

## Enzo Nisoli - Biographical Sketch

Born in Bergamo (Italy), July 11<sup>th</sup>, 1961  
Married with Alessandra Valerio

### PRESENT POSITION

Full Professor of Pharmacology  
Dept of Medical Biotechnology and Translational Medicine (BIOMETRA)  
University of Milan  
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### EDUCATION AND TRAINING

2014 Academic qualification for full professorship, Pharmacology and Endocrinology/Nutrition Science  
1997 Specialization degree 50/50 cum laude, Biochemistry and Clinical Chemistry  
1994 Ph.D. degree with honors, Pharmacotherapy  
1988 M.D. degree 110/110 cum laude, Brescia University, Medicine/Pharmacology

### POSITIONS AND EMPLOYMENT

2017-present Full Professor of Pharmacology, School of Medicine, University of Milan  
2001-2017 Associate Professor of Pharmacology, School of Medicine, University of Milan  
1999-2001 Assistant Professor of Pharmacology, School of Medicine, University of Milan  
1994-1999 Postdoctoral fellow, Luigi Sacco Hospital, University of Milan  
1991 Guest researcher, Pharmacological Research Dept, F. Hoffman-LaRoche Ltd, Basel, Switzerland  
1988-1994 Research fellow, Pharmacology, School of Medicine, University of Brescia

### MAIN INSTITUTIONAL ROLES

2019-present Scientific Coordinator of the Center for Study and Research on Obesity  
2014-2016 Past-President of the Italian Obesity Society  
2012-2014 President of the Italian Obesity Society  
2010-2012 President-elect of the Italian Obesity Society  
2001-2003 Vice-Director, Department of Preclinical Sciences - LITA Vialba, Milan University  
2000-present CME Referee of the Italian Ministry of Health, section of Pharmacology and Toxicology  
2001-2007 Consultant of the Agency for Advertising Self-regulation – Foods and supplements section  
1997-present Member of the Steering Committee, Center of Study on Obesity, Milan University

### OTHER EXPERIENCE

Section Editor for Basic Research and Pharmacology of Eating Weight Disorders  
Review Editor, Experimental Pharmacology and Drug Discovery  
Member of the Editorial board, Cent Nervous System Agents Med Chem; J Endocrinol Invest;  
Reviewer for more than 60 international high-impact science Journals  
Grant Reviewer for national and international Agencies from diverse EU countries, USA, Hong Kong, Israel  
Co-Organizer, Italian Obesity Society National Meeting 2006 and 2014; European Congress on Obesity 2009  
Invited speaker at more than 100 scientific meetings or CME courses, including 8 plenary lectures

### HONORS

2010 Nutrition & Santé Science Award for Obesity Research

#### GRANTS AND RESEARCH SUPPORT

Erasmus+ EU programme for education, training, youth and sport  
Project Coordinator, Italian Ministry of Research PRIN 2003, 2005, 2007, 2009  
Principal Investigator, CARIPLO Foundation 2014 and 2016; Italian Ministry of Health PRIN 2001, 2002;  
Italian Ministry of Research 2001; Astra-Zeneca UK, 2003-2005

#### PROFESSIONAL MEMBERSHIPS

Italian Society of Pharmacology; Italian Society of Obesity; European Association for the Study of Obesity

#### MAIN RESEARCH FIELDS

Pharmacology, obesity and disorders of metabolism, nutrition science, amino acid metabolism, aging and healthspan extension, mitochondrial bioenergetics, supplements.

#### SCIENTIFIC PUBLICATIONS

Enzo Nisoli is author of 139 articles in peer-reviewed international Journals. Sum of the times cited: 6,503 citations, h index 38, ISI Web of Science®; 7,022 citations, h index 39, Scopus© Elsevier BV ; 10,022 citations, h index 44, Google Scholar. All databases accessed on May 24<sup>th</sup> 2020.

