

Curriculum Vitae

Dr. Lidia de Bari

Personal informations:

Name: Lidia

Last name: de Bari

Title: PhD, Specialist in Biotechnologies.

Working address: Institute of Biomembranes and Bioenergetics, Italian National Research Council (CNR)

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Nationality: Italian

Date of Birth: 13/10/1973

Education:

2006 **Degree of Specialist** in Biotechnologies, *cum laude*, at Università degli Studi di Bari, Bari - Italy. Director: Prof. R. Gallerani. Thesis title: "Cellular bioenergetics of cerebellar granule cells apoptosis".

2002 **Ph.D.** in Biochemistry and Molecular Biology at Università degli Studi di Bari, Bari - Italy. Director: Prof. M.N. Gadaleta. Thesis title: "Transport and metabolism of lactate isomers in isolated mitochondria".

1998 **Degree in Biological Sciences**, *cum laude*, at Università degli Studi di Bari, Bari - Italy. Thesis title: "Glutamate neurotoxicity in rat cerebellar granule cells: effects on the energetic metabolism".

Current occupation (January 2008-present): Researcher at Istituto di Biomembrane e Bioenergetica –Italian National Research Council (CNR), Bari - Italy.

Contracts and fellowships:

Period: Jul-Oct 2008

Position: Research assistant

Project name: TIORCAS "Trasferimento, innovazione e organizzazione nella ricerca, nella cultura, nell'ambiente e nella sanità" (Communitarian Initiative "INTERREG IIIA").

Institution: Department of Health Sciences - Università degli Studi del Molise, Campobasso - Italy.

Period: Mar 2005-Aug 2006

Position: Research assistant for the study of "The role of mitochondria during apoptosis"

Project name: Research program WP-2: "I mitocondri nell'apoptosi di cellule animali, vegetali e di microrganismi".

Institution: Istituto di Biomembrane e Bioenergetica- CNR, Bari

Period: Sept-Nov 2006

Position: Research assistant for the study of "Isolation and partial purification of mitochondrial enzymes and bioinformatic analysis"

Project name: PRIN 2004 project "Mitochondri vegetali nello stress ossidativo e nell'apoptosi".

Institution: Department of Health Sciences - Università degli Studi del Molise, Campobasso - Italy.

Period: Feb-May 2005

Position: Research assistant

Project name: TIORCAS project "Trasferimento, innovazione e organizzazione nella ricerca, nella cultura, nell'ambiente e nella sanità" (Communitarian Initiative "INTERREG IIIA").

Institution: Department of Health Sciences - Università degli Studi del Molise, Campobasso - Italy.

Period: Feb-Apr 2004

Position: Research assistant

Project name: MIUR project "Patogeni necrotrofi di pomacee in post raccolta e lieviti antagonisti: ruolo dello stress ossidativo nella patogenesi e fungicidi".

Institution: Dipartimento di Scienze Animali, Vegetali e dell'Ambiente (SAVA)- Università degli Studi del Molise(Campobasso), Italy.

Period: Feb 2003-Jan 2004

Position: Fellowship

Project name: "Bioenergetica cellulare nella necrosi da glutammato e nell' apoptosi di cellule dei granuli di cervelletto".

Institution: Consiglio nazionale delle ricerche at Istituto di Biomembrane e Bioenergetica- Bari, Italy.

Period: Nov 2002-Jan 2003

Position: Research assistant

Project name: MIUR project "Bioenergetica: aspetti genetici, biochimici e fisiopatologici".

Institution: Dipartimento di Scienze Animali, Vegetali e dell'Ambiente (SAVA)- Università degli Studi del Molise (Campobasso).

Scientific activity:

The scientific activity of Dr. de Bari can be summarised as follows:

- Transport and metabolism of physiological substrates in mammalian and plant mitochondria;
- Bioenergetics of cell death in cultured rat cerebellar granule cells;
- Mitochondrial bioenergetics in hypertension;
- Prostate cancer bioenergetics;
- Effect of anticancer drugs on cultured prostate cancer cells;
- Mitochondrial bioenergetics and mitochondrial reactive oxygen species (ROS) production in Rett and Down Syndrome.

