

Marcelo G. Bonini, Ph.D.

A. Personal Information

Work: University of Illinois at Chicago
College of Medicine
Section of Cardiology and Department of Pharmacology
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Education: Ph.D. in Biochemistry - February 2004
University of Sao Paulo - Brazil

B.S. in Chemistry - 1999
University of Sao Paulo - Brazil

B. Professional Experience

02/99 - 02/04 Graduate Student, University of Sao Paulo, Department of Biochemistry, Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil.

06/99 - 12/01 Teaching Assistant, Department of Biochemistry, Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil

05/04 - 09/09 Postdoctoral Scientist, NIEHS/NIH, Research Triangle Park, NC. Supervisor: Dr. Ronald P. Mason.

09/09 - Present Assistant Professor, Departments of Medicine, Pathology and Pharmacology, College of Medicine, University of Illinois at Chicago, Chicago, IL.

09/09 - Present Director of Oxidative Stress Core Facility, College of Medicine, University of Illinois at Chicago, Chicago, IL.

07/15 - Present Associate Professor (tenured), Department of Medicine, University of Illinois at Chicago, Chicago, IL.

07/14 – 07/16 Associate Vice Chair for Research (Department of Medicine), University of Illinois at Chicago, Chicago, IL.

National Committees and Review Boards:

2010 Reviewer, University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources (IANR) Strategic Investments Competitive Grants Program, Lincoln, NE.

2011-present Reviewer, Department of Defense Army Research Office Broad Agency Programs (Life Sciences). Research Triangle Park, NC.

2012 Reviewer, North Carolina Biotechnology Center – Biotechnology Research Grant Program, Durham, NC.

2013 – 2015 Reviewer, Louisiana Board of Reagents, Competitive Seed Grants, Baton Rouge, LA.

2012 *Ad. Hoc.* reviewer NIEHS/NIH study section member ZES1 LWJ-D (SF). Durham, NC.

2012 - present	Member, American Heart Association, Molecular Signaling 1 & 2 Study Section. Dallas, TX.
2013-2016	Council Member, Society for Redox Biology and Medicine (SFRBM).
2015	Reviewer, P30 Harvard University, Environmental Health Center Grant.
2013-2015	<i>Ad. Hoc</i> NIH, Systemic Injury by Environmental Exposures/SIEE. Washington, DC.
2016-2022	Member, Systemic Injury by Environmental Exposures/SIEE. Washington, DC.

International Committees and Review Boards:

2013-present	Member, College of Scientific Reviewers, Fundacao Araucaria Grant Proposal Reviewer, Curitiba, PR, Brasil
2014	Member, College of Scientific Reviewers, Agencia Nacional de Investigacion y Innovacion, ANII, Montevideo, Uruguay.
2016	<i>Ad hoc</i> , Reviewer, National Research, Development and Innovation Office (NKFIH), Budapest, Hungary.

Editorial Boards:

2009 – present	PLoS One, Academic Editor.
2011 – present	Frontiers Oxidant Physiology, Academic Editor.
2011 – present	Free Radical Biology and Medicine, Member.
2012 – present	Genes and Diseases, Member.

C. Honors & Awards:

Scholarships:

1999-2004	FAPESP Postgraduate Scholar, Sao Paulo, SP, Brazil.
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Travel Awards:

2001	Society for Free Radical Biology and Medicine “Young Investigator Award” recipient.
2002	7 th International Symposium on Spin Trapping Travel Award recipient.

Young Investigator Awards:

2003	Chemistry Institute/University of Sao Paulo “Young Investigator Award” recipient.
2003	Society for Free Radical Biology and Medicine “Young Investigator Award” recipient.
2003	Young Talent in Life Sciences Award recipient (Amersham-Pharmacia).
2005	Society for Free Radical Biology and Medicine “Young Investigator Award” recipient.
2007	International Union of Biochemistry and Molecular Biology Young Scientist Award recipient.
2007	Fellowship Award for Research Excellence (FARE) – National Institutes of Health (NIH).
2007	Society for Free Radical Biology and Medicine “Young Investigator Award” recipient.

Awards to Mentees and Students:

2012	SFRBM – travel award/YIA to Kristine Ansenberger-Fricano.
2012	Constance Campbell memorial award from the Illinois symposium on reproductive sciences to Kristine Ansenberger-Fricano.
2013	Young Investigator Award/Travel Award to Peter Hart, Society for Free Radical Biology and Medicine.

Faculty Awards:

2014	Faculty of the Year (Rising Star) College of Medicine, University of Illinois at Chicago. Office of the Dean for Faculty Affairs/COM.
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2017 Faculty of the Year (Rising Star/Life Sciences) University of Illinois at Chicago. Office of the Vice Chancellor for Research.

Honors:

2009 Author, NIEHS Intramural paper of the year 2008.
 2013 Member, Program Committee, SFRBM Annual Meeting.
 2013 Chair, SFRBM 20th Annual Meeting Plenary Session. "Mitochondria driven mechanisms of redox signaling in disease".
 2014 Member, Program Committee, SFRBM Annual Meeting.
 2016 Chair, Organizing Committee, Inaugural Summer Symposium of the SFRBM.

D. Peer Reviewed Publications:

Original Research:

1. Kenny, T.C., Hart, P., Ragazzi, M., Sersinghe, M., Chipuk, J., Sagar, M.A., Eliceiri, K.W., LaFramboise, T., Grandhi, S., Santos, J., Riar, A.K., Papa, L., D'Aurello, M., Manfredi, G., **Bonini, M.G.** and Germain, D., (2017) Selected mitochondrial DNA landscapes activate the Sirt3 axis of the UPR^{mt} to promote metastasis. *Oncogene*, **in press**.
2. Rauscher, G.H., Silva, A., Pauls, H., Frasor, J., **Bonini, M.G.** and Hoskins, K. (2017) *Breast Cancer Res. Treat.*, **in press**.
3. Oliveira, S.D., Castellon, M., Chen, J., **Bonini, M.G.**, Gu, X., Elliott, M.H., Machado, R.F. and Minshall, R.D. (2017) Inflammation-induced caveolin-1 and BMPRII depletion promotes endothelial dysfunction and TGF β -driven pulmonary vascular remodeling (2017) *Am. J. Physiol. Lung Cell Mol. Physiol.*, **in press**.
4. Ekoue, D.N., Zaichik, S., Valyi-Nagy, K., Picklo, M., Lachr, C., Hoskins, K., Warso, M.A., **Bonini, M.G.** and Diamond, A.M. (2017) Selenium levels in human breast carcinoma tissue are associated with a common polymorphism in the gene for SELENOP (selenoprotein P). *J. Trace Elem. Med. Biol.*, **39**: 227-233.
5. Fettiplace, M.R., Kowak, K., Ripper, R., Young, A., Lis, K., Rubinstein, I., **Bonini, M.**, Minshall, R. and Weinberg G. (2016) Insulin signaling in bupivacaine-induced cardiac toxicity: Sensitization during recovery and potentiation by lipid emulsion. *Anesthesiology*, **124**: 428-442.
6. De Abreu, A.L., Malaguti, N., Souza, R.P., Uchimura, N.S., Ferreira, E.C., Pereira, M.W., Carvalho, M.D., Pelloso, S.M., **Bonini, M.G.**, Gimenes, F. and Consolaro, M.E. (2016) Association between human papillomavirus, Neisseria gonorrhoeae and Chlamydia trachomatis co-infections and the risk of high grade squamous intraepithelial cervical lesions. (2016) *Am. J. Cancer Res.*, **6**: 1371-1383.
7. Hart, P.C., Ratti, B.A., Mao, M., Ansenberger-Fricano, K., Shajahan-Haq, A.N., Tyner, A.L., Minshall, R.D. and **Bonini, M.G.** (2016) Caveolin-1 regulates cancer cell metabolism via scavenging Nrf2 and suppressing MnSOD-driven glycolysis. *Oncotarget*, **7**: 308-322.
8. Baig, M.S., Bakhshi, F.R., Saqib, U., Ansenberger-Fricano, K., Mao, M., Deng, J., Chatterjee, S., Block, M.L., Vogel, S.M., Malik, A.B., Ye, R.D., Christman, J.W., Minshall, R.D., Gantner, B.N. and **Bonini, M.G.** (2015) NOS1-derived nitric oxide promotes NF κ B transcriptional activity through inhibiting SOCS1-directed p65 degradation. *J. Exp. Med.*, **212**: 1725-1738.