### Selected publications

Bella P, Farini A, Banfi S, Parolini D, Tonna N, Meregalli M, Belicchi M, Erratico S, D'Ursi P, Bianco F, Legato M, Ruocco C, Sitzia C, Sangiorgi S, Villa C, D'Antona G, Milanesi L, Nisoli E, Mauri P, Torrente Y. Blockade of IGF2R improves muscle regeneration and ameliorates Duchenne muscular dystrophy. *EMBO Mol Med.* 12(1):e11019, 2020

Tedesco L, Rossi F, Ragni M, Ruocco C, Brunetti D, Carruba MO, Torrente Y, Valerio A, Nisoli E. A Special Amino-Acid Formula Tailored to Boosting Cell Respiration Prevents Mitochondrial Dysfunction and Oxidative Stress Caused by Doxorubicin in Mouse Cardiomyocytes. *Nutrients* 12(2): 282, 2020

Buondonno I, Sassi F, Carignano G, Dutto F, Ferreri C, Pili FG, Massaia M, Nisoli E, Ruocco C, Porrino P, Ravetta C, Riganti C, Isaia GC, D'Amelio P. From mitochondria to healthy aging: The role of branched-chain amino acids treatment: MATeR a randomized study. *Clin Nutr.* 2019 Oct 18. pii: S0261-5614(19)33085-7. doi: 10.1016/j.clnu.2019.10.013. [Epub ahead of print]

Banfi S, D'Antona G, Ruocco C, Meregalli M, Belicchi M, Bella P, Erratico S, Donato E, Rossi F, Bifari F, Lonati C, Campaner S, Nisoli E, Torrente Y. Supplementation with a selective amino acid formula ameliorates muscular dystrophy in mdx mice. *Sci Rep.* 8: 14659, 2018

Tedesco L, Corsetti G, Ruocco C, Ragni M, Rossi F, Carruba MO, Valerio A, Nisoli E. A specific amino acid formula prevents alcoholic liver disease in rodents. *Am J Physiol Gastrointest Liver Physiol.* 314: G566-G582, 2018

Ruiz de Azua I, Mancini G, Srivastava RK, Rey AA, Cardinal P, Tedesco L, Zingaretti CM, Sassmann A, Quarta C, Schwitter C, Conrad A, Wettschureck N, Vemuri VK, Makriyannis A, Hartwig J, Mendez-Lago M, Bindila L, Monory K, Giordano A, Cinti S, Marsicano G, Offermanns S, Nisoli E, Pagotto U, Cota D, Lutz B. Adipocyte cannabinoid receptor CB1 regulates energy homeostasis and alternatively activated macrophages. *J Clin Invest.* 127: 4148-4162, 2017

Bifari F, Nisoli E. Branched-chain amino acids differently modulate catabolic or anabolic states in mammals: a pharmacological point of view. *Br J Pharmacol.* 174: 1366-1377, 2017

Bifari F, Ruocco C, Decimo I, Fumagalli G, Valerio A, Nisoli E. Amino acid supplements and metabolic health: a potential interplay between intestinal microbiota and systems control. *Genes Nutr.* 12: 27, 2017

D'Antona G, Tedesco L, Ruocco C, Corsetti G, Ragni M, Fossati A, Saba E, Fenaroli F, Montinaro M, Carruba MO, Valerio A, Nisoli E. A Peculiar Formula of Essential Amino Acids Prevents Rosuvastatin Myopathy in Mice. *Antioxid Redox Signal.* 25: 595-608, 2016

Valerio A, Nisoli E. Nitric oxide, interorganelle communication, and energy flow: a novel route to slow aging. *Front Cell Dev Biol.* 3: 6, 2015

Corsetti G, D'Antona G, Ruocco C, Stacchiotti A, Romano C, Tedesco L, Dioguardi F, Rezzani R, Nisoli E. Dietary supplementation with essential amino acids boosts the beneficial effects of rosuvastatin on mouse kidney. *Amino Acids* 46: 2189-2203, 2014

Nisoli E, Valerio A. Healthspan and longevity in mammals: a family game for cellular organelles? *Curr Pharm Des.* 20: 5663-5670, 2014