Dr. de Bari's activity is documented by:

- **23** papers published on international journals;
- **2** articles on book.

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Scientific collaborations:

Dr. de Bari has collaborated with Professors belonging to national scientific institutions:

Prof. S. Passarella, Dipartimento di Scienze della Salute, Università del Molise, Campobasso, Italy. Subjects: Mitochondrial energy metabolism and mitochondrial carrier activity under physiological conditions. The role of mitochondria in the apoptosis and necrosis of rat cerebellar granule cells.

Prof. Pietro Calissano, Istituto di Neurobiologia e Medicina Molecolare- CNR, Roma, Italy. Subject: The role of mitochondria in neuronal death.

Prof. Giovanni Principato, Istituto di Biologia e Genetica, Facoltà di Medicina e Chirurgia, Università di Ancona- Ancona, Italy. Subject: Mitochondrial transport and metabolism of D-lactate.

Prof. Giovanni Laviola, Dipartimento di Biologia Cellulare e Neuroscienze, Istituto Superiore di Sanità, Roma.

Tematica: Mitochondrial bioenergetics and ROS production in Rett syndrome.

Participation to research projects:

2011-2014 Research project **MIUR FIRB-MERIT** RBNE08YFN3_005 “Determinazione del coinvolgimento dell’omeostasi mitocondriale nella trasformazione neoplastica e apoptosi”.

2011-2012 Research project **FaReBio di Qualità** - Farmaci e reti Biotecnologiche di Qualità. Laboratorio di Riferimento "Farmaci Innovativi - Modelli cellulari e murini e studi funzionali" linea di ricerca 3: Validazione di composti naturali e/o di sintesi antitumorali e di nuovi target”.

2004-2006 Research project **MIUR** - WP-2 “I mitocondri nell'apoptosi di cellule animali, vegetali e di microrganismi”.

2003-2006 Research project **MIUR** - cod. RBNE01ZK8F_003 (PNR 2001-2003 - FIRB art. 8 - D.M. 199 Ric. del 8 march 2001).

2003-2005 Research project “NEUROTROFINE E MECCANISMI RELATIVI A MALATTIE NEURODEGENERATIVE” - **FISR** - Year 2000 (d.lgs. 5 june 1998, n 204).

2004 **Macrolinea 015.03** “Biomembrane e metabolismo cellulare. Meccanismi molecolari di regolazione dell'espressione. Interrelazioni nucleo-citoplasma-mitocondri. Aspetti fisiopatologici”.

2001-2003 Research project “Metabolismo e trasporto in organuli cellulari in condizioni fisiopatologiche” - **PIANO TRIENNALE** 2001-2003 - CNR.

2000 Operative Unit “Regolazione dei processi metabolici di piante ed animali a fini produttivi” - CNR Project “**Agenzia2000**” cod. CNRC008391_003.

1998 Operative Unit of the sub-project “Protezione degli antiossidanti da patologie in sistemi modello” **POP Project**, art.3 del B.O. XXIX year, n.17, part IV - september, 1, 1998, title “Studio del meccanismo di azione degli antiossidanti”.

Foreign languages:

Very good knowledge of the English language both written and spoken.

Publications:

1. DE FILIPPIS B., VALENTI D., CHIODI V., FERRANTE A., **DE BARI L.**, FIORENTINI C., DOMENICI M.R., RICCERI L., VACCA R.A., FABBRI A., LAVIOLA G. (2015) Modulation of Rho GTPases rescues brain mitochondrial dysfunction, cognitive deficits and aberrant synaptic plasticity in female mice modeling Rett syndrome. *EUROPEAN NEUROPSYCHOPHARMACOLOGY*, vol. 25; p. 889-901; ISSN: 0924-977X
2. DE FILIPPIS B., VALENTI D., **DE BARI L.**, DE RASMO D., MUSTO M., FABBRI A., RICCERI L., FIORENTINI C., LAVIOLA G., VACCA R.A. (2015) Mitochondrial free radical overproduction due to respiratory chain impairment in the brain of a mouse model of Rett syndrome: protective effect of CNF1. *FREE RADICAL BIOLOGY & MEDICINE*, vol. 83; p.167-177; ISSN: 0891-5849
3. VALENTI D., **DE BARI L.**, DE FILIPPIS B., RICCERI L., VACCA R.A. (2014) Preservation of mitochondrial functional integrity in mitochondria isolated from small-cryopreserved mouse brain areas. *Anal Biochem.* vol. 444; p. 25-31; ISSN: 0003-2697
4. VALENTI D., **DE BARI L.**, DE FILIPPIS B., HENRION-CAUDE A., VACCA R.A. (2014) Mitochondrial dysfunction as a central actor in intellectual disability-related diseases: An overview of Down syndrome, autism, Fragile X and Rett syndrome. *NEUROSCIENCE & BIOBEHAVIORAL REVIEWS*, vol. 46(2); p. 202-217; ISSN: 0149-7634
5. **DE BARI L.**, MORO L., PASSARELLA S. (2013) Prostate cancer cells metabolize D-lactate inside mitochondria via a D-lactate dehydrogenase which is more active and highly expressed than in normal cells. *FEBS LETTERS*, vol. 587; p. 467-473, ISSN: 0014-5793
6. VALENTI D., **DE BARI L.**, MANENTE G.A., ROSSI L., MUTTI L., MORO L., VACCA R.A. (2013) Negative modulation of mitochondrial oxidative phosphorylation by epigallocatechin-3 gallate leads to growth arrest and apoptosis in human malignant pleural mesothelioma cells. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1832(12); p. 2085-2096, ISSN: 0925-4439
7. VALENTI D., DE RASMO D., SIGNORILE A., ROSSI L., **DE BARI L.**, SCALA I., GRANESE B., PAPA S., VACCA R.A. (2013) Epigallocatechin-3-gallate prevents oxidative phosphorylation deficit and promotes mitochondrial biogenesis in human cells from subjects with Down's syndrome. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1832; p. 542-552; ISSN: 0925-4439
8. **DE BARI L.**, ATLANTE A., PASSARELLA S. (2011) The Role of Mitochondria in the Glucose Metabolism. In *BIOENERGETICS*, Nova Science Publisher, New York (Jeffrey W. Berkin Ed.) pp. 97-129; ISBN: 978-1-61761-788-1

