

CURRICULUM VITAE Dr Giuseppe Petrosillo

Name Giuseppe
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Date of birth 14 March 1966
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Current position Researcher at the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies (IBIOM), National Research Council (CNR). Bari Italy

Education and professional experience

- 1991 Degree in Biological Sciences, at the University of Bari, Italy;
- 1997 Ph.D. in Biochemistry and Molecular Biology (4 years);
- 1997-2011 technical assistant at the Department of Biochemistry and Molecular Biology University of Bari;
- October 2011- at present, Researcher at the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies (IBIOM), CNR, Bari;
- 1993-2001 member of the examination board in Applied Biochemistry and Biochemical Methodologies;
- September 2005- the abstract, sent to SIB meeting, was selected for oral presentation for the group MEMBRANE e BIOENERGETICA;
- assistant supervisor of several experimental thesis in Biochemistry for the Degree in Biological Sciences;
- member of the examination board in Biochemistry;
- review made for the following international scientific journals:

Cell Biology and Toxicology, Cell Biochemistry and Function, Biochimie, Neurochemistry International, BBA - Bioenergetics, Pharmacological Research, BBA - Biomembranes, BBA - Molecular and Cell Biology of Lipids;

- Course "Formazione Intervento Organizzativo per la Ricerca ed Innovazione" Progetto F.I.O.R.I. – Project Management (252 hours);
- 2014 National scientific qualification as Associate Professor in General Biochemistry.

Teaching activity

- AA 2012/2013 course of Biochimica ambientale (5 CFU) at the University of Bari.
- AA 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018 course of Metodologie BIO/10 (5 CFU) at the University of Bari
- 2013 PON BIOforIU (CNR), teaching activity (6 hours) for the module "Metodologie biochimiche applicate allo studio della bioenergetica cellulare."
- 2013 PON Bioscienze e Salute (University of Bari) teaching activity (two hours) within the Advanced Course "Ricercatori esperti in tecnologie avanzate applicate al campo delle bioscienze e della salute."
- 2018 Faculty of Medicine, University of Montenegro. Theoretical Course on: Mitochondrial function and morphology in health and disease: Model Systems and Methods:

Lesson1 "Mitochondrial physiology: an overview."

Lesson 2 "Mitochondrial function: analytical methods and implications for disease."

Scientific Affiliations

member of the Italian Society of Biochemistry and Molecular Biology (SIB);

Projects

A Computational approach for the identification of Secondary Mechanism of action of drugs: application to Cystic Fibrosis.

Bilateral Project CNR-Italy – MoS-Republic of Montenegro "Mitochondrial dysfunction in cancer growth, drug resistance and chemotherapy-induced neuropathy".

Research interest

His current research interest regards molecular aspects of mitochondrial bioenergetics in health and disease. More specifically he studies the effect of cardiolipin oxidation/depletion on several parameters of mitochondrial function such as oxygen consumption, electron transport chain activity and membrane potential, in-vitro and in different physiopathological situation. He also investigates the role of cardiolipin alterations on Ca²⁺-induced mitochondrial permeability transition (MPT) and on cytochrome c release.

