

Curriculum Vitae dott.ssa Clara Musicco

NAME Clara
SURNAME Musicco
BORN IN Bari (Italy) on 21/02/1964
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PRESENT POSITION

March 2001 to date

Permanent position as Researcher at Consiglio Nazionale delle Ricerche - Institute of Biomembranes and Bioenergetics – Bari.

EDUCATION AND TRAINING

March 1999

Degree of “Dottore di Ricerca in Biochimica e Biologia Molecolare” (Italian Graduate Degree in Biochemistry and Molecular Biology), at the Department of Biochemistry and Molecular Biology, University of Bari, (four years course) with the final thesis entitled: “Purification and characterization of protein factors involved in sea urchin mitochondrial DNA metabolism”.

July 21, 1994

“Laurea degree” in Biological Science (110/110 cum laude), at the Department of Biochemistry and Molecular Biology, University of Bari, with a final experimental dissertation in Biological Chemistry entitled: “Characterization of a DNA-binding protein that binds double and single strand sequences of *Paracentrotus lividus* mitochondrial DNA”.

May 2003 - June 2003

Stage in the Laboratory of Dr. Thierry Rabilloud at DRDC/BECP CEA - Grenoble (France).

November 2001

Theoretic and Practical Course of Two-dimensional electrophoresis organized by Fondazione per le Biotecnologie at the Bioindustry Park of Canavese, Colletterto Giacosa (TO) 7-9 November 2001.

June 1995

Course of "Post-Translational Regulation of the Gene Expression" Cortona, 19-21 June 1995.

RESEARCH ACTIVITY

The research activity of dr. Clara Musicco has been developed along the following lines concerning the study of proteins involved in mitochondrial biogenesis in different model systems:

- *In vitro* and *in vivo* studies of mitochondrial DNA-binding proteins in sea urchin eggs and embryos: cloning of mtDBP (D-loop-binding protein) cDNA; identification of a mitochondrial DNA elicase activity; purification of a mitochondrial single-strand DNA-binding protein (mtSSB). *In vivo* footprinting experiments to study the regulatory regions of mtDNA in *P. lividus* eggs and embryos.
- *In vivo* study of protein-DNA interactions in the TAS region of mitochondrial DNA in human and rat to investigate the mechanisms involved in the regulation of mtDNA copy number: footprinting experiments were performed in human fibroblasts and in rat liver mitochondria.
- Cloning of mitochondrial DNA-binding proteins in *Drosophila melanogaster*.

- Study of post-translational modification of the mitochondrial transcription factor A (TFAM) in liver of aged rat.
- Study of the effect of acetyl-L-carnitine (ALCAR) dietary supplementation in the regulation of TFAM in rat hindlimb skeletal muscles.
- Study of protein alterations in rat soleus muscle during unloading and of the effect of ALCAR supplementation by Differential In Gel Electrophoresis (DIGE) approach.
- Study of rat liver mitochondrial proteome, by two-dimensional electrophoresis analysis, in normal and patho-physiological conditions. The differentially expressed proteins are identified by MALDI and nano ESI MS/MS mass spectrometry analysis at the laboratory of prof. Zolla (Tuscia University). Two-dimensional analysis has allowed to study a post-translational modification of peroxiredoxin 3, a protein belonging to the mitochondrial antioxidant system.

ADDITIONAL INFORMATION

Participation to Research Projects

2008 FIRB Programme MERIT - Molecular bases in ageing-related degenerative syndromes P.I. G. Pappalardo (CNR), P.I. U.O.11 M.N. Gadaleta.

2009 University of Bari, Fondi Ateneo (P.I. Dott. Vito Pesce)

2009 FirST s.r.l. – Acetyl-L-carnitine and mitochondrial proteome (P.I. Gadaleta)

2008 University of Bari, Fondi Ateneo (P.I. Prof. Maria Nicola Gadaleta)

2008 Regione Puglia – Accordo di Programma Quadro - Biotecnologies applied to the study and to the use of extra-virgin olive oil (EVOO) and of its minor components in aging and in oxidative stress-related pathologies.