9. Schlapfer, M., Piegeler, T., Dull, R.O., Schwartz, D.E., Mao, M., **Bonini, M.G.**, Z'Graggen, B.R., Beck-Schimmer, B. and Minshall, R.D. (2015) Propofol increases morbidity and mortality in a rat model of sepsis. *Crit. Care*, **19**: 45.
10. Ansenberger-Fricano, K., Ganini, D., de Abreu, A.L., Baig, M. S., Hart, P., Mao, M., Thierault, K., Green, P., Kajdacsy-Balla, A., Bera, S., Diamond, A.M, Minshall, R.D. Santos, J.H., Consolaro, M.E.L. and **Bonini, M.G.** (2015) SOD2 promotes metabolic reprogramming and sustains the Warburg effect via AMPK-dependent signaling. *Nat. Commun.*, **6**: manuscript # 6053.
11. Tang, H., Chen, J., Fraidenburg, D.R., Song, S., Sysol, J.R., Drennan, A.R., Offermanns, S., Ye, R.D., **Bonini, M.G.**, Minshall, R.D., Garcia, J.G., Machado, R.F., Makino, A. and Yuan, J.X. (2015) *Am. J. Physiol. Lung Cell Mol. Physiol.*, **308**: L208-220.
12. Taetzch, T. Levesque, S., McGraw, C., Brookins, S., Luqa, R., **Bonini, M.G.**, Mason, R.P., Oh, U. and Block, M.L. (2015) Redox regulation of NF- κ B p50 and M1 polarization in microglia. *Glia*, **63**: 423-440.
13. Mao, M., Varadarajan, S., Fukai, T., Bakhshi, F.R., Chernaya, O., Dudley, S.C., Jr., Minshall, R.D. and **Bonini, M.G.** (2014) Nitrate tolerance in Cav-1 deficient mice. *PLoS One*, **9**: e104101.
14. Bera, S., Weinberg, F., Ekoue, D.N., Ansenberger-Fricano, K., Mao M., **Bonini, M.G.** and Diamond, A.M. (2014) Genotype and Cellular Localization Affect GPx-1 Function. *Cancer Res.*, **74**: 5118-5126.
15. Yang, K.C., Rutledge, C.A., Mao, M., Bakhshi, F.R., Xie, A., Liu, H., **Bonini, M.G.**, Patel, H.H., Minshall, R.D. and Dudley, S.C., Jr.(2014) Caveolin-1 Modulates Cardiac gap Junction Homeostasis and Arrhythmogenicity by regulating cSrc tyrosine kinase. *Circ. Arrhythm. Electrophysiol.*, **7**: 701-710.
16. Gimenes, F., Medina, F.S., Abreu, A.L., Irie, M.M., Esquicati, I.B., Malagutti, N., Vasconcellos, V.R., Discacciati, M.G., **Bonini, M.G.**, Maria-Engler, S.S. and Consolaro, M.E. (2014) Sensitive simultaneous detection of seven sexually transmitted agents in semen by multiplex-PCR and of HPV by single PCR. *PLoS One*, **9**: e98862.
17. **Bonini, M.G.** and Malik, A.B. (2014) Regulating the regulator of ROS production. *Cell Res.*, **8**: 908-909.
18. Piegeler, T., Votta-Velis, E.G., Bakhshi, F.R., Mao, M., Carnegie, G., **Bonini, M.G.**, Schwartz, D.E., Borgeat, A., Beck-Schimmer, B. and Minshall, R.D. (2014) *Anesthesiology*, **120**: 1414-1428.
19. Gong, H., Gao, X.-P., Siddiqui, R., Garcia, A., **Bonini, M. G.**, Vogel, S. M. and Malik, A.B. (2014) α 13 targeting of Ve-cadherin mediates disassembly of Adherens junctions and endothelial permeability. *J. Exp. Med.*, **211**: 579-591.
20. Hecquet, C., Di, A., Zhang, M., Vogel, S. M., Gao, X.-P., **Bonini, M.G.** and Malik, A.B. (2014) ROS sensing by TRPM2 and resultant PKC α regulated Ca²⁺ gating mediates apoptosis. *Circ. Res.*, **114**:469-479.
21. Bakhshi, F.R., Mao, M., Shajahan, A.N., Chen, Z., Piegeler, T., Chernaya, O., Sharma, T., Elliott, M., Szulcek, R., Bogaard, H. J., Comhair, S., Erzurum, S., van Nieuw Amerongen, G.P., **Bonini, M.G.** and Minshall, R.D. (2014) Nitrosation-dependent caveolin-1 phosphorylation, ubiquitination and degradation associated with idiopathic pulmonary arterial hypertension. *Pulm. Circ.*, **3**: 816-830.
22. Souza RP, Gimenes F, de Abreu AL, Rocha-Brischiliari SC, de Carvalho MD, Ferreira EC, **Bonini MG**, Pelloso SM, Consolaro ME. (2013) Differences in the mutation of the p53 gene in exons 6 and 7 in cervical samples from HIV- and HPV-infected women. *Infect. Agent Cancer*, **8**: 38.