Publications

1. Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Age-dependent decrease in the cytochrome c oxidase activity and changes in phospholipids in rat-heart mitochondria. *Arch Gerontol Geriatr.* 1993 May-Jun;16(3):263-72.
2. Paradies G, Ruggiero FM, Dinoi P, **Petrosillo G**, Quagliariello E. Decreased cytochrome oxidase activity and changes in phospholipids in heart mitochondria from hypothyroid rats. *Arch Biochem Biophys.* 1993 Nov 15;307(1):91-5.
3. Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Enhanced cytochrome oxidase activity and modification of lipids in heart mitochondria from hyperthyroid rats. *Biochim Biophys Acta.* 1994 Jan 11;1225(2):165-70.
4. Paradies G, Ruggiero FM, **Petrosillo G**, Gadaleta MN, Quagliariello E. Effect of aging and acetyl-L-carnitine on the activity of cytochrome oxidase and adenine nucleotide translocase in rat heart mitochondria. *FEBS Lett.* 1994 Aug 22;350(2-3):213-5.
5. Paradies G, Ruggiero FM, **Petrosillo G**, Gadaleta MN, Quagliariello E. Carnitine-acylcarnitine translocase activity in cardiac mitochondria from aged rats: the effect of acetyl-L-carnitine. *Mech Ageing Dev.* 1995 Oct 13;84(2):103-12.
6. Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Stimulation of carnitine acylcarnitine translocase activity in heart mitochondria from hyperthyroid rats. *FEBS Lett.* 1996 Nov 18;397(2-3):260-2.
7. Paradies G, **Petrosillo G**, Ruggiero FM. Cardiolipin-dependent decrease of cytochrome c oxidase activity in heart mitochondria from hypothyroid rats. *Biochim Biophys Acta.* 1997 Mar 28;1319(1):5-8.
8. Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Age-dependent decline in the cytochrome c oxidase activity in rat heart mitochondria: role of cardiolipin. *FEBS Lett.* 1997 Apr 7;406(1-2):136-8.
9. Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Alterations in carnitine-acylcarnitine translocase activity and in phospholipid composition in heart mitochondria from hypothyroid rats. *Biochim Biophys Acta.* 1997 Dec 31;1362(2-3):193-200.
10. Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Peroxidative damage to cardiac mitochondria: cytochrome oxidase and cardiolipin alterations. *FEBS Lett.* 1998 Mar 13;424(3):155-8.
11. Paradies G, **Petrosillo G**, Pistolese M, Di Venosa N, Serena D, Ruggiero FM. Lipid peroxidation and alterations to oxidative metabolism in mitochondria isolated from rat heart subjected to ischemia and reperfusion. *Free Radic Biol Med.* 1999 Jul;27(1-2):42-50.
12. Paradies G, **Petrosillo G**, Gadaleta MN, Ruggiero FM. The effect of aging and acetyl-L-carnitine on the pyruvate transport and oxidation in rat heart mitochondria. *FEBS Lett.* 1999 Jul 9;454(3):207-9.
13. Paradies G, **Petrosillo G**, Pistolese M, Ruggiero FM. The effect of reactive oxygen species generated from the mitochondrial electron transport chain on the cytochrome c oxidase activity and on the cardiolipin content in bovine heart submitochondrial particles. *FEBS Lett.* 2000 Jan 28;466(2-3):323-6.
14. Paradies G, **Petrosillo G**, Pistolese M, Ruggiero FM. Reactive oxygen species generated by the mitochondrial respiratory chain affect the complex III activity via cardiolipin peroxidation in beef-heart submitochondrial particles. *Mitochondrion.* 2001 Aug;1(2):151-9.
15. **Petrosillo G**, Ruggiero FM, Pistolese M, Paradies G. Reactive oxygen species generated from the mitochondrial electron transport chain induce cytochrome c dissociation from beef-heart submitochondrial particles via cardiolipin peroxidation. Possible role in the apoptosis. *FEBS Lett.* 2001 Dec 14;509(3):435-8.

16. Paradies G, **Petrosillo G**, Pistolese M, Ruggiero FM. Reactive oxygen species affect mitochondrial electron transport complex I activity through oxidative cardiolipin damage. *Gene*. 2002 Mar 6;286(1):135-41.
17. **Petrosillo G**, Ruggiero FM, Di Venosa N, Paradies G. Decreased complex III activity in mitochondria isolated from rat heart subjected to ischemia and reperfusion: role of reactive oxygen species and cardiolipin. *FASEB J*. 2003 Apr;17(6):714-6.
18. **Petrosillo G**, Ruggiero FM, Paradies G. Role of reactive oxygen species and cardiolipin in the release of cytochrome c from mitochondria. *FASEB J*. 2003 Dec;17(15):2202-8.
19. Paradies G, **Petrosillo G**, Pistolese M, Di Venosa N, Federici A, Ruggiero FM. Decrease in mitochondrial complex I activity in ischemic/reperfused rat heart: involvement of reactive oxygen species and cardiolipin. *Circ Res*. 2004 Jan 9;94(1):53-9.
20. **Petrosillo G**, Ruggiero FM, Pistolese M, Paradies G. Ca²⁺-induced reactive oxygen species production promotes cytochrome c release from rat liver mitochondria via mitochondrial permeability transition (MPT)-dependent and MPT-independent mechanisms: role of cardiolipin. *J Biol Chem*. 2004 Dec 17;279(51):53103-8.
21. **Petrosillo G**, Di Venosa N, Ruggiero FM, Pistolese M, D'Agostino D, Tiravanti E, Fiore T, Paradies G. Mitochondrial dysfunction associated with cardiac ischemia/reperfusion can be attenuated by oxygen tension control. Role of oxygen-free radicals and cardiolipin. *Biochim Biophys Acta*. 2005 Dec 20;1710(2-3):78-86.
22. **Petrosillo G**, Di Venosa N, Pistolese M, Casanova G, Tiravanti E, Colantuono G, Federici A, Paradies G, Ruggiero FM. Protective effect of melatonin against mitochondrial dysfunction associated with cardiac ischemia-reperfusion: role of cardiolipin. *FASEB J*. 2006 Feb;20(2):269-76.
23. **Petrosillo G**, Casanova G, Matera M, Ruggiero FM, Paradies G. Interaction of peroxidized cardiolipin with rat-heart mitochondrial membranes: induction of permeability transition and cytochrome c release. *FEBS Lett*. 2006 Nov 27;580(27):6311-6.
24. **Petrosillo G**, Portincasa P, Grattagliano I, Casanova G, Matera M, Ruggiero FM, Ferri D, Paradies G. Mitochondrial dysfunction in rat with nonalcoholic fatty liver. Involvement of complex I, reactive oxygen species and cardiolipin. *Biochim Biophys Acta*. 2007 Oct;1767(10):1260-7.
25. **Petrosillo G**, Casanova G, Matera M, Ruggiero FM, Paradies G. Synergistic effect of Ca²⁺ and peroxidized cardiolipin in the induction of permeability transition and cytochrome c release in rat heart mitochondria. *Ital J Biochem*. 2007 Dec;56(4):307-9.
26. **Petrosillo G**, Fattoretti P, Matera M, Ruggiero FM, Bertoni-Freddari C, Paradies G. Melatonin prevents age-related mitochondrial dysfunction in rat brain via cardiolipin protection. *Rejuvenation Res*. 2008 Oct;11(5):935-43.
27. **Petrosillo G**, Matera M, Casanova G, Ruggiero FM, Paradies G. Mitochondrial dysfunction in rat brain with aging. Involvement of complex I, reactive oxygen species and cardiolipin. *Neurochem Int*. 2008 Nov;53(5):126-31.
28. Russo F, Chimienti G, Riezzo G, Pepe G, **Petrosillo G**, Chiloiri M, Marconi E. Inulin-enriched pasta affects lipid profile and Lp(a) concentrations in Italian young healthy male volunteers. *Eur J Nutr*. 2008 Dec;47(8):453-9.
29. **Petrosillo G**, Matera M, Moro N, Ruggiero FM, Paradies G. Mitochondrial complex I dysfunction in rat heart with aging: critical role of reactive oxygen species and cardiolipin. *Free Radic Biol Med*. 2009 Jan 1;46(1):88-94.

30. Paradies G, **Petrosillo G**, Paradies V, Ruggiero FM. Role of cardiolipin peroxidation and Ca²⁺ in mitochondrial dysfunction and disease. *Cell Calcium*. 2009 Jun;45(6):643-50.
31. **Petrosillo G**, Moro N, Ruggiero FM, Paradies G. Melatonin inhibits cardiolipin peroxidation in mitochondria and prevents the mitochondrial permeability transition and cytochrome c release. *Free Radic Biol Med*. 2009 Oct 1;47(7):969-74.
32. **Petrosillo G**, Colantuono G, Moro N, Ruggiero FM, Tiravanti E, Di Venosa N, Fiore T, Paradies G. Melatonin protects against heart ischemia-reperfusion injury by inhibiting mitochondrial permeability transition pore opening. *Am J Physiol Heart Circ Physiol*. 2009 Oct;297(4):H1487-93.
33. **Petrosillo G**, Moro N, Paradies V, Ruggiero FM, Paradies G. Increased susceptibility to Ca(2+)-induced permeability transition and to cytochrome c release in rat heart mitochondria with aging: effect of melatonin. *J Pineal Res*. 2010 May;48(4):340-6.
34. Paradies G, **Petrosillo G**, Paradies V, Reiter RJ, Ruggiero FM. Melatonin, cardiolipin and mitochondrial bioenergetics in health and disease. *J Pineal Res*. 2010 May;48(4):297-310.
35. Pacelli C, Coluccia A, Grattagliano I, Cocco T, **Petrosillo G**, Paradies G, De Nitto E, Massaro A, Persichella M, Borracci P, Portincasa P, Carratù MR. Dietary choline deprivation impairs rat brain mitochondrial function and behavioral phenotype. *J Nutr*. 2010 Jun;140(6):1072-9.
36. Paradies G, **Petrosillo G**, Paradies V, Ruggiero FM. Oxidative stress, mitochondrial bioenergetics, and cardiolipin in aging. *Free Radic Biol Med*. 2010 May 15;48(10):1286-95.
37. **Petrosillo G**, Di Venosa N, Moro N, Colantuono G, Paradies V, Tiravanti E, Federici A, Ruggiero FM, Paradies G. In vivo hyperoxic preconditioning protects against rat-heart ischemia/reperfusion injury by inhibiting mitochondrial permeability transition pore opening and cytochrome c release. *Free Radic Biol Med*. 2011 Feb 1;50(3):477-83.
38. Paradies G, **Petrosillo G**, Paradies V, Ruggiero FM. Mitochondrial dysfunction in brain aging: role of oxidative stress and cardiolipin. *Neurochem Int*. 2011 Mar;58(4):447-57.
39. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G**. Changes in the mitochondrial permeability transition pore in aging and age-associated diseases. *Mech Ageing Dev*. 2013 Jan;134(1-2):1-9.
40. **Petrosillo G**, De Benedictis V, Ruggiero FM, Paradies G. Decline in cytochrome c oxidase activity in rat-brain mitochondria with aging. Role of peroxidized cardiolipin and beneficial effect of melatonin. *J Bioenerg Biomembr*. 2013 Oct;45(5):431-40.
41. Paradies G, Paradies V, De Benedictis V, Ruggiero FM, **Petrosillo G**. Functional role of cardiolipin in mitochondrial bioenergetics. *Biochim Biophys Acta*. 2014 Apr;1837(4):408-17.
42. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G**. Cardiolipin and mitochondrial function in health and disease. *Antioxid Redox Signal*. 2014 Apr 20;20(12):1925-53.
43. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G**. Oxidative stress, cardiolipin and mitochondrial dysfunction in nonalcoholic fatty liver disease. *World J Gastroenterol*. 2014 Oct 21;20(39):14205-18.
44. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G**. Protective role of melatonin in mitochondrial dysfunction and related disorders. *Arch Toxicol*. 2015 Jun;89(6):923-39.

45. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G** Cardiolipin alterations and mitochondrial dysfunction in heart ischemia/reperfusion injury. *Clinical Lipidology* 2015 10(5), 415–429.
46. Giordano L, Deceglie S, d'Adamo P, Valentino ML, La Morgia C, Fracasso F, Roberti M, Cappellari M, **Petrosillo G**, Ciaravolo S, Parente D, Giordano C, Maresca A, Iommarini L, Del Dotto V, Ghelli AM, Salomao SR, Berezovsky A, Belfort R Jr, Sadun AA, Carelli V, Loguercio Polosa P, Cantatore P. Cigarette toxicity triggers Leber's hereditary optic neuropathy by affecting mtDNA copy number, oxidative phosphorylation and ROS detoxification pathways. *Cell Death Dis.* 2015 Dec 17;6:e2021.
47. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G**. Mitochondrial bioenergetics decay in aging: beneficial effect of melatonin. *Cell Mol Life Sci.* 2017 Nov;74(21):3897-3911.
48. Alberio T, Pieroni L, Ronci M, Banfi C, Bongarzone I, Bottoni P, Brioschi M, Caterino M, Chinello C, Cormio A, Cozzolino F, Cunsolo V, Fontana S, Garavaglia B, Giusti L, Greco V, Lucacchini A, Maffioli E, Magni F, Monteleone F, Monti M, Monti V, Musicco C, **Petrosillo G**, Porcelli V, Saletti R, Scatena R, Soggiu A, Tedeschi G, Zilocchi M, Roncada P, Urbani A, Fasano M. Toward the Standardization of Mitochondrial Proteomics: The Italian Mitochondrial Human Proteome Project Initiative. *J Proteome Res.* 2017 Dec 1;16(12):4319-4329.
49. Paradies G, Paradies V, Ruggiero FM, **Petrosillo G**. Mitochondrial bioenergetics and cardiolipin alterations in myocardial ischemia/reperfusion injury. Implications for pharmacological cardioprotection. *Am J Physiol Heart Circ Physiol.* 2018 Aug 10. doi: 10.1152/ajpheart.00028.2018

Book articles

- 1: Paradies G, **Petrosillo G**, Ruggiero F.M. Molecular basis of the age-dependent decrease in the cytochrome oxidase activity in rat heart mitochondria *Progress in cell Research F. Palmieri et al (Editors) Elsevier Science 1995 Vol.5: 243-247*
- 2: Paradies G, Ruggiero FM, **Petrosillo G**, Quagliariello E. Age-dependent impairment of mitochondrial function in rat heart tissue. Effect of pharmacological agents. *Ann N Y Acad Sci.* 1996 Jun 15;786:252-63.
- 3: Paradies G, Ruggiero FM, **Petrosillo G**, Gadaleta MN, Quagliariello E. The effect of aging and acetyl-L-carnitine on the function and on the lipid composition of rat heart mitochondria. *Ann N Y Acad Sci.* 1994 Jun 30;717:233-43.
- 4: Paradies G, **Petrosillo G**, Ruggiero F.M. Cardiac mitochondrial dysfunction in aging and ischemia/reperfusion role of oxygen free radicals and cardiolipin in "Mitochondrial disorders from pathophysiology to acquired defect" Springer 2002: 59 –70