Trevellin E, Scorzeto M, Olivieri M, Granzotto M, Valerio A, Tedesco L, Fabris R, Serra R, Quarta M; Reggiani C, Nisoli E\*, Vettor R\*. Exercise training induces mitochondrial biogenesis and glucose uptake in subcutaneous adipose tissue through eNOS-dependent mechanisms. *Diabetes* 63: 2800-2811, 2014. \*Equal contributors

Vettor R, Valerio A, Ragni M, Trevellin E, Granzotto M, Olivieri M, Tedesco L, Ruocco C, Fossati A, Fabris R, Serra R, Carruba MO, Nisoli E. Exercise training boosts eNOS-dependent mitochondrial biogenesis in mouse heart: role in adaptation of glucose metabolism. *Am J Physiol Endocrinol Metab.* 306: E519-E528, 2014

Quarta C, Lodi F, Mazza R, Giannone F, Boschi L, Nanni C, Nisoli E, Boschi S, Pasquali R, Fanti S, Iozzo P, Pagotto U. (11)C-meta-hydroxyephedrine PET/CT imaging allows in vivo study of adaptive thermogenesis and white-to-brown fat conversion. *Mol Metab.* 2: 153-60, 2013

Valerio A, D'Antona G, Nisoli E. Branched-chain amino acids, mitochondrial biogenesis, and healthspan: an evolutionary perspective. *Aging (Albany NY)* 3: 464-478, 2011

Tedesco L, Valerio A, Dossena M, Cardile A, Ragni M, Pagano C, Pagotto U, Carruba MO, Vettor R, Nisoli E. Cannabinoid receptor stimulation impairs mitochondrial biogenesis in mouse white adipose tissue, muscle, and liver: the role of eNOS, p38 MAPK, and AMPK pathways. *Diabetes* 59: 2826-2836, 2010

D'Antona G, Ragni M, Cardile A, Tedesco L, Dossena M, Bruttini F, Caliaro F, Corsetti G, Bottinelli R, Carruba MO, Valerio A, Nisoli E. Branched-chain amino acid supplementation promotes survival and supports cardiac and skeletal muscle mitochondrial biogenesis in middle-aged mice. *Cell Metab.* 12: 362-372, 2010

Tedesco L, Valerio A, Cervino C, Cardile A, Pagano C, Vettor R, Pasquali R, Carruba MO, Marsicano G, Lutz B, Pagotto U, Nisoli E. Cannabinoid type 1 receptor blockade promotes mitochondrial biogenesis through endothelial nitric oxide synthase expression in white adipocytes. *Diabetes* 57: 2028-2036, 2008

Valerio A, Cardile A, Cozzi V, Bracale R, Tedesco L, Pisconti A, Palomba L, Cantoni O, Clementi E, Moncada S, Carruba MO, Nisoli E. TNF-alpha downregulates eNOS expression and mitochondrial biogenesis in fat and muscle of obese rodents. *J Clin Invest.* 116: 2791-2798, 2006

Nisoli E, Tonello C, Cardile A, Cozzi V, Bracale R, Tedesco L, Falcone S, Valerio A, Cantoni O, Clementi E, Moncada S, Carruba MO. Calorie restriction promotes mitochondrial biogenesis by inducing the expression of eNOS. *Science* 310: 314-317, 2005

Nisoli E, Falcone S, Tonello C, Cozzi V, Palomba L, Fiorani M, Pisconti A, Brunelli S, Cardile A, Francolini M, Cantoni O, Carruba MO, Moncada S, Clementi E. Mitochondrial biogenesis by NO yields functionally active mitochondria in mammals. *Proc Natl Acad Sci U S A* 101: 16507-16512, 2004

Nisoli E, Clementi E, Paolucci C, Cozzi V, Tonello C, Sciorati C, Bracale R, Valerio A, Francolini M, Moncada S, Carruba MO. Mitochondrial biogenesis in mammals: the role of endogenous nitric oxide. *Science* 299:896-899, 2003

Milan, May 24th, 2020

Prof. Enzo NISOLI