BIOSKETCH

PERSONAL INFORMATION

Family name, First name:	Tiranti Valeria
Researcher unique identifier(s):	ORCID 0000-0002-3584-7338
Date of birth:	01/02/1964
Nationality:	Italian
URL for web site:	http://mitopedia.org

- **EDUCATION**

2001	PhD in Medical Genetics cum laude, University of Milan, Italy
1989	Biology degree cum laude, Biological Science, University of Milan

- **CURRENT POSITION(S)**

2020	Head of the Functional Department of Experimental Neuroscience, Fondazione IRCCS Istituto Neurologico C. Besta, Milan, Italy
2018	Responsible for the Unit of Molecular Pathology of Mitochondrial Disorders, Fondazione IRCCS Istituto Neurologico C. Besta, Milan, Italy
2002-present	Research Associate Professor (Dirigente Biologo), Unit of Medical Genetics and Neurogenetics, Fondazione IRCCS Istituto Neurologico C. Besta, Milan, Italy
2003-present	Faculty member of the DIMET PhD program (Translational and Molecular Medicine, http://www.dimet.org/), University of Milano Bicocca, Milan Italy

- **PREVIOUS POSITIONS**

1999-2002	Research Assistant with a grant of the Italian Ministry of Health, Neurological Institute C. Besta
1997-1998	Senior Researcher with one-year permanent position, Neurological Institute C. Besta

- **FELLOWSHIPS AND AWARDS**

2017	National Academic Qualification as Associate Professor for Medical Genetics
2017	National Academic Qualification as Associate Professor for Genetics
2014	National Academic Qualification as Associate Professor for Applied Biology
1992-1997	Senior fellowship as Researcher at Neurological Institute C. Besta
1989-1991	Post-doctoral fellow, Department of Biochemistry and Genetics, Neurological Institute C. Besta
1987-1989	Graduate student at the Institute of Nuclear Physics, University of Milan, Italy

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

2001-2002	1 PhD student, Biotechnology Application, University of Milan, Italy
2002-2008	2 Master Students; 2 PhD students; DIMET program, University of Milano Bicocca, Italy; 2 Post-docs, 1 Graduate Student,
2006 – 2011	3 PhD Students, DIMET Program, University of Milan Bicocca, Italy; 2 Master students Biological Sciences, University of Milan
2011-present	4 Master students, 9 PhD Students, 7 Post-docs, 7 Graduate Student

- **TEACHING ACTIVITIES (if applicable)**

1991	**First course of Molecular Biology in Neurology**, Istituto Neurologico "C. Besta"
2004	Teaching Course of MitEuro Network "**Somatic cell genetic methods in mt disease analysis**", Milan, 24-28 May
2003-present	Faculty member of the DIMET PhD program (Translational and Molecular Medicine, http://www.dimet.org/), University of Milano Bicocca, Milan Italy
2010	Seminars for the Medical Genetics School, University of Milan, Italy Seminar for Erasmus Program University of Padua, Italy
2014	Co-Organizers of the PhD Course: **Experimental models in translational medicine: how to produce and how to use them**, University of Milano

Bicocca.

2015-2016 Co-Organizer of the PhD Course: **Experimental models: how to use them in translational and molecular medicine**, University of Milano Bicocca.

2017 Co-Organizer of the PhD Course: **Cell Reprogramming 2.0: toward the next decade of iPS cell biology and disease modelling**, University of Milano Bicocca.

- **ORGANISATION OF SCIENTIFIC MEETINGS (if applicable)**

2014 -Scientific Organizing Committee, 3rd Joint International conference on NA and NBIA, Stresa, Italy.
-Scientific Organizer of the Theoretical and Practical Course within the European project Marie Curie Training, MEET: In vitro/in vivo approaches to study mitochondrial (dys)function: cybrids creation and mitochondrial import assays (http://www.itn-meet.org/)

2015 Scientific Organizing Committee of "5 National Meeting on Mitochondrial disorders", Bologna, Italy

2016 Scientific Organizing Committee of "6 National Meeting for Mitochondrial Medicine", Rome, Italy

2017 Scientific Organizing Committee of "7 National Meeting for Mitochondrial Medicine", Milan, Italy

2018 Scientific Organizing Committee of "8 National Meeting for Mitochondrial Medicine", Milan, Italy

2019 Scientific Organizing Committee of "9 National Meeting for Mitochondrial Medicine", Milan, Italy

2020 Scientific Organizing Committee, 7th international symposium on NBIA & related disorders, Lausanne, Switzerland

- **INSTITUTIONAL RESPONSIBILITIES (if applicable)**

2003 – present Faculty member, University of Milano Bicocca, PhD DIMET course

2008 – present Scientific Board of the Foundation IRCCS Neurological Institute C. Besta

- **COMMISSIONS OF TRUST (if applicable)**

2003 – present Reviewer, for different scientific papers: BBA, Brain, Mitochondrion, Neuroscience letter, European Journal of Neurology, Human Molecular Genetics, Journal of Medical Genetics, American Journal of Human Genetics, EMBO Molecular Medicine.

