

CURRICULUM VITAE

Name: Grazia Raffaella Tundo

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Education and Actual Position

2006-University of Tor Vergata: Degree in Medical Biotechnology with final mark 110/110 cum Laude.

2008: Passed the government exam and licensed as a profession biologist.

2011-University of Tor Vergata: Ph.D. in Biochemistry and Molecular Biology

2010-Actual, University of Tor Vergata: Fellowship at the laboratory of prof. Stefano Marini.

2017: National Scientific Habilitation for full professorship (scientific-disciplinary sector: E1-BIO/10)

2018: Degree in Medicine and Surgery at the University of Tor Vergata, Rome, with mark 110/110 cum Laude.

Academic Teaching

2007-Actual: Teaching Assistant (prof. Coletta and prof. Marini) - Chemistry (Italian and English courses) for the Medicine and Surgery Course at the Tor Vergata University of Rome, Italy.

2013-Actual: Teaching Assistant (prof. Coletta and prof. Marini) - Chemistry for the Medicine and Surgery Course at the “Madre Teresa del Buon Consiglio” University of Tirana, Albania.

2010-Actual: Teaching Assistant (prof. Marini) - Molecular Biology for the Medical Biotechnology Course at the University of Tor Vergata, Rome, Italy.

Current Research Topics

Characterization of Insulin-degrading-enzyme-proteasome interaction, in collaboration with prof. Purrello, University of Catania, prof. Van Endert, Institut Necker Des Malades, Paris, France and prof. Deprez-Poulain, University of Lille, France.

Characterization of IDE role in the Heat-shock –response, in collaboration with Prof.Orlandi, University of Rome Tor Vergata and prof. Van Endert, Institut Necker Des Malades.

Characterization of autophagy and UPS dys-regulation in Rett Syndrome, in collaboration with Prof. Curatolo, University of Rome Tor Vergata, Prof. Defelice, University of Siena, Italy and Prof. Valacchi, University of Ferrara, Italy.

Characterization of dys-regulation of proteasome activity in Chondrodysplasia, in collaboration with prof. Briggs, University of Newcastle upon Tyne, UK.

Characterization of dys-regulation of proteasome activity in Huntigto Disease in collaboration with prof. Reits, Institut für Biochemie/CCM, Charité'-Universitätsmedizin Berlin, Germany

Full List of publications

H-Index: 10

Ciaccio C*, **Tundo GR***, Grasso G, Spoto G, Marasco D, Ruvo M, Gioia M, Rizzarelli E, Coletta M. Somatostatin: a novel substrate and a modulator of insulin-degrading enzyme activity. *J Mol Biol.* 2009 385:1556-67. *These authors have equally contributed to the study.

Ascenzi P, Bolli A, di Masi A, **Tundo GR**, Fanali G, Coletta M, Fasano M. Isoniazid and rifampicin inhibit allosterically heme binding to albumin and peroxynitrite isomerization by heme-albumin. *J Biol Inorg Chem.* 2011 16:97-108. 2016

Grasso G, Pietropaolo A, Spoto G, Pappalardo G, **Tundo GR**, Ciaccio C, Coletta M, Rizzarelli E. Copper(I) and copper(II) inhibit A β peptides proteolysis by insulin-degrading enzyme differently: implications for metallostasis alteration in Alzheimer's disease. *Chemistry.* 2011 17:2752-62.

Ascenzi P, Cao Y, **Tundo GR**, Coletta M, Fanali G, Fasano M. Ibuprofen and warfarin modulate allosterically ferrous human serum heme-albumin nitrosylation. *Biochem Biophys Res Commun.* 2011 411: 185-9.

Cao Y, Nicoletti FP, De Sanctis G, Bocedi A, Ciaccio C, Gullotta F, Fanali G, **Tundo GR**, di Masi A, Fasano M, Smulevich G, Ascenzi P, Coletta M. Evidence for pH-dependent multiple conformers in iron(II) heme-human serum albumin: spectroscopic and kinetic investigation of carbon monoxide binding. *J Biol Inorg Chem.* 2012 (1):133-47.

Sbardella, D., Fasciglione, G.F., Gioia, M. Ciaccio, C., **Tundo, G.R.**, Marini, S. , Coletta, M. Human matrix metalloproteinases: An ubiquitarian class of enzymes involved in several pathological processes. *Molecular Aspects of Medicine*. 2012,33 119-208.

