ANDREA MOZZARELLI: CURRICULUM VITAE ET STUDIORUM

Luogo e data di nascita: Mantova, 25 aprile 1950.

STUDI, DIDATTICA E INCARICHI

1969-1974 Laurea in Chimica, Università di Parma.
1974-1975 Dipendente di una industria biotecnologica.
1975-1980 Assistente incaricato di Biochimica, Istituto di Biologia Molecolare, Facoltà di Medicina Veterinaria, Università di Parma.
1980-1988 Ricercatore confermato nel raggruppamento di Chimica Biologica, Facoltà di Medicina Veterinaria, Università di Parma.
1984-1985 Fogarty Fellowship presso il Laboratory of Chemical Physics, National Institutes of Health, Bethesda, MD, USA, diretto dal Prof. W. A. Eaton.
Dal 1988 al 2000 Professore associato nel settore disciplinare E05A (Biochimica).
Dal 2000 al presente Professor ordinario di Biochimica (SSD/BIO10) presso il Dipartimento di Farmacia/Dipartimento di Scienze degli Alimenti e del Farmaco, Università di Parma.

Dal 1998 al 2003 è stato membro del Collegio dei docenti del dottorato in Scienze Bio-chimiche (sede amministrativa Università di Torino). Dal 2004 al 2013 membro del Collegio dei docenti del dottorato in Biochimica e Biologia Molecolare, Università di Parma, di cui è stato coordinatore dal 2010 al 2015. Dal 2015 membro del Collegio dei docenti del Dottorato di Scienze del Farmaco delle Biomolecole e dei Prodotti per la Salute, Università di Parma.
E' vice direttore del Centro Interdipartimentale SITEIA (Sicurezza, Innovazione e Tecnologia Agro-alimentare) dell'Università di Parma e componente del Centro Interdipartimentale Biopharmanet-tec dell'Università di Parma, svolgendo attività di trasferimento tecnologico.
E' stato componente eletto della Giunta degli Ordinari di Biochimica dal 2013 al 2015.
E' membro della Società Italiana di Biochimica e Biologia Molecolare.
E' coordinatore eletto del Gruppo Proteine della Società Italiana di Biochimica e Biologia Molecolare per il biennio 2016-2017.
E' associato al CNR, Istituto di Biofisica dal 2014.

Fa parte dell'Editorial Board di:
Biochimica et Biophysica Acta - Proteins and Proteomics
Current Medicinal Chemistry
Frontiers in Molecular Biosciences
7a edizione del Burger's Medicinal Chemistry.
E' referee delle principali riviste biochimiche internazionali e di agenzie di finanziamento nazionali ed estere.
Ha fatto parte del committee della sessione di catalisi enzimatica del FEBS meeting 2013 a S. Pietroburgo, ha organizzato scuole e convegni presso l'Università di Parma, tra cui il convegno internazionale su "Hemoglobin Based Oxygen carriers", 2006 e 2009, "New Challenges in Protein Science", 2008, "Oxygen Binding and Sensing Proteins", 2012, "ICC04, International Conference on Coenzymes and Cofactors", 2014. E' stato co-Presidente del Convegno Proteine 2016, Bologna. Fa parte del comitato internazionale delle conferenze sui "Blood Substitutes" e sui "Coenzymes and Cofactors".

E' stato membro delle COST Action "Farm Animal Proteomics", 2010-2014.
E' stato membro delle COST Action "Saffronomics". 2011-2015.
E' membro della COST Action "Understanding Movement and Mechanism in Molecular Machines", 2014-2018.

ATTIVITA' SCIENTIFICA

Svolge indagini per la comprensione della relazione struttura-dinamica-funzione-regolazione di proteine in soluzione e immobilizzate in gel di silice e allo stato cristallino, utilizzando metodiche spettrofotometriche, microspettrofotometriche e fluorimetriche. Ha investigato il meccanismo catalitico, la regolazione e il folding di enzimi dipendenti dal piridossal 5'-fosfato, dal NAD e dal FAD. Ha progettato inibitori per enzimi PLP e NAD-dipendenti e ha sviluppato metodi computazionali per valutare l'interazione proteina-ligandi, proteina-acqua, proteina-DNA, proteina-proteina. Ha investigato il legame di ossigeno ed ossido di carbonio ad emoglobina in stato quaternario T ed R e ha collaborato alla validazione del Tertiary Two State model che espande il modello allosterico di Monod, Wyman e Changeux. Svolge ricerche per lo sviluppo di sostituti del sangue su base emoglobinica. Ha studiato le proprietà dinamiche e il folding di green fluorescent protein, con esperimenti anche a singola molecola. Ha sviluppato un laboratorio di proteomica applicata ad alimenti, con trasferimenti tecnologici ad industrie del settore delle carni e produttori di zafferano.

E' stato responsabile scientifico di progetti finanziati dalla NATO (1993), MIUR (PRIN dal 1999 al 2007), MIUR Internazionalizzazione (2006-2008), svolgendo attività in collaborazione con la Virginia Commonwealth University e la University of Oklahoma, USA, dalla EU (Progetto STREP FP6, 2004-2007; progetto EuroTransBio FP7), dal National Institutes of Health americano (1999-2004), dalla Fondazione Cariparma (2006-2008), dalla Regione Emilia-Romagna (2009-2014), CNR (2003-2004) per una ricerca su "Genomica Funzionale: basi strutturali dell'evoluzione e dell'attività protettiva dai meccanismi di difesa dell'ospite delle emoglobine troncate espresse da patogeni unicellulari" e coordinatore delle unità per l'anno 2004-2005, e da aziende farmaceutiche e biotecnologiche. Ha partecipato ad un progetto finanziato da CARIPLO (2013-2015) per la messa punto di un sistema fluorimetrico per l'identificazione di Staphylococcus aureus basato su aptameri funzionalizzati con peptidi. Nell'ambito dell'Istituto di Biofisica del CNR di Pisa è PI di un progetto di scambio scientifico Italia-Russia finanziato dal CNR, 2015-2017 per l'ingegnerizzazione di metionina gamma-liasi come agente anti-tumorale. Ha contratti di ricerca con l'Universita di Essex, UK, per progetti BBSRC e MRC per lo sviluppo di sostituti del sangue, 2014-2017. E' partner del consorzio MSCA-ITN "INTEGRATE" 2015-2018, svolgendo attività volte all'identificazioni di nuovi composti ad azione antibatterica.
Svolge attività di trasferimento tecnologico nell'ambito di due progetti POR/FESR2014-2018 della Regione Emilia-Romagna finalizzati allo sviluppo di prodotti innovativi di carni suine, e del rilascio di proteine terapeutiche a livello polmonare.

E' autore di 196 pubblicazioni su riviste e libri a diffusione internazionale, h-index 39, citazioni 4821 (SCOPUS).

PUBBLICAZIONI dal 2006

Kellogg GE, Fornabaio M, Chen DL, Abraham DJ, Spyrakis F, Cozzini P, Mozzarelli A.
Tools for Building a Comprehensive Modeling System for Virtual Screening under Real Biological Conditions: The Computational Titration Algorithm
J. Mol. Graph. Model 2006, 24, 434-439

Amadasi A, Spyrakis F, Cozzini P, Abraham DJ, Kellogg GE, Mozzarelli A.
Mapping the Energetics of Water-Protein and Water-Ligand Interactions with the "Natural" HINT Forcefield: Predictive Tools for Characterizing the Roles of Water in Biomolecules
J. Mol. Biol, 2006, 358, 289-309

Spyrakis F, Raboni S, Cozzini P, