Dr. DANIELA VALENTI

Curriculum vitae

Personal information

Name: Daniela
Last name: Valenti
Date of Birth: 28/06/1966
Nationality: Italian
Working address: CNR – Institute of Biomembrane and Bioenergetics
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Education

1. Degree in Biological Sciences *cum laude* with a thesis in Biochemistry at University of Bari, Bari, Italy (1991)
2. PhD in Biochemistry and Molecular Biology (1996)

Professional appointments

Period: **19/03/2001 – today**
Position and professional qualification: Researcher Investigator
Name Institution: National Research Council
Working center: Institute of Biomembrane and Bioenergetics (IBBE), Bari, Italy
Period: **02/01/2000 - 18/03/2001**
Position and professional qualification: Research assistant
Name institution: University of Molise c/o Department of Animal, Plant and Enviromental Sciences, Campobasso- Italy
Period: **1997 - 1999**
Position and professional qualification: Fellow
Name of financing institution: National Institute of Health
Working center: Department of Biochemistry and Molecular Biology, University of Bari
Period: **01-02-1996- 01-06-1996 / 14-11-1996 – 14-12-1996**
Position and professional qualification: Contractor (signing of 2 contracts of 'Intellectual work' with the University of Molise, Campobasso in order to conduct studies of "Purification and characterization of oxygenase enzyme activities in durum wheat). Activity carried out in the Department of Biochemistry and Molecular Biology, University of Bari.

Research topics

Metabolic and molecular mechanisms in the pathogenesis of some genetic intellectual disabilities
Role of estrogen receptors in the modulation of mitochondrial energy metabolism in cancer events
Role of mitochondria in programmed cell death

Metabolism and transport of structural and metabolic biomolecules by isolated animal, plant and yeast mitochondria under physio-pathological conditions
Mechanisms of mitochondrial toxicity of antiviral drugs
Interaction laser light and biological systems

The research activity of Dr. Valenti is documented by:

33 articles on international peer-reviewed journals;
1 article on book
10 articles on italian journals
40 congress proceedings.

Scientific collaborations

- **Dr. Giovanni Laviola**, Istituto Superiore di Sanità, Roma
- **Dr. Alexandra Henrion-Caude**, Dipartimento di genetica INSERM U781, Hôpital Necker-Enfants Malades, Paris, Francia
- **Dr. Andrea Contestabile**, Istituto Italiano di Tecnologia, Genova.
- **Dott. Alessandro Cocchella**, Laboratorio Biomolecolare del Dipartimento di Gerontologia e Scienze Motorie - Ospedali Galliera di Genova. -
- **Prof. Laura Moro,** Dipartimento di Scienze del Farmaco - Università del Piemonte Orientale "Amedeo Avogadro", Novara. –
- **Dr. Leonardo Rossi**, Dipartimento di Morfologia Umana e Biologia Applicata, sezione di Biologia e Genetica, Università di Pisa, Pisa
- **Dr. Apollonia Tullo** Istituto di Tecnologie Biomediche (ITB) - CNR, Bari
- **Prof. Generoso Andria**, Dipartimento di Pediatria Università degli studi di Napoli "Federico II".
- **Dr. F. Madeo,** Istituto di Physiologisch-Chemisches Università di Tubingen (Germania)
- **Prof. L. De Gara**, Dipartimento di Biologia e Patologia Vegetale Università di Bari.

Projects

2013-2015 Grand Awarded by Jérôme Lejeune Foundation, Paris; Project: (1093-VR2012B) "Oxidative stress and mitochondrial dysfunctions in Down Syndrome"
2010-2012 Project MIUR-PRIN (2010-2012) "Genetic and metabolic regulation of the cell redox state in Down syndrome: role of the ubiquitin-proteasome system, of mitochondrial metabolism, of miRNAs, and protective effect of natural anti-oxidant compounds" (2008FHM37R_002).
2011-2014 CNR Project FaReBio di Qualità (FBdQ) "Farmaci Innovativi - Modelli cellulari e murini e studi funzionali"
2008-2010 Grand Awarded by Jérôme Lejeune Foundation, Paris; Project: (615-VRI-2008A) "Molecular determinants and mitochondrial bioenergetics in Down syndrome"
2011-2015 Project FIRB-MERIT (1-RBNE08HWLZ-012) "Molecular basis of aging-related syndroms"
-MERIT CNR "Molecular basis of aging-related degenerative syndromes"
-PRIN-MIUR (2004-2008): " Bioenergetics and mitochondrial apoptotic systems. Genomics, cellular homeostasis and pathophysiology".
"Workpackage 2 (WP2): " Mitochondria in apoptosis of animal cells, plants and microorganisms".
- PRIN cod 2004052535_004 (2004-2006) "Crosstalk between organelles in defense responses to oxidative stress and programmed cell death in plants"

- Negotiating Research - MIUR - cod. RBNE01ZK8F_003 (PNR 2001-2003 - FIRB art. 8 - DM 199 Ric., 8 March 2001) "Neurodegenerative diseases as a result of an altered neural processing of protein. Animal models and cell cultures *in vitro* "(Strategic Plan: Neuroscienze)
- PRIN cod 2001058599_003 **"**Energy metabolism and mitochondrial transport in cell death and in other physiopathological conditions"
- CNR- Three-year plan "Metabolism and transport in cellular organelles under physiopathological conditions"
- PRIN cod 9905023558_007 (1999-2001) "Permeability and metabolism in mitochondria of animal, plant and yeast under pathophysiological conditions".