9. **DE BARI L.**, CHIEPPA G., MARRA E., PASSARELLA S. (2010) L-lactate metabolism can occur in normal and cancer prostate cells via the novel mitochondrial L-lactate dehydrogenase. *INTERNATIONAL JOURNAL OF ONCOLOGY* vol. 37(6); p. 1607-1620; ISSN: 1019-6439
10. **DE BARI L.**, VALENTI D., ATLANTE A., PASSARELLA S. (2010) L-Lactate generates hydrogen peroxide in purified rat liver mitochondria due to the putative L-lactate oxidase localized in the intermembrane space. *FEBS LETTERS*, vol. 584(11); p. 2285-2290; ISSN: 0014-5793
11. ATLANTE A., AMADORO G., BOBBA A., **DE BARI L.**, CORSETTI V., PAPPALARDO G., MARRA E., CALISSANO P., PASSARELLA S. (2008) A peptide containing residues 26-44 of tau protein impairs mitochondrial oxidative phosphorylation acting at the level of the adenine nucleotide translocator. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1777(10); p. 1289-1300; ISSN: 0006-3002
12. PASSARELLA S., **DE BARI L.**, VALENTI D., PIZZUTO R., PAVENTI G., ATLANTE A. (2008) Mitochondria and L-lactate metabolism. *FEBS LETTERS*, vol. 582; p. 3569-3576; ISSN: 0014-5793
13. ATLANTE A., **DE BARI L.**, BOBBA A., MARRA E., PASSARELLA S. (2007) Transport and metabolism of L-lactate occur in mitochondria from cerebellar granule cells and are modified in cells undergoing low potassium dependent apoptosis. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1767; p. 1285-1299; ISSN: 0006-3002
14. **DE BARI L.** (2007) Ricerca in banca dati e ricerca di similarità di sequenza. In: *Elementi di Enzimologia - Guida allo studio*. PROF. S. PASSARELLA. p. 57-69, Aracne editrice S.r.l. (ROMA)
15. **DE BARI L.**, VALENTI D, PIZZUTO R, ATLANTE A, PASSARELLA S. (2007) Phosphoenolpyruvate metabolism in Jerusalem artichoke mitochondria. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1767(4); p. 281-294; ISSN: 0006-3002
16. ATLANTE A., BOBBA A., **DE BARI L.**, FONTANA F., CALISSANO P., MARRA E., PASSARELLA S. (2006) Caspase dependent alteration of the ADP/ATP translocator triggers the mitochondrial permeability transition which is dispensable in the low potassium-dependent apoptosis of cerebellar granule cells. *JOURNAL OF NEUROCHEMISTRY*, vol. 97(4); p. 1166-1181; ISSN: 0022-3042
17. ATLANTE A., SECCIA T.M., **DE BARI L.**, MARRA E. PASSARELLA S. (2006) Mitochondria from heart left ventricles of both normotensive and spontaneously hypertensive rats oxidize externally added NADH mostly via a novel malate/oxaloacetate shuttle as reconstructed *in vitro*. *INTERNATIONAL JOURNAL OF MOLECULAR MEDICINE*, vol. 18; p. 177-186; ISSN: 1107-3756
18. ATLANTE A., **DE BARI L.**, VALENTI D., PIZZUTO R., PAVENTI G., PASSARELLA S. (2005) Transport and metabolism of D-lactate in Jerusalem artichoke mitochondria. *BIOCHIMICA ET BIOPHYSICA ACTA*, vol. 1708; p. 13-22; ISSN: 0006-3002
19. **DE BARI L.**, VALENTI D., PIZZUTO R., PAVENTI G., ATLANTE A., PASSARELLA S. (2005) Jerusalem artichoke mitochondria can export reducing equivalents in the form of

malate as a result of D-lactate uptake and metabolism. *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*, vol. 335; p. 1224-1230; ISSN: 0006-291X

20. BOBBA A., ATLANTE A., **DE BARI L.**, PASSARELLA S., MARRA E. (2004) Apoptosis and cytochrome c release in cerebellar granule cells. *IN VIVO*, vol. 18; p. 335-344, ISSN: 0258-851X
21. **DE BARI L.**, ATLANTE A., VALENTI D., PASSARELLA S. (2004) Partial reconstruction of in vitro gluconeogenesis arising from mitochondrial L-lactate uptake/metabolism and oxaloacetate export via novel L-lactate translocators. *BIOCHEMICAL JOURNAL*, vol. 380; p. 231-242; ISSN: 0264-6021
22. ATLANTE A., **DE BARI L.**, BOBBA A., MARRA E., CALISSANO P., PASSARELLA S. (2003) Cytochrome c, released from cerebellar granule cells undergoing apoptosis or excitotoxic death, can generate protonmotive force and drive ATP synthesis in isolated mitochondria. *JOURNAL OF NEUROCHEMISTRY*, vol. 86; p. 591-604; ISSN: 0022-3042
23. PASSARELLA S., ATLANTE A., **DE BARI L.** (2003) The role of mitochondrial transport in energy metabolism. *MITOCHONDRION*, vol. 2; p. 319-343; ISSN: 1567-7249
24. **DE BARI L.**, ATLANTE A., GUARAGNELLA N., PRINCIPATO G., PASSARELLA S. (2002) D-lactate transport and metabolism in rat liver mitochondria. *BIOCHEMICAL JOURNAL*, vol. 365; p. 391-403; ISSN: 0264-6021
25. VALENTI D., **DE BARI L.**, ATLANTE A., PASSARELLA S. (2002) L-lactate transport into rat heart mitochondria and reconstruction of the L-lactate/pyruvate shuttle. *BIOCHEMICAL JOURNAL*, vol. 364; p. 101-104; ISSN: 0264-6021.