

PERIANNAN KUPPUSAMY MS, PHD, MD (*honoris causa*), DLitt



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PROFESSOR OF ENGINEERING ■
PROFESSOR OF CHEMISTRY ■

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CONTENTS

BIOGRAPHICAL INFORMATION

EDUCATION & TRAINING

PROFESSIONAL APPOINTMENTS

AWARDS & HONORS

ADMINISTRATIVE RESPONSIBILITIES

RESEARCH PUBLICATIONS

RESEARCH GRANTS

MENTORING

EDITORIAL

PROFESSIONAL SOCIETIES

CONFERENCES

CONFERENCES SESSION CHAIR

NIH REVIEWS

INVITED & PLENARY LECTURES

PUBLISHED ABSTRACTS

OTHER SCHOLARLY ACTIVITIES

BIOGRAPHICAL INFORMATION

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CITIZENSHIP USA

EDUCATION & TRAINING

DEGREE / TRAINING	DATES	INSTITUTION/AFFILIATION	FIELD OF STUDY
B. S.	1972 - 1975	University of Madras, Chennai, India	Chemistry, Math, Physics
M. S.	1975 - 1977	University of Madras, Chennai, India	Chemistry
Ph. D.	1980 - 1985	Indian Institute of Technology, Chennai, India	EPR Spectroscopy
Fogarty Fellowship	1986 - 1987	National Institute on Aging, National Institutes of Health, Baltimore, Maryland, USA	Cellular and Molecular Biology
Research Fellowship	1987 - 1990	Johns Hopkins University, School of Medicine, Baltimore, Maryland, USA	Cardiovascular

PROFESSIONAL APPOINTMENTS

POSITION	DEPARTMENT/INSTITUTION	DATES
CURRENT		
Professor (tenured)	Department of Radiology, Dartmouth College, Hanover, NH	2013 –
Professor (adjunct)	Department of Medicine, Dartmouth College, Hanover, NH	2013 –
Professor (adjunct)	Thayer School of Engineering, Dartmouth College, Hanover, NH	2019 –
Professor (adjunct)	Department of Chemistry, Dartmouth College, Hanover, NH	2019 –
PAST		
Professor (tenured)	Department of Internal Medicine, Ohio State University, OH	2005 - 2013
Professor (adjunct)	Department of Biomedical Engineering, Ohio State University, OH	2005 - 2013
Director	Center for Biomedical EPR Spectroscopy and Imaging, OSU	2002 - 2013
Director	Small Animal Imaging Core, Ohio State University, OH	2005 - 2011
Director	Small Animal Shared Resources, Comprehensive Cancer Center	2005 - 2011
Associate Director	Division of Cardiovascular Medicine, Ohio State University (OSU)	2007 - 2013
Associate Director	Davis Heart and Lung Research Institute, OSU	2005 - 2009
Associate Professor	Department of Internal Medicine, OSU	2002 - 2005
Associate Professor	Biomedical Engineering, OSU	2002 - 2005
Associate Professor	Department of Medicine, Johns Hopkins University, Baltimore, MD	2001 - 2002
Assistant Professor	Department of Medicine, Johns Hopkins University, Baltimore, MD	1993 - 2000
Instructor	Department of Medicine, Johns Hopkins University, Baltimore, MD	1990 - 1992
Assistant Professor	University of Madras, Chennai, India	1985 - 1986
Lecturer	University of Madras, Chennai, India	1978 - 1980

AWARDS & HONORS

AWARD/HONOR	DESCRIPTION	PERIOD
Sir William Wedderburn Award (Gold Medal)	FIRST RANK in M.Sc. (among 240 graduates), University of Madras, Chennai, India	1977
B.B. Day Commemoration Award (Outstanding Recognition)	FIRST RANK in M.Sc. (among 240 graduates), University of Madras, Chennai, India	1977
Teacher/Research Fellowship Award	University Grants Commission, Govt. of India	1980-1984
NIH Fogarty (International) Fellowship for Post-doctoral Research in USA	National Institutes of Health, Bethesda, MD	1986-1987
CERT Research Award	Seed grant for development of EPR imaging by Chesapeake Education & Research Trust, Baltimore, MD	1990
AHA Established Investigator Award	American Heart Association, National Center	1996-2001
William D. and Jacquelyn L. Wells Chair in Imaging Research	Endowed chair for imaging research at OSU	2005 - 2013
Silver Medal for Biology & Medicine	Awarded by the International EPR Society for development of biomedical EPR imaging	2006
Outstanding Investigator Award	Awarded by American Tamil Medical Association (ATMA) for outstanding achievements in biomedical research	2006
Distinguished Mentor Award	Awarded by Davis Heart and Lung Research Institute for mentoring/teaching	2006
Doctor of Medicine	Doctor of Medicine, <i>Honoris Causa</i> awarded by the University of Pecs, Pecs, Hungary for Medical Sciences. ▶ Honoris Causa	
Lumley Award of Excellence for Interdisciplinary Research	Awarded by the OSU College of Engineering for Interdisciplinary Research	2011
Doctor of Letters	Awarded by the International Tamil University, Maryland, USA for pioneering efforts and	2012

contributions to the advancement of Tamil
Language and Culture

Lawrence H. Piette Award

Awarded by the International EPR Society for In vivo EPR ([link](#)) 2014

**Indian Institute of Technology (IIT-M)
Distinguished Alumni Award**

[Distinguished Alumni Award from IIT Madras](#)
(Chennai) 2015

ADMINISTRATIVE RESPONSIBILITIES

POSITION	YEAR	RESPONSIBILITY/DESCRIPTION
Director	2002 - 2013	<p>Center for Biomedical EPR Spectroscopy and Imaging</p> <p>The center was created in 2002. The center has a wide range of EPR spectrometers (X-band, S-band, L-band; spectroscopy and imaging systems), and more than 20 research personnel in the entire first floor of the Tzagournis Medical Research Facility.</p> <p>Accomplishments: I have established a team-work culture providing effective mentorship, care, and joyful work experience for the members of the group.</p>
Director	2002 - 2013	<p>Small Animal Imaging Core, Davis Heart and Lung Research Institute</p> <p>The EPR/MRI Core, <i>aka</i> Small Animal Imaging Core, was established in 2002 to provide imaging resources to HDLRI investigators. The core has EPR, MRI, and high-frequency ultrasound imaging capabilities for small-animal imaging.</p> <p>Accomplishments: I have spent enormous amount of time, energy, and resources to build this core. I have invited, educated, and supported a number of DHLRI and CCC investigators on the use of these modern imaging technologies.</p>
Director	2005 - 2013	<p>Small Animal Imaging Shared Resource, Comprehensive Cancer Center (OSU/CCC)</p> <p>The Small Animal Imaging Shared Resource was created in 2005. The goal was to bring the imaging resources scattered across the campus including the College of Medicine, DHLRI, College of Veterinary Sciences, and Department of Radiology under one-roof to provide a comprehensive array of imaging opportunities for cancer investigators. The shared resource initiative is supported by OSU Comprehensive Cancer Center funded by the National Cancer Institute.</p> <p>Accomplishments: I have established a comprehensive strategic plan to develop and manage the resource. I recruited a Co-Director (Dr. Kimerly Powell) to support the operation of the resource. Presently, we are in the process of recruiting 3 more staff for imaging. We have started a biweekly educational lecture on different imaging modalities and opportunities. We are also preparing NIH shared instrumentation grants to acquire new systems, e.g, clinical EPR oximeter, and bioluminescence imaging.</p>
Associate Director	2005 - 2009	<p>Davis Heart and Lung Research Institute (DHLRI)</p> <p>The Davis Heart and Lung Research Institute (DHLRI) was comprised of 500+ faculty, staff and student employees. The Institute had funded research programs in four major thematic program areas including inflammation and immune function, ischemia and metabolism, myocyte biology, and regenerative medicine.</p>

Accomplishments: I served in many important administrative roles including the chair of space committee, co-director of regenerative medicine thematic program, and director of Small Animal Imaging Core.

Associate Director	2007 - 2013	Division of Cardiovascular Medicine
Chair	2005 - 2011	DHLRI Space Committee
Chair	2012 - 2013	DHLRI Education Committee
Co-Director	2005 - 2013	DHLRI Regenerative Medicine - Thematic Program
Member	2008 - 2011	Promotion and Tenure Committee, College of Medicine

RESEARCH PUBLICATIONS

PEER-REVIEWED ORIGINAL RESEARCH PUBLICATIONS, REVIEWS AND BOOK CHAPTERS

1983 (3)

1. **Kuppusamy, P.**, and Manoharan, P. T. Spin correlation functions in the weak exchange Heisenberg linear chain $[(\text{NMP})_2][\text{Cu}(\text{mnt})_2]$. *Bull. Mag. Res.*, 5, 207 (1983).
2. Mahadevan, C., **Kuppusamy, P.**, Murthy, B. V. R., Seshasayee, M., and Manoharan, P. T. Structure of trimethylammonium bis(maleonitriledithiolato)nickelate(III). *Acta Cryst.*, C39, 1335-1343 (1983).
3. Ramakrishna, B. L., **Kuppusamy, P.**, Manoharan, P. T., and Hunziker, M. Structural and magnetic investigations on the charge transfer ion radical salt, $[\text{TMPD}][\text{Ni}(\text{mnt})_2]$. *J. Phys. Colloq.*, 44, 1409-1412 (1983).

1984 (3)

4. **Kuppusamy, P.**, Ramakrishna, B. L., and Manoharan, P. T. EPR, magnetic and structural investigations on the weak exchange Heisenberg linear chain $[(\text{NMP})_2][\text{Cu}(\text{mnt})_2]$. *Inorg. Chem.*, 23, 3886-3892 (1984).
5. **Kuppusamy, P.**, Ramakrishna, B. L., and Manoharan, P. T. Exchange interactions in some low-dimensional metal dithiolene complexes. *Proc. Ind. Acad. Scien.*, 93, 977-1001 (1984).
6. Mahadevan, C., **Kuppusamy, P.**, Seshasayee, M., and Manoharan, P. T. Crystal and molecular structure of tetra-*n*-butylammonium bis(stilbene-1,2-dithiolato)nickelate(III). *J. Cryst. Spec. Res.*, 4, 177-190 (1984).

1985 (6)

7. **Kuppusamy, P.**, Mahadevan, C., Seshasayee, M., and Manoharan, P. T. Crystal and molecular structure of N-methylphenazinium bis(maleonitriledithiolato) nickelate(III). *J. Cryst. Spect. Res.*, 15, 359-376 (1985).
8. **Kuppusamy, P.**, and Manoharan, P. T. Exchange interactions in $[\text{NMe}_4]_2[\text{Cu}(\text{mnt})_2]$: A quasi 1-d weak exchange system. *Inorg. Chem.*, 24, 3053-3057 (1985).
9. **Kuppusamy, P.**, Venkatalakshmi, N., and Manoharan, P. T. Structure of N-methylphenazinium bis(maleonitriledithiolato) gold(III). *J. Cryst. Spect. Res.*, 15, 629-641 (1985).
10. **Kuppusamy, P.**, and Manoharan, P. T. Anisotropic exchange interaction in tetra-*n*-butylammonium bis(stilbene-1,2-dithiolato)nickelate(III). *Chem. Phys. Lett.*, 188, 159-163 (1985).
11. **Kuppusamy, P.**, and Manoharan, P. T. Hyperfine and exchange interactions in tetraethylammonium bis(maleonitriledithiolato)cuprate(II). *J. Ind. Chem. Soc.*, 63, 95-101 (1985).
12. Mahadevan, C., **Kuppusamy, P.**, Seshasayee, M., and Manoharan, P. T. Crystal and molecular structure of N-methylphenazinium bis(benzene-1,2-dithiolato)nickel(III). *J. Cryst. Spec. Res.*, 15, 305-316 (1985).

1987 (1)

13. **Kuppusamy, P.**, and Manoharan, P. T. Magnetic properties of some exchanged coupled $[\text{Ni}(\text{mnt})_2]^-$ dimers. *Proc. Ind. Acad. Sci.*, 98, 115-129 (1987).

1988 (3)

14. Radha, A., Seshasayee, M. and **Kuppusamy, P.** Structure of bis[1,2-bis(diphenylphosphino ethylene)] iodocobalt(II) tetraphenylborate. *Acta Cryst.* C44, 1008-1011 (1988).
15. Zweier, J. L., **Kuppusamy, P.**, and Luty, G. A. Measurement of endothelial cell free radical generation: Evidence for a central mechanism of free radical injury in post ischemic tissues. *Proc. Natl. Acad. Sci. USA*, 85, 4046-4050 (1988). [[PubMed](#)]

16. Zweier, J. L., and **Kuppusamy, P.** Electron paramagnetic resonance measurements of free radicals in the intact beating heart: A technique for detection and characterization of free radicals in whole biological tissues. Proc. Nat. Acad. Sci. USA, 85, 5703-5707 (1988). [[PubMed](#)]

1989 (5)

17. **Kuppusamy, P.**, and Zweier, J. L. Characterization of free radical generation by xanthine oxidase: Evidence for hydroxyl radical generation. J. Biolog. Chem., 264, 9880-9884 (1989). [[PubMed](#)]
18. Rajalakshmi, A, Radha, A., Seshasayee, M., **Kuppusamy, P.**, and Manoharan, P. T. Crystal and molecular structure of tetraethyl ammonium bis(stilbene-1,2-dithiolato)nickelate(III). Zeitschr. Kristallogr. 187, 159-164 (1989).
19. Zweier, J. L., **Kuppusamy, P.**, Williams, R., Rayburn, B. K., Smith, D., Weisfeldt, M. L., and Flaherty, J. T. Measurement and characterization of postischemic free radical generation in the isolated perfused heart. J. Biolog. Chem., 264, 18890-18895 (1989). [[PubMed](#)]
20. Zweier, J. L., and **Kuppusamy, P.** Electron paramagnetic resonance studies of free radicals in the perfused heart. Phys. Med., 5, 289-296 (1989).
21. Zweier, J. L., Duke, S. S., **Kuppusamy, P.**, Sylvester, J. T., and Gabrielson, E. Electron paramagnetic resonance evidence that cellular oxygen toxicity is caused by the generation of superoxide and hydroxyl free radicals. FEBS Lett., 252, 12-16 (1989). [[PubMed](#)]

1990 (2)

22. Levy, A., **Kuppusamy, P.**, and Rifkind, J. M. Multiple heme pocket subconformations of methemoglobin associated with distal histidine interactions. Biochem., 29, 9311-9316 (1990). [[PubMed](#)]
23. Zweier, J. L., and **Kuppusamy, P.** Study of free radicals in the intact beating heart using low frequency EPR spectroscopy. Phys. Med., 7, 1-9 (1990).

1991 (4)

24. Guyton, K. Z., Bhan, P., **Kuppusamy, P.**, Zweier, J. L., Trush, M. A., and Kensler, T. W. Free radical derived quinone methide mediates skin tumor promotion by butylated hydroxytoluene hydroperoxide: Expanded role for electrophiles in multistage carcinogenesis. Proc. Nat. Acad. Sci. USA, 88, 946-950 (1991). [[PubMed](#)]
25. Kukreja, R. C., Kearns, A. A., Zweier, J. L., **Kuppusamy, P.**, Hess, M. L. Singlet oxygen interaction with Ca²⁺-ATPase of cardiac sarcoplasmic reticulum. Circulation Research. 69, 1003-1014 (1991). [[PubMed](#)]
26. Swauger, J. E., Dolan, P. M., Zweier, J. L., **Kuppusamy, P.**, Kensler, T. W. Role of benzoyloxy radical in DNA damage mediated by benzoyl peroxide. Chemical Research in Toxicology, 4, 228-233 (1991). [[PubMed](#)]
27. Zweier, J. L., Thompson-Gorman, S., and **Kuppusamy, P.** Measurement of oxygen concentrations in the intact heart using electron paramagnetic resonance spectroscopy: A technique for measuring oxygen concentrations in situ. J. Bioenerg., and Biomem., 23, 855-871 (1991). [[PubMed](#)]

1992 (6)

28. Gabrielson, E. W., **Kuppusamy, P.**, Povey, A. C., Zweier, J. L., and Harris, C. C. Measurement of neutrophil activation and epidermal cell toxicity by palytoxin and 12-o-tetradecanoylphorbol-13-acetate. Carcinogenesis, 13, 395-401 (1992). [[PubMed](#)]
29. Grill, H. P., Zweier, J. L., **Kuppusamy, P.**, Weisfeldt, M. L., and Flaherty, J. T. Direct measurement of myocardial free radical generation in an in-vivo model: Effects of post-ischemic reperfusion and treatment with human recombinant superoxide dismutase. J. Amer. Coll. Cardio. 20, 1604-1611 (1992). [[PubMed](#)]
30. **Kuppusamy, P.** and Zweier, J. L. Study of free radical generation in isolated cells and whole tissues using electron paramagnetic resonance spectroscopy. Cellular Membrane: A Key to Disease Processes (Edited by Ohnishi/Ohnishi) Chapter 10, CRC Press, Inc., 1992.
31. **Kuppusamy, P.**, and Zweier, J. L. Identification and quantitation of free radicals and paramagnetic centers from complex multicomponent EPR spectra. Appl. Radiat. Isotopes. 44, 367-372 (1992).

32. Povey, A. C., Wilson, V. L., Zweier, J. L., **Kuppusamy, P.**, O'Neil, I. K., and Harris, C. C. Detection by ³²P-post-labeling of DNA adducts induced by free radicals and unsaturated aldehydes formed during the aerobic decomposition of fecapentaene-12. Carcinogenesis, 13, 395-401 (1992). [[PubMed](#)]
33. Zweier, J. L., **Kuppusamy, P.**, Shandelya, M. L., Thompson-Gorman, S., Weisman, H. F., Fearon, D. T., and Weisfeldt, M. L. Electron paramagnetic resonance measurements of free radical generation in isolated cells and whole tissues. *The Molecular Basis of Oxidative Damage by Leukocytes* (Editor: Jesaitis/Dratz), CRC Press, Inc. pp. 181-202 (1992).

1993 (6)

34. Ambrosio, G., Zweier, J. L., Duilio, C., **Kuppusamy, P.**, Santoro, G., Elia, P., Tritto, I., Cirillo, P., Condorelli, M., Chiariello, M., and Flaherty, J. T. Evidence that mitochondrial respiration is a source of potentially toxic oxygen Free radicals in intact rabbit hearts subjected to ischemia and reflow. J. Biolog. Chem., 268, 18532-18541 (1993). [[PubMed](#)]
35. Chzhan, M., Shteynbuk, M., **Kuppusamy, P.**, and Zweier, J. L. An optimized L-band resonator for EPR imaging of biological samples. J. Magn. Reson. A105, 49-53 (1993).
36. Lefer, D. J., Shandelya, S. M. L., Serrano Jr., C. V., Becker, L. C., **Kuppusamy, P.**, and Zweier, J. L. Cardioprotective actions of monoclonal antibody against CD-18 in myocardial ischemia-reperfusion injury. Circulation, 88, 1779-1787 (1993). [[PubMed](#)]
37. Sanders, S. P., Zweier, J. L., **Kuppusamy, P.**, Harrison, S. J., Bassett, D. J., Gabrielson, E. W., and Sylvester, J. T. Hyperoxic sheep pulmonary microvascular endothelial cells generate free radicals via mitochondrial electron transport. J. Clin. Invest., 91, 46-52 (1993). [[PubMed](#)]
38. Shandelya, S. M. L., **Kuppusamy, P.**, Weisfeldt, M. L., and Zweier, J. L. Evaluation of the role of polymorphonuclear leukocytes on contractile function in myocardial reperfusion injury. Circulation, 87, 536-546 (1993). [[PubMed](#)]
39. Shandelya, S. M. L., **Kuppusamy, P.**, Herskowitz, A., Weisfeldt, M.L., and Zweier, J. L. Soluble complement receptor type 1 inhibits the complement pathway and prevents contractile failure in the postschemic heart: Evidence that complement activation is required for neutrophil-mediated reperfusion injury. Circulation, 88, 2812-2826 (1993). [[PubMed](#)]

1994 (7)

40. Chen, K., Ng, C. E., Zweier, J. L., **Kuppusamy, P.**, Glickson, J. D., and Swartz, H. M. Measurement of the intracellular concentration of oxygen in a cell perfusion system. Magn. Reson. Med. 31, 1-5 (1994). [[PubMed](#)]
41. **Kuppusamy, P.**, Chzhan, M., Vij, K., Shteynbuk, M., Lefer, D. J., Gianella, E., and Zweier, J. L. Three dimensional spectral-spatial EPR imaging of free radicals in the heart: A technique for imaging tissue metabolism and oxygenation. Proc. Natl. Acad. Sci. USA, 91, 3388-3392 (1994). [[PubMed](#)]
42. Sanders, S. P., Harrison, S. J., **Kuppusamy, P.**, Sylvester, J. T., and Zweier, J. L. A comparative study of EPR spin trapping and cytochrome c reduction techniques for the measurement of superoxide anions. Free Rad. Biolog. Med. 16, 753-761(1994). [[PubMed](#)]
43. Zweier, J. L., Chzhan, M., Ewert, U., Schneider, G., and **Kuppusamy, P.** Development of a highly sensitive probe for measuring oxygen in biological tissues. J. Magn. Reson. B 105, 52-57(1994). [[PubMed](#)]
44. Zweier, J. L., **Kuppusamy, P.**, Thompson-Gorman, S., Klunk, D., and Luty, G. A. Measurement and characterization of free radical generation in reoxygenated human endothelial cells. Am. J. Physiol. (Cell Physiology) 266, C700-C708 (1994). [[PubMed](#)]
45. Zweier, J. L., and **Kuppusamy, P.** In vivo EPR spectroscopy of free radicals in the heart. Environ. Health Perspectives, 102, 45-51(1994). [[PubMed](#)]
46. Zweier, J. L., Broderick, R., **Kuppusamy, P.**, Thompson-Gorman, S., and Luty, G. A. Determination of the mechanism of free radical generation in human aortic endothelial cells exposed to anoxia and reoxygenation. J. Biolog. Chem. 269, 24156-24162 (1994). [[PubMed](#)]

1995 (14)

47. Chzhan, M., **Kuppusamy, P.**, and Zweier, J. L. Development of an electronically tunable L-band resonator for EPR spectroscopy and imaging of biological samples. J. Magn. Reson. B 108, 67-72 (1995). [[PubMed](#)]
48. Desrosiers, M. F., Burlinska, G., **Kuppusamy, P.**, Zweier, J. L., Yaczko, D.M., Auteri, F.P., McClelland, M. R., Dick, C.E., and McLaughlin, W. L. Research and development activities in electron paramagnetic resonance dosimetry. Radiat. Phys. Chem. 46, 1181-1184 (1995).
49. **Kuppusamy, P.**, and Zweier, J. L. EPR imaging of free radicals in the perfused heart. Curr. Topics in Biophys. 18, 3-13 (1995).
50. **Kuppusamy, P.**, Chzhan, M., and Zweier, J. L. Development and optimization of three-dimensional spatial EPR imaging for biological organs and tissues. J. Magn. Reson. B106, 122-130 (1995). [[PubMed](#)]
51. **Kuppusamy, P.**, Chzhan, M., Samouilov, A., Wang, P., and Zweier, J. L. Mapping the spin-density and lineshape distribution of free radicals in the heart using 4D spectral-spatial EPR imaging. J. Magn. Reson. B107, 116-125 (1995). [[PubMed](#)]
52. **Kuppusamy, P.**, Chzhan, M., and Zweier, J. L. 3D and 4D electron paramagnetic resonance imaging of the rat heart. Magn. Reson. Med. (Japan) 6, 59-61 (1995).
53. **Kuppusamy, P.**, Wang, P., and Zweier, J. L. Three-dimensional spatial EPR imaging of the rat heart. Magn. Reson. Med. 34, 99-105 (1995). [[PubMed](#)]
54. **Kuppusamy, P.**, Ohnishi, S. T., Numagami, Y., Ohnishi, T., and Zweier, J. L. Three-dimensional imaging of nitric oxide production in the rat brain subjected to ischemia-hypoxia. J. Cereb. Blood Flow Metab. 15, 899-903 (1995). [[PubMed](#)]
55. **Kuppusamy, P.**, Wang, P., and Zweier, J. L. Evaluation of nitroxides for the study of myocardial metabolism and oxygenation. Magn. Reson. Chem. 33, S123-S128 (1995).
56. Li, Y., **Kuppusamy, P.**, Zweier, J. L., and Trush, M. A. ESR evidence for the generation of reactive oxygen species from the copper mediated oxidation of the benzene metabolite, hydroquinone: Role in DNA damage. Chemico-biological Interactions 94, 101-120 (1995). [[PubMed](#)]
57. Yan, S. D., Yan, S. F., Chen, X., Fu, J., Chen, M., **Kuppusamy, P.**, Yen, S. H., Smith, M. A., Perry, G., Nawroth, P., Godman, G. C., Zweier, J. L., and Stern, D. Non-enzymatically glycosylated tau in Alzheimer's disease induces neuronal oxidant stress resulting in cytokine gene expression and release of amyloid-b peptide. Nature Medicine 1, 693-699 (1995). [[PubMed](#)]
58. Zweier, J. L., and **Kuppusamy, P.** EPR spectroscopy of free radicals in the perfused heart. Curr. Topics in Biophys. 18, 14-25 (1995).
59. Zweier, J. L., Wang, P., Samouilov, A., and **Kuppusamy, P.** Enzyme independent formation of nitric oxide in biological tissues. Nature Medicine, 1, 804-809 (1995). [[PubMed](#)]
60. Zweier, J. L., Wang, P., and **Kuppusamy, P.** Direct measurement of nitric oxide generation in the ischemic heart using electron paramagnetic resonance spectroscopy. J. Biolog. Chem., 270, 304-307 (1995). [[PubMed](#)]

1996 (13)

61. **Kuppusamy, P.**, Ohnishi, S. T., Numagami, Y., Ohnishi, T., and Zweier, J. L. Imaging of nitric oxide generation in the brain. Res. Chem. Interm. 22, 605-613 (1996).
62. **Kuppusamy, P.**, and Zweier, J. L. A forward subtraction procedure for removing hyperfine artifacts in electron paramagnetic resonance imaging. Magn. Reson. Med., 35, 316-322 (1996). [[PubMed](#)]
63. **Kuppusamy, P.**, and Zweier, J. L. Hyperfine artifacts in electron paramagnetic resonance imaging. Res. Chem. Interm. 22, 593-604 (1996).
64. **Kuppusamy, P.**, Chzhan, M., Wang, P., and Zweier, J. L. Three-dimensional gated EPR imaging of the beating heart: Time-resolved measurements of free radical distribution during the cardiac contractile cycle. Magn. Reson. Med., 35, 323-328 (1996). [[PubMed](#)]
65. **Kuppusamy, P.**, Wang, P., Zweier, J.L., Krishna, M. C., Mitchell, J. B., Ma, L., Trimble, C.E., and Hsia, C.J. EPR imaging of rat heart with nitroxide and a polynitroxylated albumin. Biochemistry 35, 7051-7057 (1996). [[PubMed](#)]

66. **Kuppusamy, P.**, Wang, P., Samouilov, A., and Zweier, J. L. Spatial mapping of nitric oxide in the ischemic heart using electron paramagnetic resonance imaging. Magn. Reson. Med. 36, 212-218 (1996). [[PubMed](#)]
67. **Kuppusamy, P.**, and Zweier, J. L. Electron paramagnetic resonance imaging of biological samples. EPR Specialist Vignettes, EPR Newsletter, Vol 8, 1996.
68. Li, Y., **Kuppusamy, P.**, Zweier, J. L., and Trush, M. A. Role of Cu, Zn-superoxide dismutase (Cu,ZnSOD) in xenobiotic activation: I. Chemical reactions involved in the Cu, ZnSOD-accelerated oxidation of the benzene metabolite, 1,4-hydroxyquinone. Mol. Pharmacol. 49, 404-411 (1996). [[PubMed](#)]
69. Li, Y., **Kuppusamy, P.**, Zweier, J. L., and Trush, M. A. Role of Cu, Zn-superoxide dismutase (Cu,ZnSOD) in xenobiotic activation: II. Biological effects resulting from the Cu,ZnSOD-accelerated oxidation of the benzene metabolite, 1,4-hydroxyquinone. Mol. Pharmacol. 49, 412-421 (1996). [[PubMed](#)]
70. Primiano, T., Kensler, T. W., **Kuppusamy, P.**, Zweier, J.L., and Sutter, T. R. Induction of hepatic heme oxygenase-1 and ferritin in rats by cancer chemopreventive dithiolethiones. Carcinogenesis. 17, 2291-2296 (1996). [[PubMed](#)]
71. Schauer, D. A., Desrosiers, M. F., **Kuppusamy, P.**, and Zweier, J. L. Radiation dosimetry of an accidental overexposure using EPR spectrometry and imaging of human bone. Appl. Radiat. Isotop. 47, 1345-50, (1996). [[PubMed](#)]
72. Serrano, C. V., Mikhail, E. A., Wang, P., Noble, B., **Kuppusamy, P.** and Zweier, J. L. Superoxide and hydrogen peroxide induce CD-18 mediated adhesion in the post ischemic heart. Biochim. Biophys. Acta, 1310, 5 (1996). [[PubMed](#)]
73. Zweier, J. L., Wang, P., Chzhan, M., and **Kuppusamy, P.** Spatial and spectral-spatial imaging of free radicals and oxygen in the heart. Res. Chem. Interm. 22, 615-624 (1996).

1997 (4)

74. **Kuppusamy, P.**, Wang, P., and Zweier, J. L. High resolution electron paramagnetic resonance imaging of biological samples with a single line paramagnetic label. Magn. Reson. Med. 37, 479-483 (1997). [[PubMed](#)]
75. Roubaud, V., Sankarapandi, S., **Kuppusamy, P.**, Tardo, P., and Zweier, J. L. Quantitative Measurement of superoxide generation using the spin trap 5-(diethoxyphosphoryl)-5-methyl-1-pyrroline-N-oxide. Analyt. Biochem. 247, 404-411 (1997). [[PubMed](#)]
76. Seacat, A.M., **Kuppusamy, P.**, Zweier, J. L., and Yager, J. D. Electron spin resonance identification of free radicals formed from the oxidation of catechol estrogens by copper (II). Arch. Biochem. Biophys. 347, 45-52 (1997). [[PubMed](#)]
77. Vallyathan, V., Leonard, S., **Kuppusamy, P.**, Pack, D., Chzhan, M., Sanders, S. P., and Zweier, J. L. Oxidative stress in silicosis: Evidence for the enhanced clearance of free radicals from whole lungs. Mol. Cell. Biochem. 168, 125-132 (1997). [[PubMed](#)]

1998 (13)

78. Ha, H. C., Sirisoma, N. S., **Kuppusamy, P.**, Zweier, J. L., Woster, P. M., Casero, Jr., R. A. The natural polyamine spermine functions directly as a free radical scavenger. Proc. Natl. Acad. Sci. USA 95, 11140-11145 (1998). [[PubMed](#)]
79. Krishna, M. C., **Kuppusamy, P.**, Afeworki, M., Cook, J. A., Subramanian, S., Mitchell, J. B. Development of functional electron paramagnetic resonance imaging. Breast Disease, 10, 209-220 (1998). [[PubMed](#)]
80. **Kuppusamy, P.**, Afeworki, M., Shankar, R. A., Deborah, C., Krishna, M. C., Hahn, S. M., Mitchell, J. B., and Zweier, J. L. In vivo electron paramagnetic resonance imaging of tumor heterogeneity and oxygenation in a murine tumor model. Cancer Research, 58, 1562-1568 (1998). [[PubMed](#)]
81. **Kuppusamy, P.**, and Zweier, J. L., EPR imaging of free radicals in biological systems. In 'Nitric Oxide in Transplant Rejection and Antitumor Defense', (Eds. Luckiewicz and Zweier) Chapter 2, Kluwer Academic Publishers, 1998.
82. **Kuppusamy, P.**, Ohnishi, S. T., and Zweier, J. L. Electron paramagnetic resonance imaging of nitric oxide in tissues. In 'Nitric Oxide in Transplant Rejection and Antitumor Defense', (Eds. Luckiewicz and Zweier) Chapter 4, Kluwer Academic Publishers, 1998.

83. **Kuppusamy, P.**, Shankar, R. A., and Zweier, J. L. *In vivo* measurement of arterial and venous oxygenation in the rat using 3D spectral-spatial electron paramagnetic resonance imaging. Phys. Med. Biol. 43, 1837-1844 (1998). [[PubMed](#)]
84. **Kuppusamy, P.**, Wang, P., Ma, L., Trimble, C. E., Hsia, C. J. C., and Zweier, J. L. *In vivo* topical EPR spectroscopy and imaging of the pharmacokinetics of nitroxide and polynitroxyl-albumin in mice. Magn. Reson. Med. 40, 1-6 (1998). [[PubMed](#)]
85. Li, Y., Zhu, H., **Kuppusamy P.**, Roubaud, V. M., Zweier, J. L., Trush, M. A. Validation of lucigenin (bis-N-methylacridinium) as a chemilumigenic probe for detecting superoxide anion radical production by enzymatic and cellular systems. J. Biolog. Chem. 273, 2015-2023 (1998). [[PubMed](#)]
86. Roubaud V. M., Sankarapandi S., **Kuppusamy P**, Tordo P., Zweier J.L. Quantitative measurement of superoxide generation and oxygen consumption from leukocytes using electron paramagnetic resonance spectroscopy. Anal. Biochem. 257, 210-217 (1998). [[PubMed](#)]
87. Samouilov, A., **Kuppusamy, P.** and Zweier, J. L. Evaluation of the magnitude and rate of nitric oxide production from nitrite in biological systems. Arch. Biochem. Biophys. 357, 1-7 (1998). [[PubMed](#)]
88. Zweier, J. L. and **Kuppusamy, P.** Principles of electron paramagnetic resonance spectroscopy for measurement of free radicals in biological tissues. In 'Nitric Oxide in Transplant Rejection and Antitumor Defense', (Eds. Luckiewicz and Zweier) Chapter 1, Kluwer Academic Publishers, 1998.
89. Zweier, J. L., Chzhan, M., Samouilov, A., and **Kuppusamy, P.** Electron paramagnetic resonance imaging of the rat heart. Phys. Med. Biolog. 43, 1823-1835 (1998). [[PubMed](#)]
90. Zweier, J. L., Chzhan, M., Samouilov, A., and **Kuppusamy, P.** EPR imaging of the rat heart. *In* Magnetic Resonance in Medicine (Japan) 1998.
91. Zweier, J. L., Samouilov, A., and **Kuppusamy, P.** Enzyme-independent formation of nitric oxide in tissues. *In* 'Nitric Oxide in Transplant Rejection and Antitumor Defense', (Eds. Luckiewicz and Zweier) Chapter 3, Kluwer Academic Publishers, 1998.

1999 (4)

92. Chzhan, M., **Kuppusamy, P.**, Samouilov, A., He, G., Zweier, J. L. A tunable reentrant resonator with transverse orientation of electric field for *in vivo* EPR spectroscopy. J. Magn. Reson. 137, 373-378 (1999). [[PubMed](#)]
93. He, G., Shankar, R. A., Chzhan, M., Samouilov, A., **Kuppusamy, P.**, and Zweier, J. L. Noninvasive measurement of anatomic structure and intraluminal oxygenation in the gastrointestinal tract of living mice with spatial and spectral EPR imaging. Proc. Natl. Acad. Sci. USA 96, 4586-4591 (1999). [[PubMed](#)]
94. Zweier, J. L. and **Kuppusamy, P.** EPR imaging of the rat heart. *In* Spatially Resolved Magnetic Resonance (Eds. Blumler, P., Blumich, B., Botto, R. and Fukushima, E., Wiley-VCH, New York (1999).
95. Zweier, J. L., Samouilov, A., and **Kuppusamy, P.** Non-enzymatic nitric oxide synthesis in biological systems. Biochim. Biophys. Acta. 1411, 250-262 (1999). [[PubMed](#)]

2000 (9)

96. Ilangovan, G., Zweier, J. L., and **Kuppusamy, P.** Electrochemical preparation and EPR studies of lithium phthalocyanine: Evaluation of the nucleation and growth mechanism and evidence for potential-dependent phase formation. J. Phys. Chem. B. 104, 4047-4059 (2000).
97. Ilangovan, G., Zweier, J. L., and **Kuppusamy, P.** Electrochemical preparation and EPR studies of lithium phthalocyanine. Part 2: Particle size-dependent line broadening by molecular oxygen and its implications as an oximetry Probe. J. Phys. Chem. B. 104, 9404-9410 (2000).
98. Koscielniak, J., Devasahayam, N., Moni, M. S., **Kuppusamy, P.**, Yamada, K., Mitchell, J. B., Krishna, M. C., and Subramanian, S. 300 MHz continuous wave electron paramagnetic resonance spectrometer for small animal *in vivo* imaging. Rev. Sci. Inst. 71, 4273-4281 (2000).
99. Krishna, M. C., **Kuppusamy, P.**, Mitchell, J. B. Protective properties of stable nitroxide free radicals against oxidative stress. *In* "Free Radicals in Toxicology and Drug Metabolism", (2000).

100. Li, H., Xu, K. Y., Zhou, L., Kalai, T., Zweier, J. L., Hideg, K. and **Kuppusamy, P.** A pyrroline derivative of mexiletine offers marked protection against ischemia/reperfusion-induced myocardial contractile dysfunction. J. Pharmacol. Exp. Therap. 295, 563-571(2000). [[PubMed](#)]
101. Mitchell, J. B., Russo, A., **Kuppusamy, P.** and Krishna, M. C. Radiation, radicals, and images. *In* Reactive Oxygen Species, Annals of the New York Acad. Sci. Vol 899, 28-43 (2000).
102. Shankar, R. A., Hideg, K., Zweier, J. L., and **Kuppusamy, P.** Targeted antioxidant properties of *N*-[(tetramethyl-3-pyrroline-3-carboxamido)propyl]phthalimide, and its nitroxide-metabolite in preventing postischemic myocardial injury. J. Pharmacol. Exp. Therap. 292, 838-845 (2000). [[PubMed](#)]
103. Velan, S.S., Spencer, R. G., Zweier, J. L., and **Kuppusamy, P.** Electron paramagnetic resonance oxygen mapping [EPROM]: Direct visualization of oxygen concentration in tissues. Magn. Reson. Med. 43, 804-809 (2000). [[PubMed](#)]
104. Zhang, S., Li, H., Ma, L., Trimble, C. E., **Kuppusamy, P.**, Hsia, C. J. C., and Carden, D. L. Polynitroxyl-albumin (PNA) plus Tempol attenuate lung capillary leak elicited by prolonged intestinal ischemia and reperfusion. Free Radic. Biol. Med. 29, 42-50 (2000). [[PubMed](#)]

2001 (12)

105. Duilio, C., Ambrosio, G., **Kuppusamy, P.**, DiPaula, A., Becker, L. C., Zweier, J. L. Neutrophils are primary source of O₂ radicals during reperfusion after prolonged myocardial ischemia. Am. J. Physiol. Heart Circ. Physiol. 280, H2649-H2657 (2001). [[PubMed](#)]
106. Ellis, S., Velayutham, M., Sendhil Velan, S., Petersen, E.F., Zweier, J.L., **Kuppusamy, P.**, and Spencer, R.G.S. EPR oxygen mapping [EPROM] of engineered cartilage grown in a hollow-fiber bioreactor. Magn. Reson. Med. 46, 819-826 (2001). [[PubMed](#)]
107. He, G., Petryakov, S., **Kuppusamy, P.**, Samouilov, A., and Zweier, J. L. EPR imaging: a technique enabling in vivo mapping of free radicals and redox metabolism in biochemical applications. Analyt. Sciences, 17, i507- i510 (2001).
108. He, G., Petryakov, S., Samouilov, A., Chzhan, M., **Kuppusamy, P.**, and Zweier, J. L. Development of a resonator with automatic tuning and coupling capability to minimize sample motion noise for in vivo EPR spectroscopy J. Magn. Reson. 149, 218-227 (2001). [[PubMed](#)]
109. He, G., Samouilov, A., **Kuppusamy, P.**, and Zweier, J. L. *In vivo* imaging of the distribution and metabolism of nitroxide radicals in human skin. J. Magn. Reson. 148, 155-164 (2001). [[PubMed](#)]
110. Ilangovan, G., Li, H., Zweier, J. L., and **Kuppusamy, P.** Electrochemical preparation and EPR studies of lithium phthalocyanine. Part 3: Measurements of oxygen concentration in tissues and biochemical reactions J. Phys. Chem. B. 105, 5323-5330 (2001).
111. Krishna, M. C., Devasahayam, N., Cook, J. A., Subramanian, S., **Kuppusamy, P.** and Mitchell, J. B. Electron paramagnetic resonance for small animal imaging applications. Inst. Lab. Animals Research J. 42, 209-218 (2001). [[PubMed](#)]
112. Krishna, M. C., Subramanian, S., **Kuppusamy, P.**, Mitchell, J. B. Magnetic resonance imaging for *in vivo* assessment of tissue oxygen concentration, Seminars in Radiation Oncology, Vol. 11, 58-69 (2001).
113. **Kuppusamy, P.**, Shankar, R. A., Roubaud, V. M., and Zweier, J. L. Whole body detection and imaging of nitric oxide generation in mice following cardiopulmonary arrest: Detection of intrinsic nitrosoheme complexes. Magn. Reson. Med. 45, 700-707(2001). [[PubMed](#)]
114. Manivannan, A., Yanagi, H., Ilangovan, G, and **Kuppusamy, P.** Lithium naphthalocyanine as a new molecular radical probe for electron paramagnetic resonance oximetry, J. Magn. Mater. 233, L131-L135 (2001).
115. Mitchell, J. B., Krishna, M. C., **Kuppusamy, P.**, Cook, J. A., and Russo, A. Protection against oxidative stress by nitroxides. Exp. Biol. Med. 226, 620-621 (2001). [[PubMed](#)]
116. Petryakov, S., Chzhan, M., Samouilov, A., He, G., **Kuppusamy, P.**, and Zweier, J. L. A bridged loop-gap S-band surface resonator for topical EPR spectroscopy. J. Magn. Reson. 151, 124-128 (2001). [[PubMed](#)]

2002 (16)

117. He, G., Deng, Y., Li, H., **Kuppusamy, P.**, and Zweier, J. L. EPR/NMR co-imaging for anatomic registration of free radical images. Magn. Reson. Med. 47, 571-578 (2002). [[PubMed](#)]
118. He, G., Samouilov, A., **Kuppusamy, P.** and Zweier, J. L. In vivo imaging of free radicals: Applications from mouse to man. Mol. Cell. Biochem. 234/235, 359-367 (2002). [[PubMed](#)]
119. He, G., Evalappan, S. P., Hirata, H., Deng, Y., Petryakov, S., **Kuppusamy, P.**, and Zweier, J. L. Mapping of the B1 field distribution of a surface coil resonator using EPR imaging. Magn. Reson. Med. 48, 1057-1062 (2002). [[PubMed](#)]
120. Ilangovan, G., Manivannan, A., Li, H., Yanagi, H., Zweier, J. L., and **Kuppusamy, P.** A naphthalocyanine-based EPR probe for localized measurements of tissue oxygenation. Free Radic. Biol. Med. 32, 139-147 (2002). [[PubMed](#)]
121. Ilangovan, G., Li, H., Zweier, J.L., and **Kuppusamy, P.** *In vivo* measurement of tumor redox environment using EPR spectroscopy. Mol. Cell. Biochem. 234/235, 393-398 (2002). [[PubMed](#)]
122. Ilangovan, G., Li, H., Zweier, J. L., Krishna, M. C., Mitchell, J. B., and **Kuppusamy, P.** *In vivo* measurement of regional oxygenation and imaging of redox status in RIF-1 murine tumor: Effect of carbogen-breathing. Magn. Reson. Med. 48, 723-730 (2002). [[PubMed](#)]
123. Ilangovan, G., Pal, R., Zweier, J. L., and **Kuppusamy, P.** Electrochemical preparation and EPR studies of lithium phthalocyanine. Part 4: Effect of nitric oxide. J. Phys. Chem. B 106, 11929-11935 (2002).
124. **Kuppusamy, P.**, Li, H., Ilangovan, G., Cardounel, A. J., Zweier, J. L., Yamada, K., Krishna, M. C., and Mitchell, J. B. Noninvasive imaging of tumor redox status and its modification by tissue glutathione levels. Cancer Research, 62, 307-312 (2002). [[PubMed](#)]
125. **Kuppusamy, P.** and Krishna, M. C. EPR imaging of tissue redox status. Curr. Topics in Biophys. 26, 29-34 (2002).
126. Leonard, S. L., Mowrey, K., Pack, D., Shi, X., Castranova, V., **Kuppusamy, P.**, and Vallyathan, V. *In vivo* bioassays of acute asbestosis and its correlation with ESR spectroscopy and imaging in redox status. Mol. Cell. Biochem. 234/235, 369-377 (2002). [[PubMed](#)]
127. Li, H., Ma, L., Hsia, J.C., Zweier, J. L., and **Kuppusamy, P.** Poly-nitroxyl albumin (PNA) enhances myocardial infarction therapeutic effect of Tempol in rat hearts subjected to regional ischemia-reperfusion. Free Radic. Biol. Med. 32, 712-719 (2002). [[PubMed](#)]
128. Li, H., Deng, Y., He, G., **Kuppusamy, P.**, Lurie, D.J., and Zweier, J. L. Proton electron double resonance imaging of the in vivo distribution and clearance of a triarylmethyl radical in mice. Magn. Reson. Med. 48, 530-534 (2002). [[PubMed](#)]
129. Li, Y., Seacat, A., **Kuppusamy, P.**, Zweier, J. L., Yager, J. D., and Trush, M. A. Copper redox-dependent activation of 2-tert-butyl(1,4)hydroquinone: Formation of reactive oxygen species and induction of oxidative DNA damage in isolated DNA and cultured rat hepatocytes, Mutation Research 518, 123-133 (2002). [[PubMed](#)]
130. Souza, H.P., Liu, X., Samouilov, A., **Kuppusamy, P.**, Laurindo, F., Zweier, J. L. Quantitation of superoxide generation and substrate utilization by vascular NAD(P)H oxidase . Am. J. Physiol. Heart Circ. Physiol. 282, H466-H474 (2002). [[PubMed](#)]
131. Yamada, K-I., **Kuppusamy, P.**, English, S., Yoo, J., Irie, A., Subramanian, S., Mitchell, J. B., and Krishna, M. C. Feasibility and assessment of non-invasive in vivo redox status using electron paramagnetic resonance imaging. Acta Radiol. 43, 433-440 (2002). [[PubMed](#)]
132. Zhou, L., Burnett, A. L., Huang, P. L., Becker, L. C. **Kuppusamy, P.**, Kass, D. A. Donahue, J. K., Proud, D., Sham, J. S. K., Dawson, T. M. and Xu, K. Y. Lack of nitric oxide synthase depresses ion transporting enzyme function in cardiac muscle. Biochem. Biophys. Res. Comm. 294, 1030-1035 (2002). [[PubMed](#)]

2003 (11)

133. Deng, Y., He, G., **Kuppusamy, P.**, and Zweier, J. L. Deconvolution algorithm based on automatic cutoff frequency selection for EPR imaging. Magn. Reson. Med., 50, 444-448 (2003). [[PubMed](#)]

134. Ilangovan, G., Li, H., Zweier, J. L., and **Kuppusamy, P.** Effect of carbogen-breathing on redox status of RIF-1 tumor. *Adv. Exp. Med. Biol.* 510, 13-17 (2003). [[PubMed](#)]
135. **Kuppusamy, P.**, and Chzhan, M., and Zweier, J. L. Principles of EPR imaging - Hardware and Software. *In* Biological Magnetic Resonance (Ed. Berliner, L. J.) Vol 18, Chapter 6. Kluwer Academic Publishers (2003).
136. Liu, J. Q., Sham, J. S., Shimoda, L. A., **Kuppusamy, P.**, and Sylvester, J. T. Hypoxic constriction and reactive oxygen species in porcine distal pulmonary arteries. *Am J Physiol Lung Cell Mol Physiol.* 285, L322-L333 (2003). [[PubMed](#)]
137. Pandian, R. P., Kutala, V. K., Parinandi, N. L., Zweier, J. L., and **Kuppusamy, P.** Measurement of oxygen consumption in mouse aortic endothelial cells using a microparticulate oximetry probe. *Arch. Biochem. Biophys.* 420, 169-175 (2003). [[PubMed](#)]
138. Pandian, R. P., Parinandi, N. L., Ilangovan, G., Zweier, J. L., and **Kuppusamy, P.** Novel particulate spin probe for targeted determination of oxygen in cells and tissues. *Free Radic. Biol. Med.* 35, 1138-1148 (2003). [[PubMed](#)]
139. Rizzi, C., Samouilov, A., Kutala, V., Parinandi, N. L., Zweier, J. L., and **Kuppusamy, P.** Application of a trityl-based radical for measuring superoxide. *Free Radic. Biol. Med.* 35, 1608-1618(2003). [[PubMed](#)]
140. Velayutham, M., Li, H., **Kuppusamy, P.**, and Zweier, J. L. Mapping ischemic risk region and necrosis in the isolated heart using EPR imaging. *Magn. Reson. Med.* 49, 1181-1187 (2003). [[PubMed](#)]
141. Xu, K. Y. Kuppusamy, S. P., Wang, J. Q., Li, H., Cui, H., Dawson, T. M., Huang, P. L., Burnett, A. L., **Kuppusamy, P.**, and Becker, L. C. Nitric oxide protects cardiac sarcolemmal membrane enzyme function and ion active transport against ischemia induced inactivation. *J. Biol. Chem.* 278, 41798-41803 (2003). [[PubMed](#)]
142. Zweier, J. L. Samouilov, A., and **Kuppusamy, P.** Cardiac applications of EPR spectroscopy and imaging *In* Biological Magnetic Resonance (Ed. Berliner, L. J.) Vol 18, Chapter 16. Kluwer Academic Publishers (2003).
143. Zweier, J. L., He, G., Samouilov, A., and **Kuppusamy, P.** EPR spectroscopy and imaging of oxygen: Application to the gastrointestinal tract. *Adv. Exp. Med. Biol.* 530, 123-131 (2003). [[PubMed](#)]

2004 (16)

144. Crowther, J. E., Kutala, V. K., **Kuppusamy, P.**, Ferguson, J. S., Beharka, A. A., Zweier, J. L., McCormack, F. X., and Schlesinger, L. S. Pulmonary surfactant protein A inhibits macrophage reactive oxygen intermediate production in response to stimuli by reducing NADPH oxidase activity. *J. Immunol.* 172, 6866-6874 (2004). [[PubMed](#)]
145. Deng, Y., He, G., Petryakov, S., **Kuppusamy, P.**, and Zweier, J. L. Fast EPR imaging at 300 MHz using spinning magnetic field gradients. *J. Magn. Reson.* 168, 220-227 (2004). [[PubMed](#)]
146. He, G., Kutala, V. K., **Kuppusamy, P.**, and Zweier, J. L. In vivo measurement and mapping of skin redox stress induced by ultraviolet light exposure. *Free Radic. Biol. Med.* 36, 665-672 (2004). [[PubMed](#)]
147. Ilangovan, G., Liebgott, T., Kutala, V. K., Petryakov, S., Zweier, J. L., and **Kuppusamy, P.** EPR oximetry in the beating heart: Myocardial oxygen consumption rate as an index of postischemic recovery. *Magn. Reson. Med.* 51, 835-842 (2004). [[PubMed](#)]
148. Ilangovan, G., Zweier, J. L., and **Kuppusamy, P.** Simultaneous measurement of oxygen concentration and oxygen radicals in cellular and enzymatic reactions, *Methods in Enzymology*, 381, 747-762 (2004). [[PubMed](#)]
149. Ilangovan, G., Zweier, J. L., & **Kuppusamy, P.** Mechanism of oxygen-induced EPR line broadening in lithium phthalocyanine microcrystals. *J. Magn. Reson.* 170, 42-48 (2004). [[PubMed](#)]
150. Ilangovan, G., Osinbowale, S., Bratasz, A., Bonar, M., Cardounel, A. J., Zweier, J. L., and **Kuppusamy, P.** Heat-shock attenuates respiration of cardiomyocytes through upregulation of nitric oxide synthase. *Am. J. Physiol. Cell Physiol.* 287, C1472-1481 (2004). [[PubMed](#)]
151. Ilangovan, G., Bratasz, A., Li, H., Schmalbrock, P., Zweier, J. L., **Kuppusamy, P.** *In vivo* measurement and imaging of tumor oxygenation using coembedded paramagnetic particulates. *Magn. Reson. Med.* 52, 650-657 (2004). [[PubMed](#)]
152. Khramtsov, V.V, Grigor'ev, I.A., Foster, M.A., Lurie, D.J., Zweier J.L. and **Kuppusamy, P.** Spin pH and SH probes: enhancing functionality of EPR-based techniques, *Journal of Spectroscopy*, 18, 213-225 (2004).

153. **Kuppusamy P.** EPR spectroscopy in biology and medicine (Forum Editorial). Antiox. Redox Signal., 6, 583-585 (2004). [[PubMed](#)]
154. **Kuppusamy, P.** and Zweier, J. L. Cardiac applications of EPR imaging. NMR in Biomedicine, 17, 226-239 (2004). [[PubMed](#)]
155. Kutala, V. K., Parinandi, N. L., Pandian, R. P. and **Kuppusamy, P.** Simultaneous measurement of oxygenation in intracellular and extracellular compartments of lung microvascular endothelial cells. Antiox. Redox Signal. 6, 597-603 (2004). [[PubMed](#)]
156. Kutala, V. K., Parinandi, N., Zweier, J. L., and **Kuppusamy, P.** Reaction of superoxide with trityl radical: Implications for the determination of superoxide by Spectrophotometry. Arch. Biochem. Biophys. 424, 81-88 (2004). [[PubMed](#)]
157. Lustbader, J., Cirilli, M., Lin. C., Xu, H., Takuma, K., Wang, N., Caspersen, C., Chen, X., Pollack, S., Chaney, M., Trinchese, F., Liu, S., Gunn-Moore, F., Lue, LF, Walker, D. G., **Kuppusamy, P.**, Zweier, J. L., Arancio, O., Stern, D., Yan, S. D., and Wu, H. ABAD directly links A β to mitochondrial toxicity in Alzheimer's disease. Science 304, 448-452 (2004). [[PubMed](#)]
158. Mikuni, T., He, G., Petryakov, S., Fallouh, M., Deng, Y., Isihara, R., **Kuppusamy, P.**, Tatsuta, M., and Zweier, J. L. *In vivo* detection of gastric cancer in rats by electron paramagnetic resonance imaging. Cancer Research 62, 6495-6502 (2004). [[PubMed](#)]
159. Samouilov, A., Roubaud, V. M., **Kuppusamy, P.**, and Zweier J. L. Kinetic analysis-based quantitation of free radical generation in EPR spin trapping. Anal. Biochem. 334, 145-154 (2004). [[PubMed](#)]

2005 (12)

160. Bratasz, A. and **Kuppusamy, P.** Noninvasive imaging of oxygenation in a transplanted tumor. Current Topics in Biophysics, 29, 101-107 (2005).
161. Deng Y., **Kuppusamy, P.**, Zweier, J. L. Progressive EPR imaging with adaptive projection acquisition. J. Magn. Reson. 174, 177-187 (2005). [[PubMed](#)]
162. Fries, R. B., Wallace, W. A., Roy, S., **Kuppusamy, P.**, Bergdall, V., Gordillo, G. M., Melvin, S. M., Sen, C. K. Dermal excisional wound healing in pigs following treatment with topically applied pure oxygen. Mutation Research. 579, 172-181 (2005). [[PubMed](#)]
163. Ilangovan, G., Bratasz, A. and **Kuppusamy, P.** Noninvasive measurement of tumor oxygenation using embedded microparticulate EPR spin probe. Adv. Exp. Biol. Med. Oxygen Transport to Tissue XXVI, Okunieff, P., Williams, J., and Chen, Y. (Eds.), Springer, Volume, 566, (2005). [[PubMed](#)]
164. Khan, M., Shobha, J. C., Mohan, I. K., Naidu, M. U., Sundaram, C., Singh, S., **Kuppusamy, P.**, Kutala, V. K. Phytotherapy Research, 19, 1030-1037 (2005). [[PubMed](#)]
165. Kutala, V. K. and **Kuppusamy, P.** Trityl radicals for quantitative detection of superoxide in biological systems. Current Topics in Biophysics, 29, 129-138 (2005).
166. Matsumoto, A., Matsumoto, S., Sowers, A. L., Koscielniak, J. W., Trigg, N. J., **Kuppusamy, P.**, Mitchell, J. B., Subramanian, S., Krishna, M. C., Matsumoto, K. Absolute oxygen tension (pO₂) in murine fatty and muscle tissue as determined by EPR. Magn. Reson. Med. 54, 1530-1535 (2005). [[PubMed](#)]
167. Pandian, R. P., Kutala, V. K., Liaugminas, A., Parinandi, N. L. and **Kuppusamy, P.** Lipopolysaccharide-induced alterations in oxygen consumption and radical generation in endothelial cells. Mol. Cell. Biochem. 278, 119-127 (2005). [[PubMed](#)]
168. Tritto, I., Wang, P., **Kuppusamy, P.**, Giraldez, R., Zweier, J. L., and Ambrosio, G. The anti-anginal drug trimetazidine reduces neutrophil-mediated cardiac reperfusion injury. J Cardiovasc Pharmacol. 46, 89-98 (2005). [[PubMed](#)]
169. Varadharaj, S., Watkins, T., Cardounel, A. J., Garcia, J. G. N., Zweier, J. L., **Kuppusamy, P.**, Natarajan, V., Parinandi, N. L. Vitamin C-induced loss of redox-dependent viability in lung microvascular endothelial cells, Antiox. Redox Signal. 7, 287-300 (2005). [[PubMed](#)]
170. Xu, K., and **Kuppusamy, P.** Dual effects of copper-zinc superoxide dismutase. Biochem. Biophys. Res. Comm. 336, 1190-1193. (2005). [[PubMed](#)]

171. Zhao, X., He, G., Chen, Y.-R., Pandian, R. P., **Kuppusamy, P.**, and Zweier, J. L. Endothelium-derived nitric oxide regulates postischemic myocardial oxygenation and oxygen consumption by modulation of mitochondrial electron transport. Circulation, 111, 2966-2972 (2005). [[PubMed](#)]

2006 (26)

172. Ahmad, R., Clymer, B., Deng, Y., He, G., Vikram, D., **Kuppusamy, P.**, Zweier, J. L., Optimization of data acquisition for EPR imaging. J. Magn. Reson. 179, 263-272 (2006). [[PubMed](#)]
173. Ahmad, R., Vikram, D., Petryakov, S., Deng, Y., Zweier, J. L., **Kuppusamy, P.**, Clymer, B. Automated on-the-fly detection and correction procedure for imaging data acquisition. Magn. Reson. Med. 56, 644-653 (2006). [[PubMed](#)]
174. Angelos, M. G., Kutala, V. K., Torres, C. A., He, G., Stoner, J. D., Mohammad, M., **Kuppusamy, P.** Hypoxic reperfusion of the ischemic heart and oxygen radical generation. Am. J. Physiol. (Heart Circ. Physiol.) 290, H341-H347 (2006). [[PubMed](#)]
175. Bratasz, A., Ilangovan, G., Pandian, R. P., and **Kuppusamy, P.** Monitoring oxygenation during the growth of a transplanted tumor. Adv. Exp. Med. Biol., 578, 375-380 (2006). [[PubMed](#)]
176. Bratasz, A., Weir, N. M., Parinandi, N. L., Zweier, J. L., Sridhar, R., Ignarro, L. J., and **Kuppusamy, P.** Reversal to cisplatin sensitivity in recurrent human ovarian cancer cells by NCX-4016, a nitro-derivative of aspirin. Proc. Natl. Acad. Sci. USA 103, 3914-3919 (2006). [[PubMed](#)]
177. Deng, Y., Pandian, R. P., Ahmad, R., **Kuppusamy, P.**, Zweier, J. L. Application of magnetic field over-modulation for improved EPR linewidth measurements using probes with Lorentzian lineshape. J. Magn. Reson. 181, 254-261 (2006). [[PubMed](#)]
178. Deng, Y., Shet, K., Li, H., **Kuppusamy, P.**, Zweier, J. L. Real-time calculation and visualization of spectra in field-cycled dynamic nuclear polarization spectroscopy. J. Comput. Methods. Program. Biomed. 82, 67-72 (2006). [[PubMed](#)]
179. Ganesan, L. P., Joshi, T., Fang, H., Kutala, V. K., Roda, J., Trotta, R., Lehman, A., Kuppusamy, P., Byrd, J. C., Carson, W. E., Caligiuri, M. A., Tridandapani, S. FcγR-induced production of super oxide and inflammatory cytokines is differentially regulated by SHIP through its influence on P13K and/or Ras/Erk pathways. Blood 108, 718-725 (2006). [[PubMed](#)]
180. Ilangovan, G., Venkatakrisnan, C. D., Bratasz, A., Osinbowale, S., Cardounel, A. J., Zweier, J. L., and **Kuppusamy, P.** Heat shock-induced attenuation of hydroxyl radical generation and mitochondrial aconitase activity in cardiac H9C2 cells. Am. J. Physiol. (Cell Physiol.) 290, C313-C324 (2006). [[PubMed](#)]
181. Kalai, T., Khan, M., Balog, M., Kutala, V. K., **Kuppusamy, P.**, and Hideg, K. Structure-activity studies on the protection of Trimetazidine derivatives modified with nitroxides and their precursors from myocardial ischemia-reperfusion injury. Bio-org. Med. Chem. 14, 5510-5516 (2006). [[PubMed](#)]
182. Khan, M., Varadharaj, S., Ganesan, L. P., Shobha, J. C., Naidu, M. U., Parinandi, N. L., Tridandapani, S., Kutala, V. K., **Kuppusamy, P.** C-phycocyanin protects against ischemia-reperfusion injury of heart through involvement of p38 MAPK and ERK signaling. Am. J. Physiol. Heart. Circ. Physiol. 290, H2136-2145 (2006). [[PubMed](#)]
183. Khan, M., Varadharaj, S., Shobha, J. C., Naidu, M. U., Parinandi, N. L., Kutala, V. K., and **Kuppusamy, P.** C-phycocyanin ameliorates doxorubicin-induced oxidative stress and apoptosis in adult rat cardiomyocytes. J. Cardiovasc. Pharmacol. 47, 9-20 (2006). [[PubMed](#)]
184. Kutala, V. K., Khan, M., Mandal, R., Ganesan, L. P., Tridandapani, S., Kalai, T., Hideg, K., **Kuppusamy, P.** Attenuation of myocardial ischemia - reperfusion injury by trimetazidine derivatives functionalized with antioxidant properties. J. Pharmacol. Exp. Ther. 317, 921-928 (2006). [[PubMed](#)]
185. Kutala, V. K., Khan, M., Mandal, R., Potaraju, V., Colantuono, G., Kumbala, D., **Kuppusamy, P.** Prevention of post-ischemic myocardial reperfusion injury by the combined treatment of NCX-4016 and Tempol. J. Cardiovasc. Pharmacol. 48, 79-87 (2006). [[PubMed](#)]
186. Li, H., He, G., Deng, Y., **Kuppusamy, P.**, Zweier, J. L. In vivo proton electron double resonance imaging of the distribution and clearance of nitroxide radicals in mice. Magn. Reson. Med. 55, 669-675 (2006). [[PubMed](#)]

187. Magalang, U., Rajappan, R., Hunter, M. G., Kutala, V. K., **Kuppusamy, P.**, Wewers, M., Marsh, C. B., and Parinandi, N. L. Adiponectin inhibits superoxide generation by human neutrophils, *Antiox. Redox Signal.* 8, 2179-2186 (2006). [[PubMed](#)]
188. Mohan, I. K., Khan, M., Shobha, J. C., Naidu, M. U., Prayag, A., **Kuppusamy, P.**, Kutala, V. K. Protection against cisplatin-induced nephrotoxicity by Spirulina in rats. *Cancer Chemother. Pharmacol.* 58, 802-808 (2006). [[PubMed](#)]
189. Pandian, R. P., Dang, V., Manoharan, P. T., Zweier, J. L., **Kuppusamy, P.** Effect of nitrogen dioxide on the EPR property of lithium octa-*n*-butoxy 2,3-naphthalocyanine (LiNc-BuO) microcrystals. *J. Magn. Reson.* 181, 154-161 (2006). [[PubMed](#)]
190. Pandian, R. P., Kim, Y-I, Woodward, P., Zweier, J. L., Manoharan, P. T., and **Kuppusamy, P.** Open molecular framework in lithium octabutoxy-naphthalocyanine paramagnetic crystal: Implications for the detection of oxygen and nitric oxide by EPR spectroscopy. *J. Mater. Chem.* 16, 3609-3620 (2006).
191. Parinandi, N. L., Sen, C. K., and **Kuppusamy, P.** Joint International Conference on EPR Spectroscopy and wound healing. *Antiox. Redox Signal.* 8, 1385-1387 (2006). [[PubMed](#)]
192. Presley, T., **Kuppusamy, P.**, Zweier, J. L., Ilangoan, G. Electron paramagnetic resonance oximetry as a quantitative method to measure cellular respiration: a consideration of oxygen diffusion interference. *Biophys. J.* 91, 4623-4631 (2006). [[PubMed](#)]
193. Presley, T., **Kuppusamy, P.**, Zweier, J. L., Ilangoan, G. The role of heat shock protein 90 and endothelial nitric oxide synthetase signaling in cardiovascular therapy. *J. Current Signal Transduction Therapy.* 1, 305-315 (2006).
194. Sostaric, J., Pandian, R. P., Weavers, L. K., **Kuppusamy, P.** Ultrasound-induced miniaturization of micron-sized lithium phthalocyanine particles. *Chem. Mater.* 18, 4183-4189 (2006).
195. Varadharaj, S., Steinhour, E., Hunter, M. G., Watkins, T., Baran, C. P., Magalang, U., **Kuppusamy, P.**, Zweier, J. L., Marsh, C. B., Natarajan, V., Parinandi, N. L. Vitamin C-induced activation of phospholipase D in lung microvascular endothelial cells: Regulation by MAP kinases. *Cell Signal.* 18, 1396-1407 (2006). [[PubMed](#)]
196. Venkatakrishnan, C. D., Tewari, A. K., Moldovan, L., Cardounel, A. J., Zweier, J. L., **Kuppusamy, P.**, Ilangoan, G. Heat-shock protects cardiac cells from doxorubicin-induced toxicity by activating p38MAPK and phosphorylation of small heat-shock protein-27. *Am. J. Physiol. (Heart Circ. Physiol.)*. 291, 2680-2691 (2006). [[PubMed](#)]
197. Xia, S., Villamena, F. A., Hadad, C. M., **Kuppusamy, P.**, Li, Y., Zhu, H., and Zweier, J. L. Reactivity of molecular oxygen with ethoxycarbonyl derivatives of tetrathiatriarylmethyl radicals. *J. Org. Chem.*, 71, 7268-7279 (2006). [[PubMed](#)]

2007 (37)

198. Ahmad, R.; Clymer, B.; Vikram, D. S.; Deng, Y.; Hirata, H.; Zweier, J. L.; **Kuppusamy, P.** Enhanced resolution for EPR imaging by two-step deblurring. *J Magn Reson* 184:246-257 (2007). [[PubMed](#)]
199. Ahmad, R.; Deng, Y.; Vikram, D. S.; Clymer, B.; Srinivasan, P.; Zweier, J. L.; **Kuppusamy, P.** Quasi Monte Carlo-based isotropic distribution of gradient directions for improved reconstruction quality of 3D EPR imaging. *J Magn Reson* 184:236-245 (2007). [[PubMed](#)]
200. Ahmad, R.; Vikram, D. S.; Clymer, B.; Potter, L. C.; Deng, Y.; Srinivasan, P.; Zweier, J. L.; **Kuppusamy, P.** Uniform distribution of projection data for improved reconstruction quality of 4D EPR imaging. *J Magn Reson* 187:277-287 (2007). [[PubMed](#)]
201. Bratasz, A.; Kulkarni, A. C.; **Kuppusamy, P.** A highly sensitive biocompatible spin probe for imaging of oxygen concentration in tissues. *Biophys J* 92:2918-2925 (2007). [[PubMed](#)]
202. Bratasz, A.; Pandian, R. P.; Deng, Y.; Petryakov, S.; Grecula, J. C.; Gupta, N.; **Kuppusamy, P.** In vivo imaging of changes in tumor oxygenation during growth and after treatment. *Magn Reson Med* 57:950-959 (2007). [[PubMed](#)]
203. Bratasz, A. and **Kuppusamy, P.** Mapping tumor hypoxia using magnetically labeled cells. *Ind. J. Rad. Research,* 4, 144-151 (2007).
204. Butt, O. I.; Carruth, R.; Kutala, V. K.; **Kuppusamy, P.**; Moldovan, N. I. Stimulation of Peri-Implant Vascularization with Bone Marrow-Derived Progenitor Cells: Monitoring by In Vivo EPR Oximetry. *Tissue Eng,* 13(8), 2053-2061 (2007). [[PubMed](#)]

205. Dang, V.; Wang, J.; Feng, S.; Buron, C.; Villamena, F. A.; Wang, P. G.; **Kuppusamy, P.** Synthesis and characterization of a perchlorotriphenylmethyl (trityl) triester radical: a potential sensor for superoxide and oxygen in biological systems. *Bioorg Med Chem Lett* 17:4062-4065 (2007). [[PubMed](#)]
206. Deng, Y.; Petryakov, S.; He, G.; Kesselring, E.; **Kuppusamy, P.**; Zweier, J. L. Fast 3D spatial EPR imaging using spiral magnetic field gradient. *J Magn Reson* 185:283-290 (2007). [[PubMed](#)]
207. Falk, J. A.; Aune, S. E.; Kutala, V. K.; **Kuppusamy, P.**; Angelos, M. G. Inhibition of peroxynitrite precursors, NO and O(2), at the onset of reperfusion improves myocardial recovery. *Resuscitation* 74:508-515 (2007). [[PubMed](#)]
208. Fujii, H.; Itoh, K.; Pandian, R. P.; Sakata, M.; **Kuppusamy, P.**; Hirata, H. Measuring Brain Tissue Oxygenation under Oxidative Stress by ESR/MR Dual Imaging System. *Magn Reson Med Sci* 6:83-89 (2007). [[PubMed](#)]
209. Hagele, T. J.; Mazerik, J. N.; Gregory, A.; Kaufman, B.; Magalang, U.; Kuppusamy, M. L.; Marsh, C. B.; **Kuppusamy, P.**; Parinandi, N. L. Mercury activates vascular endothelial cell phospholipase D through thiols and oxidative stress. *Int J Toxicol* 26:57-69 (2007). [[PubMed](#)]
210. Isenberg, J. S.; Hyodo, F.; Matsumoto, K.; Romeo, M. J.; Abu-Asab, M.; Tsokos, M.; **Kuppusamy, P.**; Wink, D. A.; Krishna, M. C.; Roberts, D. D. Thrombospondin-1 limits ischemic tissue survival by inhibiting nitric oxide-mediated vascular smooth muscle relaxation. *Blood* 109:1945-1952 (2007). [[PubMed](#)]
211. Khan, M., Kutala, V. K., Mohan, I. K., Kumbala, D., and **Kuppusamy P.** Cardioprotection by sulfaphenazole, a cytochrome P450 inhibitor: Mitigation of ischemia-reperfusion injury by scavenging of reactive oxygen species. *J. Pharmacol. Exper. Therap.* 323, 813-821 (2007). [[PubMed](#)]
212. Khan, M., Kutala, V. K., Wisel, S., Chacko, S. M., Kuppusamy, M. L., Kwiatkowski, P., **Kuppusamy, P.** Measurement of oxygenation at the site of stem cell therapy in a murine model of myocardial infarction. *Adv. Exp. Med. Biol.* 1-6 (2007).
213. Khan, M.; Kutala, V. K.; Vikram, D. S.; Wisel, S.; Chacko, S. M.; Kuppusamy, M. L.; Mohan, I. K.; Zweier, J. L.; Kwiatkowski, P.; **Kuppusamy, P.** Skeletal Myoblasts Transplanted in the Ischemic Myocardium Enhance In Situ Oxygenation and Recovery of Contractile Function. *Am J Physiol Heart Circ Physiol*; 293, H2129-H2139 (2007). [[PubMed](#)]
214. Kulkarni, A.; **Kuppusamy, P.**; Parinandi, N. L.; Oxygen, the lead actor in the pathophysiologic drama: Enactment of the trinity of normoxia, hypoxia, and hyperoxia in disease and therapy. *Antiox. Redox Signal.* 9(10), 1717-1730 (2007). [[PubMed](#)]
215. Kutala VK, **Parinandi NL**, Khan M, Iyyapu KM, **Kuppusamy P.** Spirulina - A Blue-green Alga with Novel Therapeutic Actions. *Recent Progress in Medicinal Plants*, Volume 22, Editor J.N. Govil, Stadium Press LLC, P.O. Box 722200, Houston, Texas (2007).
216. Kutala, V. K., Mohan, I. K., Khan, M., Parinandi, N. L., **Kuppusamy, P.** Drug-induced nephrotoxicity protection by Spirulina: Spirulina in Human Health and Nutrition. *In Spirulina in Human Nutrition and Health*, Editors: Gershwin E and Belay A, CRC Press, Taylor & Francis Group, Boca Raton, FL. 151-172 (2007).
217. Kutala, V. K.; Khan, M.; Angelos, M. G.; **Kuppusamy, P.** Role of oxygen in postischemic myocardial injury. *Antioxid Redox Signal* 9:1193-1206 (2007). [[PubMed](#)]
218. Mandal, R.; Kutala, V. K.; Khan, M.; Mohan, I. K.; Varadharaj, S.; Sridhar, A.; Carnes, C. A.; Kalai, T.; Hideg, K.; **Kuppusamy, P.** N-hydroxy-pyrroline Modification of Verapamil Exhibits Antioxidant Protection of the Heart against Ischemia/Reperfusion-induced Cardiac Dysfunction without compromising its Calcium Antagonistic Activity. *J Pharmacol Exp Therap* 323, 119-127 (2007). [[PubMed](#)]
219. Mazerik J.N., Hagele T, Sherwani S, Ciapala V, Butler S, Kuppusamy M.L., Hunter M, **Kuppusamy P**, Marsh C.B., Parinandi N.L.. Phospholipase A₂ activation regulates cytotoxicity of methylmercury in vascular endothelial cells. *Am. Coll.Toxicol. J.* 26, 553-569 (2007). [[PubMed](#)]
220. Mazerik J.N., Mikkilineni H, Kuppusamy V.A., Steinhour E, Peltz A, Marsh, C.B., **Kuppusamy P**, Parinandi, N.L., Mercury activates phospholipase A₂ and induces formation of arachidonic acid metabolites in vascular endothelial cells. *Toxicol. Mech. Methods* 17, 1-17 (2007).
221. Pandian, R. P.; Dolgos, M.; Dang, V.; Sostaric, J. Z.; Woodward, P. M.; **Kuppusamy, P.** Structure and oxygen-sensing paramagnetic properties of a new lithium 1,8,15,22-tetraphenoxypthalocyanine radical probe for biological oximetry. *Chem. Mater.* 19:3545-3552 (2007).

222. Parinandi, N.L.; Sharma, A.; Eubank, T. D.; Kaufman, B.; Kutala, V. K.; Marsh, C. B.; Ignarro, L. J.; **Kuppusamy, P.** Nitroaspirin (NCX-4016), an NO donor, is antiangiogenic through induction of loss of redox-dependent viability and cytoskeletal reorganization in endothelial cells. *Antiox. Redox Signal.* 9(11): 1837 - 1849 (2007). [[PubMed](#)]
223. Selvendiran, K.; Tong, L.; Vishwanath, S.; Bratasz, A.; Trigg, N. J.; Kutala, V. K.; Hideg, K.; **Kuppusamy, P.** EF24 induces G2/M arrest and apoptosis in cisplatin-resistant human ovarian cancer cells by increasing PTEN expression. *J Biol Chem* 282, 28609-28618 (2007). [[PubMed](#)]
224. Som, S.; Potter, L. C.; Ahmad, R.; **Kuppusamy, P.** A parametric approach to spectral-spatial EPR imaging. *J Magn Reson* 186:1-10 (2007). [[PubMed](#)]
225. Sostaric, J. Z.; Pandian, R. P.; Bratasz, A.; **Kuppusamy, P.** Encapsulation of a highly sensitive EPR active oxygen probe into sonochemically prepared microspheres. *J Phys Chem B* 111:3298-3303 (2007). [[PubMed](#)]
226. Steinhour, E., Ciapala, V., Butler, S., Mazerik, J. N., **Kuppusamy, P.**, Magalang, U., Parthasarathy, S., Marsh, C. B., Sen, C. K., Parinandi, N. L. Redox-active antioxidant modulation of lipid signaling in vascular endothelial cells: Vitamin C induces activation of phospholipase D through phospholipase A2, lipoxygenase, and cyclooxygenase. *Free Radicals and Antioxidant Protocols*, Editors: Rao M. Uppu, Subramanyam N. Murthy, and William A. Pryor, 2nd Edition for Methods in Mol Biol Series, Humana Press, Totowa, NJ (2007).
227. Turakhia, S., Venkatakrishnan, C. D., Dunsmore, K., Wong, H., **Kuppusamy, P.**, Zweier, J. L., and Ilangovan, G. Doxorubicin-induced cardiotoxicity: Direct correlation of cardiac fibroblasts and H9C2 cell survival and aconitase activity with heat shock protein-27. *Am. J. Physiol. Heart Circ. Physiol.* 293, H3111-H3121 (2007). [[PubMed](#)]
228. Velan, S. S.; Lemieux, S. K.; Raylman, R. R.; Boling, W.; Hobbs, G. R.; Spencer, R. G.; Sridhar, R.; **Kuppusamy, P.**; Thomas, M. A. Detection of cerebral metabolites by single-voxel-based PRESS and COSY techniques at 3T. *J Magn Reson Imaging* 26:405-409 (2007). [[PubMed](#)]
229. Vikram, D. S., Rivera, B. K., **Kuppusamy, P.** *In vivo* imaging of free radicals and oxygen. *Methods in Molecular Biology* (2007).
230. Vikram, D. S.; Bratasz, A.; Ahmad, R.; **Kuppusamy, P.** A comparative evaluation of EPR and OxyLite oximetry using a random sampling of pO₂ in a murine tumor. *Radiat. Research* 168: 308-315 (2007). [[PubMed](#)]
231. Vikram, D. S.; Zweier, J. L.; **Kuppusamy, P.** Methods for Noninvasive Imaging of Tissue Hypoxia. *Antioxid Redox Signal*; 9(10) 1745-1756 (2007). [[PubMed](#)]
232. Weir, N. M.; Selvendiran, K.; Kutala, V. K.; Tong, L.; Vishwanath, S.; Rajaram, M.; Tridandapani, S.; Anant, S.; **Kuppusamy, P.** Curcumin induces G2/M arrest and apoptosis in cisplatin-resistant human ovarian cancer cells by modulating Akt and p38 MAPK. *Cancer Biol Ther* 6:178-184 (2007). [[PubMed](#)]
233. Wisel, S.; Chacko, S. M.; Kuppusamy, M. L.; Pandian, R. P.; Khan, M.; Kutala, V. K.; Burry, R. W.; Sun, B.; Kwiatkowski, P.; **Kuppusamy, P.** Labeling of skeletal myoblasts with a novel oxygen-sensing spin probe for noninvasive monitoring of *in situ* oxygenation and cell therapy in heart. *Am J Physiol Heart Circ Physiol* 292:H1254-H1261 (2007). [[PubMed](#)]
234. Yang, L.; Sostaric, J. Z.; Rathman, J. F.; **Kuppusamy, P.**; Weavers, L. K. Effects of pulsed ultrasound on the adsorption of n-alkyl anionic surfactants at the gas/solution interface of cavitation bubbles. *J Phys Chem B* 111:1361-1367 (2007). [[PubMed](#)]

2008 (17)

235. Ahmad, R., Potter, L., Vikram, D. and **Kuppusamy, P.** Estimation of mean and median pO₂ values for a composite EPR spectrum. *J. Magn. Reson.* 192, 269-274 (2008). [[PubMed](#)]
236. Bratasz, A., Selvendiran, K., Tong, L., Tomasz, T., Bobko, A., Khramtsov, V. V., Ignarro, L. J., and **Kuppusamy, P.** NCX-4040, a nitric oxide-releasing aspirin, sensitizes drug-resistant human ovarian xenograft tumors to cisplatin by depletion of cellular thiols. *J. Translational Medicine* 6, 9 (12 pages) (2008). [[PubMed](#)]
237. Hussain, S.A., Lucas, D. M., Johnson, AJ, Lin, TS, Viatchenko-Karpinski, S., Bakaletz, AP, Dang, V, **Kuppusamy, P.**, Crouser, E. D., Byrd, JC, Grever, MR. Flavopiridol causes early mitochondrial damage in chronic lymphocytic leukemia cells with loss of oxygen consumption and mobilization of intracellular calcium. *Blood* 111, 3190-3199 (2008). [[PubMed](#)]

238. Khan, M., Kutala, V. K., Wisel, S., Chacko, S. M., Kuppusamy, M. L., Kwiatkowski, P., **Kuppusamy, P.** Measurement of oxygenation at the site of stem cell therapy in a murine model of myocardial infarction. Adv. Exp. Med. Biol. 614, 45-52 (2008). [PubMed]
239. Kulkarni, A. C., Bratasz, Rivera, B. K, Krishna, M. C. Kuppusamy, P. Redox Mapping of Biological Samples Using EPR Imaging. Israel J Chem. 48, 27-31 (2008).
240. Kutala, V. K., Villamena, F. A., Ilangovan, G., MasPOCH, D., Roques, N., Veciana, J., Rovira, C., **Kuppusamy, P.** Reactivity of superoxide anion radical with a perchlorotriphenylmethyl (trityl) radical. J. Phys. Chem. B. 112, 158-167 (2008). [PubMed]
241. Matsumoto, S., Espey, M. G., Utsumi, H., Devasahayam, N., Matsumoto, K-I., Matsumoto, A., Hirata, H., Wink, D. A., **Kuppusamy, P.**, Subramanian, S., Mitchell, J. B., and Krishna, M. C. Dynamic monitoring of localized tumor oxygenation changes using RF pulsed electron paramagnetic resonance in conscious mice. Magn. Reson. Med. 59, 619-625 (2008). [PubMed]
242. Ojha, N. Roy, S., Radtke, J., Simonetti, O., Gnyawali, S., Zweier, J., **Kuppusamy, P.**, and Sen, C. K., Characterization of the structural and functional changes in the myocardium following focal ischemia-reperfusion injury. Am J. Physiol Heart Circul Phys. 294, H2435-H2543 (2008). [PubMed]
243. Ojha, N., Roy, S., He, G., Biswas, S., Velayutham, M., Khanna, S., Kuppusamy, P., Zweier, J. L., and Sen, C. K. Assessment of wound-site redox environment and the significance of Rac2 in cutaneous healing. Free Radic. Biol. Med. 44, 682-691 (2008). [PubMed]
244. Roshchupkina, G. I., Bobko, A. A., Bratasz, A., Reznikov, V. A., **Kuppusamy, P.** In vivo EPR measurement of glutathione in tumor-bearing mice using improved disulfide biradical probe. Free Radic. Biol. Med. 45, 312 - 320 (2008). [PubMed]
245. Savla, M., Pandian, R. P., Kuppusamy, P. Agarwal, G. Magnetic Force Microscopy of an Oxygen-Sensing Spin-Probe. Israel J Chem. 48, 33-38 (2008).
246. Selvendiran, K., Bratasz, A., Tong, L. Ignarro, L. J., and **Kuppusamy, P.** NCX-4016, a nitro-derivative of aspirin, inhibits EGFR and STAT3 signaling and modulates Bcl-2 proteins in cisplatin-resistant human ovarian cancer cells and xenografts. Cell Cycle 7, 81-88 (2008). [PubMed]
247. Som, S., Potter, L. C., Ahmad, R., Vikram, D. S., **Kuppusamy, P.** EPR oximetry in three spatial dimensions using sparse spin distribution. J. Magn. Reson. 193, 210-217 (2008). [PubMed]
248. Steinhour E, Sherwani SI, Mazerik JN, Ciapala V, O'Connor Butler E, Cruff JP, Magalang U, Parthasarathy S, Sen CK, Marsh CB, **Kuppusamy P**, Parinandi NL. Redox-active antioxidant modulation of lipid signaling in vascular endothelial cells: vitamin C induces activation of phospholipase D through phospholipase A2, lipoxygenase, and cyclooxygenase. Mol Cell Biochem. 315: 97-112 (2008). [PubMed]
249. Subramaniam, D., May, R. Sureban, S., Lee, K. B., George, R., **Kuppusamy, P.**, Ramanujam, R. P., Hideg, K., Diekgraefe, B. K., Houchen, C. W., Anant, S. Diphenyl difluoroketone (EF24): a curcumin derivative with potent in vivo anti-cancer activity. Cancer Research 68, 1962-1969 (2008). [PubMed]
250. Vikram DS, Ahmad R, Pandian RP, Petryakov S, **Kuppusamy P.** Evaluation of oxygen-response times of phthalocyanine-based crystalline paramagnetic spin probes for EPR oximetry. J Magn. Reson. 193: 127-132 (2008). [PubMed]
251. Vikram, D. S., Ahmad, R., Rivera, B. K., Kuppusamy, P. Mapping of Oxygen Concentration in Biological Samples Using EPR Imaging. Israel J Chem. 48, 39-43 (2008).

2009 (16)

252. Carsillo, M., Kutala, V.K., Puschel, K., Blanco, J., **Kuppusamy, P.**, Niewiesk, S. Nitric oxide production and nitric oxide synthase type 2 expression by cotton rat (*Sigmodon hispidus*) macrophages reflect the same pattern as human macrophages. Dev. Comp. Immunol. 33, 718-723 (2009). [PubMed]
253. Chacko SM, Khan M, Kuppusamy ML, Pandian RP, Varadharaj S, Selvendiran K, Bratasz A, Rivera BK, **Kuppusamy P.** Myocardial oxygenation and functional recovery in infarct rat hearts transplanted with mesenchymal stem cells. Am J Physiol. (Heart Circ Physiol) 296, H1263-H1273 (2009). [PubMed]

254. Das H, George JC, Joseph M, Das M, Abdulhameed N, Blitz A, Khan M, Sakthivel R, Mao HQ, Hoit BD, **Kuppusamy P**, Pompili VJ. Stem cell therapy with overexpressed VEGF and PDGF genes improves cardiac function in a rat infarct model. *PloS One*, 4, e7325 (2009).
255. Eteshola E, Pandian RP, Lee SC, **Kuppusamy P**. Polymer coating of paramagnetic particulates for in vivo oxygen-sensing applications. *Biomed. Microdev.* 11, 379-387 (2009). [[PubMed](#)]
256. Eubank, T., Roberts, R., Khan, M., Curry, J., Nuovo, G., **Kuppusamy, P.**, Marsh, C. B. Granulocyte macrophage colony-stimulating factor inhibits breast cancer growth and metastasis by invoking an anti-angiogenic program in tumor-educated macrophages. *Cancer Research* 69, 2133-2140 (2009). [[PubMed](#)]
257. Khan M, Meduru S, Mohan IK, Kuppusamy ML, Wisel S, Kulkarni AC, Rivera BK, Hamlin RL, **Kuppusamy P**. Hyperbaric oxygenation enhances transplanted cell graft and functional recovery in the infarct heart. *J Mol Cell Cardiol* 47, 275-287 (2009). [[PubMed](#)]
258. Khan M, Mohan IK, Kutala VK, Kotha S, Parinandi NL, Hamlin RL, **Kuppusamy P**. Sulfaphenazole protects heart against ischemia-reperfusion injury and cardiac dysfunction by overexpression of iNOS leading to enhancement of nitric-oxide bioavailability and tissue oxygenation. *Antiox. Redox Signal.* 11, 725-738 (2009). [[PubMed](#)]
259. Lakshmi SV, Padmaja G, **Kuppusamy P**, Kutala VK. Oxidative stress in cardiovascular disease. *Indian J Biochem Biophys* 46, 421-440 (2009).
260. Meenakshisundaram G, Eteshola E, Pandian RP, Bratasz A, Lee SC, **Kuppusamy P**. Fabrication and physical evaluation of a polymer-encapsulated paramagnetic probe for biomedical oximetry. *Biomed. Microdev.* 11, 773-782 (2009) [[PubMed](#)] **IF (2009): 3.32**
261. Meenakshisundaram G, Eteshola E, Pandian RP, Bratasz A, Selvendiran K, Lee SC, Swartz HM, Krishna MC, **Kuppusamy P**. Oxygen sensitivity and biocompatibility of an implantable paramagnetic probe for repeated measurements of tissue oxygenation. *Biomed. Microdev.* 11, 817-826 (2009). [[PubMed](#)]
262. Mohan, I. K., Khan, M., Wisel, S., Selvendiran, K., Sridhar, A., Carnes, C. A., Bogner, B., Kalai, T., Hideg, K., **Kuppusamy, P.** Cardioprotection by HO-4038, a Novel Verapamil Derivative, Targeted against Ischemia and Reperfusion-mediated Acute Myocardial Infarction. *Am J Physiol. (Heart Circ. Physiol.)* 296, H140-H151 (2009). [[PubMed](#)]
263. Pandian RP, Dolgos M, Marginean C, Woodward PM, Hammel CP, Manoharan PT, **Kuppusamy P**. Molecular packing and magnetic properties of lithium naphthalocyanine crystal: Hollow channels enabling permeability and paramagnetic sensitivity to molecular oxygen. *J. Mater. Chem.* 19, 4138-4147 (2009).
264. Peltz, A., Sherwani, S. I., Kotha, S. R., Mazerik, J. N., O'Connor Butler, E. S., Kuppusamy, M. L., Hagele, T., Magalang, U. J., **Kuppusamy, P.**, Marsh, C. B., Parinandi, N. L. Calcium and calmodulin regulate mercury-induced phospholipase D activation in vascular endothelial cells. *Int J Toxicol*, 28, 190-206 (2009). [[PubMed](#)]
265. Selvendiran K, Bratasz A, Kuppusamy ML, Tazi MF, Rivera BK, **Kuppusamy P**. Hypoxia induces chemoresistance in ovarian cancer cells by activation of signal transducer and activator of transcription 3. *Int J Cancer* 9, 2198-2204 (2009).
266. Selvendiran K, Kuppusamy ML, Bratasz A, Tong L, Rivera BK, Rink C, Sen CK, Kálai T, Hideg K, **Kuppusamy P**. Inhibition of vascular smooth-muscle-cell proliferation and arterial restenosis by HO-3867, a novel synthetic curcuminoid, through upregulation of PTEN expression. *J Pharmacol Exp Therap* 329, 959-966 (2009). [[PubMed](#)]
267. Wisel S, Khan M, Kuppusamy ML, Mohan IK, Chacko SM, Rivera BK, Sun B, Hideg K., **Kuppusamy P**. Pharmacological preconditioning of mesenchymal stem cells with Trimetazidine protects hypoxic cells against oxidative stress and enhances recovery of myocardial function in infarcted heart through Bcl-2 expression. *J Pharmacol Exp Therap* 329, 543-550 (2009). [[PubMed](#)]

2010 (31)

268. Ahmad R, Kuppusamy P. Theory, instrumentation, and applications of electron paramagnetic resonance oximetry. *Chemical Reviews*, 110, 3212-3236 (2010). [[PubMed](#)] **IF (2009) : 35.96**
269. Ahmad R, Khan M, Vikram DS, Bratasz A, **Kuppusamy P**. EPR Oximetry: Method and Application in "Methods in Redox Signaling" (Ed. Dipak Das), Mary Ann Liebert Publishers, New Rochelle, NY (2010).
270. Ahmad R, Potter LC, Petryakov S, **Kuppusamy P**, Zweier JL. In Vivo Multisite oximetry using EPR-NMR coimaging. *J Magn Reson* 207, 69-77 (2010). PMID: 2956866 **IF (2009): 2.53**

271. Ahmad R, Som S, Kesselring E, **Kuppusamy P**, Zweier JL, Potter LC. Digital detection and processing of multiple quadrature harmonics for EPR spectroscopy. J Magn Reson 207, 322-331 (2010). PMID:2993834 **IF (2009): 2.53**
272. Ahmad R., **Kuppusamy, P**. Potter L. Multi-resolution uniform sampling for 3D tomography. IEEE Transactions on Medical Imaging 2010 International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 14-19 March, Dallas. Pages 461-464 (2010). **IF (2009): 3.54**
273. Biswas S, Roy S, Banerjee J, Hussain SR, Khanna S, Meenakshisundaram G, **Kuppusamy P**, Friedman A, Sen CK. Hypoxia inducible microRNA 210 attenuates keratinocyte proliferation and impairs closure in a murine model of ischemic wounds. Proc Natl Acad Sci USA 107, 6976-6981 (2010). PMID:2872456 PubMed **IF (2009) : 9.43**
274. Blank A, Halevy R, Shklyar M, Shtirberg L, **Kuppusamy P**. ESR micro-imaging of LiNc-BuO crystals in PDMS: spatial and spectral grain distribution. J Magn Reson 203,150-155 (2010). PMID: PubMed **IF (2009) : 2.53**
275. Bogнар B, Ahmed S, Kuppusamy ML, Selvendiran K, Khan M, Jeko J, Hankovszky OH, Kalai T, **Kuppusamy P**, Hideg K. Synthesis and study of new paramagnetic and diamagnetic verapamil derivatives. Bioorg Med Chem 18:2954-2963 (2010). **IF (2009): 2.82**
276. Chacko SM, Ahmed S, Selvendiran K, Kuppusamy ML, Khan M, **Kuppusamy P**. Hypoxic preconditioning induces the expression of pro-survival and pro-angiogenic markers in mesenchymal stem cells. Am. J. Physiol. Cell Physiol 299, C1562-C1570 (2010). PMID: 3006322 **IF (2009): 4.01**
277. Dayton A, Selvendiran K, Kuppusamy ML, Rivera BK, Meduru S, Kalai T, Hideg K, **Kuppusamy P**. Cellular uptake, retention, and bioabsorption of HO-3867, a fluorinated curcumin analog with potential antitumor properties. Cancer Biol and Therap. 10, 1027-1032 (2010). PMID: 3047094 **IF (2009): 2.71**
278. Jayachandran KS, Khan M, Selvendiran K, **Kuppusamy P**. *Crataegus oxycantha* extract attenuates apoptotic incidence in myocardial ischemia-reperfusion injury by regulating Akt and HIF-1 signaling pathways. J. Cardiovasc Pharmacol. 207, 69-77 (2010). PMID: 2956866 **IF (2009): 2.83**
279. Khan M, Kwiatkowski P, Rivera B, **Kuppusamy P**. Oxygen and oxygenation in stem-cell therapy for myocardial infarction. Life Sciences 87, 269-274 (2010). PMID: 3114881 **IF (2009): 2.56**
280. Khan M, Meduru S, Mostafa M, Khan S, Hideg K, **Kuppusamy P**. Trimetazidine, administered at the onset of reperfusion, ameliorates myocardial dysfunction and injury by activation of p38 mitogen-activated protein kinase and Akt signaling. J Pharmacol Exp Ther 333, 421-429 (2010). PMID: 2872960 **IF (2009): 4.09**
281. Lu T, Parthasarathy S, Hao H, Luo M, Ahmed S, Zhu J, Luo S, **Kuppusamy P**, Sen CK, Verfaillie CM, Tian J, Liu Z. Reactive oxygen species mediate ox-LDL-induced inhibition of Oct-4 expression and endothelial differentiation of bone marrow stem cells. Antiox. Redox Signal. 13, 1845-1856 (2010). PMID:2971633 **IF (2009): 7.58**
282. Majumder S, Roy S, Kaffenberger T, Wang B, Costinean S, Frankel W, Bratasz A, **Kuppusamy P**, Hai T, Ghoshal K, Jacob S. Loss of metallothionein predisposes mice to diethylnitrosamine-induced hepatocarcinogenesis by activating NFkB target genes. Cancer Research 70, 10265-10276 (2010). PMID: 3059562 **IF (2009): 7.54**
283. Meenakshisundaram G, Eteshola E, Blank A, Lee SC, Kuppusamy P. A molecular paramagnetic spin-doped biopolymeric oxygen sensor. Biosens Bioelectron 25, 2283-2289 (2010). PMID: 2866758 **IF (2009) : 5.43**
284. Meenakshisundaram G, Pandian RP, Eteshola E, Lee SC, Kuppusamy P. A paramagnetic implant containing lithium naphthalocyanine microcrystals for high-resolution biological oximetry. J Magn Reson 203, 185-189 (2010). PMID: 2822061 **IF (2009): 2.53**
285. Pandian RP, Meenakshisundaram G, Bratasz A, Eteshola E, Lee SC, Kuppusamy P. An implantable Teflon chip holding lithium naphthalocyanine microcrystals for secure, safe, and repeated measurements of pO₂ in tissues. Biomed Microdevices 12, 381-387 (2010). PMID: 2860037 **IF (2009): 3.32**
286. Pandian RP, Raju NP, Gallucci JC, Woodward PM, Epstein AJ, Kuppusamy P. A new tetragonal crystalline polymorph of lithium octa-n-butoxy-naphthalocyanine (LiNc-BuO) radical: Structural, magnetic and oxygen-sensing properties. Chem. Mater. 22, 6254-6262 (2010). **IF (2009): 5.37**
287. Rink C, Roy S, Khan M, Ananth P, **Kuppusamy P**, Sen CK, Khanna S. Oxygen-sensitive outcomes and gene expression in acute ischemic stroke. J Cereb Blood Flow Metab. 30, 1275-1287 (2010). PMID: 2913550 **IF (2009): 5.46**
288. Selvendiran K, Ahmed S, Dayton A, Kuppusamy ML, Tazi M, Bratasz A, Tong L, Rivera BK, Kalai T, Hideg K, **Kuppusamy P**. Safe and targeted anticancer efficacy of a novel class of antioxidant-conjugated

- difluorodiarylidene piperidones: differential cytotoxicity in healthy and cancer cells. Free Radic Biol Med 48, 1228-1235 (2010). PMID: 2847669 **IF (2009): 6.08**
289. Selvendiran K, Ahmed S, Dayton A, Ravi Y, Kuppusamy ML, Bratasz A, Rivera BK, Kalai T, Hideg K, **Kuppusamy P**. HO-3867, a synthetic compound, inhibits migration and invasion of ovarian carcinoma cells through downregulation of fatty acid synthase and focal adhesion kinase. Mol Cancer Research 8, 1188-1197 (2010). PMID: 2941821 **IF (2009): 4.16**
290. Selvendiran K, Kuppusamy ML, Ahmed S, Bratasz A, Meenakshisundaram G, Rivera BK, Khan M, **Kuppusamy P**. Oxygenation inhibits ovarian tumor growth by downregulating STAT3 and cyclin-D1 expressions. Cancer Biol Ther. 10, 386-390 (2010). **IF (2009): 2.71**
291. Selvendiran K, Tong L, Bratasz A, Kuppusamy ML, Ahmed S, Ravi Y, Trigg NJ, Rivera BK, Kalai T, Hideg K, **Kuppusamy P**. Anticancer efficacy of a difluorodiarylidene piperidone (HO-3867) in human ovarian cancer cells and tumor xenografts. Mol Cancer Ther 9, 1169-1179 (2010). PMID: 2868073 **IF (2009): 4.95**
292. Sliman SM, Eubank TD, Kotha SR, Kuppusamy ML, Sherwani SI, Butler ES, **Kuppusamy P**, Roy S, Marsh CB, Stern DM, Parinandi NL. Hyperglycemic oxoaldehyde, glyoxal, causes barrier dysfunction, cytoskeletal alterations, and inhibition of angiogenesis in vascular endothelial cells: aminoguanidine protection. Mol Cell Biochem 333, 9-26 (2010). **IF (2009): 1.90**
293. Swaminathan JK, Khan M, Mohan IK, Selvendiran K, Devaraj SD, Rivera BK, **Kuppusamy P**. Cardioprotective properties of *Crataegus oxyacantha* extract against ischemia-reperfusion injury. Phytomedicine, 17, 744-752 (2010). PMID: 2889194 **IF (2009): 2.17**
294. Takeshita K, Kawaguchi K, Fujii-Aikawa K, Ueno M, Okazaki S, Ono M, Krishna MC, **Kuppusamy P**, Ozawa T, Ikota N. Heterogeneity of regional redox status and relation of the redox status to oxygenation in a tumor model, evaluated using electron paramagnetic resonance imaging. Cancer Res. 70, 4133-4140 (2010). **IF (2009): 7.54**
295. Vikram DS, Rivera BK, **Kuppusamy P**. In vivo imaging of free radicals and oxygen. Methods Mol Biol 610, 3-27 (2010).
296. Vikram DS, Rivera BK, **Kuppusamy P**. In vivo imaging of free radicals and oxygen. Methods Mol Biol 610:3-27 (2010). doi: 10.1007/978-1-60327-029-8_1.
297. Wang F, Li Z, Khan M, Tamama K, **Kuppusamy P**, Wagner WR, Sen CK, Guan J. Injectable, rapid gelling and highly flexible hydrogel composites as growth factor and cell carriers. Acta Biomater 6, 1978-1991 (2010).
298. Wang J, Dang V, Zhao W, Lu D, Rivera BK, Villamena FA, Wang PG, **Kuppusamy P**. Perchlorotriyl radical-fluorophore conjugates as dual fluorescence and EPR probes for superoxide radical anion. Bioorg Med Chem 18:922-929 (2010). PMID: 2827402

2011 (13)

299. Ahmad R, **Kuppusamy P**. EPR Imaging: Theory and Instrumentation in "Multifrequency Electron Paramagnetic Resonance: Theory and Applications". Editor (Sushil K Misra). Wiley:VCH (2011)
300. Dayton A, Selvendiran K, Meduru S, Khan M, Kuppusamy ML, Naidu S, Kalai T, Hideg K, and **Kuppusamy P**. Amelioration of doxorubicin-induced cardiotoxicity by an anticancer-antioxidant dual-function compound, HO-3867. J. Pharmacol. Exper. Therap. 339, 350-357(2011).
301. Elnakish MT, Awad MM, Hassona MD, Alhaj MA, Kulkarni A, Citro LA, Sayyid M, Abouelnaga ZA, El-Sayed O, Kuppusamy P, Moldovan L, Khan M, and Hassanain HH. Cardiac Remodeling Caused by Transgenic Over-expression of a Corn Rac Gene. Am J Physiol HCP 301, H868-H880 (2011).
302. Fisher, E., Khan, M., Steiner, R. and **Kuppusamy, P**. Challenges to intestinal pO₂ measurement using EPR. Adv Exp Med Biol 701, 37-44 (2011).
303. Kalai T, Kuppusamy ML, Balog M, Selvendiran K, Rivera BK, Kuppusamy P and Hideg K: Synthesis of N-substituted 3,5-bis(arylidene)-4-piperidones with high antitumor and antioxidant activity. J. Med. Chem. 54, 5414-5421 (2011).
304. Khan, M., Meduru, S., Pandian, R. P., Rivera, B. K. and Kuppusamy, P. Effect of oxygenation on stem-cell therapy for myocardial infarction. Adv Exp Med Biol 701, 175-181 (2011).

305. Madan, E., R. Gogna, M. Bhatt, U. Pati, P. Kuppusamy and A. A. Mahdi. "Regulation of glucose metabolism by p53: Emerging new roles for the tumor suppressor. Oncotarget 2(12): 948-957 (2011).
306. Mundy-Bosse BL, Lesinski GB, Benninger K, Khan M, Kuppusamy P, Guenterberg K, Kondadasula SV, Chaudhury AR, Kreiner M, Young G, Guttridge DC, Carson III WE. MDSC inhibition of the IFN response in tumor-bearing mice. Cancer Research 71, 5101-5110 (2011).
307. Naushad, S. M., C. A. Reddy, Y. Rupasree, A. Pavani, R. R. Digumarti, S. R. Gottumukkala, P. Kuppusamy and V. K. Kutala. Cross-talk between one-carbon metabolism and xenobiotic metabolism: implications on oxidative DNA damage and susceptibility to breast cancer. Cell Biochem. Biophys. 61(3): 715-723 (2011).
308. Nishijima Y, Sridhar A, Bonilla I, Velayutham M, Khan M, Terentyeva R, Li C, **Kuppusamy P**, Terentyev D, Zweier JL, Cardounel AJ, Carnes CA. Tetrahydrobiopterin depletion and NOS2 uncoupling contribute to atrial electrical remodeling during chronic heart failure. Cardiovasc. Research 91, 71-79 (2011).
309. Pandian RP, Chacko SM, Kuppusamy ML., Rivera BK, and **Kuppusamy P**. Evaluation of lithium naphthalocyanine (LiNc) microcrystals for biological EPR oximetry. Adv Exp Med Biol 701, 29-36 (2011).
310. Selvendiran K, Ahmed S, Dayton A, Kuppusamy ML, Rivera BK, Kalai T, Hideg K, and **Kuppusamy P**. HO-3867, a curcumin analog, sensitizes cisplatin-resistant ovarian carcinoma, leading to therapeutic synergy through STAT3 inhibition. Cancer Biol. Therapeutics 12, 837-845 (2011).
311. Warwar, N., A. Mor, R. Fluhr, R. P. Pandian, **P. Kuppusamy** and A. Blank. Detection and imaging of superoxide in roots by an electron spin resonance spin-probe method. Biophys. J. 101: 1529-1538 (2011).

2012 (10)

312. Ahmad R, Som S, Johnson DH, Zweier JL, **Kuppusamy P**, Potter LC. Multisite EPR oximetry from multiple quadrature harmonics. J Magn Reson, 214: 135-143 (2012).
313. Das M, Lu J, Joseph M, Aggarwal R, Kanji S, McMichael BK, Lee BS, Agarwal S, Ray-Chaudhury A, Iwenofu OH, **Kuppusamy P**, Pompili VJ, Jain MK, Das H. Kruppel-like factor 2 (KLF2) regulates monocyte differentiation and functions in mBSA and IL-1beta-induced arthritis. Curr Mol Med, 12: 113-125 (2012).
314. Gogna R, Madan E, **Kuppusamy P**, Pati U. Chaperoning of mutant p53 protein by wild-type p53 protein causes hypoxic tumor regression. J Biol Chem, 287: 2907-2914 (2012).
315. Gogna R, Madan E, **Kuppusamy P**, Pati U. Reactive oxygen species-mediated p53 core-domain modifications determine apoptotic or necrotic death in cancer cells. Antioxid Redox Signal, 16: 400-412 (2012).
316. Gogna R, Madan E, **Kuppusamy P**, Pati U. Re-oxygenation causes hypoxic tumor regression through restoration of p53 wild-type conformation and post-translational modifications. Cell Death Dis, 3: e286 (2012).
317. Hassan F, Meduru S, Taguchi K, Kuppusamy ML, Mostafa M, **Kuppusamy P**, Khan M. Carvedilol enhances mesenchymal stem cell therapy for myocardial infarction via inhibition of caspase-3 expression. J. Pharmacol. Exper Therap 343, 62-71(2012).
318. He S, Dayton A, **Kuppusamy P**, Werbovets KA, Drew ME. Induction of oxidative stress in Trypanosoma brucei by the antitrypanosomal dihydroquinoline OSU-40. Antimicrob Agents Chemother, 56: 2428-2434 (2012).
319. Khan M, Meduru S, Gogna R, Madan E, Citro LA, Kuppusamy ML, Sayyid M, Mostafa M, Hamlin RL, **Kuppusamy P**. Oxygen cycling in conjunction with stem-cell transplantation induces NOS3 expression leading to attenuation of fibrosis and improved cardiac function. Cardiovascular Research 93, 89-99 (2012).
320. Madan E, Gogna R, **Kuppusamy P**, Bhat M, Pati U, Mahdi AA. TIGAR induces p53-mediated cell-cycle arrest by regulation of RB-E2F1 complex. British J. Cancer, 107, 516-526 (2012).
321. Tierney B, McCann GA, Cohn DE, Eisenhauer E, Sudhakar M, **Kuppusamy P**, Hideg K, Selvendiran K. HO-3867, a STAT3 inhibitor induces apoptosis by inactivation of STAT3 activity in BRCA1-mutated ovarian cancer cells. Cancer Biol. Therapy 13:766-775 (2012).

2013 (13)

322. Aune SE, Yeh ST, **Kuppusamy P**, Kuppusamy ML, Khan M, Angelos MG. Sivelestat attenuates myocardial reperfusion injury during brief low flow posts ischemic infusion. Oxid Med Cellular Longevity 2013:279847 (2013).

323. Chacko SM, **Kuppusamy P**. Hypoxic preconditioning of stem cells to treat myocardial infarction (Chapter 11). In *Cardiovascular Diseases: Nutritional and Therapeutic Interventions*. CRC Press (2013).
324. Elnakish MT, **Kuppusamy P**, and Khan M. Stem cell transplantation as a therapy for cardiac fibrosis. *J Pathology* 229, 347-354 (2013).
325. Fisher EM, Khan M, Salisbury R, **Kuppusamy P**. Noninvasive monitoring of small intestinal oxygen in a rat model of chronic mesenteric ischemia. *Cell Biochem Biophys*. **67**, 451-459 (2013).
326. Gogna R, Esha M, Khan M, Pati U, **Kuppusamy P**. p53's choice of myocardial death or survival: Oxygen protects infarct myocardium by recruiting p53 on NOS3 promoter through regulation of p53-Lys118 acetylation. *EMBO Mol Med*.5: 1662-1683 (2013).
327. Khan M, Brauner ME, Plewa MC, Kutala VK, Angelos M, **Kuppusamy P**. Effect of pulmonary-generated reactive oxygen species on left-ventricular dysfunction associated with cardio-pulmonary ischemia-reperfusion injury. *Cell Biochem Biophys*. **67**, 275-80 (2013).
328. Khan N, Hou H, Chen EY, Jarvis LA, Schaner PE, Williams BB, Swartz HM, **Kuppusamy P**. Bench-to bedside oximetry for real-time monitoring of tumor pO₂: a critical parameter which influences radiotherapeutic outcome. *J Radiol Radiat Ther* **1(3)**: 1017-1024 (2013).
329. Madan E, Gogna R, **Kuppusamy P**, Bhatt M, Mahdi AA, Pati U. SCO₂ induces p53-mediated apoptosis by Thr845 phosphorylation of ASK-1 and dissociation of the ASK-1-TRX complex. *Mol Cell Biol*. 33:1285-1302 (2013).
330. Rath KS, McCann GA, Cohn DE, Rivera BK, **Kuppusamy P**, Selvendiran K. Safe and targeted anticancer therapy for ovarian cancer using a novel class of curcumin analogs. *J Ovarian Res*. 6:35 (2013).
331. Ravi Y, Selvendiran K, Meduru S, Citro LA, Naidu S, Khan M, Rivera BK, Sudhakar CS, and **Kuppusamy P**. Dysregulation of PTEN in Cardiopulmonary Vascular Remodeling Induced by Pulmonary Hypertension. *Cell Biochem Biophys* 67, 363-372 (2013).
332. Ravi Y, Selvendiran K, Naidu SK, Meduru S, Citro LA, Bogнар B, Khan M, Kalai T, Hideg K, **Kuppusamy P**, Sai-Sudhakar CB. Pulmonary hypertension secondary to left-heart failure involves peroxynitrite-induced downregulation of PTEN in the lung. *Hypertension*. 61:593-601 (2013).
333. Saini U, Gumina RJ, Wolfe B, Kuppusamy ML, **Kuppusamy P**, Boudoulas KD. Preconditioning mesenchymal stem cells with caspase inhibition and hyperoxia prior to hypoxia exposure decreases apoptosis and increases cell survival. *J Cell Biochem*. **114**, 2612-2623 (2013).
334. Sharma HS, Kutala VK, **Kuppusamy P**. Special issue on oxidative stress in health and disease. *Cell Biochem Biophys*, **67**, 215-218 (2013).
335. Yan Y, Waite-Cusic JG, **Kuppusamy P**, Yousef AE. Intracellular free iron and its potential role in ultrahigh-pressure-induced inactivation of *escherichia coli*. *Appl Environ Microbiol*. 79:722-724 (2013).

2014 (13)

336. Chacko SM, Kuppusamy P. Considerations for culturing and processing adult stem cells for therapeutics. In "Stem Cell Therapy for Organ Failure", Ed. Indumathi Somasundaram. Springer (2014)
337. Citro L, Naidu S, Hassan F, Kuppusamy ML, **Kuppusamy P**, Angelos MG, and Khan M, Comparison of human induced pluripotent stem-cell derived cardiomyocytes with human mesenchymal stem cells following acute myocardial infarction. *PLoS One* 9, e116281 (2014). **PMCID**: 4281179.
338. Gupta K, Madan E, Sayyid M, Arias-Pulido H, Moreno E, **Kuppusamy P**, Gogna R. Oxygen regulates molecular mechanisms of cancer progression and metastasis. *Cancer Metastasis Reviews*, **23**, 183-215 (2014).
339. Hou H, Khan N, Lariviere J, Hodge S, Chen EY, Jarvis LA, Eastman A, Williams BB, **Kuppusamy P**, and Swartz HM, Skeletal muscle and glioma oxygenation by carbogen inhalation in rats: a longitudinal study by EPR oximetry using single-probe implantable oxygen sensors. *Adv Exp Med Biol* 812, 97-103 (2014). **PMCID**: 4301407.
340. Khan N, Hou H, Hodge S, Kuppusamy M, Chen EY, Eastman A, **Kuppusamy P**, and Swartz HM, Recurrent low-dose chemotherapy to inhibit and oxygenate head and neck tumors. *Adv Exp Med Biol* 812, 105-111 (2014). **PMCID**: 4300520.

341. Kumar B, Yadav A, Hideg K, **Kuppusamy P**, Teknos TN, and Kumar P, A novel curcumin analog (H-4073) enhances the therapeutic efficacy of cisplatin treatment in head and neck cancer. PLoS One 9, e93208 (2014). **PMCID**: 3968069.
342. McCann GA, Naidu S, Rath KS, Bid HK, Tierney BJ, Suarez A, Varadharaj S, Zhang J, Hideg K, Houghton P, **Kuppusamy P**, Cohn DE, and Selvendiran K. Targeting constitutively activated STAT3 in hypoxic ovarian cancer, using a novel STAT3 inhibitor. Oncoscience 1, 216-228 (2014). **PMCID**: 4278289.
343. Rath KS, Naidu SK, Lata P, Bid HK, Rivera BK, McCann GA, Tierney BJ, Elnaggar AC, Bravo V, Leone G, Houghton P, Hideg K, **Kuppusamy P**, Cohn DE, and Selvendiran K, HO-3867, a safe STAT3 inhibitor, is selectively cytotoxic to ovarian cancer. Cancer Res 74, 2316-2327 (2014). **PMCID**: 4286190.
344. Reddy CA, Somepalli V, Golakoti T, Kanugula AK, Karnewar S, Rajendiran K, Vasagiri N, Prabhakar S, Kuppusamy P, Kotamraju S, and Kutala VK, Mitochondrial-targeted curcuminoids: a strategy to enhance bioavailability and anticancer efficacy of curcumin. PLoS One 9, e89351 (2014). **PMCID**: 3951186.
345. Rivera BK, Naidu SK, Subramanian K, Joseph M, Hou H, Khan N, Swartz HM, and **Kuppusamy P**, Real-time, in vivo determination of dynamic changes in lung and heart tissue oxygenation using EPR oximetry. Adv Exp Med Biol 812, 81-86 (2014). **PMCID**: 4330333.
346. Swartz HM, Hou H, Khan N, Jarvis LA, Chen EY, Williams BB, and **Kuppusamy P**, Advances in probes and methods for clinical EPR oximetry. Adv Exp Med Biol 812, 73-79 (2014). **PMCID**: 4313742.
347. Swartz HM, Williams BB, Zaki BI, Hartford AC, Jarvis LA, Chen EY, Comi RJ, Ernstoff MS, Hou H, Khan N, Swartz SG, Flood AB, and **Kuppusamy P**, Clinical EPR: unique opportunities and some challenges. Acad Radiol 21, 197-206 (2014). **PMCID**: 3921887.
348. Tierney BJ, McCann GA, Naidu S, Rath KS, Saini U, Wanner R, **Kuppusamy P**, Suarez A, Goodfellow PJ, Cohn DE, and Selvendiran K. Aberrantly activated pSTAT3-Ser727 in human endometrial cancer is suppressed by HO-3867, a novel STAT3 inhibitor. Gynecol Oncol 135, 133-141 (2014). **PMCID**: 4283766.
349. Wolfson H, Ahmad R, Twig Y, **Kuppusamy P**, Blank A. A miniature electron spin resonance probehead for transcutaneous oxygen monitoring. Appl. Magn. Reson 45, 955-967 (2014)

2015 (6)

350. Belmonte F, Das S, Sysa-Shah P, Sivakumaran V, Stanley B, Guo X, Paolucci N, Aon MA, Nagane M, **Kuppusamy P**, Steenbergen C, and Gabrielson KL, ErbB2 over-expression up-regulates antioxidant enzymes, reduces basal levels of reactive oxygen species and protects against doxorubicin cardiotoxicity. Am J Physiol Heart Circ Physiol ajpheart 00517 02014 (2015). **PMCID**: 4666964
351. Hashem M, Weiler-Sagie M, **Kuppusamy P**, Neufeld G, Neeman M, and Blank A, Electron spin resonance microscopic imaging of oxygen concentration in cancer spheroids. J Magn Reson 256, 77-85 (2015).
352. Khan N, Hou H, Eskey CJ, Moodie K, Gohain S, Du G, Hodge S, Culp WC, **Kuppusamy P**, and Swartz HM, Deep-tissue oxygen monitoring in the brain of rabbits for stroke research. Stroke 46, e62-66 (2015). **PMCID**: 4342327.
353. Khan N, Hou H, Swartz HM, and **Kuppusamy P**, Direct and Repeated Measurement of Heart and Brain Oxygenation Using In Vivo EPR Oximetry. Methods Enzymol 564, 529-552 (2015).
354. Ohanyan V, Yin L, Bardakjian R, Kolz C, Enrick M, Hakobyan T, Kmetz J, Bratz I, Luli J, Nagane M, Khan N, Hou H, **Kuppusamy P**, Graham J, Fu FK, Janota D, Oyewumi MO, Logan S, Lindner JR, and Chilian WM, Requisite Role of Kv1.5 Channels in Coronary Metabolic Dilatation. Circ Res 117, 612-621 (2015). **PMCID**: 4843795
355. Wolfson H, Ahmad R, Twig Y, Blank A, **Kuppusamy P**. A hand-held EPR scanner for transcutaneous oximetry. Proceedings Volume 9417, Medical Imaging 2015: Biomedical Applications in Molecular, Structural, and Functional Imaging; 941706 (2015).

2016 (6)

356. Elnaggar, A. C., U. Saini, S. Naidu, R. Wanner, M. Sudhakar, J. Fowler, M. Nagane, P. Kuppusamy, D. E. Cohn and K. Selvendiran (2016). "Anticancer potential of diarylidene piperidone derivatives, HO-4200 and H-4318, in cisplatin resistant primary ovarian cancer." Cancer Biol Ther 17(10): 1107-1115. **PMCID**: 5079393

357. Fang, D., Z. Zhang, H. Li, Q. Yu, J. T. Douglas, A. Bratasz, P. Kuppusamy and S. S. Yan (2016). "Increased Electron Paramagnetic Resonance Signal Correlates with Mitochondrial Dysfunction and Oxidative Stress in an Alzheimer's disease Mouse Brain." *J Alzheimers Dis* **51**(2): 571-580. **PMCID:** 4839279
358. Hou, H., N. Khan, M. Nagane, S. Gohain, E. Y. Chen, L. A. Jarvis, P. E. Schaner, B. B. Williams, A. B. Flood, H. M. Swartz and P. Kuppusamy (2016). "Skeletal Muscle Oxygenation Measured by EPR Oximetry Using a Highly Sensitive Polymer-Encapsulated Paramagnetic Sensor." *Adv Exp Med Biol* **923**: 351-357.
359. Jarvis, L. A., B. B. Williams, P. E. Schaner, E. Y. Chen, C. V. Angeles, H. Hou, W. Schreiber, V. A. Wood, A. B. Flood, H. M. Swartz and P. Kuppusamy (2016). "Phase 1 Clinical Trial of OxyChip, an Implantable Absolute pO₂ Sensor for Tumor Oximetry." *International Journal of Radiation Oncology Biology Physics* **96**(2): S109-S110.
360. Kaufman, P. A., H. Arias-Pulido, C. Colpaert, N. Chaher, C. Qualls, J. D. Marotti, P. Vermeulen, L. Dirix, S. van Laere and P. Kuppusamy (2016). "Tumor infiltrating lymphocytes and pathological response are prognostic biomarkers in inflammatory and non-inflammatory breast cancer." *Cancer Research* **76**.
361. Swartz, H. M., B. B. Williams, H. Hou, N. Khan, L. A. Jarvis, E. Y. Chen, P. E. Schaner, A. Ali, B. Gallez, P. Kuppusamy and A. B. Flood (2016). "Direct and Repeated Clinical Measurements of pO₂ for Enhancing Cancer Therapy and Other Applications." *Adv Exp Med Biol* **923**: 95-104.

2017 (5)

362. Bogнар, B, Kuppusamy, ML, Madan, E, Kalai, T, Balog, M, Jeko, J, Kuppusamy, P, Hideg, K, Synthesis and Biological Evaluation of Curcumin-Nitroxide-Based Molecular Hybrids as Antioxidant and Anti-Proliferative Agents. *Med Chem*, **13**(8). 761-772 (2017).
363. Caston, RM, Schreiber, W, Hou, H, Williams, BB, Chen, EY, Schaner, PE, Jarvis, LA, Flood, AB, Petryakov, SV, Kmiec, MM, Kuppusamy, P, Swartz, HM, *Development of the Implantable Resonator System for Clinical EPR Oximetry.* *Cell Biochem Biophys*, **75**(3-4). 275-283 (2017).
364. Hou, H, Khan, N, Gohain, S, Eskey, CJ, Moodie, KL, Maurer, KJ, Swartz, HM, Kuppusamy, P, *Dynamic EPR Oximetry of Changes in Intracerebral Oxygen Tension During Induced Thromboembolism.* *Cell Biochem Biophys*, **75**(3-4). 285-294 (2017).
365. Hou, H, Khan, N, Kuppusamy, P, Measurement of pO₂ in a Pre-clinical Model of Rabbit Tumor Using OxyChip, a Paramagnetic Oxygen Sensor. *Adv Exp Med Biol*, **977**. 313-318 (2017).
366. Saini, U, Naidu, S, EINaggar, AC, Bid, HK, Wallbillich, JJ, Bixel, K, Bolyard, C, Suarez, AA, Kaur, B, Kuppusamy, P, Hays, J, Goodfellow, PJ, Cohn, DE, Selvendiran, K, *Elevated STAT3 expression in ovarian cancer ascites promotes invasion and metastasis: a potential therapeutic target.* *Oncogene*, **36**(2). 168-181 (2017).

2018 (7)

367. Dayan N, Ishay Y, Artzi Y, Cristea D, Reijerse E, Kuppusamy P, Blank A. (2018). Advanced surface resonators for electron spin resonance of single microcrystals. *Rev Sci Instrum*, 89(12) 124707 (2018).
368. Hou H, Khan N, Gohain S, Kuppusamy ML, and **Kuppusamy P**. Pre-clinical evaluation of OxyChip for long-term EPR oximetry. *Biomed Microdevices* **20**(2): 29 (2018).
369. Madan E, Parker TM, Bauer MR, Dhiman A, Pelham CJ, Nagane M, Kuppusamy ML, Holmes M, Holmes TR, Shaik K, Shee K, Kiparoidze S, Smith SD, Park YA, Gomm J, Jones LJ, Tomas AR, Cunha AC, Selvendiran K, Hansen LA, Fersht AR, Hideg K, Gogna R, Kuppusamy P. *The curcumin analog HO-3867 selectively kills cancer cells by converting mutant p53 protein to transcriptionally active wildtype p53.* *J Biol Chem*, **293**, 4262-4276 (2018).
370. Mast JM, **Kuppusamy P**. Hyperoxygenation as a therapeutic supplement for treatment of triple-negative breast cancer. *Frontiers in Oncology* **8**, 527 (2018). <https://doi.org/10.3389/fonc.2018.00527>
371. Nagane M, Kuppusamy ML, An J, Mast JM, Gogna R, Yasui H, Yamamori T, Inanami O, **Kuppusamy P**. Ataxia-telangiectasia mutated (ATM) kinase regulates eNOS expression and modulates radiosensitivity in endothelial cells exposed to ionizing radiation. *Radiat. Res.* **189**, 519-528 (2018).
372. Prabhat AM, Kuppusamy ML, Naidu SK, Meduru S, Reddy PT, Dominic A, Khan M, Rivera BK, **Kuppusamy P**. Supplemental oxygen protects heart against acute myocardial infarction. *Frontiers in Cardiovascular Medicine*, **5**, 114 (2018). **PMCID:** PMC6120988 **DOI:** [10.3389/fcvm.2018.00114](https://doi.org/10.3389/fcvm.2018.00114)

373. Zgadza O, Twig Y, Wolfson H, Ahmad R, **Kuppusamy P**, Blank A. Electron-spin-resonance dipstick. *Anal Chem* **90**(13): 7830-7836 (2018).

2019 (12)

374. Jeong JJ, Liu T, Yang X, Torres M, Lin J, Schreiber W, Flood AB, **Kuppusamy P**, Swartz HM, Williams BB, Schaner PE, Ali A. Clinical Measurements of Oxygen via Electron Paramagnetic Resonance (EPR) During and after Breast Radiation Therapy: Preliminary Results of Baseline Evaluations and Response to Hyperoxygenation. *J Radiol Radiat Ther* **7**(1): 1082 (2019).
375. Kmiec MM, Dan T, Mast JM, Dan T, Ahmad R, **Kuppusamy P**. Implantable microchip containing oxygen-sensing paramagnetic crystals for long-term, repeated, and multisite in vivo oximetry. *Biomedical Microdevices* **21**(3): 71–87 (2019).
376. Kmiec MM, Hou H, Kuppusamy ML, Drews TM, Prabhat AM, Petryakov SV, Demidenko E, Schaner PE, Buckey JC, Blank A, **Kuppusamy P**. Transcutaneous oxygen measurement in humans using a paramagnetic skin adhesive film. *Magn Reson Med* **81**:781-794 (2019)
377. Kmiec MM, Hou H, Kuppusamy ML, Drews TM, Prabhat AM, Petryakov SV, Demidenko E, Schaner PE, Buckey JC, Blank A, **Kuppusamy P**. Application of SPOT chip for transcutaneous oximetry. *Magn Reson Med* **81**:2837–2840 (2019).
378. **Kuppusamy P**, Kmiec, MM, Tse D, Mast JM, Ahmad, R. Estimation of pO₂ histogram from a composite EPR Spectrum of multiple random implants. *Biomed Microdev*, **22**(1):3 (2019) doi: 10.1007/s10544-019-0451-4. PMID: 31797058.
379. Madan E, Parker T, Pelham C, Palma A, Peixoto L, Nagane M, Chandaria A, Tomás A, Canas-Marques R, Henriques V, Galzerano A, Cabral-Teixeira J, Selvendiran K, **Kuppusamy P**, Carvalho C, Beltran A, Moreno E, Pati U, Gogna R. HIF-transcribed p53 chaperones HIF-1 alpha. *Nucleic Acids Research* **47**(10):10212–10234 (2019).
380. Madan E, Pelham CJ, Nagane M, Parker T, Canas-Marques R, Fazio K, Shaik K, Yuan Y, Henriques V, Galzerano A, Yamashita T, Pinto MAF, Camacho D, Vieira A, Soldini D, Nakshatri H, Post SR, Rhiner C, Yamashita H, Accardi D, Hanson LA, Carvalho C, Beltran AL, **Kuppusamy P**, Gogna R, Moreno E. Flower isoforms promote competitive growth in cancer. *Nature* **572**(7768): 260–264 (2019).
381. Mast JM, Dan T, Shee K, Kuppusamy ML, Kmiec MM, Kalai T, **Kuppusamy P**. Diarylidenylpiperidones, H-4073 and HO-3867, Induce G2/M Cell-Cycle Arrest, Apoptosis and Inhibit STAT3 phosphorylation in human pancreatic cancer cells. *Cell Biochemistry Biophysics*. **77**(2):109–119 (2019).
382. Polacco MA, Hou H, **Kuppusamy P**, Chen EY. Measuring flap oxygen using electron paramagnetic resonance oximetry. *Laryngoscope*, **129**(12): E415–E419 (2019).
383. Prabhat AM, Kuppusamy ML, Bogнар B, Kalai T, Hideg K, **Kuppusamy P**. Antiproliferative effect of a novel 4,4'-disulfonyldiarylidenyl piperidone in human colon cancer cells. *Cell Biochem Biophys*, **77**(1): 61-67 (2019).
384. Schaner PE, Williams BB, Chen EY, Jarvis LA, Pastel DA, Zuurbier RA, DiFlorio-Alexander RM, Paydarfar JA, Gosselin BJ, Paydarfar JA, Angelos CV, Kmiec MM, Petryakov VV, Schreiber WA, Hou H, Demidenko E, Wood VA, Flood AB, Swartz HM, and **Kuppusamy P**. Quantitation of pO₂ using the OxyChip in Human Tumors via Electron Paramagnetic Resonance Oximetry: Baseline Variability and Response to Hyperoxygenation. *Int. J. Radiat. Oncol. Biol. Phys.* **105**(1): E675 (2019). DOI: 10.1016/j.ijrobp.2019.06.988
385. Tse D, **Kuppusamy P**. Biocompatibility of oxygen-sensing paramagnetic implants. *Cell Biochem Biophys*, **77**(3):197–202 (2019).

2020 (4)

386. Cristea D, Krishtul S, **Kuppusamy P**, Baruch L, Machluf M, Blank A. New approach to measuring oxygen diffusion and consumption in encapsulated living cells, based on electron spin resonance microscopy. *Acta Biomater*, **101**: 384-394 (2020).
387. **Kuppusamy P**. Sense and Sensibility of Oxygen in Pathophysiology using EPR Oximetry. In “Measuring Oxidants and Oxidative Stress in Biological Systems”, (Editors: Berliner LJ, Parinandi, NL) Ch. 9. Pages 135-187, Springer Publishers, Cham (CH), (2020)

388. Mast JM, Hinds JW, Tse D, Axelrod K, Kuppusamy ML, Kmiec MM, Bogнар B, Kalai T, **Kuppusamy P**. Selective Induction of Cellular Toxicity and Anti-tumor Efficacy by N-Methylpiperazinyl Diarylideneypiperidone and its Pro-nitroxide Conjugate through ROS-mediated Mitochondrial Dysfunction and G2/M Cell-cycle Arrest in Human Pancreatic Cancer. *Cell Biochem Biophys*, 78(2):191–202 (2020).
389. Schaner P E, Pettus JR, Flood AB, Williams BB, Jarvis LA, Chen EY, Pastel DA, Zurbier RA, diFlorio-Alexander RM, Swartz HM and **Kuppusamy P**. OxyChip Implantation and Subsequent Electron Paramagnetic Resonance Oximetry in Human Tumors Is Safe and Feasible: First Experience in 24 Patients. *Front Oncol*, 10: 572060 (2020). doi: 10.3389/fonc/2020.572060

2021 (11)

390. Calo CA, Smith BQ, Dorayappan KDP, Saini U, Lightfoot M, Wagner V, Kalaiyaran D, Cosgrove C, Wang Q-E, Maxwell L, Kalai T, Kuppusamy P, Cohn DE, Selvendiran K. Aberrant expression of TMEM205 signaling promotes platinum resistance in ovarian cancer: An implication for the antitumor potential of DAP compound. *Gynecol Oncol* (2021).
391. Chen EY, Tse D, Hou H, Schreiber WA, Schaner PE, Kmiec MM, Hebert KA, **Kuppusamy P**, Swartz HM, Williams BB. Evaluation of a Refined Implantable Resonator for Deep-Tissue EPR Oximetry in the Clinic. *Appl Magn Reson* (2021). <https://doi.org/10.1007/s00723-021-01376-5>
392. Cristea D, Wolfson H, Ahmad R, Twig Y, **Kuppusamy P**, Blank A. Compact electron spin resonance skin oximeter: Properties and initial clinical results. *Magn Reson Med*, 2021. **85**(5): 2915-2925 (2021) DOI: 10.1002/mrm.28595
393. Demidenko E, Kmiec MM, **Kuppusamy P**. Estimation of pO₂ distribution in EPR oximetry. *J Magn Reson*, **328**: 106992 (2021) DOI: 10.1016/j.jmr.2021.106992
394. Kmiec MM, Tse D, **Kuppusamy P**. Oxygen-Sensing Paramagnetic Probes for Clinical Oximetry. *Adv Exp Med Biol*, 1269: 259-263 (2021) DOI: 10.1007/978-3-030-48238-1_41
395. Nagane M, Yasui H, **Kuppusamy P**, Yamashita T, Inanami O. DNA damage response in vascular endothelial senescence: Implication for radiation-induced cardiovascular diseases. *J Radiat Res*, 62: 564-573 (2021). doi:10.1093/jrr/rrab032
396. Ochocinska MJ, Spitalnik SL, Abuhamad A, Bennett-Guerrero E, Carlo WA, Cherukuri M, Doctor A, Dzik W, Evans CL, Forzani E, **Kuppusamy P**, Moan NL, Li L, Luban N, Mohandas N, Patel RM, Roback J, Swartz HM, Textor S, Vinogradov S, Wang LV, Wisniewski N, Glynn S. NIH Workshop 2018: Towards Minimally Invasive or Noninvasive Approaches to Assess Tissue Oxygenation Pre- and Post-transfusion. *Transfus Med Rev*, 35(1): 46-55 (2021). DOI: 10.1016/j.tmr.2020.12.003
397. Petryakov SV, Schreiber WA, Kmiec MM, Swartz HM, Schaner PE, **Kuppusamy P**, Williams BB. Flexible Segmented Surface Coil Resonator for In Vivo EPR Measurements in Human Subjects. *Appl Magn Reson* (2021). <https://doi.org/10.1007/s00723-021-01408-0>
398. Ravi Y, Sai-Sudhakar CB, **Kuppusamy P**. PTEN as a Therapeutic Target in Pulmonary Hypertension Secondary to Left-heart Failure: Effect of HO-3867 and Supplemental Oxygenation. *Cell Biochem Biophys* (2021) DOI: 10.1007/s12013-021-01010-y
399. Schaner PE, Tran LB, Zaki BI, Swartz HM, Demidenko E, Williams BB, Siegel A, **Kuppusamy P**, Flood AB, Gallez, B. The impact of particulate electron paramagnetic resonance oxygen sensors on fluorodeoxyglucose imaging characteristics detected via positron emission tomography. *Sci Rep*, 11(1): 4422 (2021). DOI: 10.1038/s41598-021-82754-8
400. Schaner PE, Williams BB, Chen EY, Pettus JR, Schreiber WA, Kmiec MM, Jarvis LA, Pastel DA, Zurbier RA, DiFlorio-Alexander RM, Paydarfar JA, Gosselin BJ, Barth RJ, Rosenkranz KM, Petryakov SV, Hou H, Tse D, Pletnev A, Flood AB, Wood VA, Hebert KA, Mosher RE, Demidenko E, Swartz HM, and **Kuppusamy P** (2021) First-In-Human Study in Cancer Patients Establishing the Feasibility of Oxygen Measurements in Tumors Using Electron Paramagnetic Resonance with the OxyChip. *Front. Oncol*. 11:743256. doi: 10.3389/fonc.2021.743256

2022 (1)

401. Kmiec MM, Hebert KA, Tse D, Hodge S, Williams BB, Schaner PE, **Kuppusamy P**. OxyChip embedded with radio-opaque gold nanoparticles for anatomic registration and oximetry in tissues. *Magn Reson Med* 87(3):1621-1637 (2022).

PUBLISHED ABSTRACTS

1. Kuppusamy P, Levy A, Rifkind JM. INTERMEDIATE STATES IN THE COORDINATION OF METHEMOGLOBIN. *Biophys. J.* 51: A294-A294 (1987).
2. **Kuppusamy P**, Levy A, Rifkind JM. MAGNETIC STUDIES ON NICKEL-RECONSTITUTED HEMOGLOBIN AND MYOGLOBIN. *Biophys. J.* 53: A284-A284 (1988).
3. Kukreja RC, Kearns AA, Zweier JL, **Kuppusamy P**, Hess ML. SINGLET OXYGEN INTERACTION WITH CA-2+-ATPASE OF CARDIAC SARCOPLASMIC-RETICULUM. *Circulation.* 82: 269-269 (1990).
4. Lopezplaza I, Gabrielson EW, **Kuppusamy P**, Zweier JL. IRON AND HYDROXYL RADICAL ROLE IN HYDROGEN-PEROXIDE INDUCED DAMAGE IN HUMAN BRONCHIAL CELLS. *Lab. Invest.* 62: A60-A60 (1990).
5. Zweier JL, **Kuppusamy P**, Luty GA. MEASUREMENT OF FREE-RADICAL GENERATION IN REOXYGENATED HUMAN ENDOTHELIAL-CELLS. *Circulation.* 82: 169-169 (1990).
6. Duke SS, Zweier JL, Harrison SJ, **Kuppusamy P**, Sylvester JT. EFFECT OF SOD ON SPONTANEOUS GENERATION OF DMPO RADICAL ADDUCTS IN PHOSPHATE BUFFERED SALINE. *Faseb J.* 6: A1056-A1056 (1992).
7. Lefer DJ, **Kuppusamy P**, Zweier JL. HUMAN NEUTROPHILS ARE POTENT GENERATORS OF OXYGEN FREE-RADICALS FOLLOWING ANOXIA AND REOXYGENATION. *Faseb J.* 6: A1044-A1044 (1992).
8. Zweier JL, Thompsongorman SL, **Kuppusamy P**. MEASUREMENT OF OXYGEN OSCILLATIONS IN THE HEART DURING THE CARDIAC CYCLE. *Circulation.* 86: 81-81 (1992).
9. Li Y, **Kuppusamy P**, Zweier JL, Trush MA. CHEMICAL MECHANISM AND BIOLOGICAL EFFECTS OF THE SOD-ACCELERATED OXIDATION OF 1,4-HYDROQUINONE. *Free Radic. Biol. Med.* 15: 475-475 (1993).
10. Li Y, **Kuppusamy P**, Zweier JL, Trush MA. GENERATION OF REACTIVE OXYGEN FROM THE COPPER-MEDIATED OXIDATION OF THE BENZENE METABOLITE, 1,4-HYDROQUINONE - ROLE IN DNA-DAMAGE. *Free Radic. Biol. Med.* 15: 540-540 (1993).
11. Chawla R, Shandelya SML, **Kuppusamy P**, Zweier JL. THIOL-CONTAINING ANGIOTENSIN-CONVERTING ENZYME (ACE) INHIBITORS PREVENT POSTISCHEMIC INJURY BY BLOCKING MYOCARDIAL FREE-RADICAL GENERATION. *Faseb J.* 8: A606-A606 (1994).
12. Serrano CV, Broderick R, Giannella E, Wang P, Mikhail E, Noble B, **Kuppusamy P**, Zweier JL. PREVENTION OF NEUTROPHIL-MEDIATED MYOCARDIAL REPERFUSION INJURY BY SUPEROXIDE-DISMUTASE (SOD) OR CATALASE (CAT). *Faseb J.* 8: A600-A600 (1994).
13. Wang PH, **Kuppusamy P**, Zweier JL. DIRECT MEASUREMENT OF NITRIC-OXIDE GENERATION IN THE ISCHEMIC HEART. *Faseb J.* 9: A326-A326 (1995).
14. **Kuppusamy P**, Chzhan M, Wang PH, Zweier JL. 3D gated EPR imaging of the beating heart. *Biophys. J.* 70: SU409-SU409 (1996).
15. **Kuppusamy P**, Wang P, Samouilov A, Zweier JL. Spatial mapping of nitric oxide generation in the ischemic heart using electron paramagnetic resonance imaging. *Faseb J.* 10: 225-225 (1996).
16. Wang PH, Samouilov A, **Kuppusamy P**, Zweier JL. Quantitation of superoxide, nitric oxide, and peroxynitrite generation in the postischemic heart. *Circulation.* 94: 2733-2733 (1996).
17. Xu KY, **Kuppusamy P**, Zweier JL, Becker LC. ATP protects against free radical induced inhibition of the cardiac Na⁺,K⁺-ATPase. *Faseb J.* 10: 3354-3354 (1996).
18. Zweier JL, Wang PH, Samouilov A, **Kuppusamy P**. Enzyme independent formation of nitric oxide is triggered during myocardial ischemia and results in post-ischemic injury. *Faseb J.* 10: 1750-1750 (1996).
19. Zweier JL, Wang PH, Samouilov A, **Kuppusamy P**. Nitric oxide synthase independent nitric oxide formation occurs in the ischemic heart and causes postischemic injury. *J. Invest. Med.* 44: A247-A247 (1996).

20. **Kuppusamy P**, Shankar RA, Zweier JL. Direct in vivo detection and imaging of nitric oxide generation following cardio-pulmonary arrest. *Circulation*. 96: 3533-3533 (1997).
21. **Kuppusamy P**, Wang PH. A new technique for measuring and imaging free radical metabolism and oxygenation in the heart. *Circulation*. 96: 3201-3201 (1997).
22. He GL, Shanker RA, Chzhan M, Samouilov A, **Kuppusamy P**, Zweier JL. Mapping of oxygen in gastrointestinal tract using electron paramagnetic resonance imaging. *Free Radic. Biol. Med.* 25: S104-S104 (1998).
23. Li YB, Zhu H, **Kuppusamy P**, Zweier JL, Trush MA. Can superoxide come out of the mitochondria? *Free Radic. Biol. Med.* 25: S23-S23 (1998).
24. Mitchell JB, **Kuppusamy P**, Subramanian S, Cook JA, Devasahayam N, Afeworki M, Krishna MC. Imaging of free radicals. *Free Radic. Biol. Med.* 25: S5-S5 (1998).
25. Sellappan S, Shankar RA, Hideg K, Zweier JL, **Kuppusamy P**. Protection of myocardial injury by a new tocainide derivative and its nitroxide-metabolite. *Free Radic. Biol. Med.* 25: S39-S39 (1998).
26. Shankar RA, Hideg K, **Kuppusamy P**, Zweier JL. A novel antioxidant antiarrhythmic agent prevents posts ischemic injury: Evidence for efficacy of targeted antioxidant therapeutics. *Faseb J.* 12: A70-A70 (1998).
27. Shankar RA, Hideg K, Zweier JL, **Kuppusamy P**. Targeted antioxidant properties of N-(tetramethyl-3-pyrroline-3-carboxamido)propyl phthalimide (TPC-NH) in preventing posts ischemic myocardial injury. *Free Radic. Biol. Med.* 25: S39-S39 (1998).
28. Shankar RA, **Kuppusamy P**, Hideg K, Zweier JL. Prevention of posts ischemic injury by a new antiarrhythmic agent with antioxidant properties. *J. Invest. Med.* 46: 195A-195A (1998).
29. Shankar RA, **Kuppusamy P**, Roubaud V, Zweier JL. In vivo measurement of nitric oxide generation following cardiac arrest. *J. Invest. Med.* 46: 190A-190A (1998).
30. Shankar RA, Wang P, **Kuppusamy P**, Ma L, Hsia CJC, Zweier JL. Polynitroxyl-albumin (PNA) enhances tempol (TPL) protection against myocardial ischemia and reperfusion injury. *J. Invest. Med.* 46: 195A-195A (1998).
31. Velan SS, **Kuppusamy P**, Petersen E, Zweier JL, Fishbein KW, Spencer RGS. EPR oximetry mapping (EPROM) of cartilage formed in a hollow fiber bioreactor. *Free Radic. Biol. Med.* 25: S86-S86 (1998).
32. Velan SS, Spencer RGS, Zweier JL, **Kuppusamy P**. Electron paramagnetic resonance oximetry mapping (EPROM): A technique for in vivo measurement and visualization of oxygen gradients in tissues. *Free Radic. Biol. Med.* 25: S106-S106 (1998).
33. Wang P, Shanka R, **Kuppusamy P**, Ma L, Hsia CJC, Zweier JL. Polynitroxyl-albumin decreases myocardial infarct size in an in vivo model of ischemia/reperfusion injury. *J. Invest. Med.* 46: 195A-195A (1998).
34. Ilangovan G, Zweier JL, **Kuppusamy P**. Preparation and characterization of a highly sensitive EPR oximetry probe for biological application. *Free Radic. Biol. Med.* 27: S106-S106 (1999).
35. Li HG, Hideg K, **Kuppusamy P**. Protection against myocardial ischemia-reperfusion injury by a nitroxide-precursor. *Free Radic. Biol. Med.* 27: S38-S38 (1999).
36. Li HQ, Ma L, **Kuppusamy P**, Trimble CE, Zweier JL, Hsia CJC. Polynitroxylation neutralizes the hypertensive effect of alpha alpha-crosslinked hemoglobin without affecting nitric oxide scavenging. *Free Radic. Biol. Med.* 27: S80-S80 (1999).
37. Velan SS, **Kuppusamy P**, Petersen E, Zweier JL, Fishbein KW, Spencer RGS. EPR oximetry mapping (EPROM) of cartilage formed in a hollow fiber bioreactor. *Biophys. J.* 76: A357-A357 (1999).
38. Velan SS, Spencer RGS, Zweier JL, **Kuppusamy P**. Electron paramagnetic resonance in oximetry mapping (EPROM): A technique for in vivo measurement and visualization of oxygen gradients in tissues. *Biophys. J.* 76: A357-A357 (1999).
39. **Kuppusamy P**, Ilangovan G, Li HQ, Zweier JL, Mitchell JB. Alterations in systemic and tumor tissue oxygenation as a function of tumor growth. *Free Radic. Biol. Med.* 31: S139-S139 (2001).
40. **Kuppusamy P**, Li HQ, Ilangovan G, Ma L, Hsia CJC. PNA as a tumor radiosensitizer: Enhancement of vascular volume and oxygenation. *Free Radic. Biol. Med.* 31: S139-S139 (2001).
41. **Kuppusamy P**, Li HQ, Ilangovan O, Cardounel AJ, Zweier JL, Mitchell JB. In vivo imaging of tumor redox status: Effect of GSH depletion. *Free Radic. Biol. Med.* 31: S139-S139 (2001).

42. Li HQ, Ilangovan G, Manivannan A, Zweier JL, **Kuppusamy P**. Lithium naphthalocyanine (LiNc): A new EPR oximetry probe for in vivo biological oximetry. *Free Radic. Biol. Med.* 31: S124-S124 (2001).
43. Li HQ, Ma L, Hsia CJC, Zweier JL, **Kuppusamy P**. Polynitroxyl human serum albumin plus Tempol reduce infarct volume following regional myocardial ischemia and reperfusion in the rat. *Faseb J.* 15: A570-A570 (2001).
44. Rizzi C, Souza HP, Samouilov A, **Kuppusamy P**, Roubaud V, Zweier JL. Spin trapping quantitative measurement of superoxide generation from NADPH cytochrome P450 reductase. *Free Radic. Biol. Med.* 31: S25+ (2001).
45. Verecke A, **Kuppusamy P**, Besch HR, Zweier JL, Zipes DP. Treatment with a flavonoid antioxidant enhances the antiarrhythmic action of amiodarone. *Circulation.* 104: 47-47 (2001).
46. Khramtsov VV, Grigor'ev IA, Kirilyuk IA, Ilangovan G, **Kuppusamy P**. In vivo EPR measurement of tissue acidosis during myocardial ischemia using pH sensitive nitroxides. *Free Radic. Biol. Med.* 33: S423-S424 (2002).
47. Angelos MG, Torres CA, Stoner JD, Kutala V, **Kuppusamy P**. Low oxygen reperfusion exacerbates post ischemic myocardial function. *Circulation.* 108: A1033-A1033 (2003).
48. Bratasz A, Khramtsov VV, **Kuppusamy P**. A modified Tietze assay for the determination of thiols in intact cells and tissues. *Free Radic. Biol. Med.* 35: S147-S147 (2003).
49. He GL, Kutala VK, **Kuppusamy P**, Zweier JL. In vivo measurement and mapping of skin redox stress induced by ultraviolet light exposure. *Free Radic. Biol. Med.* 35: S144-S145 (2003).
50. He GL, Kutala VK, Zweier JL, **Kuppusamy P**. Imaging of myocardial ischemia and regional PO₂ alterations in the perfused heart. *Free Radic. Biol. Med.* 35: S145-S145 (2003).
51. Ilangovan G, Bratasz A, **Kuppusamy P**. Direct visualization of emergence of hypoxia in a growing tumor. *Free Radic. Biol. Med.* 35: S168-S169 (2003).
52. Ilangovan G, Bratasz A, **Kuppusamy P**. Monitoring the hypoxia development during tumor growth by EPR imaging. *Free Radic. Biol. Med.* 35: S169-S169 (2003).
53. Ilangovan G, Gajendrareddy P, Marucha PT, Zweier JL, **Kuppusamy P**. Noninvasive monitoring of oxygen concentration in wound healing. *Free Radic. Biol. Med.* 35: S178-S178 (2003).
54. Ilangovan G, Liebgott T, Kutala VK, Zweier JL, **Kuppusamy P**. Myocardial oximetry: Correlation of tissue reoxygenation to functional recovery in the reperfused heart. *Free Radic. Biol. Med.* 35: S146-S146 (2003).
55. Ilangovan G, Liebgott T, Petryakov S, Zweier JL, **Kuppusamy P**. Measurement and correlation of myocardial reoxygenation to functional recovery in isolated perfused hearts after ischemia-reperfusion. *J. Mol. Cell. Cardiol.* 35: A47-A47 (2003).
56. **Kuppusamy P**. An assay for superoxide by "spin loss" EPR spectrometry. *Free Radic. Biol. Med.* 35: S146-S147 (2003).
57. Kutala VK, **Kuppusamy P**. Reaction of triarylmethyl (trityl) radical with superoxide: Implications for optical measurement of superoxide. *Free Radic. Biol. Med.* 35: S147-S147 (2003).
58. Kutala VK, Parinandi NL, Pandian RP, **Kuppusamy P**. Measurement of transmembrane oxygen gradients in lung microvascular endothelial cells. *Free Radic. Biol. Med.* 35: S147-S147 (2003).
59. Marucha P, Gajendrareddy P, Ilangovan G, **Kuppusamy P**. Stress impairs wound oxygen, hypoxia-induced gene expression, and wound healing. *Free Radic. Biol. Med.* 35: S120-S120 (2003).
60. Pandian RP, **Kuppusamy P**. An implantable microprobe for noninvasive monitoring of tissue oxygenation. *Free Radic. Biol. Med.* 35: S148-S148 (2003).
61. Pandian RP, Kutala VK, Parinandi NL, **Kuppusamy P**. Effect of LPS on the oxygen consumption of aortic endothelial cells. *Free Radic. Biol. Med.* 35: S28-S28 (2003).
62. Parinandi NL, Sharma A, **Kuppusamy P**. Internalization of particulate spin probe for determination of intracellular oxygen. *Free Radic. Biol. Med.* 35: S148-S148 (2003).
63. Samouilov A, Valerie R, **Kuppusamy P**, Zweier J. A quantitative approach to EPR spin trapping. *Free Radic. Biol. Med.* 35: S14-S14 (2003).
64. Weir NM, Bratasz A, **Kuppusamy P**. Modulation of thiol levels in human ovarian cancer cells treated with cisplatin. *Free Radic. Biol. Med.* 35: S172-S172 (2003).

65. Angelos MG, Kutala V, Mohammad M, Torres CA, **Kuppusamy P**. Inhibition of the initial burst of reactive oxygen species (ROS) under conditions of hypoxic and hyperoxic reperfusion in the globally ischemic heart. *Circulation*. 110: 392-392 (2004).
66. Angelos MG, Torres CA, Kutala V, Stoner JD, Mohammad M, **Kuppusamy P**. Initial oxygen concentration modulates the reactive oxygen species burst in the heart at the onset of reperfusion. *Circulation*. 110: 342-342 (2004).
67. Bratasz A, Ilangovan G, **Kuppusamy P**. Changes in intracellular oxygenation during tumor growth and after irradiation. *Free Radic. Biol. Med.* 37: S169-S170 (2004).
68. Bratasz A, Villamena F, Yan SD, **Kuppusamy P**. In vivo imaging of oxidative stress in the brain tissue of mice with Alzheimer's disease. *Free Radic. Biol. Med.* 37: S150-S150 (2004).
69. Ilangovan G, Osinbowale S, Bratasz A, Zweier J, **Kuppusamy P**. Heat-shock regulates the respiration of cardiac H9c2 cells through upregulation of nitric oxide synthase. *Free Radic. Biol. Med.* 37: S83-S83 (2004).
70. Pandian RP, **Kuppusamy P**. Lithiated phthalocyanines: A new class of crystalline paramagnetic probes for targeted cellular oximetry and imaging by EPR spectroscopy. *Biophys. J.* 86: 191A-191A (2004).
71. Pandian RP, Kutala VK, Parinandi N, **Kuppusamy P**. Effect of lipopolysaccharide on oxygen consumption and radical production in aortic endothelial cells. *Free Radic. Biol. Med.* 37: S28-S29 (2004).
72. Samouilov A, Roubaud V, Zweier JL, **Kuppusamy P**. Quantification of free radical generation from kinetic analysis of EPR spin trapping. *Free Radic. Biol. Med.* 36: S149-S149 (2004).
73. Savla M, Panadian R, **Kuppusamy P**, Agarwal G. Magnetic force microscopy in biology. *Abstr. Pap. Am. Chem. Soc.* 228: U295-U295 (2004).
74. Hangovan C, Venkatakrishnan CD, Bratasz A, Cardounel A, Zweier J, **Kuppusamy P**. Hyperthermia induced attenuation of hydroxyl radical generation and mitochondrial aconitase activity in cardiac cells. *Free Radic. Biol. Med.* 39: S25-S25 (2005).
75. Khan M, Kutala VK, Cherukuri K, Hideg K, Mandal R, **Kuppusamy P**. Attenuation of ischemia-reperfusion injury in heart by trimetazidine derivatives complemented with antioxidant function. *Free Radic. Biol. Med.* 39: S34-S34 (2005).
76. Khan M, Varadharaj S, Shobha JC, Naidu MU, Parinandi NL, **Kuppusamy P**, Kutala VK. C-phycocyanin ameliorates doxorubicin-induced oxidative stress and apoptosis in adult cardiomyocytes, in vitro. *Free Radic. Biol. Med.* 39: S34-S34 (2005).
77. Kutala VK, Khan M, Varadharaj S, Ganesan PL, Shobha JC, Naidu MU, Parinandi NL, Tridandapani S, **Kuppusamy P**. C-phycocyanin improves cardiac dysfunction by attenuating oxidative stress and inhibition of p38 MAPK activity in isolated heart subjected to ischemia-reperfusion. *Free Radic. Biol. Med.* 39: S35-S35 (2005).
78. Presley T, **Kuppusamy P**, Ilangovan G. A quantitative analysis of non regulated cellular respiration using EPR microximetry. *Free Radic. Biol. Med.* 39: S91-S91 (2005).
79. Venkatakrishnan CD, Tiwari A, Moldovan L, Zweier J, **Kuppusamy P**, Ilangovan G. Doxorubicin induced toxicity in cardiac cells is attenuated by p38MAPK and phosphorylation of small heat shock proteins. *Free Radic. Biol. Med.* 39: S171-S171 (2005).
80. Bratasz A, Kulkarni AC, **Kuppusamy P**. Imaging of oxygen concentration in tumor tissue using an injectable probe, perchlorotriphenyl-methyl radical in hexafluorobenzene. *Free Radic. Biol. Med.* 41: S99-S99 (2006).
81. Butt OI, Kutala VK, **Kuppusamy P**, Moldovan NI. Monitoring peri-implant neovascularization driven by bone marrow progenitor cells using an in situ oxygen sensor. *Circulation*. 114: 198-198 (2006).
82. Khan M, Kutala VK, Vikram D, Wisel S, Chacko SM, Kuppusamy LA, Zweier JL, Kwiatkoski P, **Kuppusamy P**. Non-invasive monitoring of in situ oxygenation and engraftment of skeletal myoblasts transplanted in ischemic mouse heart. *Free Radic. Biol. Med.* 41: S61-S61 (2006).
83. Khan M, Kutala VK, Wisel S, Kwiatkowski P, Chacko SM, Kuppusamy ML, Zweier JL, **Kuppusamy P**. Non-invasive tracking of cells and monitoring of in Situ pO₂ during engraftment of skeletal myoblasts in infarct mouse heart. *Circulation*. 114: 197-197 (2006).
84. Kumbala D, Khan M, Kutala VK, **Kuppusamy P**. Sulfaphenazole, a CYP2C9 inhibitor, protects against ischemia-reperfusion-induced injury in isolated rat heart. *Circ.Res.* 99: E41-E41 (2006).

85. Kutala VK, Karuppaiyah S, Weir NM, Tong LY, Viswanath S, **Kuppusamy P**. Curcumin induced G2/M arrest and apoptosis by enhancing superoxide generation and inhibiting Akt activity in chemoresistant human ovarian cancer cells. *Free Radic. Biol. Med.* 41: S111-S111 (2006).
86. Kutala VK, Khan M, Mandal R, Kumbala D, **Kuppusamy P**. Prevention of post-ischemic myocardial reperfusion injury by the combined treatment of NCX-4016 and Tempol. *Free Radic. Biol. Med.* 41: S51-S51 (2006).
87. Lee KB, Subramaniam D, Sureban SM, Ramanujam RP, Kalman H, **Kuppusamy P**, Houchen CW, Dieckgraefe BK, Anant S. Novel curcumin analog diphenyl difluoroketone (L-2395) mediates anti-colon cancer activity through epidermal growth factor receptor signaling inhibition. *Gastroenterology.* 130: A118-A118 (2006).
88. Lu DN, **Kuppusamy P**, Wang PG. The NO-releasing mechanism of 4-aryl-1,3,2-oxathiazolylum-5-olates. *Nitric Oxide-Biol. Chem.* 14: A28-A28 (2006).
89. Parinandi NL, Ashish S, Eubank TD, Kaufman BF, Kutala VK, Marsh CB, Ignarro LJ, **Kuppusamy P**. Nitroaspirin, NCX-4016, is antiangiogenic through induction of loss of redox-dependent viability and cytoskeletal reorganization in endothelial cells. *Free Radic. Biol. Med.* 41: S52-S52 (2006).
90. Presley T, Bratasz A, Venkatakrisnan CD, **Kuppusamy P**, Zweier JL, Ilangovan G. Does endogenous NO inhibit cellular respiration at hypoxic conditions? *Free Radic. Biol. Med.* 41: S53-S53 (2006).
91. Presley T, Venkatakrisnan CD, Bratasz A, **Kuppusamy P**, Ilangovan G. EPR oximetry to demonstrate NO inhibition of cellular respiration. *Nitric Oxide-Biol. Chem.* 14: A22-A22 (2006).
92. Subramaniam D, Sureban SM, George R, Ramanujam RP, Kalman H, **Kuppusamy P**, Houchen CW, Dieckgraefe BK, Anant S. A novel synthetic diphenyl, difluoroketone (L-2395) compound with potent in vitro and in vivo anti-cancer activity. *Gastroenterology.* 130: A580-A580 (2006).
93. Venkatakrisnan CD, Turakhia S, **Kuppusamy P**, Zweier J, Ilangovan G. Regulation of p53 activity by heat shock protein Hsp27 in doxorubicin induced cardiotoxicity. *Free Radic. Biol. Med.* 41: S80-S80 (2006).
94. Venkatakrisnan CD, Zweier J, **Kuppusamy P**, Ilangovan A. Small heat shock proteins as endogenous antioxidants against Doxorubicin-induced reactive oxygen species. *Free Radic. Res.* 40: S131-S131 (2006).
95. Angelos MG, Khan M, Aune SE, Clanton TL, **Kuppusamy P**. Controlled myocardial tissue reoxygenation (PO₂) with low flow reperfusion improves post ischemic LV function. *Circulation.* 116: 433-433 (2007).
96. Butt OI, Carruth RW, **Kuppusamy P**, Zweier JL, Moldovan NI. Evidence for paracrine stimulation of neovascularization by bone marrow-derived progenitor cells: Assessment by in vivo EPR oximetry. *Circ.Res.* 101: E55-E55 (2007).
97. Chacko SM, Pandian RP, **Kuppusamy P**. A new oxygen sensing nanoprobe based on phenoxy substituted lithium phthalocyanine for EPR oximetry. *Biophys. J.* 340A-340A (2007).
98. Chacko SM, Wisel S, **Kuppusamy P**. Labeling of skeletal myoblasts with a nanoparticulate oxygen-sensing probe for long-term noninvasive monitoring of in situ oxygenation and cell therapy in heart. *Biophys. J.* 340A-340A (2007).
99. Khan M, Mohan IK, Kumbala D, Kutala VK, **Kuppusamy P**. Mitigation of cardiac injury by sulfaphenazole, a CYP2C9 inhibitor through involvement of inducible nitric oxide synthase (iNOS) in post-ischemic heart. *Circulation.* 116: 287-287 (2007).
100. Kulkarni A, Bratasz A, **Kuppusamy P**. A new spin probe for high resolution in vivo oximetry and imaging. *Biophys. J.* 340A-340A (2007).
101. **Kuppusamy P**, Khan M, Kutala VK. Non-invasive monitoring of in situ pO₂ and functional recovery in infarct hearts transplanted with myoblasts. *J. Mol. Cell. Cardiol.* 42: S99-S99 (2007).
102. Moldovan NI, Butt O, Alzawhra W, Khan M, **Kuppusamy P**, Zweier JL. Composition of bone marrow-derived progenitor cells in the cellular infiltrate of infarcted hearts: Role of local oxygen tension. *Faseb J.* 21: A228-A228 (2007).
103. Presley T, Venkatakrisnan CD, Velayutham M, **Kuppusamy P**, Zweier JL, Ilangovan G. Exposure to extreme hypoxia attenuates endothelial cellular respiration: A potential role of Hsp90-eNOS association. *Biophys. J.* 339A-339A (2007).
104. Vedam K, Nishijima Y, Khan M, **Kuppusamy P**, Zweier JL, Ilangovan G. Increased expression of heat shock protein 25 in doxorubicin-treated failing hearts. *Circ.Res.* 101: E60-E61 (2007).

105. Vikram DS, Bratasz A, Ahmad R, **Kuppusamy P**. In vivo monitoring of temporal changes in tumor pO₂ using EPR oximetry. *Biophys. J.* 340A-340A (2007).
106. Vikram DS, Khan M, Kutala VK, Chacko SM, **Kuppusamy P**. Noninvasive monitoring of In Situ oxygenation in infarcted hearts treated with stem cells. *Biophys. J.* 339A-340A (2007).
107. Khan M, Wisel S, Lyyapu KM, Lakshmi M, Rivera KBK, Hamlin RL, **Kuppusamy P**. Hyperbaric Oxygen Therapy Enhances the Survival and Engraftment of Mesenchymal Stem Cells in the Infarct Heart. *Free Radic. Biol. Med.* 45: S146-S147 (2008).
108. Roy S, Ojha N, He GL, Biswas S, Velayutham M, Khanna S, **Kuppusamy P**, Zweier JL, Sen CK. Rac2 in redox regulated wound healing. *Wound Repair Regen.* 16: A13-A13 (2008).
109. Selvendiran K, Bratasz A, Kuppusamy ML, Khan M, Rivera BK, **Kuppusamy P**. Hyperbaric Oxygen Therapy (HBOT) Suppresses Ovarian Tumor Growth by Inhibition of STAT3 and Cyclin D1 Expression. *Free Radic. Biol. Med.* 45: S55-S55 (2008).
110. Selvendiran K, Bratasz A, Kuppusamy ML, Rivera BK, **Kuppusamy P**. Hypoxia Impediments Ovarian Cancer Treatment Through Modulation of ROS and STAT3 Activation. *Free Radic. Biol. Med.* 45: S38-S38 (2008).
111. Selvendiran K, Kuppusamy ML, Bratasz A, Rivera BK, Rink C, Sen CK, Kalai T, Hideg K, **Kuppusamy P**. Inhibition of Smooth Muscle Cell Proliferation and Balloon Injury-induced Neointimal Hyperplasia Through Activation of PTEN Expression by HO-3867, a Synthetic Curcuminoid. *Free Radic. Biol. Med.* 45: S149-S149 (2008).
112. Tazi MF, Selvendiran K, Kuppusamy ML, Tong L, Rivera BK, Hideg K, **Kuppusamy P**. Evaluation of a Novel Class of Fluorinated Curcumin Analogs for Safe and Targeted Anticancer Therapy (STAT). *Free Radic. Biol. Med.* 45: S56-S57 (2008).
113. Tong LY, Selvendiran K, Bralasz AE, Trigg NJ, Rivera BK, Kalai T, Hideg K, **Kuppusamy P**. Safe and Targeted Anti-Tumor (STAT) Therapeutics by Difluoroketones: a Novel Drug-Design Targeting the STAT3 Pathway in the Treatment of Ovarian Cancer. *Free Radic. Biol. Med.* 45: S51-S51 (2008).
114. Dayton A, Selvendiran K, Kalai T, Hideg K, **Kuppusamy P**. A Novel Therapeutic Combination to Overcome Doxorubicin-Induced Cardiotoxicity Using HO-3867 for the Treatment of Multi-drug Resistant Breast Cancer. *Free Radic. Biol. Med.* 49: S57-S58 (2010).
115. Dayton A, Selvendiran K, Kuppusamy ML, Rivera BK, Meduru S, Kalai T, Hideg K, **Kuppusamy P**. Cellular Uptake, Retention and Bioabsorption of HO-3867, a Fluorinated Curcumin analog with Potential Antitumor Properties. *Free Radic. Biol. Med.* 49: S179-S179 (2010).
116. Mundy BL, Lesinski G, Benninger K, Khan M, **Kuppusamy P**, Guenterberg K, Kondadasula SV, Chaudhury AR, Kreiner M, Young G, Guttridge D, Carson WE. Myeloid-derived Suppressor Cells and Decreased Interferon Responsiveness in Tumor-Bearing Mice. *J. Immunother.* 33: 887-887 (2010).
117. Ravi Y, Karuppaiyah S, Meduru S, Khan M, Citro L, Dayton A, Sai-Sudhakar CB, **Kuppusamy P**. PTEN is a Key Mediator of Vascular Remodeling in Pulmonary Hypertension. *Free Radic. Biol. Med.* 49: S50-S50 (2010).
118. Rivera B, Karuppaiyah S, Hideg K, **Kuppusamy P**. Molecular Modeling of Dual Function Anticancer/Antioxidant Compounds. *Free Radic. Biol. Med.* 49: S187-S188 (2010).
119. McCann G, Selvendiran K, Hideg K, Cohn D, **Kuppusamy P**. Hypoxia-mediated activation of signal transducer and activator of transcription 3 (STAT3) in ovarian cancer: A novel therapeutic strategy using HO-3867, a STAT3 inhibitor. *Gynecol. Oncol.* 121: S25-S25 (2011).
120. Selvendiran K, Ahmed S, Dayton A, Kuppusamy M, Kalai T, Hideg K, **Kuppusamy P**. Therapeutic synergy and resensitization of drug-resistant ovarian carcinoma to cisplatin by HO-3867. *Gynecol. Oncol.* 121: S99-S99 (2011).
121. Ahmed S, Dayton A, Kuppusamy M, Kálai T, Hideg K, Kuppusamy P. Therapeutic synergy and resensitization of drug-resistant ovarian carcinoma to cisplatin by HO-3867. *Gynecologic Oncology.* 2011;120:9
122. Elnakish MT, Hassona MD, Awad MM, Abouelnaga ZA, Alhaj MA, Kuppusamy P, Khan M, Hassanain HH. Over-expression of a corn rac gene induces cardiac hypertrophy in old transgenic mice: A putative role of profilin1-induced signaling. *FASEB JOURNAL.* 2011;25
123. Khan M, Meduru S, Bryant A, Martin M, Kuppusamy P, Elton TS. Mir-133 transfection in mscs downregulates critical pro-apoptotic genes in the infarct heart and improves cardiac function. *CIRCULATION.* 2011;124

124. McCann G, Selvendiran K, Hideg K, Cohn D, Kuppusamy P. Hypoxia-mediated activation of signal transducer and activator of transcription 3 (stat3) in ovarian cancer: A novel therapeutic strategy using ho-3867, a stat3 inhibitor. *Gynecologic Oncology*. 2011;120:S25
125. Ravi Y, Karuppaiyah S, Meduru S, Khan M, Citro L, Dayton A, Sai-Sudhakar CB, Kuppusamy P. Pten is a key mediator of vascular remodeling in pulmonary hypertension. *Free Radical Biology and Medicine*. 2010;49:S50
126. Rivera B, Karuppaiyah S, Hideg K, Kuppusamy P. Molecular modeling of dual function anticancer/antioxidant compounds. *Free Radical Biology and Medicine*. 2010;49:S187-S188
127. Selvendiran K, Ahmed S, Dayton A, Kuppusamy M, Kálai T, Hideg K, Kuppusamy P. Therapeutic synergy and resensitization of drug-resistant ovarian carcinoma to cisplatin by ho-3867. *Gynecologic Oncology*. 2011;120:S99
128. Selvendiran K, Hideg K, Cohn D, Kuppusamy P. Hypoxia-mediated activation of signal transducer and activator of transcription 3 (stat3) in ovarian cancer: A novel therapeutic strategy using ho-3867, a STAT3 inhibitor. *Gynecologic Oncology*. 2011;120:2
129. Ravi Y, Karuppaiyah S, Naidu SK, Meduru S, Citro L, Khan M, Rivera BK, Sai-Sudhakar CB, Kuppusamy P. Pharmacological modulation of pten ameliorates the progression of pulmonary hypertension in heart failure. *Circulation*. 2011;124
130. Ravi Y, Selvendiran K, Emani S, Rivera B, Kuppusamy P, Sai-Sudhakar C. 619 pten is a therapeutic target in pulmonary hypertension. *The Journal of Heart and Lung Transplantation*. 2012;31:S214
131. Ravi Y, Selvendiran K, Kuppusamy P, Sai-Sudhakar C. Is peroxynitrite a therapeutic target in the management of pulmonary hypertension? *Journal of Surgical Research*. 2012;172:280
132. Gogna R, Madan E, Khan M, Kuppusamy P. Oxygen induces p53-dependent nos3-mediated survival pathway in the infarct myocardium by regulating p53 (lys118) acetylation and p53 DNA interaction. *Free Radical Biology and Medicine*. 2012;53:S168
133. Gogna R, Madan E, Kuppusamy P. RPA-dependent melting of triplex DNA at nos2a gene promoter is indispensable for p53-mediated nos2a synthesis and cardioprotection. *Free Radical Biology and Medicine*. 2012;53:S168
134. Ravi Y, Naidu SK, Citro LA, Bogнар B, Hideg K, Sai-Sudhakar CB, Kuppusamy P. Ho-3867, a peroxynitrite scavenger, ameliorates progression of pulmonary hypertension secondary to left-heart failure through restoration of pten activity. *Free Radical Biology and Medicine*. 2012;53:S109-S110
135. Ravi Y, Selvendiran K, Naidu SK, Kuppusamy P, Sai-Sudhakar CB. PTEN inactivation by peroxynitrite induces vascular remodeling in pulmonary hypertension secondary to left-heart failure. *Free Radical Biology and Medicine*. 2012;53:S56
136. Reddy A, Kotamraju S, Golakoti T, Kuppusamy P, Kumar Kutala V. Mitochondrial-targeted curcuminoids as an effective anti-cancer agent. *Free Radical Biology and Medicine*. 2012;53:S116
137. Ravi Y, Emani S, Selvendiran K, Naidu S, Kuppusamy P, Sai-Sudhakar C. Targeting anti-oxidant and anti-proliferative pathways in pulmonary hypertension secondary to heart failure. Is one better than the other? *The Journal of Heart and Lung Transplantation*. 2013;32:S304-S305.

(Incomplete)

PATENTS

- US 8,568,694** **Nanoparticulate probe for in vivo monitoring of tissue oxygenation.**
Inventors: Periannan Kuppusamy, Ramasamy P. Pandian, Narasimham L. Parinandi, Jay L. Zweier
Filing Date: 01-15-2010; Issue Date: 10-29-2013
A new class of micro- and nanoparticulate paramagnetic spin probes especially useful for magnetic resonance imaging techniques, including electron paramagnetic resonance (EPR) and magnetic resonance imaging (MRI). The probes are lithium phthalocyanine derivative compounds. Also provided are suspensions and emulsions comprising lithium phthalocyanine derivative probes. Also provided are noninvasive methods for measuring noninvasive methods of measuring oxygen concentration, oxygen partial pressure, oxygen metabolism, and nitric oxide concentration in a specific tissue, organ, or cell in vivo or in vitro.
- US 8,569,482** **Nanoparticulate probe for in vivo monitoring of tissue oxygenation**
Inventors: Periannan Kuppusamy, Vijay Kutala, Jay L. Zweier, Pawel Kwiatkowski
Filing Date: 01-15-2010; Issue Date: 10-29-2013
A new class of micro- and nanoparticulate paramagnetic spin probes useful for magnetic resonance imaging techniques, including electron paramagnetic resonance (EPR) and magnetic resonance imaging (MRI). The probes are lithium phthalocyanine derivative compounds. Also provided...
- US 20120296188** **Devices and methods for measuring oxygen**
Inventors: Periannan Kuppusamy, Brian Rivera, Edward Eteshola, Guruguhan Meenakshisundaram
Filing Date: 05-16-2012; Published Date: 11-22-2012
A sensor for measuring oxygen concentration in a tissue or an organ of a subject is provided. The sensor includes a sensory element comprising at least one paramagnetic spin probe compound encapsulated in a biocompatible oxygen permeable material. A barrier layer partially covers the sensory element and is comprised of at least one biocompatible oxygen impermeable material. Oxygen concentration data may be acquired by applying the sensor to the tissue or the organ of the subject, and subsequently applying a magnetic resonance spectroscopy or imaging technique.
- US 8,066,973** **Nanoparticulate probe for in vivo monitoring of tissue oxygenation**
Inventors: Periannan Kuppusamy, Vijay Kutala, Jay L. Zweier, Pawel Kwiatkowski
Filing Date: 03-01-2006; Issue Date: 11-29-2011
A new class of micro- and nanoparticulate paramagnetic spin probes useful for magnetic resonance imaging techniques, including electron paramagnetic resonance (EPR) and magnetic resonance imaging (MRI). The probes are lithium phthalocyanine derivative compounds. Also...
- US 20120316203** **Compositions and Methods for Inhibition of Cancers**
Inventors: Periannan Kuppusamy, Kalman Hideg
Filing Date: 07-06-2010; Published Date: 12-13-2012
Methods and compositions for treating cancers, including ovarian cancers, are described. The compositions generally include a redox based curcumin derivative, diarylidene piperidine-4-one (DAP) having a hydroxylamine moiety attached thereto.
- US 7,662,362** **Nanoparticulate probe for in vivo monitoring of tissue oxygenation**
Filing Date: 09-07-2004; Issue date 02-16-2010
Inventors: Periannan Kuppusamy, Ramasamy P. Pandian, Narasimham L. Parinandi, Jay L. Zweier
A new class of micro- and nanoparticulate paramagnetic spin probes especially useful for magnetic resonance imaging techniques, including electron paramagnetic resonance (EPR) and magnetic resonance imaging (MRI). The probes are lithium phthalocyanine derivative compounds.
- 20130127466** **Systems and methods for assessment of oxygenation**
Published Date: 05-23-2013
Inventors: Periannan Kuppusamy, Brian K Rivera, Rizwan Ahmad, Aharon Blank

A scanner for assessing localized oxygenation of a desired region of interest includes a handheld housing having a proximal end and a distal end. A resonator coil is disposed within the housing and also disposed adjacent the distal end of the housing. The resonator coil is configured to both excite and read paramagnetic materials. A magnet is disposed within the housing and also disposed adjacent the distal end of the housing. The magnet is configured to provide a substantially uniform magnetic field over the desired region of interest. The scanner is configured to use electron paramagnetic resonance to assess localized oxygenation in the desired region.

RESEARCH GRANTS

THE FOLLOWING IS A LIST OF ACTIVE (ALL), PENDING (PI & CO-I) & COMPLETED (PI & CO-I) GRANTS

1. R01	PRINCIPAL INVESTIGATOR	ACTIVE
TITLE	:	“EPR scanner for tumor oximetry in the clinic”
DESCRIPTION	:	The goal of this Academic-Industrial Partnership award is to develop a prototype EPR scanner as a medical device for oxygen measurement (oximetry) in cancer patients. The scanner will be built in collaboration with ViewRay®, a medical technology company specializing in MRI-guided linear accelerator (Linac) systems for radiation therapy in the oncology clinics. The proposed scanner will enable measurement of tumor oxygen levels in real-time and provide significant enhancements to cancer therapy.
DATES	:	01/01/2023 - 12/31/2027
SPONSOR	:	National Cancer Institute
IDENTIFICATION NUMBER	:	R01 CA269234
AMOUNT	:	\$ 3,191,705 (2023-2027)
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

2. R01	PRINCIPAL INVESTIGATOR	ACTIVE
TITLE	:	“Probes and methods for clinical oximetry”
DESCRIPTION	:	The continuing award is to develop a pulse EPR technology with a suite of oxygen-sensing probes (OxyChips) to develop an advanced pulse EPR scanner, as well as procedures for the scanner’s use in human subjects in a clinical setting. The availability of this capability would be a new addition to clinical medicine that would immediately and significantly enhance the treatment of various disease states and malignancies.
DATES	:	03/01/2004 - 07/31/2026
SPONSOR	:	National Institutes of Health
IDENTIFICATION NUMBER	:	R01 EB004031
AMOUNT	:	\$ 2,298,187 (2021-2026)
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

3. P01 (PPG)	PROGRAM DIRECTOR (PI: ADMINISTRATIVE CORE)	COMPLETED
TITLE	:	“Direct and Repeated Clinical Measurement pO ₂ for Enhancing Cancer Therapy”: Administrative Core
DESCRIPTION	:	The goal is to establish the clinical applicability of in vivo EPR oximetry for measuring intra-tumor oxygen pressure on a routine basis in superficial tumors; using new oximetry approaches based on biocompatible implantable sensors that have been developed and validated in preclinical models to extend the applicability of EPR oximetry to tumors at any site in the body; and to characterize baseline and changes in tumor oxygen in cancer patients under conditions of tumor progression, treatment, and interventions.
DATES	:	07/01/2015 - 06/30/2022 (NCE)
SPONSOR	:	National Cancer Institute
IDENTIFICATION NUMBER	:	P01 CA190193
AMOUNT	:	\$ 6,420,105

ROLE : Program Director (PI: Administrative Core)

4. P01 (PPG) PRINCIPAL INVESTIGATOR COMPLETED

TITLE : "Direct and Repeated Clinical Measurement pO₂ for Enhancing Cancer Therapy": **Project 2** Title: "Direct & repeated pO₂ measurements for cancer using EPR oximetry with OxyChip"

DESCRIPTION : To establish the clinical applicability of in vivo EPR oximetry for measuring intra-tumor oxygen pressure on a routine basis in superficial tumors; using new oximetry approaches based on biocompatible implantable sensors that have been developed and validated in preclinical models to extend the applicability of EPR oximetry to tumors at any site in the body; and to characterize baseline and changes in tumor oxygen in cancer patients under conditions of tumor progression, treatment, and interventions.

DATES : 07/01/2015 - 06/30/2022 (NCE)

SPONSOR : National Cancer Institute

IDENTIFICATION NUMBER : P01 CA190193

AMOUNT : \$ 6,420,105

ROLE : Principal Investigator (Project 2)

5. R21 PRINCIPAL INVESTIGATOR COMPLETED

TITLE : "Miniature EPR system for on-site oximetry"

DESCRIPTION : We propose to design, build, and test a new implantable EPR system for on-site clinical oximetry applications.

DATES : 6/01/2016 - 03/31/2020

SPONSOR : National Institutes of Health

IDENTIFICATION NUMBER : R21 EB022247

AMOUNT : \$ 445,500

ROLE : Principal Investigator

PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

6. R01 CO-INVESTIGATOR COMPLETED

TITLE : "Dissecting the role of STAT3 and targeting ovarian cancer"

DESCRIPTION : To elucidate the role of hypoxia and hypoxia-mediated STAT3 signaling in ovarian tumor growth and treatment.

DATES : 05/15/2014 - 05/31/2019

SPONSOR : NIH/NCI

IDENTIFICATION NUMBER : CA R01 CA176078

AMOUNT : \$ 124,840

ROLE : Co-Investigator (Sub-Award)

PRINCIPAL INVESTIGATOR : (PI: Selvendiran Karuppaiyah, OSU, OH)

7. R21 CO-INVESTIGATOR COMPLETED

COMPLETED TITLE : "Caveolae as capacitors for oxygen"

DESCRIPTION : The goal of this proposal is to determine what aspects of caveolin serve as membrane oxygen capacitors and the impact of age and caveolin expression on organ oxygen storage capacity and toxicity.

DATES : 08/01/2017 - 07/30/2019

SPONSOR : NIH

IDENTIFICATION NUMBER : AG052722

AMOUNT : \$ 144,787

ROLE : Co-Investigator

PRINCIPAL INVESTIGATOR : (PI: Patel, UCSD)

8. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“The critical role of the coronary microcirculation in heart failure”
DESCRIPTION	:	The goal of this proposal is to test the hypothesis that impaired regulation of blood flow in the heart - the failure to connect coronary blood flow to the metabolic needs of the myocardium (metabolic dilation) - underlies the development of some types of heart failure.
DATES	:	06/01/2017 - 05/31/2021
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	HL135024
AMOUNT	:	\$ 325,354
ROLE	:	Co- Investigator
PRINCIPAL INVESTIGATOR	:	(PI: Chilian, NEOMED, OH)

9. DARPA	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Wireless microsystems for in-vivo biomarker monitoring and targeted drug deliver”
DESCRIPTION	:	To develop an implantable microsensor for wireless monitoring of biomarkers including oxygen in glioma tumors.
DATES	:	01/01/2016 - 06/30/2018
SPONSOR	:	DARPA
IDENTIFICATION NUMBER	:	HR0011-15-2-0050
AMOUNT	:	\$ 360,000
ROLE	:	Co- Investigator
PRINCIPAL INVESTIGATOR	:	(PI: Ari Gaur, Dartmouth)

10. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Mechanisms of Coronary Vasomotor Control”
DESCRIPTION	:	To elucidate vascular effectors that transduce metabolic signals that enable the connection of flow to cardiac metabolism-metabolic dilation
DATES	:	08/01/2013 - 12/31/2017
SPONSOR	:	NIH/NINDS
IDENTIFICATION NUMBER	:	HL115114
AMOUNT	:	\$ 301,042
ROLE	:	Co- Investigator (Sub-Award)
PRINCIPAL INVESTIGATOR	:	(PI: William M. Chilian, NEOMED, OH)

11. R21 (RFA)	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	:	“Hand-held scanner for EPR oximetry”
DESCRIPTION	:	We propose to design, build, and test a new, portable EPR system for clinical oximetry applications.
DATES	:	9/01/2012 - 08/31/2016
SPONSOR	:	National Institutes of Health
IDENTIFICATION NUMBER	:	R21 EB016189
AMOUNT	:	\$ 550,000 (total award)
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

12. R21	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	:	“Real-time monitoring of cerebral tissue oxygen in ischemic stroke”

DESCRIPTION : We propose to develop in vivo electron paramagnetic resonance (EPR) oximetry with deep-tissue implantable resonators for real-time monitoring of cerebral pO₂ during ischemic stroke induced by embolic clot in rabbits.

DATES : 9/01/2013 - 08/31/2016

SPONSOR : National Institutes of Health

IDENTIFICATION NUMBER : R21 EB022247

AMOUNT : \$ 445,500 (total award)

ROLE : Principal Investigator

PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

13. US-ISRAEL - BSF **PRINCIPAL INVESTIGATOR** **COMPLETED**

TITLE : "Oxygen sensing in live systems at micro-scale ESR"

DESCRIPTION : Development of micro-imaging for oxygen sensing in live systems

DATES : 10/01/2010 - 09/30/2014

SPONSOR : US-ISRAEL Binational Science Foundation

IDENTIFICATION NUMBER :

AMOUNT : \$ 160,000

ROLE : Principal Investigator

PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

14. U19 – PILOT PROJECT **PRINCIPAL INVESTIGATOR** **COMPLETED**

TITLE : U19 Title: "Physically-Based Biodosimetry for Triage after a Large Radiation Incident"

DESCRIPTION : Pilot project: "Intensity Standard for L-band EPR Tooth Dosimetry"

DESCRIPTION : This grant is a NIAID, Dart-Dose CMCR pilot project to develop an intensity reference standard for EPR dosimetry

DATES : 12/01/2013 - 11/30/2016

SPONSOR : National Institutes of Health/NIAID

IDENTIFICATION NUMBER : U19AI091173

AMOUNT : \$ 100,000

ROLE : Principal Investigator (PILOT PROJECT)

PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

15. R01 **PRINCIPAL INVESTIGATOR** **COMPLETED**

TITLE : "Development of spin probes for cell-tagging and oximetry"

DATES : 07/01/2004 - 7/31/2013

SPONSOR : National Institutes of Health

IDENTIFICATION NUMBER : R01 EB004031

AMOUNT : \$ 2.70 M

ROLE : Principal Investigator

PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

16. R01 **PRINCIPAL INVESTIGATOR** **COMPLETED**

TITLE : "Novel trityl probes for determination of superoxide"

DATES : 05/01/2008 - 04/30/2013

SPONSOR : National Institutes of Health

IDENTIFICATION NUMBER : R01 EB007373

AMOUNT : \$ 2.70 M

ROLE : Principal Investigator

PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

17. BSF	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	: "EPR microscopy for oximetry"	
DATES	: 10/01/2010 - 09/30/2014	
SPONSOR	: US-Israel Binational Science Foundation (BSF)	
IDENTIFICATION NUMBER	: 28290100	
TOTAL DIRECT COST	: \$ 120,000	
ROLE	: Principal Investigator	
PRINCIPAL INVESTIGATOR	: Periannan Kuppusamy	
18. K01	MENTOR	COMPLETED
TITLE	: "KLF2 as a novel regulator for monocyte activation and function"	
DATES	: 03/15/2008 - 03/14/2013	
SPONSOR	: NIH/NIAMS	
IDENTIFICATION NUMBER	: K01 - R054114	
AMOUNT	: \$ 750,000	
ROLE	: Mentor	
PRINCIPAL INVESTIGATOR	: Hiranmoy Das	
19. R21	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	: "PTENuating Restenosis: an innovative PTEN promoter for cardioprotection"	
DATES	: 07/01/2009 – 06/30/2011	
SPONSOR	: NIH	
IDENTIFICATION NUMBER	: R21 HL0955066	
AMOUNT	: \$ 412, 500	
ROLE	: Principal Investigator	
PRINCIPAL INVESTIGATOR	: Periannan Kuppusamy	
20. R01	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	: "Biophysical and medical applications of ESR microscopy"	
DATES	: 10/01/2006 - 09/30/2010	
SPONSOR	: US-Israel Binational Science Foundation (BSF)	
IDENTIFICATION NUMBER	: 28290100	
TOTAL DIRECT COST	: \$ 96,000	
ROLE	: Principal Investigator	
PRINCIPAL INVESTIGATOR	: Periannan Kuppusamy	
21. CAREER DEVELOPMENT	MENTOR	COMPLETED
TITLE	: "Safe, targeted antitumor therapeutics (STAT3 inhibitors) for ovarian cancer"	
DATES	: 04/01/2008 - 06/30/2010	
SPONSOR	: Kaleidoscope of Hope Foundation for Ovarian Cancer, New Jersey	
IDENTIFICATION NUMBER	: -	
AMOUNT	: \$ 129,900	
ROLE	: Mentor	
PRINCIPAL INVESTIGATOR	: Selvendiran Karuppaiyah	
22. RESEARCH FELLOWSHIP	MENTOR	COMPLETED
TITLE	: "Studies of low flow reperfusion in the heart"	
DATES	: 07/01/2009 - 06/30/2010	
SPONSOR	: Society for Academic Emergency Medicine	
IDENTIFICATION NUMBER	: -	

AMOUNT : \$ 75,000
ROLE : Mentor
PRINCIPAL INVESTIGATOR : Mark Angelos

23. R21 **CO-INVESTIGATOR** **COMPLETED**
TITLE : "Sparse multispectral processing for accelerated EPR oximetry in three dimensions"
DATES : 04/01/2009 – 03/31/2011
SPONSOR : NIH
IDENTIFICATION NUMBER : R21 EB008836
AMOUNT : \$ 412,500 (Requested)
ROLE : Co-Investigator
PRINCIPAL INVESTIGATOR : Lee C Potter

24. R01 **PRINCIPAL INVESTIGATOR** **COMPLETED**
TITLE : "Oxygenation in stem cell therapy for myocardial infarction"
DATES : 07/01/2007 - 06/30/2011
SPONSOR : National Institutes of Health
IDENTIFICATION NUMBER : R01 EB006153
AMOUNT : \$ 1.35 M
ROLE : Principal Investigator
PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

25. R01 **PRINCIPAL INVESTIGATOR** **COMPLETED**
TITLE : "In vivo EPR imaging of redox status and thiols in tumor"
DATES : 04/01/2004 - 03/31/2009
SPONSOR : National Institutes of Health
IDENTIFICATION NUMBER : R01 CA102264
TOTAL DIRECT COST : \$ 1.50 M
ROLE : Principal Investigator
PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

26. R01 **PRINCIPAL INVESTIGATOR** **COMPLETED**
TITLE : "Novel methods for in vivo imaging of tissue oxygenation"
DATES : 04/01/2005 - 03/31/2009
SPONSOR : National Institutes of Health
IDENTIFICATION NUMBER : R01 EB005004
AMOUNT : \$ 1.20 M
ROLE : Principal Investigator
PRINCIPAL INVESTIGATOR : Periannan Kuppusamy

27. K01 **MENTOR** **COMPLETED**
TITLE : "In vivo imaging and spectroscopy of pH and thiols status"
DATES : 03/15/2004 - 03/14/2009
SPONSOR : National Institutes of Health
IDENTIFICATION NUMBER : K01 - EB003519
AMOUNT : \$ 750,000
ROLE : Mentor
PRINCIPAL INVESTIGATOR : Valery V. Khramtsov

28. BRTT	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Cardiovascular Bioengineering Enterprise”
DATES	:	01/01/2003 - 12/31/2005
SPONSOR	:	Biomedical Research Technology Transfer (BRTT), State of Ohio
IDENTIFICATION NUMBER	:	
TOTAL DIRECT COST	:	\$ 450,000 (sub-project only)
CURRENT YR DIRECT COST	:	
SUB-PROJECT TITLE	:	<u>Node 1.3</u> “Noninvasive measurement of myocardial oxygenation during cell therapy using EPR imaging technique”
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

29. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Measurement of free radical generation in the heart”
DATES	:	12/01/2004 – 11/30/2009
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	R01 HL038324
TOTAL DIRECT COST	:	\$ 1,650,000
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Jay L. Zweier

30. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Development of proton-electron double resonance imaging”
DATES	:	09/04/2004 - 06/30/2009
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	EB004658
TOTAL DIRECT COST	:	\$ 2,505,000
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Jay L. Zweier

31. BRTT	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Biomedical Structural, Functional and Molecular Imaging Enterprise”
DATES	:	01/01/2004 - 12/31/2007
SPONSOR	:	Biomedical Research Technology Transfer (BRTT), State of Ohio
IDENTIFICATION NUMBER	:	
TOTAL DIRECT COST	:	\$ 360,000 (sub-project only)
CURRENT YR DIRECT COST	:	
SUB-PROJECT TITLE	:	“Development of a noninvasive EPR technique for imaging thiols in human ovarian cancer cells grown as solid tumor xenografts”
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Michael V. Knopp

32. R01	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	:	“EPR imaging of tumor heterogeneity and oxygenation”
DATES	:	08/15/1998 - 06/30/2006
SPONSOR	:	National Cancer Institute/NIH
IDENTIFICATION NUMBER	:	RO1 CA78886
TOTAL DIRECT COST	:	\$ 1,800,100
CURRENT YR DIRECT COST	:	
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

33. R13	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	:	“Conference/Workshop on EPR Spectroscopy & Imaging”
DATES	:	09/04/2004 - 09/09/2005
SPONSOR	:	National Institutes of Health/NIBIB
IDENTIFICATION NUMBER	:	R13 EB004754
TOTAL DIRECT COST	:	\$ 30,400
CURRENT YR DIRECT COST	:	
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

34. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Center for biomedical EPR spectroscopy and imaging”
DATES	:	06/01/1998 - 05/31/2004
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	RO1 RR 12190
TOTAL DIRECT COST	:	\$ 1,196,617
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Jay L. Zweier

35. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“In vivo EPR imaging of free radicals at 300 MHz”
DATES	:	04/01/1999 - 03/31/2005
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	RO1 GM58582
TOTAL DIRECT COST	:	\$ 1,467,711
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Jay L. Zweier

36. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Oxygen radicals and nitric oxide in post-ischemic injury”
DATES	:	02/01/2000 - 01/31/2005
SPONSOR	:	NIH-NHLBI
IDENTIFICATION NUMBER	:	RO1 HL63744
TOTAL DIRECT COST	:	\$ 1,028,817
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Jay L. Zweier

37. P01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Oxidants and nitric oxide in post-ischemic heart injury”
DATES	:	07/01/2000 - 06/30/2005
SPONSOR	:	NIH-NHLBI
IDENTIFICATION NUMBER	:	PO1 HL656608
TOTAL DIRECT COST	:	\$ 1,022,956 (component only)
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Lewis C. Becker (PD), Jay L. Zweier (PI, component)

38. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“MRI/EPRI – Co-imaging of biological samples”
DATES	:	07/01/2002 - 05/31/2006
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	R01 EB000890
TOTAL DIRECT COST	:	\$ 1,996,617
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Jay L. Zweier
39. R01	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Reperfusion-Induced Endothelial Cell Dysfunction”
DATES	:	12/01/2001 - 11/30/2005
SPONSOR	:	NIH-NHLB
IDENTIFICATION NUMBER	:	HL67027
TOTAL DIRECT COST	:	\$ 1,000,000
CURRENT YR DIRECT COST	:	
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	B. Rita Alevriadou
40. P20	CO-INVESTIGATOR	COMPLETED
TITLE	:	“Center for grid-enabled medical image analysis”
DATES	:	07/01/2002 – 06/30/2007
SPONSOR	:	NIH
IDENTIFICATION NUMBER	:	P20 – EB000591
TOTAL DIRECT COST	:	\$ 350,000 (sub-project only)
CURRENT YR DIRECT COST	:	
SUB-PROJECT TITLE	:	“Development and processing of high-resolution cardiac magnetic resonance imaging”
ROLE	:	Co-Investigator
PRINCIPAL INVESTIGATOR	:	Joel H. Saltz
41. EIA - AHA	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	:	Established Investigator Award -“Measurement of oxygen concentration and distribution in the heart”
DATES	:	07/01/1996 - 06/30/2001
SPONSOR	:	American Heart Association (National Center)
IDENTIFICATION NUMBER	:	96003210
TOTAL DIRECT COST	:	\$ 291,750
CURRENT YR DIRECT COST	:	
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy
42. GIA - AHA	PRINCIPAL INVESTIGATOR	COMPLETED
TITLE	:	Grant-in-Aid -“Measurement of oxygen concentration in the heart using electron paramagnetic resonance spectroscopy/imaging”
DATES	:	07/01/1995 - 06/30/1998
SPONSOR	:	American Heart Association (National Center)
IDENTIFICATION NUMBER	:	95012010
TOTAL DIRECT COST	:	\$ 132,000
CURRENT YR DIRECT COST	:	
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

43. CERT - AWARD**PRINCIPAL INVESTIGATOR****COMPLETED**

TITLE	:	"Development of spectral-spatial EPR imaging for heart"
DATES	:	07/01/1990 - 06/30/1991
SPONSOR	:	Chesapeake Education & Research Trust
IDENTIFICATION NUMBER	:	-
TOTAL DIRECT COST	:	\$ 5,000
CURRENT YR DIRECT COST	:	
ROLE	:	Principal Investigator
PRINCIPAL INVESTIGATOR	:	Periannan Kuppusamy

MENTORING

Mentee – Name & Degree during Mentorship	Mentorship Period	Position & Honors Received during Mentorship	Publications with the Mentee	Whereabouts (Last known)
Ravi A Shankar, MD	1996 -1999	Post-Doctoral Fellow	6	Radiation Oncologist Melbourne, FL
Haiquan Li, MD	1998 - 2002	Post-Doctoral Fellow	13	Scientific Officer Otsuka America Pharmaceuticals, Rockville, MD
Govindasamy Ilangovan, PhD	1999 - 2002 2002 - 2007	Post-Doctoral Fellow (<i>AHA Post-Doctoral Award</i>) Assistant Professor	25	Associate Professor Cardiovascular Medicine The Ohio State University Columbus, OH
Ramasamy P Pandian, PhD	2001 - 2006 2007 - 2011	Post-Doctoral Fellow Research Scientist	22	Senior Scientist Olon Ricerca Bioscience Concord, OH
Sathesh P Evalappan, MD	2001 - 2002	Post-Doctoral Fellow	2	Internist, Robert Wood Johnson University Hospital Somerset, NJ
Anna Bratasz, PhD	2002 - 2007 2008 - 2012	Post-Doctoral Fellow Research Associate	21	Research Scientist, MRI /US Shared Resources, The Ohio State University, Columbus, OH
Ashish Sharma, MD	2002 - 2004	Graduate Student (MPH)	1	Medical profession/Clinician
Nathan M Weir	2002 - 2005	Research Associate	3	MD, PhD Dermatologist Mason, Ohio
Deepti S Vikram, PhD	2003 - 2008	Graduate Student (PhD, Biophysics)	12	Department of Radiology Johns Hopkins University Baltimore, MD
Haihong Li, MS	2003 - 2005	Graduate Student (MS, Biophysics)	6	Engineer MR Services PR China

Sola Osinbowale, BS, MHA	2003 - 2005	Research Assistant	2	Administrative Fellow VA Medical Center West Palm Beach, FL
Vijay Kumar Kutala, PhD	2003 - 2005	Post-Doctoral Fellow (<i>James Warren Award for Outstanding Post-Doc Researcher</i>)	40	Professor Department of Clinical Pharmacology Nizam's Inst. of Medical Sciences, Hyderabad, India
	2005 - 2007	Research Scientist		
Vandana Potaraju BS	2004 - 2005	Research Associate	1	MD Medical/Clinician
Aditi C Kulkarni, MS	2005 - 2008	Graduate Student (PhD, Biophysics)	5	PhD Research Associate La Jolla Bioengineering Institute, La Jolla, CA
Simi M Chacko, MS	2005 - 2010	Graduate Student (PhD, Biophysics) (<i>AHA Pre-doctoral Fellowship Award</i>)	7	PhD, MPH Scientific Writer Cactus Communications – Medical Communications
	2010 - 2012	Post-Doctoral fellow		
Mahmood Khan, PhD	2005 - 2007	Post-Doctoral Researcher (<i>James Warren Award for Outstanding Post-Doc Researcher</i>)	30	Associate Professor Dep. of Emergency Medicine The Ohio State University Columbus, Ohio
	2007 - 2010	Research Scientist		
Joe Z Sostaric, PhD	2005 - 2006	Post-Doctoral Researcher	4	American Chemical Society Publishing Washington DC
Rajarsi Mandal, BS	2005 - 2007	Research Assistant (<i>Roessler Research Scholarship</i>)	3	MD Head & Neck Surgeon Dep. Of Otolaryngology Johns Hopkins Medical School Baltimore, MD
Rizwan Ahmad, MS	2005 - 2007	Graduate Student (PhD, Elect Engineering)	28	PhD Assistant Professor Biomedical Engineering The Ohio State University Columbus, OH
	2007 -2010	Research Scientist		
Shilpa Viswanath, BS	2005 - 2007	Research Associate	2	-

Karuppaiyah Selvendiran, PhD	2006 - 2008 2008 - 2010	Post-Doctoral Researcher Research Scientist	35	Associate Professor Department of OBGYN The Ohio State University Columbus, OH
Iyappu K Mohan, PhD	2006 - 2009	Post-Doctoral Researcher	11	Associate Professor Nizams Inst. Medical Science Hyderabad, India
Liyue Tong, MS	2006 - 2008	Research Associate	5	PhD CDRH/FDA, Silver Spring, MD
Brian K Rivera, MS	2006 - 2013	Research Associate	27	Research Associate Nationwide Children's Hospital Columbus, OH
Guruguhan Meenakshi Sundaram, BE, MS	2006 - 2008 2009 - 2010	Graduate Student (PhD, BioMed Eng) Research Associate	7	PhD Systems Engineer Becton Dickinson
Vinh Dang, BS	2006 - 2007	Research Assistant	5	-
Wisel, Sheik PhD	2005 - 2008	Post-Doc Researcher	7	
Mia F Tazi	2008 - 2009	Undergrad student BioOhio Best Presenter Award	2	PhD Research Scientist Vertex Pharmaceuticals San Diego, CA
Shabnam Ahmed BS	2009 - 2010	Research Assistant	4	MD Medical practice
Sarath Meduru MS	2008 - 2011	Research Associate	4	Vet/Clinical Practice
Yazhini Ravi MBBS	2009 - 2013	Post-Doctoral Fellow	5	Assistant Professor Department of Surgery UConn Health
Balazs Bognar PhD	2011 - 2012	Post-Doctoral Fellow	2	Associate Professor (Pecs Univ)
Lucas A Citro BS	2007 - 2013	Graduate Student (MS & PhD)	5	PhD Presidential Management Fellow (STEM), NASA

Alexander R Dayton BS	2009 - 2011	Research Assistant	6	MD/PhD (MCW) Resident, Internal Medicine University of Minnesota, MN
Rajan Gogna, PhD	2014-2016	Post-doctoral Fellow	15	Scientist Champalimaud Foundation Lisbon, Portugal
Esha Madan, PhD	2014 - 2016	Post-doctoral Fellow	14	Scientist Champalimaud Foundation Lisbon, Portugal
Masaki Nagane, PhD	2015-2016	Post-doctoral fellow	9	Assistant Professor School of Veterinary Medicine Azabu University, Japan
Anjali Prabhat	2016 - 2018	Undergrad student	4	MD student Harvard Medical School Boston, MA
Tomas Drews	2017 - 2017	Undergrad student	2	UMass, Amherst, MA
Jesse Mast, BS	2015 - 2019	Graduate (PhD) student	7	PhD Biology Teaching Lebanon, NH

EDITORIAL

EDITORIAL BOARD APPOINTMENTS

Antioxidants and Redox Signaling
Journal of Clinical Biochemistry and Nutrition
Journal of Radiology and Radiation Therapy

GUEST EDITORSHIP (INVITED)

Antioxidants and Redox Signaling – June 2004 Issue
Forum issue on “EPR Spectroscopy in Biology and Medicine”

Antioxidants and Redox Signaling – June 2007 Issue
Forum issue on “EPR Oximetry & Redox”

Israel Journal of Chemistry – 2008 Issue
Special issue on “EPR Imaging”

Cell Biochemistry and Biophysics – Oct 2013 Issue
Special Issue on “Oxidative Stress in Health and Disease”

JOURNAL PEER-REVIEW ACTIVITIES (AD HOC)

American Journal of Physiology	Antioxidants and Redox Signaling
Applied Magnetic Resonance	Archives of Biochem. and Biophysics
Biochimica et Biophysica Acta	Biochemistry
Biosensors and Bio-electronics	British Journal of Cancer
Cancer Research	Cardiovascular Research
Chemistry of Materials	Circulation Research
Clinical Cancer Research	European Journal of Biochemistry
Experimental Biology	Experimental Eye Research
Free Radical Biology and Medicine	Int. J. of Radiation Oncology*Biology*Physics
Journal of Cardiovascular Pharmacology	Journal of Lipids Research
Journal of Magnetic Resonance	Journal of Materials Chemistry
Journal of Medicinal Chemistry	Journal of Molecular and Cellular Cardiology
J. Pharmacol. and Experimental Therapeutics	Journal of American Chemical Society
Journal of Physical Chemistry	Magnetic Resonance in Chemistry
Magnetic Resonance in Medicine	Medical Physics
Molecular Cancer Therapeutics	Molecular Cancer Research
Molecular and Cellular Biochemistry	Molecular Imaging
Mutation Research	Ophthalmic Research
Proc National Academy of Sciences, USA	Reproductive Sciences
Rejuvenation Research	Stroke
Bioorganic and Medicinal Chemistry	OncoTarget
Biophysics Journal	

PROFESSIONAL SOCIETIES

MEMBERSHIP

American Association for the Advancement of Science (AAAS)	1997 -
American Cancer Society	2007 -
American Chemical Society	1995 -
American Heart Association (AHA)	1995 -
American Physiological Society	2007 -
American Society for Biochemistry and Molecular Biology (ASBMB)	1999 -
American Society for Pharmacology and Experimental Therapeutics	2007 -
Biophysical Society	1998 -
International EPR Society (IES)	1993 -
International Society for Heart Research	2007 -
International Society for Magnetic Resonance in Medicine (ISMRM)	1996 -
New York Academy of Sciences	1994 -
Society for Free Radical Biology and Medicine (Oxygen Society)	1997 -

CONFERENCES

- Organized one-day symposium on "In vivo EPR Spectroscopy and Imaging" as part of the 23rd International EPR Symposium & 42nd annual Rocky Mountain Conference, Broomfield, Colorado, July 30- Aug 3, 2000.
- Organized an International Conference/Workshop on In Vivo EPR Spectroscopy/Imaging & Spin-trapping EPR – held in Easton Hilton, Columbus, OH during September 4-9, 2005.



<http://www.heartlung.osu.edu/epr/3140.cfm>

- Organized a Mini Symposium of on Redox Biology in Blackwell Inn on May 26-27, 2008 under US-JSPS research exchange program.
- Organized a mini symposium on In Vivo EPR Spectroscopy/Imaging on Mar 2, 2010 in Conrad Hilton Hotel, San Juan, PR.

CONFERENCE SESSION CHAIR

- “International Conference on In Vivo ESR and ESR Imaging”, L' Aquila, Italy, September 10-14, 1995.
- “International Workshop on Nitric Oxide and Immune Response to Allografts and Tumors”, Krakow, Poland, December 2-7, 1995.
- “International EPR Symposium and Workshop on In Vivo EPR and Related Studies”, Dartmouth College, Hanover, NH, September 12-17, 1998.
- “International Workshop on Techniques and Bio-Medical Applications of In Vivo EPR and PEDRI”, Aberdeen, Scotland, September 12-17, 1999.
- “International EPR Symposium and Workshop on In Vivo EPR and Related Studies”, Dartmouth College, Hanover, NH, September 09-14, 2001.
- “SPIN-2001 Conference”, Kaiserslautern, Germany, September 22-27, 2001.
- “International *In Vivo* Electron Paramagnetic Resonance Workshop”, Krakow, Poland, Sept. 29-Oct 03, 2001.
- “Oxygen/Nitrogen Radicals: Cells Injury & Disease”, Morgantown, WV, June 01-06, 2002
- “The 10th International Workshop on Biomedical ESR Spectroscopy and Imaging”, Fukuoka, Japan, April 1-3, 2003.
- “26th International EPR Symposium & 43rd Rocky Mountain Conference on Analytical Chemistry”, Denver, CO, July 27-31, 2003.
- “32nd Annual Conference of International Society on Oxygen Transport to Tissues (ISOTT)”, Bari, Italy, August 21-26, 2004.