Tundo GR, Ciaccio C, Sbardella D, Boraso M, Viviani B, Coletta M, Marini S. Somatostatin modulates insulin-degrading-enzyme metabolism: implications for the regulation of microglia activity in AD. *PLoS One*. 2012 7.

Grasso G, Salomone F, **Tundo GR**, Pappalardo G, Ciaccio C, Spoto G, Pietropaolo A, Coletta M, Rizzarelli E. Metal ions affect insulin-degrading enzyme activity. *J Inorg Biochem*. 2012 117:351-8.

Tundo GR, Sbardella D, Ciaccio C, Bianculli A, Orlandi A, Desimio MG, Arcuri G, Coletta M, Marini S. Insulin-degrading enzyme (IDE): a novel heat shock-like protein. *J Biol Chem*. 2013 26:1821-31.

Ciaccio C, Pesce A, **Tundo GR**, Tilleman L, Bertolacci L, Dewilde S, Moens L, Ascenzi P, Bolognesi M, Nardini M, Coletta M. Functional and structural roles of the N-terminal extension in *Methanosarcina acetivorans* protoglobin. *Biochim Biophys Acta*. 2013 1834:1813-23.

Bocedi A, De Sanctis G, Ciaccio C, **Tundo GR**, Di Masi A, Fanali G, Nicoletti FP, Fasano M, Smulevich G, Ascenzi P, Coletta M. Reciprocal allosteric modulation of carbon monoxide and warfarin binding to ferrous human serum heme-albumin. *PLoS One*. 2013 8-31

Ascenzi P, **Tundo GR**, Fanali G, Coletta M, Fasano M. Warfarin modulates the nitrite reductase activity of ferrous human serum heme-albumin. *J Biol Inorg Chem*. 2013 18:939-46.

Ascenzi P, di Masi A, **Tundo GR**, Pesce A, Visca P, Coletta M. Nitrosylation mechanisms of *Mycobacterium tuberculosis* and *Campylobacter jejuni* truncated hemoglobins N, O, and P. *PLoS One*. 2014 9:e102811.

Sbardella D, **Tundo GR**, Fasciglione GF, Gioia M, Bisicchia S, Gasbarra E, Ippolito E, Tarantino U, Coletta M, Marini S. Role of metalloproteinases in tendon pathophysiology. *Mini Rev Med Chem*. 2014 14:978-87.

Ciaccio C, Ocaña-Calahorro F, Droghetti E, **Tundo GR**, Sanz-Luque E, Polticelli F, Visca P, Smulevich G, Ascenzi P, Coletta M. Functional and Spectroscopic Characterization of *Chlamydomonas reinhardtii* Truncated Hemoglobins. *PLoS One*. 2015, 10(5).

Tundo GR, Sbardella D, De Pascali SA, Ciaccio C, Coletta M, Fanizzi FP, Marini S. Novel Platinum(II) compounds modulate insulin-degrading enzyme activity and induce cell death in neuroblastoma cells. *J Biol Inorg Chem*. 2015 20:101-8.

Sbardella D, **Tundo GR**, Sciandra F, Bozzi M, Gioia M, Ciaccio C, Tarantino U, Brancaccio A, Coletta M, Marini S. Proteasome Activity Is Affected by Fluctuations in Insulin-Degrading Enzyme Distribution. *PLoS One*. 2015, 10(7).

Tundo GR, Sbardella D, Ciaccio C, De pascali S, Campanella V, Cozza P, Tarantino U, Coletta M, Fanizzi FP, Marini S. Effect of cisplatin on proteasome activity. *J Inorg Biochem*. 2015, 153:253-8. 2016

Donatucci, B., Sbardella, D., **Tundo, G.R.**, Casasco, M., Di Daniele, N., Rogliani, P., Marini, S. Antioxidant supplement and sports *Medicina dello Sport* 2015, 68, 359-366.

Santoro, A.M., Cunsolo, A., D'Urso, A., Sbardella, D., **Tundo, G.R.**, Ciaccio, C., Coletta, M., Diana, D., Fattorusso, R., Persico, M., Di Dato, A., Fattorusso, C., Milardi, D., Purrello, R. Cationic porphyrins are tunable gatekeepers of the 20S proteasome *Chemical Science* 2016, 7, 1286-1297.

Tundo, G.R., Di Muzio, E., Ciaccio, C., Sbardella, D., Di Pierro, D., Polticelli, F., Coletta, M., Marini, S. Multiple allosteric sites are involved in the modulation of insulin-degrading-enzyme activity by somatostatin. *FEBS J.* 2016, 283, 3755-3770.

Ciaccio, C., Di Pierro, D., Sbardella, D., **Tundo, G.R.**, Curatolo, P., Galasso, C., Santarone, M.E., Casasco, M., Cozza, P., Cortelazzo, A., Rossi, M., De Felice, C., Hayek, J., Coletta, M., Marini, S. Oxygen exchange and energy metabolism in erythrocytes of Rett syndrome and their relationships with respiratory alterations. *Mol Cell Biochem.* 2017, 426, 205-213.

Grasso, G.; Santoro, A.M., Lanza, V., Sbardella, D., **Tundo, G.R.**, Ciaccio, C., Marini, S., Coletta, M., Milardi, D. The double faced role of copper in A beta homeostasis: A survey on the interrelationship between metal dyshomeostasis, UPS functioning and autophagy in neurodegeneration. *Coordination chemistry reviews.* 2017, 347: 1-22.

Gioia, M., Tomao, L, Sbardella, D., Ciaccio, C., **Tundo, G.R.**, Di Masi, A., Fasciglione, G.F., Marini, S., Cozza, P., Ascenzi, P., Coletta, M. Enzyme catalysis: the case of the prostate-specific antigen. *Rendiconti Lincei-scienze fisiche e naturali.* 2017, 28: 229-237.

Tundo, G.R., Sbardella, D, Ciaccio, C., Grasso, G, Gioia, M, Coletta, A, Polticelli, F., Di Pierro, D. Milardi, D., Van Endert, P., Marini, S., Coletta, M. Multiple functions of insulin-degrading enzyme: a metabolic crosslight? *Crit Rev Biochem Mol Biol.* 2017, 52:554-582. 2016

Sbardella, D.*, **Tundo, G.R.***, Campagnolo, L., Valacchi, G., Orlandi, A., Curatolo P., Borsellino, G., D'Esposito, M., Ciaccio, C., Di Cesare, S., Di Pierro, D., Galasso, C., Santarone, M.E., Hayek, J., Coletta, M., Marini S. Retention of Mitochondria in Mature Human Red Blood Cells as the Result of Autophagy Impairment in Rett Syndrome. *Sci Rep.* 2017. 26:12297. *These authors have equally contributed to the study.

Sbardella D, **Tundo GR**, Coletta A, Marcoux J, Koufogeorgou EI, Ciaccio C, Santoro AM, Milardi D, Grasso G, Cozza P, Bousquet-Dubouch MP, Marini S, Coletta M. The Insulin Degrading Enzyme is an Allosteric Modulator of the 20S Proteasome and a Potential Competitor of the 19S. *Cell Molecular Life Sciences* 2018. 18:3441-3456.

Dato AD, Cunsolo A, Persico M, Santoro AM, D'Urso A, Milardi D, Purrello R, Stefanelli M, Paolesse R, **Tundo GR**, Sbardella D, Fattorusso C, Coletta M. Electrostatic Map Of Proteasome α -

Rings Encodes The Design of Allosteric Porphyrin-Based Inhibitors Able To Affect 20S Conformation By Cooperative Binding. *Sci Rep.* 2017. 7: 17098.

Ascenzi P, **Tundo GR**, Coletta M. The nitrite reductase activity of ferrous human hemoglobin:haptoglobin 1-1 and 2-2 complexes. *J. Inorg. Biochem.* 2018. 187:116-122.

Tundo GR, Sbardella D, Coletta M. Insights into Proteasome Conformation Dynamics and Intersubunit Communication. *Trends Biochem Sci.* 2018 doi: 10.1016/j.tibs.2018.08.002.

Patents

2017: Methods for the Quick Diagnosis of Rett Syndrome. Patent number: 102016000117469

Achievements:

Received “Raeli” Award for best academic achievement (2007).