2012 – present Evaluator for Research projects:
-Foundation pour la Recherche Médicale, France
-Barth Syndrome Foundation (BSF) (http://www.barthsyndrome.org/)
-MRC, UK Grants, Grant Reference: MR/M009246/1
-Austrian Science Fund (FWF, http://www.fwf.ac.at/en/)

- **MAJOR COLLABORATIONS (if applicable)**
  - Sonia Levi, Iron metabolism, San Raffaele Institute, Italy
  - Vania Broccoli, iPSC generation, National Research Council, Italy
  - Massimo Zeviani, Carlo Viscomi, Mitochondrial Disorders, MBU, Cambridge, UK, Padua University, Italy
  - Susan Hayflick, NBIA, Oregon, USA
  - Ody Sibon, CoA metabolism, Groeningen, NL
  - Valerio Carelli, Mitochondrial Optic Atrophies, IRCCS Bellaria Neuroscience Institute, Italy
  - Ivan Gout, CoA metabolism UCL, London, UK

- **GRANTS AND FUNDING**

2005-2008 MITOCIRCLE, FP6 Integrated Project, € 289.000

2009-2010 AISNAF Association: Project title: "Study of the pathogenic role of the PANK2

gene in the neurodegenerative syndrome of pantothenate kinase deficiency", € 49.000
2010-2011 Mariani Foundation: Project Title. "A new metabolic and biochemical approach to study the pathogenesis of Neurodegeneration with Brain Iron Accumulation (NBIA) and Infantile Neuroaxonal Dystrophy (INAD) disorders., € 125.000
2011-2014 Telethon GGP088B: Project title: "The Role of Iron and Mitochondria in the Pathogenesis of Pantothenate Kinase Associated Neurodegeneration (PKAN): Development of New Neuronal Cellular Systems and Analysis of a Mouse Model", € 120.000
2011-2015 European Project TIRCON: "Treat Iron-Related Childhood-Onset-Neurodegeneration", FP7, € 379.200
2014-2015 Marie Curie Initial Training Networks (ITN) Call: FP7-PEOPLE-2012-ITN Mitochondrial European Educational Training MEET, € 225.135
2017-2019 Telethon GGP16234. Project title: "Implementation of human neuronal cultures and mouse models of Pantothenate kinase 2 deficiency to investigate pathogenic mechanisms of iron-related neurodegeneration and evaluate Coenzyme A therapeutic efficacy", € 160.000
2018-2020 Mitocon Grant n. 2018-01:Project title: "Reproducing Leber's hereditary optic neuropathy in neurons and organoids: light on pathogenic mechanisms to fight back blindness € 119.350
2019-2021 Project from the Italian Ministry of Health (RF), Project title: "REtinal ganglion cells and ORganoids from Inherited Optic Neuropathies: light on pathogenesis to fight blindness Project (REORION), € 167.750
2020-2021 Fellowship sustained from Associazione Luigi Comini, Italy, € 44.000

SELECTED PUBLICATIONS (total publications: papers 121; book chapters 4 / citation 4965/ h-index 48)