23. Souza RP, de Abreu AL, Ferreira EC, Rocha-Brischiliari SC, de B Carvalho MD, Pelloso SM, **Bonini MG**, Gimenes F, Consolaro ME. (2013) Simultaneous Detection of Seven Sexually Transmitted Agents in Human Immunodeficiency Virus-Infected Brazilian Women by Multiplex Polymerase Chain Reaction. *Am. J. Trop. Med. Hyg.*, **89**: 1199-1202.
24. Towner RA, Smith N, Saunders D, Lupu F, Silasi-Mansat R, West M, Ramirez DC, Gomez-Mejiba SE, **Bonini MG**, Mason RP, Ehrenshaft M, Hensley K. (2013) In vivo detection of free radicals using molecular MRI and immuno-spin trapping in a mouse model for amyotrophic lateral sclerosis. *Free Radic. Biol. Med.*, **63**: 351-360.
25. Sovari AA, Rutledge CA, Jeong EM, Dolmatova E, Arasu D, Liu H, Vahdani N, Gu L, Zandieh S, Xiao L, **Bonini MG**, Duffy HS, Dudley SC Jr. (2013) Mitochondria oxidative stress, connexin43 remodeling, and sudden arrhythmic death. *Circ. Arrhythm. Electrophysiol.*, **6**: 623-631.
26. Schimdt, T. T., Tauseef, M., Bonini, M.G., Gothert, J.R., Shen, T.-L., Guan, J.L., Predescu, S., Sadikot, R. and Mehta, D. (2013) Inducible deletion of endothelial FAK triggers acute lung injury through p38 MAPK mediated dysregulation of RhoA and Rac1 activities. *Am. J. Physiol. Lung Cell Mol. Physiol.*, **305**: L291-300.
27. Hobbs, G.A., **Bonini. M.G.**, Gunawardena, H.P., Chen, X. and Campbell, S.L. (2013) Glutathiolated Ras: Characterization and Implications for Ras activity. *Free Radic. Biol. Med.*, **57**: 221-229.
28. Dallas S, Block ML, Thompson DM, **Bonini MG**, Ronaldson PT, Bendayan R, Miller DS. (2013) Microglial activation decreases retention of the protease inhibitor saquinavir: implications for HIV treatment. *J. Neuroinflammation*, **10**: 58
29. Sieracki, N. A., Gantner, B., Malik, A.B. and **Bonini, M.G.** (2013) Bioluminescent detection of peroxynitrite with a boronic acid luciferin. *Free Radic. Biol. Med.*, **61C**: 40-50.
30. Ansenberger-Fricano, K., Mao, M., Chatterjee, S., Dallas, S., Green, P., Mason, R.P., Santos, J.H. and **Bonini, M.G.** (2013) The peroxidase activity of manganese superoxide dismutase MnSOD/SOD2. *Free Radic. Biol. Med.*, **54**: 116-124.
31. Towner, R.A., Smith, N., Saunders, D., Henderson, M., Downum, K., Lupu, F., Silasi-Mansat, R., Ramirez, D., Gomez-Mejiba, S., **Bonini, M.G.**, Ehrenshaft, M. and Mason, R.P. (2012) *In vivo* Detection of protein radicals with molecular MRI in a mouse diabetes model. *Diabetes*, **61**: 2405-2413.
32. Mason, R. P., Ganini, D., **Bonini, M. G.** and Ranguelova, K. (2012) Two hypothesis for the oxidation of SOD1-Cu(I). *Free Radic. Biol. Med.*, **53**: 1991-1992.
33. Davies, M.F., Zhou, L., Ehrenshaft, M., Ranguelova, K., Gunawardena, H. P., Chen, X., **Bonini, M.G.**, Mason, R.P. and Campbell, S.L. (2012) Detection of Ras GTPase protein radicals through immunospin-trapping. *Free Radic. Biol. Med.*, **53**: 1339-1345.
34. Chen, Z. Bakhshi, F., Shajahan, A. N., Sharma, T., Mao, M., Trane, A., Van NieuwAmerongen, G. P., Bernatchez, P., **Bonini, M. G.**, Skidgel, R, A., Malik, A. B. and Minshall, R. D. (2012) NO-dependent Src activation and caveolin-1 phosphorylation mediates eNOS inactivation: Novel mechanism of eNOS negative feedback regulation. *Mol. Biol. Cell*, **23**, 1388-1398.
35. Ranguelova, K., Ganini, D., **Bonini, M.G.**, London, R.E. and Mason, R.P. (2012) Kinetics of the peroxidase activity of bovine superoxide dismutase 1: oxidation by peroxydicarbonate. *Free Radic. Biol. Med.*, **53**: 589-594.

36. **Bonini, M. G.**, Kadiiska, M. B., Ruggiero, C., Cleland, E., Wicks, S. and Stadler, K. (2012) Thiazolidinedione treatment decreases oxidative stress in spontaneously hypertensive heart failure rats through attenuation of inducible nitric oxide-mediated lipid radical formation. *Diabetes*, **61**: 586-596.
37. Sharma, N., Reyes, A., Green, P., Caron, M., **Bonini, M. G.**, Gordon, D., Holt, I. and Santos, J. H. (2012) Human telomerase acts as a hTR-independent reverse transcriptase in mitochondria. *Nucleic Acid Res.*, **40**, 712-725.
38. Mao, M., Varadarajan, S., Ansenberger, K., Fernandes, D. C., Tanaka, L. Y., Fukai, T., Laurindo, F. R. M., Mason, R. P., Minshall, R. D., Stadler, K., Vasquez-Vivar, J. J. and **Bonini, M.G.** (2012) Phosphatidylinositol 3-kinase (PI3K) drives nitroglycerin-induced vasodilation. *Free Radic. Biol. Med.*, **52**, 427-435.
39. Sovari, A.A., Iravanian, S., Dolmatova, E., Jiao, Z., Liu, H., Zandieh, S., Kumar, V., Wang, K., Bernstein, K.E., **Bonini, M.G.**, Duffy, H.S. and Dudley, S.C. (2011) Inhibition of cSrc tyrosine kinase prevents angiotensin-II mediated connexin-43 remodeling and sudden cardiac death. *J. Am. Col. Cardiol.*, **58**, 2332-2339.
40. Sovari, A. A., **Bonini, M. G.** and Dudley, S.C. Jr (2011) Effective antioxidant therapy for the management of arrhythmia. *Expert Rev. Cardiovasc. Ther.*, **9**, 797-800.
41. Duma, D., Fernandes, D., **Bonini, M. G.**, Stadler, K., Mason, R. P. And Assreuy, J. (2011) NOS1-derived NO is an essential triggering signal for the development of systemic inflammatory responses. *Eur. J. Pharmacol.*, **668**, 285-292.
42. Hickok, J. R., Sahni, S., Mikhed, Y., **Bonini, M. G.** and Thomas, D. D. (2011) Nitric oxide suppresses tumor cell migration through N-Myc downstream-regulated gene 1 (NDRG-1) expression: Role of chelatable iron. *J. Biol. Chem.*, **286**, 41413-41424.
43. Siddiqui, M. R., Komarova, Y. A., Vogel, S. M., Gao, X.-P., **Bonini, M. G.**, Johnson, R., Zhao, Y.-Y., Brovkovich, V. and Malik, A. B. (2011) Caveolin-1-eNOS signaling regulates p190 RhoGAP nitration and endothelial permeability. *J. Cell. Biol.*, **193**, 841-850.
44. Chatterjee, S., Lardinois, O. M., Bhattacharjee, S., Tucker, J., Corbett, J., Deterding, L. J., Ehrenshaft, M., **Bonini, M. G.** and Mason, R.P. (2011) Oxidative stress induces protein and DNA radical formation in follicular dendritic cells (FDCs) of the germinal center and modulates its cell death patterns in late sepsis. *Free Radic. Biol. Med.*, **50**, 988-999.
45. Toya, S. P., Li, F., **Bonini, M. G.**, Gomez, I., Mao, M., Bachmeier, K. W., and Malik, A. B. (2011) Interaction of Human Embryonic Stem Cell Derived Progenitors with Resident Lung CD11b+ Cells Improves Sepsis-Induced Lung Inflammatory Injury. *Am. J. Pathol.*, **178**, 313-374.
46. Ehrenshaft M, **Bonini M.G.**, Feng L, Chignell C.F., Mason R.P. (2010) Partial Colocalization of Oxidized, N-formylkynurenine-containing Proteins in Mitochondria and Golgi of Keratinocytes. *Photochem. Photobiol.*, **86**, 752-756.
47. Rangelova, K., **Bonini, M.G.** and Mason, R.P. (2010) (Bi)sulfite Oxidation by Cu,Zn-Superoxide Dismutase: Sulfite-Derived, Radical-Initiated Protein Radical Formation. *Environ. Health Perspect*, **118**, 970-975.

48. Kovalenko, O.A., Caron, M. J., Ulema, P., Medrano, C., Thomas, A.P., Kimura, M., **Bonini, M.G.**, Herbig, U and Santos, J. H. (2010) A mutant telomerase defective in nuclear-cytoplasmic shuttling fails to immortalize cells and is associated with mitochondrial dysfunction. *Aging Cell*, **9**, 203-219.
49. Chatterjee, S., Lardinois, O., **Bonini, M.G.**, Bhattacharjee S., Stadler, K., Corbett, J., Deterding, L.J., Tomer, K.B., Kadiiska, M. and Mason, R.P. (2009) Site-specific carboxypeptidase B1 tyrosine nitration and pathophysiological implications following its physical association with nitric oxide synthase 3 in experimental sepsis. *J. Immunol.*, **183**, 4055-4066.
50. **Bonini, M.G.**, Gabel, S. A., Ranguelova, K., Stadler, K., DeRose, E., London, R.E. and Mason, R. P. (2009) Direct magnetic resonance evidence for peroxymonocarbonate involvement in Cu, Zn-superoxide dismutase peroxidase catalytic cycle. *J. Biol. Chem.*, **284**, 14618-14627
51. Chatterjee S., Ehrenshaft, M., Bhattacharjee, S., Deterding, L.J., **Bonini, M. G.**, Corbett, J., Kadiiska, M. B., Tomer, K. B. and Mason, R.P. (2008) Immuno-spin trapping of a post-translational carboxypeptidase B1 radical formed by a dual role of xanthine oxidase and endothelial nitric oxide synthase in acute septic mice. *Free Radic. Biol. Med.*, **46**, 454-461.
52. **Bonini, M. G.**, Stadler, K., Dallas, S., Jiang, J., Radi, R., Mason, R. P. and Kadiiska, M. B. (2008) Involvement of inducible nitric oxide synthase in hydroxyl radical mediated lipid peroxidation in streptozotocin-induced diabetes. *Free Radic. Biol. Med.*, **45**, 866-874.
53. Stadler, K., **Bonini, M. G.**, Dallas, S., Duma, D., Mason, R. P. and Kadiiska, M. B. (2008) Direct evidence of iNOS-mediated free radical production and protein oxidation in acetone-induced ketosis. *Am. J. Physiol. Endocrinol. Metab.*, **295**, E456-462.
54. **Bonini, M. G.**, Stadler, K., Silva, S. O., Dore, M., Petranka, J., Tanaka, L., Fernades, D. C., Corbett, J., Duma, D., Laurindo, R. M. and Mason, R. P. (2008) Constitutive nitric oxide synthase activation as an important route for nitroglycerin-induced vasodilation, *Proc. Natl. Acad. Sci. U.S.A.*, **105**, 8569-8574.
55. Siraki, A. G., Deterding, L. J., **Bonini, M.G.**, Jiang, J., Ehrenshaft, M. and Mason, R.P. (2008) Procainamide but not N-acetylprocainamide induces protein free radical formation on myeloperoxidase: A Potential mechanism of agranulocytosis. *Chem. Res. Toxicol.*, **21**, 1143-1153.
56. He, Y.-Y., Council, S. E., Feng, L., **Bonini, M. G.** and Chignell, C.F. (2008) Spatial distribution of protein damage by singlet oxygen in keratinocytes, *Photochem. Photobiol.*, **84**, 69-74.
57. Siraki, A. G., **Bonini, M. G.**, Jiang, J., Ehrenshaft, M. and Mason, R. P. (2007) *Chem. Res. Toxicol.*, **20**, 1038-1045.
58. Bhattacharjee, S., Deterding, L. J., Jiang, J., **Bonini, M. G.**, Tomer, K. B., Ramirez, D. C. and Mason, R. P. (2007) Electron transfer reactions between a tyrosyl radical and a tyrosine residue in Hemoproteins: spin trapping analysis. *J. Am. Chem. Soc.*, **129**, 13493-13501.
59. **Bonini, M. G.**, Siraki, A. G., Bhattacharjee, S., and Mason, R. P. (2007) Glutathione induced radical formation on lactoperoxidase does not correlate to the enzyme's peroxidase activity. *Free Radic. Biol. Med.*, **42**, 985-992.
60. **Bonini, M. G.**, Siraki, A. G., Atanassov. B. S. and Mason, R. P. (2007) Immunolocalization of hypochlorite induced catalase-bound free radical formation in mouse hepatocytes. *Free Radic. Biol. Med.*, **42**, 530-540.

61. **Bonini, M.G.**, Rota, C., Tomasi, A. and Mason, R. P. (2006) The oxidation of 2',7'-dichlorofluorescein to reactive oxygen species: a self-fulfilling prophesy? *Free Radic. Biol. Med.*, **40**, 968-975.
62. Lima ES, **Bonini M.G.**, Augusto O, Barbeiro HV, Souza HP, Abdalla DS. (2005) Nitrated lipids decompose to nitric oxide and lipid radicals and cause vasorelaxation. *Free Radic. Biol. Med.*, **15**, 532-539.
63. **Bonini, M. G.**, Myiamoto, S., Di Mascio, P. and Augusto O. (2004) Carbonate radical anion production by xanthine oxidase in the presence of bicarbonate. *J. Biol. Chem.*, **279**, 51836-51843.
64. **Bonini, M. G.**, Fernandes D. C. and Augusto, O. (2004) Albumin oxidation to diverse radicals by the peroxidase activity of Cu,Zn-superoxide dismutase in the presence of bicarbonate or nitrite: diffusible radicals produce cysteinyl and solvent-exposed and -unexposed tyrosyl radicals. *Biochemistry*, **43**, 344-351.
65. **Bonini, M. G.**, Mason, R. P. and Augusto, O. (2002) The mechanism by which 4-hydroxy, 2,2,6,6-tetramethyl-piperidine-1-oxyl (tempol) diverts peroxynitrite decomposition from nitrating to nitrosating species. *Chem. Res. Toxicol.*, **15**, 506-511.
66. **Bonini, M. G.** and Augusto, O., (2001) Carbon dioxide stimulates the production of thiyl, sulfinyl, and disulfide radical anion from thiol oxidation by peroxynitrite. *J. Biol. Chem.* **276**, 9749-9754.
67. Martinez, G. R., Di Mascio, P., **Bonini, M. G.**, Augusto, O., Briviba, K., Sies, H., Maurer, P., Rothlisberger, U., Herold, S. and Koppenol, W. H. (2000) Peroxynitrite does not decompose to singlet oxygen ($^1\Delta gO_2$) and nitroxyl (NO $^-$). *Proc. Natl. Acad. Sci. USA*, **97**, 10307-10312.
68. Santos, C. X. C., **Bonini, M. G.** and Augusto, O. (2000) Role of carbonate radical anion in tyrosine nitration and hydroxylation by peroxynitrite. *Arch. Biochem. Biophys.*, **377**, 146-152.
69. **Bonini, M. G.**, Radi, R., Ferrer-Sueta, G., Da C. Ferreira, A. M. and Augusto, O. (1999) Direct EPR detection of the carbonate radical anion produced from peroxynitrite and carbon dioxide. *J. Biol. Chem.*, **274**, 10802-10806.

Review articles:

1. Ekoue, D.N., He, C., Diamond, A.M. and **Bonini, M.G.** (2017) Manganese superoxide dismutase and glutathione peroxidase-1 contribute to the rise and fall of mitochondrial reactive oxygen species which drive oncogenesis. *Biochim. Biophys. Acta*, **in press**.
2. He, C., Hart, P.C., Germain, D. and **Bonini, M.G.** (2016) SO₂ and the mitochondrial UPR: Partners regulating cellular phenotypic transitions. *Trends Biochem. Sci.*, **41**: 568-577.
3. Gimenes, F., Teixeira, J.J., de Abreu, A.L., Souza, R.P., Pereira, M.W., da Silva, V.R., Boer, C.G., Maria-Engler, S.S., **Bonini, M.G.**, Borelli, S.D. and Consolaro. (2014) Human leukocyte antigen (HLA)-G and cervical cancer immunoediting: a candidate molecule for therapeutic intervention and prognostic biomarker?. *Biochem. Biophys. Acta*, **1846(2)**: 576-589.
4. Gimenes, F., Souza, R.P., Bento, J.C., Teixeira, J.J, Maria-Engler, S.S., **Bonini, M.G.**, Consolaro, M.E. (2014) Male infertility: a public health issue caused by sexually transmitted pathogens. *Nat. Rev. Urol.*, **11**:672-687.
5. **Bonini, M.G.**, Consolaro, M.E., Hart, P.C., Mao, M., de Abreu, A.L. and Master, A.M. (2014) Redox control of enzymatic functions: The electronics of life's circuitry. *IUBMB Life*, doi: 10.1002/iub.1258.

6. Yang, K.C., **Bonini, M.G.** and Dudley, S.C., Jr. (2014) Mitochondria and Arrhythmias. *Free Radic. Biol. Med.*, 71: 351-361.
7. **Bonini, M.G.** and Gantner, B.N. (2013) The multifaceted activities of AMPK in tumor progression – why the one size fits all definition does not fit at all?. *IUBMB Life*, 65, 889-896.
8. Raines, K. W., Bonini, M. G., Campbell, S. L. (2007) Nitric oxide cell signaling: S-nitrosation of Ras superfamily GTPases. *Cardiovasc. Res.*, 75, 229-239.
9. Augusto O., **Bonini, M. G.** and Trindade, D. F. (2004) Spin trapping of glutathyl and protein radicals produced from nitric oxide-derived oxidants. *Free Radic. Biol. Med.*, **36**, 1224-1232.
10. Augusto, O., **Bonini, M. G.**, Amanso, A. M., Linares, E., Santos, C. X. C. and de Menezes, S. L. (2002) Nitrogen dioxide and carbonate radical anion: two emerging radicals in Biology. *Free Radic. Biol. Med.* **32**, 841-859.

Book Chapters

1. Bonds, J.A., Hart, P.C., Minshall, R.D., Lazarov, O., Haus, J.M. and **Bonini, M.G.** Type 2 diabetes mellitus as a risk factor for Alzheimer's Disease in *Genes, Environment and Alzheimer's Disease*. Editors: Giuseppina Tesco and Orly Lazarov. Publisher: Associated Press, New York.
2. Sovari, A.A., Small, O., **Bonini, M.G.**, Kocheril, A.G., Dudley, S.C. Jr., Role of oxidative stress in ventricular Arrhythmias in *Ventricular Arrhythmias, from principles to patients*. Editors: Samuel C. Dudley, Abraham G. Kocheril and Ali Sovari. Publisher: Nova Science, New York.
3. **Bonini, M.G.**, Dull, R.O. and Minshall, R. D., Caveolin-1 Regulation of eNOS function and oxidative stress in the endothelium in *Systems Biology of Free Radicals and Antioxidants*. Editor: I. Laher (UBC, Canada). Publisher: Springer-Verlag, Germany.

E. Patents and Inventions:

U.S. Patents:

UIC-2012-082-01 converted to PCT/US2014/016915 *Fluoro-boronate derivatives of luciferin for the detection of oxidative stress in living animals*

This invention describes a new molecule (composition matter) biosensor to detect peroxynitrite and hydrogen peroxide in real time, in situ in living animals.

Provisional Patents:

UIC-2013-123-02 (Provisional Patent) *SMA-011, a new drug candidate for the treatment of metastatic cancer*

This invention describes a new molecule (composition matter) drug candidate for the treatment of metastatic breast cancer. It is a dual function mitochondria-targeted antioxidant

UIC-2017-009-01 (IP disclosed) *EGN-M001 a mitochondria-target pro-drug with metal chelaing activity/*

This invention describes a new molecule (composition matter) with properties as a pro-drug. It combines a metal chelator with a TPP+ mitochondrial driver group and is expected to exert powerful anti-cancer effects upon metastatic tumors.

F. Invited Speaker for Seminars, Symposiums, and Meetings:

(2017) Environmental arsenic exposure in the subtype specification of breast cancer, Department of Environmental Medicine, New York University, Tuxedo, NY, February 10th, 2017. Host: Dr. Chuanshu Huang

(2017) SOD2 and ROS: Reprogramming breast cancer for killing, Department of Pharmaceutical Sciences, Wayne State University, Detroit, MI, February, 8th, 2017. Host: Dr. Fei Chen

(2017) Mitochondrial ROS and Cancer: Shedding Light onto the missing links, Department of Biophysics, Medical College of Wisconsin, Milwaukee, WI, January 31st, 2017. Host: Dr. Balaraman Kalyanaraman

(2017) Inflammation by Design: Can nuclear transcriptional switches be regulated, Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, January 30th, 2017. Host: Dr. Roy Silverstein

(2017) Inflammation by Design: Can nuclear transcriptional switches be regulated, Department of Cell Biology, University of Miami, Miller School of Medicine, Miami, FL, January 17th, 2017. Host: Dr. Glen Barber

(2016) Environmental arsenic exposure in the subtype specification of breast cancer, 9th Conference on metal carcinogenesis, Lexington, KY, October 17-19th, 2016. **(INVITED)**

(2016) Mitochondrial ROS and Cancer: Shedding Light onto the missing links, Inaugural Symposium of Redox Biology, Society for Redox Biology, June 10th, 2016, University of Illinois at Chicago, Chicago, IL.