Individual training of CNR staff

Dr. Valenti has participated in a theoretical-practical course of Molecular Genetics "Yeast genetics apoptosis", organized by Dr. Frank Madeo at the Institute of Physiologisch-Chemisches "University of Tubingen (Germany)
Durata del soggiorno: 20-03-2003 / 02-04-2003

Teaching and training activity

Tutor of experimental thesis in Biochemistry in Faculty of Sciences, University of Bari

Teacher as expert in Biochemistry and Molecular Biology in European projects (PON) for high schools.

MAIN PUBLICATIOS

1. De Filippis B, **Valenti D**, de Bari L, De Rasmo D, Musto M, Fabbri A, Ricceri L, Fiorentini C, Laviola G, **Vacca** RA (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 Radic. Biol. Med. 83, 167-177.
2. De Filippis B, **Valenti** D, Chiodi V, Ferrante A, de Bari L, Fiorentini C, Domenici MR, Ricceri L, **Vacca** RA, 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. Eur Neuropsychopharmacol.
3. **Valenti D**, de Bari L, De Filippis B, Henrion-Caude A, Vacca RA (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 46, 202-217.
4. **Valenti D**, de Bari L, De Filippis B, Ricceri L, Vacca RA (2014) Preservation of mitochondrial functional integrity in mitochondria isolated from small-cryopreserved mouse brain areas. Anal Biochem 444:25-31.
5. **Valenti D,** De Rasmo D, Signorile A, Rossi L, de Bari L, Scala I, Granese B, Papa S, Vacca RA (2013) Epigallocatechin-3-gallate prevents oxidative phosphorylation deficit and promotes mitochondrial biogenesis in human cells from subjects with Down's syndrome**.** *Biochem. Biophys. Acta* 832, 542-552
6. Bobba A, Amadoro G, **Valenti D**, Corsetti V, Lassandro R, Atlante A (2013) respiratory chain Complexes I and IV are impaired by β-amyloid via direct interaction and through Complex I-dependent ROS production, respectively. *Mitochondrion* 13, 298-311.
7. **Valenti D**, Manente GA, Moro L, Marra E, Vacca RA (2011) Deficit of complex I activity in human skin fibroblasts with chromosome 21 trisomy and overproduction of reactive oxygen species by mitochondria: involvement of cAMP/PKA signaling pathway. *Biochem. J*. 435, 679-688.
8. **Valenti D**, Tullo A, Caratozzolo MF, Merafina RS, Scartezzini P, Marra E, **Vacca RA** (2010) Impairment of F1F0-ATPase, adenine nucleotide translocator and adenylate kinase causes mitochondrial energy deficit in human skin fibroblasts with chromosome 21 trisomy. *Biochem. J*. 431, 299-310.
9. 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 Lett*. 584*,* 2285-2290.
10. **Valenti** D, Vacca RA, Guaragnella N, Passarella S, Marra E, Giannattasio S. (2008) Transient proteasome activation is needed for acetic acid-induced programmed cell death to occur in Saccharomyces cerevisiae. *FEMS Yeast Res*. 8, 400-404.
11. Passarella S, de Bari L, **Valenti D**, Paventi G, Pizzuto R, Atlante A (2008) Mitochondria and L-Lactate metabolism. *FEBS Lett. 584,* 2285-2290
12. **Valenti D**, Vacca RA, de Pinto MC, De Gara L, Marra E, Passarella S (2007) In the early phase of programmed cell death in Tobacco Bright Yellow 2 cells the mitochondrial adenite nucleotide translocator, adenylate kinase and nucleoside diphosphate kinase are impaired in a reactive oxygen species-dependent manner. *Biochim. Biophys. Acta* 1767, 66-78.
13. de Bari L, **Valenti D**, Pizzuto R, Atlante A, Passarella S (2007) Phosphoenolpyruvate metabolism in Jerusalem artichoke mitochondria. *Biochim. Biophys. Acta* 1767, 281-294.
14. Vacca RA, **Valenti D**, Bobba A, de Pinto MC, Merafina S, De Gara L, Passarella S, Marra E (2007) Proteasome function is required for activation of programmed cell death in heat shocked Tobacco Bright Yellow 2 cells. ***FEBS lett.*** 581, 917-922.
15. de Bari L, **Valenti D**, Pizzuto R, Atlante Am Passarella S (2007) Phosphoenolpyruvate metabolism in Jerusalem artichoke mitochondria. *Biochim. Biophys. Acta* 1767, 281-294

16. Vacca RA**, Valenti D**, Bobba A, Merafina RS, Passarella S, Marra E (2006) Cytochrome c is released in a Reactive Oxygen species-dependent manner and is degradated via caspase-like proteases in tabacco Bright-yellow 2 cells en route to heat shock-induced cell death. *Plant Physiol*. 141, 208-219.
17. **Valenti D,** Atlante A, Barile M, Passarella S (2006) Mitochondria as agents of disease and as drug targets. In: MORENO A.J., OLIVEIRA P. AND PALMEIRA C.M. Mitochondrial Pharmacology and Toxicology. pp. 113-145.
18. 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. *Biochim. Biophys. Res. Commun.* **335,** 1224-1230.
19. Atlante A, de Bari L, **Valenti D**, Pizzuto R, Paventi G, Passarella S (2005) Transport and metabolism of D-lactate in Jerusalem Artichoke mitochondria. *Biochim. et Biophys. Acta* 1708, 13-22.
20. Pallotta ML, **Valenti D**, Iacovino M, Passarella S (2004) Two separate pathways for D-lactate oxidation by *Saccharomyces cerevisiae* mitochondria which differ in energy production and carrier involvement. *Biochim. Biophys. Acta* 1608,104-113.
21. Vacca RA, de Pinto MC, **Valenti D**, Passarella S, Marra E, De Gara L (2004) Production of reactive oxygen species, alteration of cytosolic ascorbate peroxidase, and impairment of mitochondrial metabolism are early events in heat shock-induced programmed cell death in tobacco Bright-Yellow 2 cells. *Plant Physiol*. 134, 1100-1112.
22. Passarella S, Altante A, **Valenti D**, de Bari L (2003) The role of mitochondrial transport in energy metabolism. *Mitochondrion* 2, 319-343.
23. **Valenti D**, Atlante A, Barile M, Passarella S (2002) Inhibition of phosphate transport in rat heart mitochondria by 3'-azido-3'-deoxythymidine due to stimulation of superoxide anion mitochondrial production. *Biochem. Pharmac*. 64, 201-206.
24. **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. *Biochem. J.* 364**,** 101-104.
25. Atlante A, **Valenti D**, Gagliardi S, Passarella S (2000) A sensitive method to assay the xanthine oxidase activity in primary cultures of cerebellar granule cells. *Brain Res. Protocols* 6, 1-5.
26. Pastore D, Trono D, Paladino L, Simone S, **Valenti D,** Di Fonzo N, Passarella S (2000) Inhibition by α-tocopherol and L-ascorbate of linoleate hydroperoxidation and β-carotene bleaching activities in durum wheat semolina. *J. Cereal Sci*. 31, 41-54.
27. Barile M, Brizio C, **Valenti D**, De Virgilio C, Passarella S (2000) The riboflavin/FAD cycle in rat liver mitochondria. *Eur. J. Biochem.* 267, 4888-4900.
28. **Valenti D,** Barile M, Atlante A, Passarella S (2000) AZT inhibition of ADP/ATP antiport in isolated rat heart mitochondria. *I. J. Mol. Med.* 6, 93-96.
29. **Valenti D,** Barile M, Quagliariello E, Passarella S (1999) Inhibition of nucleoside diphosphate kinase in rat liver mitochondria isolated *in vitro* due to externally added AZT. *FEBS Lett.* 444, 291-295.
30. Barile M, **Valenti D**, Brizio C, Quagliariello E, Passarella S (1998) Rat liver mitochondria can hydrolyse thiamine pyrophosphate to thiamine monophosphate which can cross the mitochondrial membrane in a carrier mediated process. *FEBS Lett.* 435, 6-10.
31. Barile M, **Valenti D**, Quagliariello E, Passarella S (1998) Mitochondria as a cellular target of AZT. *General Pharmac*. 31, 531-538.
32. Barile M, **Valenti D**, Passarella S, Quagliariello E (1997) 3'-azido-3'-deoxythymidine uptake into isolated rat liver mitochondria and impairment of ADP/ATP translocator. *Biochem. Pharmac.* 53, 913-920.
33. Barile M, **Valenti D**, Hobbs GA, Abruzzese MF, Keilbaugh SA, Passarella S, Quagliariello E, Simpson MV (1994) Mechanism of toxicity of 3'-azido-3'-deoxythymidine: its interaction with adenylate kinase**.** *Biochem. Pharmac.* 48, 1405-1412.