INCOMPLETE LIST

NIH REVIEWS

REVIEWER

Division of Research Resources, NIH, Special Study Section
National Cancer Institute, NIH, Special Study Section
Reparative Medicine, NIH, Special Study Section
National Institute of Bio-imaging and Bioengineering (NIBIB)
National Institute for Environmental Health (NIEHS)

INCOMPLETE LIST

INVITED & PLENARY LECTURES

1. **1994 Invited Symposium Speaker:** "3D and 4D electron paramagnetic resonance imaging of rat heart", International Conference on Bio-radicals Detected by ESR Spectroscopy", Yamagata, Japan, June 13-16, 1994.
2. **1994 Symposium Presentation:** "Oximetry Studies using 3D/4D Spectral-spatial EPR Imaging of Biological Organs and Tissues at L-band", 17th International EPR Symposium & 36th Rocky Mountain Conference on Analytical Chemistry, Denver, CO, July 31 - August 5, 1994.
3. **1995 Invited Symposium Speaker:** "Gated EPR imaging of cardiac contractile cycle", International Conference on In Vivo ESR and ESR Imaging, L' Aquila, Italy, September 10-14, 1995.
4. **1995 Keynote Speaker:** "Measurement and imaging of nitric oxide in biological systems using EPR imaging", International Workshop on Nitric Oxide and Immune Response to Allografts and Tumors, Krakow, Poland, December 2-7, 1995.
5. **1996 Symposium Presentation:** "Gated EPR imaging of cardiac contractile cycle", 19th International EPR Symposium & 36th Rocky Mountain Conference on Analytical Chemistry, Denver, CO, July 25-29, 1996.
6. **1996 Invited Symposium Speaker:** "Pharmacokinetic and pharmacodynamics studies on free and macromolecule-bound nitroxides by EPR spectroscopy and imaging", VI International Symposium on Blood Substitutes, Montreal, Quebec, Canada, August 5-7, 1996.
7. **1997 Symposium Presentation:** "EPR imaging of tumor heterogeneity and oxygenation in a Murine Tumor Model", 20th International EPR Symposium & 39th Rocky Mountain Conference on Analytical Chemistry, Denver, CO, August 3-7, 1997.
8. **1997 Presentation:** "A new technique for measuring and imaging free radical metabolism and oxygenation in the heart", 70th Scientific Sessions, American Heart Association, Orlando, FL, November, 9-12, 1997.
9. **1998 Symposium Lecture:** "Principles of EPR imaging and its application to biological samples", International EPR Symposium and Workshop on In Vivo EPR and Related Studies, Dartmouth College, Hanover, NH, September, 1998.
10. **1999 Invited lecture:** "cw EPR Imaging: Principle and Application", National Cancer Institute, NIH, Bethesda, March 1999.
11. **1999 Invited Lecture:** "In vivo EPR spectroscopy and imaging", National Institute for Occupational Safety and Health (NIOSH), Center for Disease Control, Morgantown, WV, May 1999.
12. **1999 Invited Lecture:** "EPR imaging of oxygen in tissues", International Society for Oxygen Transport in Tissues, Dartmouth College, Hanover, NH, September 1999.
13. **2000 Symposium Presentation:** "Function EPR imaging of biological samples" in "Functional imaging and tissue oxygen determination using electron paramagnetic resonance", 47th Annual meeting of the Radiation Research Society of North America, Albuquerque, NM, April 29- May 03, 2000.
14. **2000 Plenary Lecture:** "Nitroxide probes for functional electron paramagnetic resonance imaging of biological systems", 6th International Symposium on Spin Trapping, Marseille, France, August 27-31, 2000.
15. **2001 Inaugural Address:** "EPR imaging of biological systems", as inaugural address of the Chemical Society at Pachaiyappa's College, University of Madras, Chennai, India, Feb. 16, 2001.
16. **2001 Invited Lecture:** "Functional EPR imaging of biological tissues", Department of Chemistry, Indian Institute of Technology, Chennai, India, Feb. 26, 2001.
17. **2001 Invited Lecture:** "Nitroxides as functional EPR imaging probes", SPIN-2001 Conference, Kaiserslautern, Germany, September 22-27, 2001.

18. **2001 Invited Lecture:** "Measurement of oxygenation and redox imaging of tumors", International In Vivo EPR Workshop, Krakow, Poland, Sept. 29-Oct 03, 2001.
19. **2002 Invited Lecture:** "EPR spectroscopy - spying on unpaired electrons" in Sunrise Free Radical School, Annual Meeting of the Society of Free Radical Biology and Medicine, San Antonio, TX, November 20-24, 2002.
20. **2003 Plenary Lecture:** "Measurement of intracellular oxygen concentration using nanoparticulate probes", The 10th International Workshop on Biomedical ESR Spectroscopy and Imaging, Fukuoka, Japan, April 1-3 (2003).
21. **2003 Presentation:** "Nanoparticulate spin probes for cell-tagging", 45th Rocky Mountain Conference on Analytical Chemistry, Denver, Colorado, July 27-31, 2003.
22. **2003 Plenary Talk:** "EPR imaging of tumor oxygenation using embedded probe" in the 31st scientific meeting of the International Society on Oxygen Transport to Tissue (ISOTT), held August 16 - 20, 2003 at the University of Rochester in Rochester, NY, USA.
23. **2003 Symposium Lecture:** "Functional imaging using EPR Spectroscopy and imaging", 7th International Conference on Magnetic Resonance Microscopy, 7th "Heidelberg" Conference, Snowbird, UT, September 20-25, 2003.
24. **2004 Presentation:** "In vivo imaging of tissue oxygenation during tumor growth and after irradiation", 32nd scientific meeting of the International Society on Oxygen Transport to Tissue (ISOTT), held August 21-26, 2004 in Bari, Italy.
25. **2004 Invited Lecture:** "Detection of superoxide in time and space", International *In Vivo* EPR Workshop, Krakow, Poland, Oct 5-10, 2004.
26. **2004 Presentation:** "New probes for oxygen and superoxide", EPR Workshop, Dartmouth College, Hanover, NH, Sept 19-22, 2004.
27. **2005 Invited Presentation:** "Cardioprotective effects of nitroxyl-conjugated derivatives of Trimetazidine against ischemia-reperfusion injury", Annual meeting of the Society for Free Radical Research, Bangalore, India, Jan 11, 2005.
28. **2005 Symposium Presentation:** "Open Molecular Framework in LiNc-BuO Paramagnetic Crystal: Implications for the Detection of O₂, NO and NO₂", International EPR Symposium & Rocky Mountain Conference on Analytical Chemistry, Denver, CO, August 3-7, 2005.
29. **2005 Presentation:** "Noninvasive oximetry in stem-cell therapy, organ transplantation, tissue repair, and wound healing", Joint Conference of the 11th "In Vivo EPR Spectroscopy and Imaging" and the 8th "International EPR Spin Trapping", (EPR 2005), Columbus, OH, Sep 8, 2005.
30. **2006 Invited Talk:** "Biological Oximetry using EPR Spectroscopy/Imaging", Annual meeting of the Indian Biophysical Society (IBS), Kolkata, India, Jan 07, 2006.
31. **2006 Invited Talk:** "Derivatives of trimetazidine, covalently modified with pro-antioxidant functions, offer enhanced protection against myocardial ischemia-reperfusion injury", Annual meeting of the Society for Free Radical Research, Kolkata, India, Jan 11, 2006.
32. **2006 Guest Lecture:** "Oxygen sensors for cell therapy in the heart", Department of Chemistry, Pachaiyappa's College, Chennai, India, Jan 19, 2006.
33. **2006 Invited Presentation:** "Monitoring cell therapy in the heart", Bio-dosimetry meeting, Bethesda, MD, Jul 12, 2006.
34. **2006 Plenary (EPR Society Silver Award) Lecture:** "From single crystals to stem cells: images of proliferation, differentiation, and engraftment" International EPR Symposium & Rocky Mountain Conference on Analytical Chemistry, Breckenridge, CO, Jul 26, 2006.
35. **2006 Presentation:** "Non-invasive monitoring of *in situ* oxygenation in the infarct heart transplanted with skeletal myoblasts", 34th scientific meeting of the International Society on Oxygen Transport to Tissue (ISOTT), held in Aug 13, 2006 in Louisville, KY.

36. **2007 Guest Lecture:** "From single crystals to stem cells: images of proliferation, differentiation, and engraftment", Department of Inorganic Chemistry, University of Madras, India. Organized by the Royal Society of Chemistry (South India Chapter) Jan 03, 2007.
37. **2007 Invited Talk:** "Oxygen in Myocardial Cell Therapy", Annual meeting of the Society for Free Radical Research, Lonavala, India, Jan 9, 2007.
38. **2007 Invited Talk:** "Oxygen in Myocardial Cell Therapy" Kyushu University, Fukuoka, Japan. Feb 9, 2007
39. **2007 Invited Talk:** "Oxygen-sensing in myocardial cell therapy", Virginia College of Osteopathic Medicine (VCOM), Virginia Tech, Blacksburg, VA. Mar 11, 2007.
40. **2007 Presentation:** "Oxygen in Myocardial Cell Therapy", Joint Conference of the 12th "In Vivo EPR Spectroscopy and Imaging" and the 9th "International EPR Spin Trapping", (EPR 2007), Chicago, IL. Apr 30, 2007.
41. **2007 Guest Lecture:** "Oxygen-sensing in myocardial cell therapy", Department of Chemistry, Cornell University, Ithaca, NY. Aug 07, 2007.
42. **2007 Guest Lecture:** "EPR oximetry in myocardial cell therapy", VIITH International Workshop on EPR (ESR) in Biology and Medicine. Krakow, Poland. Oct 3-6, 2007.
43. **2007 Invited Talk:** "Cardioprotection by Sulfaphenazole, a Cytochrome P450 Inhibitor: Role of Oxygen, ROS and RNS - An In Vivo EPR Study" Redox-Navi, Kyushu University, Fukuoka, Japan. Nov 2, 2007.
44. **2007 Invited Talk:** "Cardioprotection by Sulfaphenazole, a Cytochrome P450 Inhibitor: Role of Oxygen, ROS and RNS - An In Vivo EPR Study" Redox-Navi, Kyushu University, Fukuoka, Japan. Nov 2, 2007.
45. **2007 Invited Talk:** "EPR oximetry in myocardial cell therapy", Core-to-Core (JSPS), Shizuoka, Japan. Nov 4, 2007.
46. **2007 Invited Talk:** "Oxygen-sensing in myocardial stem-cell therapy", 46th Annual International Meeting of the Society of ESR Spectroscopy Science and Technology (SEST), Shizuoka, Shimizu, Japan. Nov 7, 2007.
47. **2007 Invited Talk:** "Redox Imaging", Winter School on Redox Biology, Chemistry, and Imaging – sponsored by JSPS Core-to-Core program. Washington DC, Nov 12, 2007.
48. **2008 Invited Talk:** "Sensitization of Recurrent Ovarian Tumor to Cisplatin by NCX-4040, a Nitric Oxide-releasing Derivative of Aspirin", Annual meeting of the Society for Free Radical Research, Jaipur, India. Feb 15, 2008.
49. **2008 Invited Talk:** "Visualizing Tissue Oxygen: Wound Care Technology of the Future" in the annual meeting of the Symposium on Advanced Wound Care (SAWC) and Wound Healing Society (WHS), San Diego, Apr 24, 2008.
50. **2008 Guest Lecture:** "Oxygenation in Myocardial Stem-Cell Therapy", Kanagawa Dental College, Kanagawa, Japan. Sep 26, 2008.
51. **2008 Invited Talk:** "Hyperbaric Oxygenation in Myocardial Stem-Cell Therapy", Joint Conference of the 13th "In Vivo EPR Spectroscopy and Imaging" and the 10th "International EPR Spin Trapping", (EPR 2008), Fukuoka, Japan. Sep 28, 2008.
52. **2008 Award (MD honoris causa) Lecture:** "Cellular and molecular therapy for myocardial ischemia and infarction", University of Pecs, Pecs, Hungary. Nov 07, 2008.
53. **2008 Guest Lecture:** "EPR imaging of free radicals", Proctor and Gamble (P&G) Health Science Institute, Cincinnati, OH. Nov 12, 2008.
54. **2008 Invited Talk:** "PTEN"uation of restenosis by a synthetic curcuminoid", Innovations in Atherosclerosis and Cardiac Disease & 21st Annual conference of Indian Society for Atherosclerosis Research. Annamalai Nagar, India. Dec 8-10, 2008.
55. **2009 Invited Lecture:** "Imaging of tissue oxygenation", Mathematical Biomedical Institute (MBI) Workshop on Wound Healing, Columbus, OH. Mar 11, 2009.

56. **2009 Guest Lecture:** "Myocardial stem-cell therapy: Oxygen, oxidants, and opportunities", Delhi Institute of Pharmaceutical Science & Research (DIPSAR), Mini Symposium on "Molecular Cardiovascular Pharmacology". Mar 16, 2009.
57. **2009 Invited Lecture:** "Stem-cell therapy for heart", Satellite Symposium (SFRR), Aligarh Muslim University, Aligarh, India. Mar 18, 2009.
58. **2009 Invited Talk:** "PTEN"uation of restenosis by a synthetic curcuminoid", Annual meeting of the Society for Free Radical Research, Lucknow, India. Mar 20, 2009.
59. **2009 Invited Talk:** "EPR Oximetry: new probes & opportunities for clinical applications", 37th scientific meeting of the International Society on Oxygen Transport to Tissue (ISOTT), Cleveland, OH. Jul 06, 2009.
60. **2009 Invited Talk:** "Effect of Oxygenation on Stem-cell Therapy for Myocardial Infarction", In vivo EPR Symposium, Rocky Mountain Conference on Analytical Chemistry, Snowmass, Colorado. July 23, 2009.
61. **2009 Invited Talk:** "EPR oximetry in myocardial stem-cell therapy", SFRR International Free Radical School, Niigata, Japan. Sep 4, 2009.
62. **2009 Guest Lecture:** "In vivo oximetry in the heart: Effect of oxygenation on stem-cell therapy for myocardial infarction", Schulich Faculty of Chemistry Colloquium, Technion University, Haifa. Nov 5, 2009.
63. **2009 Guest Lecture:** "Stem-cell Therapy for Cardiac Repair: Is Oxygen a Neglected factor?" Dr. Norman F. Paradise Memorial Lecture Series, Northeastern Ohio Universities, College of Medicine and Pharmacy, Rootstown, OH. Dec 1, 2009.
64. **2010 Symposium Talk:** "Oxygenation and Angiogenesis in Stem-cell Therapy for MI", Annual meeting of the Society for Free Radical Research, Hyderabad, India, Jan 10, 2010.
65. **2010 Invited Talk:** "Cardiac drugs: Teaching old drugs new tricks", Annual meeting of the Society for Free Radical Research, Hyderabad, India, Jan 11, 2010.
66. **2010 Grand Rounds Talk:** "Cancer drugs: Teaching old molecules new tricks – a translational perspective", Department of Internal Medicine, Ohio State University College of Medicine, Columbus, OH. Feb 4, 2010.
67. **2010 Special Report:** "Redox: US-Japan Society for Promotion of Science (JSPS) Core-to-Core Program", Fukuoka, Japan, Mar 5, 2010.
68. **2010 Session Organizer and Speaker:** "Redox Imaging: Tissue Oximetry – Novel probes & opportunities", Annual meeting of the Oxygen Club of California (OCC), Santa Barbara, CA. Mar 20, 2010.
69. **2010 Education Lecture:** "How to prepare your manuscript?" Special Symposium of US-JSPA Core-to-Core program, San Juan, Puerto Rico. May 2, 2010.
70. **2010 Education Lecture:** "How to prepare your manuscript?" Special Symposium of US-JSPA Core-to-Core program, San Juan, Puerto Rico. May 2, 2010.
71. **2010 Invited Talk:** "Role of Oxygen in Stem-cell Therapy for Cardiac Repair", ", Joint Conference of the 14th "In Vivo EPR Spectroscopy and Imaging" and the 11th "International EPR Spin Trapping", (EPR 2010), May 5, 2010.
72. **2010 Invited Talk:** "Novel Probes & Opportunities for Clinical Oximetry", In vivo EPR Symposium, Rocky Mountain Conference on Analytical Chemistry, Snowmass, Colorado. Aug 5, 2010.
73. **2010 Invited Talk:** "Novel Sensors & Opportunities for EPR-based Clinical Oximetry", 2010 OSU Biomaterials week. Sep 15, 2010.
74. **2010 Invited Talk:** "Novel Sensors & Opportunities for EPR-based Clinical Oximetry", 2010 OSU Biomaterials week. Sep 15, 2010.
75. **2010 Guest Lecture:** "Novel Sensors & Opportunities for EPR-based Clinical Oximetry", Battelle Memorial Institute, Columbus, OH. Sep 29, 2010.

76. **2011 Invited Lecture:** "Novel Sensors for EPR Oximetry", Presented at 2010 Cleveland Nanomedicine Summit, Cleveland, OH. Oct 19, 2010.
77. **2011 Invited Lecture:** "Novel Sensors and Opportunities for EPR-based Clinical Oximetry", Presented at Redox Core-to-Core (JSPS) Winter School, Fukuoka, Japan. Jan 9, 2011.
78. **2011 Invited Lecture:** "Molecular and Crystalline Spin Probes Encapsulated in Polymeric Materials for Oxygen Sensing", Presented at ACERT Workshop "ESR Microscopy", Cornell University, Ithaca. Jan 18, 2011.
79. **2011 Invited Lecture:** "Oxygen and Oxidants in Cardiovascular Disease & Therapy", 32nd Annual Meeting of the American College of Toxicology. Tutorial #7: Cardiovascular Toxicology, Nov 06, 2011.
80. **2011 Invited Lecture:** "Making sense of oxygenation for cardiovascular & cancer therapy", presented as part of Cancer Imaging and Radiobiology (CIR) seminar series of Norris Cotton Cancer at the Dartmouth-Hitchcock Medical Center at Dartmouth College, Hanover, NH. Oct 25, 2011.
81. **2011 Guest Lecture:** "Making sense of oxygenation for MI", presented at the Johns Hopkins University School of Medicine, Baltimore, MD on Oct 31, 2011.
82. **2011 Invited Lecture:** "Oxygen in Myocardial Infarction and Therapy: Sense & Sensibility", Presented at Redox Core-to-Core (JSPS) Symposium, Fukuoka, Japan. Feb 05, 2011.
83. **2012 Invited Talk:** "Sense & Sensibility of Oxygen in Myocardial Infarction and Therapy", In vivo EPR Symposium, Rocky Mountain Conference on Analytical Chemistry, Copper Mountains, Colorado. Jul 19, 2012.
84. **2012 Presentation:** "Sense & Sensibility of Oxygen in Myocardial Infarction and Therapy", Annual retreat of the Center for Regenerative Medicine and Cell -based Therapies (CRM-CBT), Mohican State Park, OH. Aug 07, 2012.
85. **2012 Guest Lecture:** "Sense & Sensibility of Oxygen in Myocardial Infarction and Therapy", Annual conference of Indian Society for Atherosclerosis Research. Annamalai Nagar, India. Sep 02, 2012.
86. **2012 Guest Lecture:** "Oxygen therapy for acute myocardial infarction: Take a deep breath and relax", Department of Chemistry, Indian Institute of Technology (IIT), Chennai, India. Sep 04, 2012.
87. **2012 Guest Lecture:** "Oxygen therapy for acute myocardial infarction: Take a deep breath and relax", Department of Biotechnology, Dr. MGR University, Chennai, India. Sep 07, 2012.
88. **2012 Guest Lecture:** "Oxygen therapy for acute myocardial infarction: Take a deep breath and relax", Department of Chemistry, University of Madras, Chennai, India. Organized by the Royal Society of Chemistry (South India Chapter) Sep 14, 2012.
89. **2012 Guest (Award) Lecture:** "Cardiac drugs: Teaching old drugs new tricks", University of Pecs, Pecs, Hungary. Sep 24, 2012.
90. **2012 Guest Lecture (1):** "Bifunctional drugs for cardiovascular and cancer treatment", Tbilisi State Medical University, Tbilisi, Georgia. Oct 15, 2012.
91. **2012 Guest Lecture (2):** "Making sense of oxygenation for cardiovascular and cancer therapy", Tbilisi State Medical University, Tbilisi, Georgia. Oct 16, 2012.
92. **2012 Guest Lecture (3):** "STAT3 inhibitors for safe and targeted ovarian cancer therapy", Tbilisi State Medical University, Tbilisi, Georgia. Oct 17, 2012.
93. **2012 Invited Talk:** "Oxygen in Stem-cell Therapy for Myocardial Infarction: Sense & Sensibility", Presented at the 2012 Annual Scientific Sessions of the American Heart Association (AHA), Los Angeles, CA. Nov 06, 2012.
94. **2012 Invited Talk:** "Mitochondria-targeting curcuminoids as effective anticancer agents", Presented at the 2012 Meeting of the Society of Free Radicals in Biology and Medicine, San Diego, CA. Nov 17, 2012.

95. **2013 Presentation:** "Oxygen therapy for acute myocardial infarction: Take a deep breath and relax", Presented at the 41st annual meeting of the International Society for Oxygen Transport in Tissues (ISOTT) and EPR-2013 Conference in Hanover, NH. Jun 26, 2013.
96. **2013 Invited Speaker:** "Probes and Methods for Clinical Oximetry", Presented at the Rocky Mountain Conference on Magnetic Resonance, Denver, CO. Sep 1, 2013.
97. **2013 Grand Rounds Presentation:** "Teaching old drugs new tricks: In pursuit of safe and effective cancer therapy", Norris Cotton Cancer Center Grand Rounds. Sep 24, 2013.
98. **2013 Plenary Lecture:** "Oxygen, oximetry, and oxygenomics in the MI heart", IXTH International Workshop on EPR (ESR) in Biology and Medicine. Krakow, Poland. Oct 7-10, 2013.
99. **2014 Invited Talk:** "Sense and sensibility of oxygen in myocardial infarction and therapy", Gordon Research Conferences - Oxygen radicals. Ventura Beach, CA. Feb 10, 2014.
100. **2014 Invited Talk:** "Measurement and mechanism of oxygen in myocardial injury and protection", Redox Molecular Imaging Symposium in the annual meeting of the Society for Free Radical Research International (SFRRI), Kyoto, Japan. Mar 25, 2014.
101. **2014 Award Lecture:** "EPR oximetry: Of mice and men", Lawrence H. Piette Memorial Lecture, 37th Int. EPR Conference, Rocky Mountain Conference, Copper Mountain, CO, USA. Jul 13-17, 2014.
102. **2014 Invited Lecture:** "Sense and sensibility' of novel paramagnetic phthalocyanine crystals for clinical oximetry", Chemistry Colloquium Lecture Series, Dartmouth College, Oct 02, 2014.
103. **2014 Invited Lecture:** "Sense & sensibility of oxygen in acute myocardial infarction and protection", First Adriatic Symposium on Biophysical Approaches in Biomedical Studies. Split, Croatia, Aug 28, 2014.
104. **2015 Invited Lecture:** "Sense and sensibility of oxygen in acute myocardial infarction", International Conference on Recent Advances in Research and Treatment of Human Diseases & 4th Annual Meeting of Indian Academy of Biomedical Sciences: Hyderabad Jan 9-11, 2015.
105. **2015 Invited Lecture:** "A Hand-held EPR Scanner for Transcutaneous Oximetry", Biomedical Applications In Molecular, Structural, And Functional Imaging, Orlando, FL, Feb 24, 2015
106. **2015 Invited Lecture:** "Bifunctional" curcuminoids for health and disease", University of Pecs, Pecs, Hungary, Mar 23, 2015.
107. **2015 Invited Lecture:** "Bifunctional curcuminoids: Teaching old drugs new tricks", Experimental Therapeutics Program, NCCC, Dartmouth-Hitchcock, May 7, 2015.
108. **2015 Invited Lecture:** "Initial results of phase I clinical trial of OxyChip: an implantable sensor for pO₂ monitoring. Meeting of the International Society for Oxygen Transport in Tissues, Chicago, Jul 2016.
109. **2015 Invited Lecture:** "Bifunctional curcuminoids: Teaching old drugs new tricks". Creighton University, Jul 15, 2016.
110. **2016 Invited Lecture:** "Initial results of phase I clinical trial of OxyChip: an implantable sensor for pO₂ monitoring". 39th International EPR Symposium, Breckenridge, CO, Jul 21, 2016.
111. **2016 Invited Lecture:** "EPR oximetry using OxyChip: Initial results of Phase 1 clinical trial", Xth International Workshop on EPR in Biology and Medicine, Krakow, Poland, Oct 2-6, 2016.
112. **2016 Invited Lecture:** "OxyChip: an implantable sensor for pO₂ monitoring in tissues. Initial results of Phase I clinical study in cancer patients at DHMC", Biophysics Graduate Seminar Series, Medical College Of Wisconsin, Oct 21, 2016.
113. **2016 Invited Lecture:** "Repeated measurements of tumor pO₂ using EPR oximetry with OxyChip: Initial results of a Phase I clinical study", Cancer Imaging Program, National Cancer Institute, Nov 15, 2016.
114. **2016 Invited Lecture:** "EPR oximetry with OxyChip: Initial results of a Phase I clinical study", The Ohio State University, Columbus, Ohio. Nov 21, 2016.

115. **2017 Invited Lecture:** “EPR oximetry with OxyChip: Initial results of a Phase I clinical study”, West Virginia University, Morgantown, WV. Jan 9, 2017.
116. **2017 Invited Lecture:** “Oxygen in cancer therapy: What was missing? Initial results of our Phase I clinical trial using OxyChip”, University of Arkansas Medical School. Feb 13, 2017.
117. **2017 Invited Lecture:** “Clinical Trial for Tumor Oximetry using EPR with OxyChip”, the International Conference on Electron Paramagnetic Resonance spectroscopy and imaging of biological systems and the 13th Spin Trapping/Spin Labeling conferences. West Virginia University, Morgantown, WV. Jul 18, 2017.
118. **2017 Invited Lecture:** “EPR oximetry in human subjects”, Second Adriatic Symposium on Biophysical Approaches in Biomedical Studies. Split, Croatia, Sep 24-28, 2017
119. **2017 Invited Lecture:** “Sense and sensibility of hypoxia in cancer”, University of Massachusetts Medical School, Worcester, MA, Nov 15, 2017.
120. **2018 Invited Lecture:** “Tissue Oxygen Measurement in Humans using EPR Oximetry with OxyChip”, Towards Minimally invasive or Non-invasive Approaches to Assess Tissue Oxygenation Pre- and Post-Transfusion Workshop 2018, Bethesda, MD. Apr 23-24, 2018.
121. **2019 Invited Lecture:** “Measurement of Oxygen Concentration (pO₂) in Human Tumors using EPR Oximetry with OxyChip”, Conference on Magnetic Resonance in Medicine and 25th National Magnetic Resonance Society Meeting, Indian National Science Academy, New Delhi. Feb 16, 2019.
122. **2019 Invited Lecture:** “Tumor Oxygenation for Enhancing Radiation Therapy: Making Sense and Sensibility”, West Virginia University, Jul 11, 2019.
123. **2019 Invited Lecture:** “Measurement of oxygen concentration (pO₂) in human tumors using OxyChip”, XIth International Workshop on EPR in Biology and Medicine, Krakow, Poland, Oct 6-10, 2019.
124. **2020 Invited Lecture (CME):** “Tumor Hypoxia: Cause and Effect”. Sri Ramachandra Institute of Higher Education and Research. Chennai (India). Feb 15, 2020.
125. **2020 Invited Lecture (CME):** “Tumor oxygenation for enhancing radiation therapy: Sense and Sensibility”. Sri Ramachandra Institute of Higher Education and Research. Chennai (India). Feb 15, 2020.
126. **2020 Invited Lecture (CME):** “Oxygen in acute myocardial infarction and protection: Take a deep breath”. Sri Ramachandra Institute of Higher Education and Research. Chennai (India). Feb 15, 2020.
127. **2020 Invited Lecture (CME):** “Bi-functional curcuminoids for cancer therapy: Teaching old dogs new tricks”. Sri Ramachandra Institute of Higher Education and Research. Chennai (India). Feb 15, 2020.
128. **2020 Special Lecture:** “Take a Deep Breath: Sense & Sensibility of Oxygen – Chemistry to Clinic”. Royal Society of Chemistry (South India Chapter) Indian Chemical Society (Tamil Nadu Branch) Stella Maris College, Chennai (India) Feb 17, 2020.
129. **2020 Special Lecture:** “Bifunctional curcuminoids for cancer therapy: Teaching old drugs new tricks”. Royal Society of Chemistry (South India Chapter) Indian Chemical Society (Tamil Nadu Branch). Department of Biotechnology, Sri Ramachandra Institute of Higher Education and Research. Chennai (India). Feb 18, 2020.
130. **2020 Special Lecture:** “Bifunctional Cardiac drugs”. Department of Biotechnology, Sri Ramachandra Institute of Higher Education and Research. Chennai (India). Feb 19, 2020.
131. **2021 Invited Lecture:** “Phase-1 Clinical Trial using EPR Oximetry with OxyChip Establishes Feasibility and Potential Utility of Repeated Measurements of Tumor Oxygen”. 22nd International Society of Magnetic Resonance Conference; 9th Asia-Pacific NMR Symposium; and 60th Annual Meeting of the Society of Electron Spin Science and Technology. Kyoto (Japan), Aug 26, 2021

132. **2021 Invited Webinar Presentation:** "Phase I clinical study establishing the feasibility of EPR oximetry using OxyChip for repeated measurements of tumor oxygen". O2M Technologies, Chicago. Sep 10, 2021.

OTHER SCHOLARLY ACTIVITIES

Developer & Producer: Multilingual (Tamil/English/French/Malay) multimedia software for learning Tamil language/literature to the Tamil diaspora and foreigners

1. **TamilBook 2000** - A multimedia CD-ROM for Windows. Helped/helping more than 20,000 Tamil children and non-Tamils (foreigners) to learn Tamil language - winner of several awards!
2. **Kalvi**, Tamil Tutor Software – the Ministry of Education (MOE) in Singapore adopted this software as part of the Primary School curriculum.
3. **Amildham – Kuva Kuva Vaaththu** – A multimedia CD-ROM of Nursery Rhymes in Tamil language
4. **Amildham – Painthamil Kaadhali** (*The greatest love story ever told!*) – A multimedia CD-ROM & Music CD which brings the 2100-year-old Thirukkural (Tamil Epic written by Valluvar) to live demonstration.
5. **TamilPad** – a bilingual word processor and TrueType® fonts for desktop-publishing and e-mail communication using Tamil language.

Invited Speaker: Invited participant in several national and international conferences on Tamil language and literature

1. United States of America - Army Language Conference, Monterey, CA (1999)
2. World Tamil Teachers Conference, Kuala Lumpur, Malaysia (1994)
3. University of Singapore, Singapore (1993)
4. World Tamil Teachers Conference, Port Louis, Mauritius (1996)
5. Natal Vedic Society, Durban, South Africa (1996)
6. Tamil Church, Johannesburg, South Africa (1996)
7. Reunion Island (A French colony in Indian Ocean) - 1996
8. World Tamil Teachers Conference, Singapore (2000)
9. Bangkok, Thailand (1999)
10. Chennai, India (1999)
11. Sidney, Australia (1998)
12. Toronto, Canada (1995)
13. Vancouver, Canada (1995)
14. Paris, France (2000)

Co-Director & Founder Member: International Tamil Language Foundation

The International Tamil Language Foundation was established to develop and maintain the traditions of Tamil language and culture in the U.S.A. and other nations. The Foundation is a tax exempt, not for profit, service organization with members and supporters throughout the world.

Editor: Handbook of Tamil Culture and Heritage – tirukkural, *the Holy Scripture*, written by tiruvalluvar circa 100 bc.

An 1800-page book (National Press, Philadelphia) illustrating 3000+ years of history, culture and heritage of Tamil language and Tamils (Tamil-speaking people, currently over 70 million world-wide).