(2016) Mitochondrial Redox Signaling Regulates Cellular Metabolism and Drives Cancer Progression, 55th Annual Conference, New Orleans, LA, March 13-17th, 2016. **(INVITED)**

(2015) MnSOD and ROS as drivers of metabolic reprogramming in cancer. National Institutes of Health, Bethesda, MD, January 7th, 2015. Host: NIH Earl Stadtman Investigator Search Committee.

(2015) MnSOD as a switch mechanism driving differentiation. State University of New York at Albany, Albany, NY, February 19th, 2015. Host: Dr. Nadine Hempel.

(2014) The MnSOD/AMPK axis in breast tumorigenesis. Gordon Research Conferences – Oxygen Radicals and Disease. Ventura Beach, CA, February 9 -14th. **(INVITED)**

(2014) Identification and targeting of the MnSOD/AMPK pathway for the selective killing of cancer cell. National Institutes of Health (NIH), Bethesda, MD, January 9th, 2014. Host: Earl Stadtman Investigator Search Committee.

(2013) Mechanisms of mitochondria-driven cancer cell reprogramming. National Institute of Health (NIH), Bethesda, MD, January 16th, 2013. Host: NIH Earl Stadtman Investigator Search Committee.

(2013) Mechanisms of mitochondria-driven cancer cell reprogramming. National Institute of Environmental Health Sciences (NIEHS/NIH), Research Triangle Park, NC, January 09th, 2013. Host: Dr. David Miller.

(2013) Mechanisms of oxidative stress-induced endothelial cell reprogramming in pulmonary arterial hypertension – Experimental Biology 2013 (FASEB), Boston, MA, 2013, **(INVITED)**

(2013) Oxidative stress induced dedifferentiation, a generalized mechanism underlying pathologies affected by cellular hyperproliferation? – State University of Maringa, II PBF Symposium, September 17-19th, Maringa, PR, Brazil, Host: Dr. Marcia E.L. Consolaro.

(2013) SOCS-1 nitrosation in the mechanism of TLR4 initiated inflammatory response – Butantan Institute, September 24th, Sao Paulo, SP, Brazil, Host: Dr. Hugo A. Armelin.

(2012) Ablation of nNOS/NOS1 Leads to the Suppression of the Systemic Inflammatory Response Via Suppressor of Cytokine Signaling (SOCS-1) Upregulation – Society for Free Radical Biology and Medicine, 19th annual meeting, San Diego, CA, November 14th-19th.

(2012) Invited Guest Professor “Reactive species, latest and best in detection and definition of their sources and targets”; “1998-2012 From the basics of peroxy-nitrite biochemistry to the mitochondrial mechanisms of AMPK activation in cancer” – State University of Parana, Maringa, PR, Brazil, September 10th and 11th, 2012.

(2012) Mitochondrial mechanisms of tumor cell metabolic regulation. Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln, Lincoln, NE. Host: Dr. Rodrigo Franco Cruz., Aug, 27th.

(2012) Mitochondrial mechanisms of AMPK activation. American Society of Biochemistry and Molecular Biology (ASMBM) – Mitochondria energy signals and homeostasis symposium, East Lansing, MI, USA, Jun 27th. **(INVITED)**

(2012) Mitochondrial mechanisms of AMP-activated kinase (AMPK) activation in cancer. Department of Physiology and Biophysics, MSTP program invited speaker, University of Illinois at Chicago, Chicago, IL, USA, Mar, 27th.

(2012) Enzymatic functions defined by tracking redox reactions: the example of MnSOD. Society of Toxicology 51st annual meeting, San Francisco, CA, USA. Mar, 14th, invited speaker.

(2011) Nitroglycerin-induced loss of caveolin-1 results in endothelial nitric oxide dysfunction and vascular irresponsiveness to vasodilators. Department of Medicine, University of Illinois, Chicago, USA, Dec. 3, 2011 – Pulmonary Hypertension Seminars. Host: Dr. Jason Yuan.

(2011) Manganese superoxide dismutase peroxidase activity sustains tumor resistance against apoptosis. Department of Biomedical Engineering, College of Medicine at Rockford, University of Illinois, Rockford, IL, USA, April 25, 2011. Host: Drs. Margaret Maynard/Neelu Puri.

(2011) Endothelial nitric oxide (dys)function at the crossroads of nitroglycerin biologic activities, Department of Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, Chicago, IL, USA, April 22, 2011. Host: Dr. Douglas Thomas.

(2011) Careers in Science Panel – invited speaker, Laboratory of Toxicology and Pharmacology Retreat, National Institute of Environmental Health Sciences (NIEHS/NIH), Research triangle Park, NC, USA, February 24th, 2011. Host: Dr. Richard Paules.

(2010) MnSOD peroxidase activity as a novel mitochondrial redox regulator – EPR 2010, (14th in vivo ESR/EPR spectroscopy & imaging and 11th international symposium on spin trapping/spin labeling), May 2-6, 2010, San Juan, PR, USA.

(2009) Nitroglycerin-dependent vasodilation is mediated through signal transduction pathways. – Department of Biophysics, Medical College of Wisconsin, Milwaukee, WI, USA. Host: Dr. Balaraman Kalyanaraman.

(2008) Linking oxidative chemistry to pathophysiology through the identification cellular redox switches – Department of Biochemistry and Biophysics, University of North Carolina, at Chapel Hill, Chapel Hill, NC, USA. Host: Dr. Sharon L. Campbell

(2008) Constitutive nitric oxide synthase activation as an important route for nitroglycerin-induced vasorelaxation - Department of Pharmacology, University of Illinois at Chicago, Chicago, IL, USA. Host: Dr. Asrar Malik

(2008) Constitutive nitric oxide synthase activation as an important route for nitroglycerin-induced vasorelaxation – Department of Pharmacology and Physiology, University of Medicine and Dentistry of New Jersey, Newark, NJ, USA. Host: Dr. Janine H. Santos

(2008) Constitutive nitric oxide synthase activation as an important route for nitroglycerin-induced vasorelaxation – Section of Cardiology, Cardiology Grand Rounds, University of Illinois in Chicago, Chicago, IL, USA. Host : Dr. Samuel C. Dudley

(2007) Nitric oxide synthase activation as new pathway for nitroglycerin-induced vasorelaxation – National Institute of Environmental Health Sciences, Science Awards Day 2007, Research Triangle Park, NC, USA

(2007) Protein-bound free radical imaging in sub-cellular structures – International Union of Biochemistry and Molecular Biology (IUBMB) 10th conference, Salvador, Brazil

(2006) – Seeing is believing: Immunospin-trapping based imaging of protein free radical production in sub-cellular structures. Department of Biophysics, Medical College of Wisconsin, Milwaukee, WI, USA. Host : Dr. Balaraman Kalyanaraman

(2005) – Catalase inactivation by HOCl - immunospin trapping reveals protein radical formation in test tubes and cells. 8th International Symposium on Spin Trapping – (2005) Columbus, OH, USA

(2003) – Nitrogen dioxide and carbonate radical anion: Two emerging radicals in biology – Brazilian Society of Biochemistry and Molecular Biology / Latin American Young Talents in Life Sciences Symposium, Caxambu, MG, Brazil

(2002) – The mechanism by which 2,2,6,6-tetramethyl-1-piperinyloxyl radical (tempol) diverts peroxynitrite reactivity from nitration to nitrosation reactions - 7th International Symposium on spin trapping, Research Triangle Park, NC, USA.