2004-2006 MIUR - Contributi straordinari di ricerca/aree obiettivo 1- N.157 - WP1- A-2 Sistema Genetico Mitocondriale e sua Regolazione

Sigma Tau – Industrie Farmaceutiche Riunite S.p.A. contract D.S./2000/C.R./n°20 to M.N. Gadaleta.

Scientific Affiliations

Italian Society of Biochemistry and Molecular Biology (SIB)

Italian Proteomics Association (ItPA)

PUBLICATIONS ON INTERNATIONAL JOURNALS

- 1) Accumulation of overoxidized Peroxiredoxin III in aged rat liver mitochondria. Musicco C, Capelli V, Pesce V, Timperio AM, Calvani M, Mosconi L, Zolla L, Cantatore P, Gadaleta MN. *Biochim Biophys Acta*. 2009 Jul;1787(7):890-6.
- 2) A DIGE approach for the assessment of rat soleus muscle changes during unloading: effect of acetyl-L-carnitine supplementation. Moriggi M, Cassano P, Vasso M, Capitanio D, Fania C, Musicco C, Pesce V, Gadaleta MN, Gelfi C. *Proteomics*. 2008 Sep;8(17):3588-604.

- 3) Acetyl-L-carnitine dietary supplementation to old rats increases mitochondrial transcription factor A content in rat hindlimb skeletal muscles. Pesce V, Fracasso F, Musicco C, Lezza AM, Cantatore P, Gadaleta MN. *Ann N Y Acad Sci.* 2004 Jun;1019:430-3.
- 4) DmTTF, a novel mitochondrial transcription termination factor that recognises two sequences of *Drosophila melanogaster* mitochondrial DNA. Roberti M, Polosa PL, Bruni F, Musicco C, Gadaleta MN, Cantatore P. *Nucleic Acids Res.* 2003 Mar 15;31(6):1597-604.
- 5) Acetylation and level of mitochondrial transcription factor A in several organs of young and old rats. Dinardo MM, Musicco C, Fracasso F, Milella F, Gadaleta MN, Gadaleta G, Cantatore P. *Biochem Biophys Res Commun.* 2003 Jan 31;301(1):187-91.
- 6) Regulation of the expression of the sea urchin mitochondrial D-loop binding protein during early development. Musicco C, Roberti M, Polosa PL, Milella F, Sagliano A, Gadaleta MN, Cantatore P. *Biochem Biophys Res Commun.* 2000 Oct 22;277(2):299-304.
- 7) Cloning and characterisation of mtDBP, a DNA-binding protein which binds two distinct regions of sea urchin mitochondrial DNA. Loguercio Polosa P, Roberti M, Musicco C, Gadaleta MN, Quagliariello E, Cantatore P. *Nucleic Acids Res.* 1999 Apr 15;27(8):1890-9.
- 8) In vivo mitochondrial DNA-protein interactions in sea urchin eggs and embryos. Roberti M, Polosa PL, Musicco C, Milella F, Qureshi SA, Gadaleta MN, Jacobs HT, Cantatore P. *Curr Genet.* 1999 Jan;34(6):449-58.
- 9) Multiple protein-binding sites in the TAS-region of human and rat mitochondrial DNA. Roberti M, Musicco C, Polosa PL, Milella F, Gadaleta MN, Cantatore P. *Biochem Biophys Res Commun.* 1998 Feb 4;243(1):36-40.
- 10) Purification and characterization of a mitochondrial, single-stranded-DNA-binding protein from *Paracentrotus lividus* eggs. Roberti M, Musicco C, Loguercio Polosa P, Gadaleta MN, Quagliariello E, Cantatore P. *Eur J Biochem.** 1997 Jul 1;247(1):52-8.
- 11) DNA-helicase activity from sea urchin mitochondria. Roberti M, Musicco C, Polosa PL, Gadaleta MN, Cantatore P. *Biochem Biophys Res Commun.* 1996 Feb 6;219(1):134-9.