ESI-MS to quantitate ceramide levels as developed in the mass spectrometry facility.

- Dr. Michael Lotze, Departments of Surgery and Bioengineering and UPCI. In conjunction with Dr. Amoscato's lab and the Mass Spectrometry Facility, they will be studying acetylated and non-acetylated forms of the protein HMGB1. A MALDI-TOF and ESI-MS approach will be utilized. Purification of HMGB1 from various sources will also be employed.
- Dr. K. Irani, Pitt Cardiovascular Institute. In conjunction with Dr. Amoscato's lab and the Mass Spectrometry facility, they will analyze the specific residues within the eNOS protein that become acetylated and de-acetylated which may influence activity of the synthase.
- Dr. Walter Storkus (Dermatology). In conjunction with Dr. Amoscato's lab, they have been identifying class I peptide epitopes from tumor cells by employing sequence analysis using microcapillary hplc tandem mass spectrometry.
- Dr. Michael Casio (Molecular Genetics and Biochemistry). In conjunction with Dr. Amoscato's lab, they have applied a mass spectrometric/proteomic approach to the study of the glycine receptor.
- Dr. Russ Salter (Dept. of Immunology and Pathology). Part of Dr. Salter's research involves the study of the presentation of class I and class II restricted antigens by dendritic cells to T-cells. In conjunction with Dr. Amoscato's lab they performed a mass spectrometric approach to determine the degradation of exogenously supplied peptide antigens by dendritic cells and by B cells.
- Dr. Gary Silverman (Magee Women's Research Institute). Proteomic analysis of Serpin-like proteins from *C. elegans*. This project involves the proteomic analysis of proteins from silver-stained and Coomassie-stained gels.
- Dr. Olivera Finn (Department of Immunology). Projects have involved the sequence analysis of MHC derived peptides by microcapillary tandem mass spectrometry.
- Dr. Michael Parniak (Medicine/Molecular Genetics and Biochemistry). In conjunction with Dr. Amoscato's lab, projects involve the mass spectral detection and quantitation of a class of organic compounds that inhibit reverse-transcriptase activity.
- Dr. Hannah Rabionowich (UPCI/Pathology). Projects with Dr. Rabionowich have involved detection of specific enzymatic cleavage sites on a variety of pro-apoptotic proteins. A mass spectrometric/proteomic approach has been taken.
- Dr. M. Zeidel (formerly fo the Dept. of Medicine, University of Pittsburgh). In conjunction with Dr. Amoscato's lab they have performed lipid analysis on a variety of cell types.
- Dr. Joseph Glorioso, Chairman, Department of Molecular Genetics and Biochemistry. A number of projects with Dr. Glorioso's lab have involved protein sequence analysis of a variety of proteins from silver and Coomassie stained gels.
- Dr. Anthony Kanai (Dept. of Medicine). In conjunction with Dr. Amoscato's lab, they have performed mass spectrometric analysis of mitochondrial-targeted peptides.
- Dr. M. Epperly (Dept. of Radiation Oncology/UPCI, Hillman Cancer Center). They have looked at quantitative uptake of a variety of radiation mitigating compounds in various sub-

cellular compartments. They have taken a quantitative mass spectrometric approach for these studies.

- Dr. Andrea Gambotto (Dept. of Medicine/Surgery/UPCI). Dr. Gambotto's lab is interested in looking at proteomic profiling of cells infected with adenovirus. He is doing this in conjunction with the mass spectrometry facility.
- Dr. Theresa Whiteside (Dept. of Pathology/UPCI). In conjunction with Dr. Amoscato's lab, they have been involved in the identification of tumor associated peptide epitopes utilizing tandem mass spectrometry for protein sequencing.
- Dr. R Delude (Dept. of Critical Care Medicine). His projects involved protein identification from a variety of gels. Protein ID was accomplished through mass spectrometric methods of analysis.
- Dr. Alan Russell (formerly of the McGowan Institute for Regenerative Medicine). In conjunction with Dr. Amoscato's lab and the Mass Spectrometry Facility, they have been taking a proteomic approach to investigate the sites of polyethylene glycol modification (PEGylation) of matrix metalloproteases.
- Dr. M. Trakselis, University of Pittsburgh, Department of Chemistry. Dr. Amoscato's lab has aided in the identification of DNA polymerases from SDS gels by mass spectrometry.
- Dr. J. Moser, formerly of the University of Pittsburgh, Department of Surgery/UPCI. A collaboration with Dr. Amoscato's lab is underway to investigate lipid profiles of tissue samples (liver/gallbladder) by mass spectrometry from rats that are fed a high cholesterol diet and are either prone to gallstone formation or resistant to gallstone formation. The results will be compared to a normal group.
- Dr. Charles Brown, University of Pittsburgh. Department of Surgery/UPCI. Dr. Amoscato and his lab have been providing the mass spectrometric analysis of various dendrimers that are being utilized in Dr. Brown's lab.
- Dr. C. McCloskey, University of Pittsburgh Department of Surgery. Dr. Amoscato's lab has been providing mass spectrometric analysis of lipids from various tissues from obese and lean animals