

CURRICULUM VITAE

PROF. MASSIMILIANO COLETTA

Born in Panicale (PG) on April 26th 1951

Graduated in Medicine at the Univ. of Roma “La Sapienza” on March 15 1977.

Academic Position

Full Professor

Biochemistry

University of ROMA "Tor Vergata"

Department of CLINICAL SCIENCES AND TRANSLATIONAL MEDICINE

Academic Career

November 1996 - present Full Professor University of ROMA "Tor Vergata"

November 1990 – October 1996 Full Professor University of CAMERINO

April 1988 – October 1990 Associate Professor University of ROMA "La Sapienza"

June 1982 – March 1988 Research Scientist of CNR

November 1979 – July 1981 Fogarty Int. Fellow at Lab. Chem. Phys. NIH, USA

Scientific Responsibilities

1996-1999 Member of the Editorial Board of The Journal of Biological Inorganic Chemistry

2000-2006 Italian Representative in the Steering Committee of the European Project COST D21:
“Metalloenzymes and Chemical Biomimetics”

2002-2008 Member of the Steering Committee of the Section “Chemistry of Biological Systems” of
the Italian Chemical Society

2003-2005 National Coordinator of the PRIN Project 2003058409 “Structural and Functional
Aspects of Metallopeptidases and Metalloproteinases and Their Role in Pathological Processes”

2011-present Deputy President of the Steering Committee of the Section “Chemistry of Biological
Systems” of the Italian Chemical Society

List of Publications

- Ascenzi P, Tundo GR, Coletta M. (2018) The nitrite reductase activity of ferrous human hemoglobin:haptoglobin 1-1 and 2-2 complexes. *J. Inorg. Biochem.* 187, 116-122.
- Mangiatordi GF, Guzzo T, Rossano EC, Trisciuzzi D, Alberga D, Fasciglione G, Coletta M, Topai A, Nicolotti O. (2018) Design, Synthesis, and Biological Evaluation of Tetrahydro- β -carboline Derivatives as Selective Sub-Nanomolar Gelatinase Inhibitors. *Chem. Med. Chem.* 13, 1343-1352.
- Malgieri G, D'Abrosca G, Pirone L, Toto A, Palmieri M, Russo L, Sciacca MFM, Tatè R, Sivo V, Baglivo I, Majewska R, Coletta M, Pedone PV, Isernia C, De Stefano M, Gianni S, Pedone EM, Milardi D, Fattorusso R. (2018) Folding mechanisms steer the amyloid fibril formation propensity of highly homologous proteins. *Chem Sci.* 9, 3290-3298.
- Gioia M, Michaletti A, Scimeca M, Marini M, Tarantino U, Zolla L, Coletta M. (2018) Simulated microgravity induces a cellular regression of the mature phenotype in *human* primary osteoblasts. *Cell Death Discov.* 4, 59.
- Ascenzi P, De Simone G, Polticelli F, Gioia M, Coletta M. (2018) Reductive nitrosylation of ferric human hemoglobin bound to human haptoglobin 1-1 and 2-2. *J. Biol. Inorg. Chem.* 23, 437-445.
- 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. (2018) The insulin-degrading enzyme is an allosteric modulator of the 20S proteasome and a potential competitor of the 19S. *Cell. Mol. Life Sci.* 75, 3441-3456.
- Gioia M, Fasciglione GF, Sbardella D, Sciandra F, Casella M, Camerini S, Crescenzi M, Gori A, Tarantino U, Cozza P, Brancaccio A, Coletta M, Bozzi M. (2018) The enzymatic processing of α -dystroglycan by MMP-2 is controlled by two anchoring sites distinct from the active site. *PLoS One* 13, e0192651.
- Paolino M, Brindisi M, Vallone A, Butini S, Campiani G, Nannicini C, Giuliani G, Anzini M, Lamponi S, Giorgi G, Sbardella D, Ferraris DM, Marini S, Coletta M, Palucci I, Minerva M, Delogu G, Pepponi I, Goletti D, Cappelli A, Gemma S, Brogi S. (2018) Development of Potent Inhibitors of the Mycobacterium tuberculosis Virulence Factor Zmp1 and Evaluation of Their Effect on Mycobacterial Survival inside Macrophages. *Chem. Med. Chem.* 13, 422-430.
- Ascenzi P, Bocedi A, Gioia M, Fanali G, Fasano M, Coletta M. (2017) Warfarin inhibits allosterically the reductive nitrosylation of ferric human serum heme-albumin. *J. Inorg. Biochem.* 177, 63-75.
- Sinibaldi F, Milazzo L, Howes BD, Piro MC, Fiorucci L, Polticelli F, Ascenzi P, Coletta M, Smulevich G, Santucci R. (2017) The key role played by charge in the interaction of cytochrome c with cardiolipin. *J. Biol. Inorg. Chem.* 22, 19-29.
- Grasso G, Santoro AM, Lanza V, Sbardella D, Tundo GR, Ciaccio C, Marini S, Coletta M, Milardi D (2017). The double faced role of copper in A β homeostasis: a survey on the interrelationship between metal dyshomeostasis, UPS functioning and autophagy in neurodegeneration. *Coord. Chem. Rev.* 347, 1-22.
- Ciaccio C, Tognaccini L, Battista T, Cervelli M, Howes BD, Santucci R, Coletta M, Mariottini P, Smulevich G, Fiorucci L. (2017) The Met80Ala and Tyr67His/Met80Ala mutants of human

cytochrome c shed light on the reciprocal role of Met80 and Tyr67 in regulating ligand access into the heme pocket. *J. Inorg. Biochem.* 169, 86-96.

Sbardella D, Tundo GR, Campagnolo L, Valacchi G, Orlandi A, Curatolo P, Borsellino G, D'Esposito M, Ciaccio C, Cesare SD, Di Pierro D, Galasso C, Santarone ME, Hayek J, Coletta M, Marini S. (2017) Retention of Mitochondria in Mature Human Red Blood Cells as the Result of Autophagy Impairment in Rett Syndrome. *Sci. Rep.* 7, 12297.

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

Ascenzi P, Ciaccio C, Gasperi T, Pesce A, Caporaso L, Coletta M. (2017) Hydroxylamine-induced oxidation of ferrous carbonylated truncated hemoglobins from *Mycobacterium tuberculosis* and *Campylobacter jejuni* is limited by carbon monoxide dissociation. *J. Biol. Inorg. Chem.* 22, 977-986.

Gioia M, Tomao L, Sbardella D, Ciaccio C, Tundo GR, di Masi A, Fasciglione GF, Marini S, Cozza P, Ascenzi P, Coletta M. (2017) Enzyme catalysis: the case of the prostate-specific antigen. *Rend. Lincei Sci. Fis. Natur* 28, S229-S237.

Di Dato A, 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. (2017) Electrostatic Map Of Proteasome α -Rings Encodes The Design of Allosteric Porphyrin-Based Inhibitors Able To Affect 20s Conformation By Cooperative Binding. *Sci. Rep.* 7, 17098.

Ascenzi P, Sbardella D, Sinibaldi F, Santucci R, Coletta M. (2016) The nitrite reductase activity of horse heart carboxymethylated-cytochrome c is modulated by cardiolipin. *J. Biol. Inorg. Chem.* 21, 421-432.

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

Ascenzi P, Sbardella D, Santucci R, Coletta M. (2016) Cyanide binding to ferrous and ferric microperoxidase-11. *J. Biol. Inorg. Chem.* 21, 511-522.

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Polticelli F, Zobnina V, Ciaccio C, de Sanctis G, Ascenzi P, Coletta M. (2015) Enhanced heme accessibility in horse heart mini-myoglobin. Insights from molecular modeling and reactivity studies. *Arch. Biochem. Biophys.* 585, 1-9.

Sbardella D, Tundo GR, Sciandra F, Bozzi M, Gioia M, Ciaccio C, Tarantino U, Brancaccio A, Coletta M, Marini S. (2015) Proteasome activity is affected by fluctuations in Insulin-Degrading enzyme distribution. *PLoS One* 10, e0132455.

Tilleman L, Abbruzzetti S, Ciaccio C, De Sanctis G, Nardini M, Pesce A, Desmet F, Moens L, Van Doorslaer S, Bruno S, Bolognesi M, Ascenzi P, Coletta M, Viappiani C, Dewilde S. (2015) Structural bases for the regulation of CO binding in the archaeal protoglobin from *Methanosarcina acetivorans*. *PLoS One* 10, e0125959.

Ciaccio C, Ocaña-Calahorra F, Droghetti E, Tundo GR, Sanz-Luque E, Polticelli F, Visca P, Smulevich G, Ascenzi P, Coletta M. (2015) Functional and spectroscopic characterization of *Chlamydomonas reinhardtii* truncated hemoglobins. *PLoS One* 10, e0125005.

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Ascenzi P, Leboffe L, di Masi A, Trezza V, Fanali G, Gioia M, Coletta M, Fasano M. (2015) Ligand Binding to the FA3-FA4 Cleft Inhibits the Esterase-Like Activity of Human Serum Albumin. *PLoS One*. 10, e0120603.

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Sbardella D, Sciandra F, Gioia M, Marini S, Gori A, Giardina B, Tarantino U, Coletta M, Brancaccio A, Bozzi M. (2015) α -dystroglycan is a potential target of matrix metalloproteinase MMP-2. *Matrix Biol.* 41, 2-7.