(1999) – Direct EPR detection of the carbonate radical anion produced in the reaction of peroxynitrite with carbon dioxide, First International Meeting of the South American Group for Free Radical Research - Florianópolis, SC, Brazil

Invited Lecturer

1. Bonini, M. G. (2008) - The radical nature of detecting free radicals and biological oxidants, Nicholas School of the Environment and Earth Sciences, Duke University, Durham, NC, USA. Host : Dr. Joel Meyer
2. Bonini, M.G. (2012) – “From peroxynitrite biochemistry to the role of mitochondrial ROS regulation of cancer cell metabolism, 15 years in free radical research”, Guest Professor, State University of Parana. Host: Dr. Sueli de Oliveira Silva Lautenschlager

G. Teaching Activities:

Graduate Courses:

- Medical Pharmacology (**PCOL 425**) - Core course for the doctorate in medicine program. Course Director: Dr. Tom Guenthner/Pharmacology
- Medical Pharmacology (**PL 331**) - Core course for the doctorate in dentistry program. Course Director: Dr. Tom Guenthner/Pharmacology.

- Pharmacology and Biology of the Vessel Wall (**PCOL 530**) – Elective/ Vascular Biology Program. Course Directors: Drs. Kishore Wary/Masuko Ushio-Fukai/Pharmacology.
- Receptor Pharmacology and Cell Signaling (**GCLS 515**) – Core Course, Cellular and Molecular Pharmacology Program. Course Director: Dr. John O'Bryan/Pharmacology
- Experimental and Diagnostic Methods in Cardiovascular Sciences (**PHYB592**) – Core course, Physiology and Biophysics Program. Course Director: Dr. Douglas Lewandowski/Physiology
- Pathobiology of Cancer (**PATH511**) – Core Course in Pathology Program. Course Director: Drs. Alan Diamond/Maarten Bosland/Pathology.

H. Other academic activities

Mentoring (concluded):

- Dr. Kristine Ansenberger-Fricano (2010 – 2013). Postdoc. Present: Senior Scientist IV, Abbott Molecular Diagnostics, Chicago, IL.
- Dr. M. Saqib Baig (2011 – 2014) Postdoc. Present: Assistant Professor Indian Institute of Technology, New Delhi, India.
- Peter Hart (2012 – 2015) Graduate Student (Ph.D.). Present: Postdoctoral Researcher, University of Chicago, Laboratory of Dr. Ernst Lengyel.
- Mr. Mao Mao (2010 – 2014) Laboratory Technician. Present: Graduate Student (Ph.D.) Bioengineering Program, Duke University, NC.
- Alyssa Master (2014-2015) Postdoc. Present: Postdoctoral Researcher, Lineberger Cancer Center, University of North Carolina, Chapel Hill, NC.
- Sofia Zaichik (2014 – 2016) Postdoc. Present: Research Assistant Professor, Feinberg School of Medicine, Northwestern University, Chicago, IL.

Mentoring (ongoing):

- Dr. Chenxia He (Res. Assist. Prof.). Previous: Postdoctoral Scientist. Supervisor: Dr. Olivier Danos, Institute Pasteur, Paris, France.
- Mr. Chuck Blajszczak (Ph.D. candidate). Previous: Graduate Res. Assist. Supervisor: Dr. Natalia Nieto
- Mr. Lenny Hong (Ph.D. candidate). Previous: Medical Technologist in Molecular Pathology at UI Health. Supervisor: Dr. Shirihari Kadkol
- Mr. Andre Luelsdorf P. de Abreu (Postdoc). Previous: Graduate Student, Universidade Estadual de Maringa, PR, Brazil. Supervisor: Dr. Marcia Consolaro.
- Ms. Christie Kang (Ph.D. candidate). Previous: Res. Assistant, Vanderbilt University. Supervisor: Drs. Joshua Fessel and James West.

Ms. Clara Iglesias (Ph.D. candidate). Previous: NSF Undergraduate Research and Mentoring Fellow, Indiana University-Purdue University. Supervisor: Jason S. Meyer.

Co-mentoring (postdoctorate):

- Dr. Nathan Sieracki (2010 – 2014). Postdoc. Primary Advisor: Asrar B. Malik, Ph.D.
- Dr. Euy-Myong Jeong (2010 – 2014). Postdoc. Primary Advisor: Samuel Dudley, M.D./Ph.D.
- Dr. Micaela Vargas (2010 – present). Postdoc. Primary Advisor: Asrar B. Malik, Ph.D.
- Dr. Colt Melton (2010 – 2013). Postdoc. Primary Advisor: Terry Vanden Hoek, M.D.
- Dr. Benjamin N. Gantner (2010 – 2014). Postdoc., Primary Advisor: Richard Ye, Ph.D.
- Dr. Thomas Gerber (2014 – 2016). Postdoc., Primary Advisor: Richard Minshall, Ph.D. (Chicago); Beatrice Beck-Schimmer, M.D. (Zurich, Switzerland)

Co-mentoring (graduate students):

- Ms. Tracy Thennes (2011 – 1/2013). Doctorate (Ph.D.) Primary Advisor: Dolly Mehta, Ph.D.
- Ms. Farnaz Bakhshi Garcia (2011 – 2013). Doctorate (Ph.D.) Primary Advisor: Richard Minshall, Ph.D.
- Ms. Dede Ekoue (2010-2015). Doctorate (Ph.D.) Primary Advisor: Alan Diamond, Ph.D.
- Mr. Jacob Mey (2014 – 2016) Doctorate (Ph.D.) Primary Advisor: Jacob Haus, Ph.D.
- Ms. Jacqueline Bonds (2014 – present). Doctorate (Ph.D.) Primary Advisor: Orly Lazarov, Ph.D.
- Mr. Bryan Blackburn (2014 – present) Doctorate (Ph.D.) Primary Advisor: Jacob Haus, Ph.D.

I. Research Grants and other Research Funding**Active extramural funding:**

67263-RT-REP (Bonini)	08/01/15 – 07/31/18	2.4 Calendar
U.S. Dept. of Defense	\$ 124,000	
<i>Novel Pharmacologic Strategies to Treat Pulmonary Arterial Hypertension (PAH)</i>		
This grant focuses on inhibiting CaMKII as a novel curative strategy to treat PAH. It is based on the finding that in PAH, where Cav-1 loss and oxidative stress are observed CaMKII is oxidized and chronically activated. It is hypothesized that chronically activated CaMKII promotes endothelial cell proliferation and blood vessel occlusion.		

1R01HL125356 (Du/Bonini/Minshall)	09/01/14-08/31/19	2.4 Calendar
NIH/NHLBI	\$405,000	

New strategies for treating septic vasculopathy, inflammation and thrombosis

The main objective of this grant is to implement integrated strategies to fight septic coagulopathy by associating platelet aggregation inhibiting drugs with anti-inflammation and anti-vWF releasing drugs. The central innovative concept is that platelet and endothelial cell activation enhance inflammatory disseminated intravascular coagulation leading to poor tissue perfusion and multiple organ failure.