-Del Dotto V, Ullah F, Di Meo I, Magini P, Gusic M, Maresca A, Caporali L, Palombo F, Tagliavini F, Baugh EH, Macao B, Szilagyi Z, Peron C, Gustafson MA, Khan K, La Morgia C, Barboni P, Carbonelli M, Valentino ML, Liguori R, Shashi V, Sullivan J, Nagaraj S, El-Dairi M, Iannaccone A, Cutcutache I, Bertini E, Carrozzo R, Emma F, Diomedi-Camassei F, Zanna C, Armstrong M, Page M, Stong N, Boesch S, Kopajtich R, Wortmann S, Sperl W, Davis EE, Copeland WC, Seri M, Falkenberg M, Prokisch H, Katsanis N, Tiranti V, Pippucci T, Carelli V. SSBP1 mutations cause mtDNA depletion underlying a complex optic atrophy disorder. J Clin Invest. 2020 Jan 2;130(1):108-125. doi: 10.1172/JCI128514.
- Catania A, Iuso A, Bouchereau J, Kremer LS, Paviolo M, Terrile C, Bénit P, Rasmusson AG, Schwarzmayr T, Tiranti V, Rustin P, Rak M, Prokisch H, Schiff M. Arabidopsis thaliana alternative dehydrogenases: a potential therapy for mitochondrial complex I deficiency? Perspectives and pitfalls. Orphanet J Rare Dis. 2019 Oct 29; 14(1):236. doi: 10.1186/s13023-019-1185-3.
-Di Meo I, Carecchio M, Tiranti V Inborn errors of coenzyme A metabolism and neurodegeneration. J Inherit Metab Dis. 2019 Jan;42(1):49-56. doi: 10.1002/jimd.12026.
-Quadalti C, Brunetti D, Lagutina I, Duchi R, Perota A, Lazzari G, Cerutti R, Di Meo I, Johnson M, Bottani E, Crociara P, Corona C, Grifoni S, Tiranti V, Fernandez-Vizarra E, Robinson AJ, Viscomi C, Casalone C, Zeviani M, Galli C. SURF1 knockout cloned pigs: Early onset of a severe lethal phenotype. Biochim Biophys Acta Mol Basis Dis. 2018 Jun;1864(6 Pt A):2131-2142. doi: 10.1016/j.bbadis.2018.03.021.
-Iannielli A, Bido S, Folladori L, Segnali A, Cancellieri C, Maresca A, Massimino L, Rubio A, Morabito G, Caporali L, Tagliavini F, Musumeci O, Gregato G, Bezard E, Carelli V, Tiranti V, Broccoli V. Pharmacological Inhibition of Necroptosis Protects from Dopaminergic Neuronal Cell Death in Parkinson's Disease Models. Cell Rep. 2018 Feb 20; 22(8):2066-2079. doi:10.1016/j.celrep.2018.01.089.
- Di Meo I, Colombelli C, Srinivasan B, de Villiers M, Hamada J, Jeong SY, Fox R, Woltjer RL, Tepper PG, Lahaye LL, Rizzetto E, Harrs CH, de Boer T, van der Zwaag M, Jenko B, Čusak A, Pahor J, Kosec G, Grzeschik NA, Hayflick SJ, Tiranti V, Sibon OCM. Acetyl-4'-

phosphopantetheine is stable in serum and prevents phenotypes induced by pantothenate kinase deficiency. Sci Rep. 2017 Sep 12;7(1):11260. doi: 10.1038/s41598-017-11564-8.
-Kremer LS, Bader DM, Mertes C, Kopajtich R, Pichler G, Iuso A, Haack TB, Graf E, Schwarzmayr T, Terrile C, Koňaříková E, Repp B, Kastenmüller G, Adamski J, Lichtner P, Leonhardt C, Funalot B, Donati A, Tiranti V, Lombes A, Jardel C, Gläser D, Taylor RW, Ghezzi D, Mayr JA, Rötig A, Freisinger P, Distelmaier F, Strom TM, Meitinger T, Gagneur J, Prokisch H. Genetic diagnosis of Mendelian disorders via RNA sequencing. Nat Commun. 2017 Jun 12;8:15824. doi: 10.1038/ncomms15824. PMID: 28604674
-Ziosi M, Di Meo I, Kleiner G, Gao XH, Barca E, Sanchez-Quintero MJ, Tadesse S, Jiang H, Qiao C, Rodenburg RJ, Scalais E, Schuelke M, Willard B, Hatzoglou M, Tiranti V, Quinzii CM. Coenzyme Q deficiency causes impairment of the sulfide oxidation pathway. EMBO Mol Med. 2017 Jan; 9(1):96-111. doi: 10.15252/emmm.201606356. PMID: 27856618
- Heimer G, Kerätär JM, Riley LG, Balasubramaniam S, Eyal E, Pietikäinen LP, Hiltunen JK, Marek-Yagel D, Hamada J, Gregory A, Rogers C, Hogarth P, Nance MA, Shalva N, Veber A, Tzadok M, Nissenkorn A, Tonduti D, Renaldo F; University of Washington Center for Mendelian Genomics., Kraoua I, Panteghini C, Valletta L, Garavaglia B, Cowley MJ, Gayevskiy V, Roscioli T, Silberstein JM, Hoffmann C, Raas-Rothschild A, Tiranti V, Anikster Y, Christodoulou J, Kastaniotis AJ, Ben-Zeev B, Hayflick SJ. MECR Mutations Cause Childhood-Onset Dystonia and Optic Atrophy, a Mitochondrial Fatty Acid Synthesis Disorder. Am J Hum Genet. 2016 Dec 1;99(6):1229-1244. doi: 10.1016/j.ajhg.2016.09.021. PMID: 27817865
- Orellana DI, Santambrogio P, Rubio A, Yekhlef L, Cancellieri C, Dusi S, Giannelli SG, Venco P, Mazzara PG, Cozzi A, Ferrari M, Garavaglia B, Taverna S, Tiranti V, Broccoli V, Levi S. Coenzyme A corrects pathological defects in human neurons of PANK2- associated neurodegeneration. EMBO Mol Med. 2016 Oct 4;8(10):1197-1211.
- Di Meo I, Lamperti C, Tiranti V. Mitochondrial diseases caused by toxic compound accumulation: from etiopathology to therapeutic approaches. EMBO Mol Med. 2015 Jul 20. pii: e201505040. doi: 10.15252/emmm.201505040.
- Dusi S, Valletta L, Haack TB, Tsuchiya Y, Venco P, Pasqualato S, Goffrini P, Tigano M, Demchenko N, Wieland T, Schwarzmayr T, Strom TM, Invernizzi F, Garavaglia B, Gregory A, Sanford L, Hamada J, Bettencourt C, Houlden H, Chiapparini L, Zorzi G, Kurian MA, Nardocci N, Prokisch H, Hayflick S, Gout I, Tiranti V. Exome sequence reveals mutations in CoA synthase as a cause of neurodegeneration with brain iron accumulation. Am J Hum Genet. 2014 Jan 2; 94(1):11-22.
- Brunetti D, Dusi S, Giordano C, Lamperti C, Morbin M, Fugnanesi V, Marchet S, Fagiolari G, Sibon O, Moggio M, d'Amati G, Tiranti V. Pantethine treatment is effective in recovering the disease phenotype induced by ketogenic diet in a pantothenate kinase-associated neurodegeneration mouse model. Brain. 2014 Jan;137(Pt 1):57-68.
- Viscomi C, Burlina AB, Dweikat I, Savoiardo M, Lamperti C, Hildebrandt T, Tiranti V, Zeviani M. Combined treatment with oral metronidazole and N-acetylcysteine is effective in ethylmalonic encephalopathy. Nat Med. 2010 Aug;16(8):869-71.
- Tiranti V, Viscomi C, Hildebrandt T, Di Meo I, Mineri R, Tiveron C, Levitt MD, Prelle A, Fagiolari G, Rimoldi M, Zeviani M. Loss of ETHE1, a mitochondrial dioxygenase, causes fatal sulfide toxicity in ethylmalonic encephalopathy. Nat Med. 2009; 15(2):200-5.

INVITED PRESENTATIONS (last five years)

2015

-VI Meeting on the MOLECULAR MECHANISM OF NEURODEGENERATION, Milan, Italy
-5° National Meeting for Mitochondrial Diseases, Bologna, Italy.
-Faculty Member at the Recordati Course on “Classification and diagnostic approach of IEN affecting the synthesis and remodelling of complex lipids”, Paris, France.
-12th International Congress of the Polish Neuroscience Society, Gdansk, Poland

-EMBO workshop, Mitochondrial DNA and Neurodegeneration, Sitges, Spain
-Faculty Member at: "II Update course on movement disorders: Update on movement disorders in children", Turin, Italy.

2016

-Mitochondrial Medicine: developing new treatments for mitochondrial disease, Welcome Genome Campus, Hinxton, Cambridge, UK
-6° National Meeting for Mitochondrial Medicine, Rome, Italy.
-International Meeting on Spastic Paraparesis and Ataxia, Paris, France.

2017

-EMG Meeting, Zagreb, Croatia.
-EUROMIT meeting, Cologne, Germany.

2018

-Mitochondrial Medicine, Welcome Genome Campus, Hinxton, Cambridge, UK
-Seminario a Basilea, Institute of Molecular and Clinical Ophthalmology Basel, Switzerland
-CoA meeting, Stellenbosch, South Africa
-Seminario nell'ambito del corso: Il mitocondrio: principi, ereditarietà ed applicazioni, Istituto CSS Mendel, Roma

2019

-55° AINPeNC congress, Corso di Aggiornamento "Malattie Mitocondriali", Bologna
-23rd ESN Biennial Meeting, Milan