Tundo GR, Sbardella D, De Pascali SA, Ciaccio C, Coletta M, Fanizzi FP, Marini S. (2015) Novel Platinum(II) compounds modulate insulin-degrading enzyme activity and induce cell death in neuroblastoma cells. *J Biol Inorg Chem*. 20, 101-108.

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Ascenzi P, Coletta A, Cao Y, Trezza V, Leboffe L, Fanali G, Fasano M, Pesce A, Ciaccio C, Marini S, Coletta M. (2013) Isoniazid inhibits the heme-based reactivity of *Mycobacterium tuberculosis* truncated hemoglobin N. *PLoS One*. Vol. 8, e69762.

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Sinibaldi F, Howes BD, Droghetti E, Polticelli F, Piro MC, Di Pierro D, Fiorucci L, Coletta M, Smulevich G, Santucci R. (2013) Role of lysines in cytochrome c-cardiolipin interaction. *Biochemistry*. Vol. 52, 4578-4588.

Bocedi A, De Sanctis G, Ciaccio C, Tundo GR, Di Masi A, Fanali G, Nicoletti FP, Fasano M, Smulevich G, Ascenzi P, Coletta M. (2013) Reciprocal allosteric modulation of carbon monoxide and warfarin binding to ferrous human serum heme-albumin. *PLoS One*. Vol. 8, e58842.

Ciaccio C, Pesce A, Tundo GR, Tillemann L, Bertolacci L, Dewilde S, Moens L, Ascenzi P, Bolognesi M, Nardini M, Coletta M. (2013) Functional and structural roles of the N-terminal extension in *Methanosarcina acetivorans* protoglobin. *Biochim Biophys Acta*. Vol. 1834, 1813-1823.

Ascenzi P, Marino M, Polticelli F, Coletta M, Gioia M, Marini S, Pesce A, Nardini M, Bolognesi M, Reeder BJ, Wilson MT. (2013) Non-covalent and covalent modifications modulate the reactivity of monomeric mammalian globins. *Biochim Biophys Acta*. Vol. 1834, 1750-1756.

Ascenzi P, Pesce A, Nardini M, Bolognesi M, Ciaccio C, Coletta M, Dewilde S. (2013) Reductive nitrosylation of *Methanosarcina acetivorans* protoglobin: a comparative study. *Biochem Biophys Res Commun*. Vol. 430, 1301-1305.

Tundo GR, Sbardella D, Ciaccio C, Bianculli A, Orlandi A, Desimio MG, Arcuri G, Coletta M, Marini S. (2013) Insulin-degrading enzyme (IDE): a novel heat shock-like protein. *J Biol Chem*. Vol. 288, 2281-2289.

Sbardella D, Inzitari R, Iavarone F, Gioia M, Marini S, Sciandra F, Castagnola M, Van den Steen PE, Opdenakker G, Giardina B, Brancaccio A, Coletta M, Bozzi M. (2012) Enzymatic processing by MMP-2 and MMP-9 of wild-type and mutated mouse β -dystroglycan. *IUBMB Life*. Vol. 64, 988-994.

Coppola D, Abbruzzetti S, Nicoletti F, Merlino A, Gambacurta A, Giordano D, Howes BD, De Sanctis G, Vitagliano L, Bruno S, di Prisco G, Mazzarella L, Smulevich G, Coletta M, Viappiani C, Vergara A, Verde C. (2012) ATP regulation of the ligand-binding properties in temperate and cold-adapted haemoglobins. X-ray structure and ligand-binding kinetics in the sub-Antarctic fish *Eleginops maclovinus*. *Mol Biosyst*. Vol. 8, 3295-3304.

Petrera A, Amstutz B, Gioia M, Hähnlein J, Baici A, Selchow P, Ferraris DM, Rizzi M, Sbardella D, Marini S, Coletta M, Sander P. (2012) Functional characterization of the *Mycobacterium tuberculosis* zinc metallopeptidase Zmp1 and identification of potential substrates. *Biol Chem*. Vol. 393, 631-640.

Grasso G, Salomone F, Tundo GR, Pappalardo G, Ciaccio C, Spoto G, Pietropaolo A, Coletta M, Rizzarelli E. (2012) Metal ions affect insulin-degrading enzyme activity. *J Inorg Biochem*. Vol. 117, 351-358.

Ascenzi P, Gioia M, Fanali G, Coletta M, Fasano M. (2012) Pseudo-enzymatic hydrolysis of 4-nitrophenyl acetate by human serum albumin: pH-dependence of rates of individual steps. *Biochem Biophys Res Commun*. Vol. 424, 451-455.

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Grasso G, Pietropaolo A, Spoto G, Pappalardo G, Tundo GR, Ciaccio C, Coletta M, Rizzarelli E (2011). Copper(I) and copper(II) inhibit A β peptides proteolysis by insulin-degrading enzyme differently: implications for metallostasis alteration in Alzheimer's disease. Chemistry-A European Journal. Vol. 17, 2752-2762.

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