Role: Co-Principal Investigator

Pending extramural funding:

1R01AI131267-01A1 (Bonini)	04/01/17 – 03/31/22	1.8 Calendar
NIH/NIAID	\$280,172	(A1 scored at 7%, JIT requested)

Macrophage Redox State in Sterilizing and Injurious Inflammation

This project is based on the discovery of a fundamental process that determines innate immune polarization towards pro- and anti-inflammation leading to inflammatory tissue injury or healing. It will test the hypothesis that NO and ROS alter the conformation and biochemical activity of NFkB in macrophages. We expect that information generated by these studies will help to develop strategies to inhibit inflammatory lung injury or accelerate inflammatory resolution.

1R01CA216882-01 (Bonini)	04/01/17 – 03/31/22	1.8 Calendar
NIH/NCI	\$267,388	(A0 scored at 15%)

MnSOD Acetylation Promotes Cancer Stem Cell Phenotypes in Breast Cancer

Cancer stem cells are a rare subpopulation of cells in tumors associated with treatment failure and metastatic recurrence. This project is based on the finding of a molecular signature associated with metastatic/stem-like cells (MnSOD-Ac/HIF2 α) validated by mechanistic studies. Hence, the proposed project is focused on determining the mechanisms linking the accumulation of MnSOD-Ac to stemness reprogramming as well as if MnSOD-Ac, MnSOD-Ac-derived reactive oxygen species or HIF2 α are mechanistic therapeutic targets.

1R01ES028149-01 (Bonini) 04/01/17-03/31/22 1.8 Calendar
NIH/NIEHS \$295,372 (A0 scored at 18%)

Note: PO requested additional materials (R56 possible)

Environmental Arsenic Exposure and Breast Cancer Subtype Specification.

This project proposes that arsenic drives the subtype/phenotypic specification of breast tumor cells promoting chemoresistance, recurrence and metastatic disease in women with breast cancer independently of its potential roles as a direct carcinogen of the breast. The finding of a potential biomarker signature will also enable unprecedented studies of the potential effects on breast cancer in women who have been exposed to arsenic (drinking water).

Other funding (active):

5RO1HL070187-14 (Fukai) 09/01/13 – 08/31/18 0.6 Calendar
NIH/NHLBI \$1,897,004 (total amount)

role: Co-investigator

Modulation of Vascular Extracellular Superoxide Dismutase.

This grant investigates how EcSOD activity impacts the vascular tone, NO-activity and the formation of NO-derived oxidants in health and in diabetes.

5RO1CA193497 (Diamond) 03/01/15 – 02/28/19 1.2 Calendar
NIH/NCI \$2,047,491 (total amount)

The role of MnSOD allelic variants in prostate cancer etiology and outcome.

This award investigate the association of common genetic polymorphisms of MnSOD and the lifetime risk of prostate cancer development.

Completed extramural grants:

911NF-07-R-0003-04 (Bonini) 07/01/12-02/28/16 0.96 Calendar
U.S. Dept of Defense \$622,050 (total amount)

Role of Manganese Superoxide Dismutase (MnSOD) Peroxidase Activity in Cellular Resistance Against Apoptosis.

In this project we will investigate how the recently identified peroxidase activity of MnSOD induces resistance against apoptosis in tumor cells where MnSOD is overexpressed.

13GRNT16400010 (Bonini) 07/01/13-06/30/15 0.84 Calendar
American Heart Association \$132,000 (total amount)

Mechanisms Of Nitroglycerin Induced Vascular Toxicity and Tolerance

This grant will examine PTEN inhibition and Cav-1 loss as the underlying mechanisms of GTN-induced vascular toxicity

1S10RR027848-01A1 (Bonini) 04/02/11-03/31/12 N/A
NIH/NCRR \$251,030 (total amount)

Electron Paramagnetic Resonance Spectrometer Grant

Funds from this grant were used to purchase an ESR spectrometer to support research efforts from the Redox Biology Program and the Oxidative Stress Core Facility at UIC.

09SDG2250933 (Bonini) 01/01/10 – 12/31/13 2.5 Calendar
American Heart Association \$ 308,000 (total amount)

Signal transduction via the PI3k/Akt/PTEN pathways underlies the development of nitroglycerin tolerance.

In this grant we propose to investigate the role of PTEN downregulation in the establishment of nitroglycerin-tolerance mediated by hyperactive eNOS.

Completed intramural grants:

DOM Seed Grant Program (Bonini) 01/01/15 – 12/31/16 N/A
 Dept. of Medicine Competitive Awards Program \$ 50,000 (total amount)
Vascular inflammation and loss of endothelial cell Cav-1 expression in insulin resistance.
 Funding from this award was used to test the hypothesis that loss of Caveolin-1 expression in vascular endothelial cells underlies the development of insulin resistance due a defect in insulin uptake from circulation and transfer to target organ interstitial.

Pilot Project Award (Bonini/Diamond) 09/16/15 – 10/15/16 N/A
 UIC Cancer Center \$ 50,000 (total amount)
Antioxidant enzyme polymorphisms and breast cancer risk.
 Funds from this award were used to test the hypothesis that common polymorphisms of a limited number of antioxidant enzymes (MnSOD and GPx-1) affecting their interaction in mitochondria are associated with the risk of breast cancer development.

Other Funding (completed):

1R21AI099339-01 (Freitag) 01/01/12 – 12/31/13 1.8 Calendar
 NIH/NIAID \$ 434,875 (total amount)
 role: Co-Investigator
Defining mechanisms underlying listeria monocytogenes cardiac infections.
 This project will evaluate the role of oxidants in preventing cardiac infection by listeria monocytogenes.

2 P01HL060678-11A1, Project 1 (Malik) 03/01/11 – 02/28/15 1.2 Calendar
 NIH/NHLBI \$ 236,620
 role: Co-Investigator
Transcellular Mechanisms of Endothelial Permeability and Pulmonary Edema
 This sub-project will study the contributions of transcellular and paracellular permeability in pulmonary edema.

2 P01 HL 060678-11A1, Project 4, (Minshall) 03/01/11 – 02/28/15 0.6 Calendar
 NIH/NHLBI \$ 334,730
 Role: Co-investigator
Src Regulation of Endothelial Function
 Project 4 addresses the fundamental observation of increased binding affinity on endothelial cell plasmalemma of the adhesive protein ICAM-1 and the feed-forward signaling mechanism of ICAM-1 activation of caveolae-mediated transcytosis and lung endothelial hyper-permeability

2R56AI041816 - 18A1 (Freitag) 08/16/12 – 07/31/13 2.6 Calendar
 NIH/NIAID \$63,800 (total amount/Bonini)
 role: Co-Investigator
Listeria Virulence Gene Expressions Within Host Cells
 This proposal is focused on deciphering how L. monocytogenes establishes its replication niche within human cells with the goal of identifying potentially novel Gram-positive bacterial drug targets and reducing the severity of Lm infections.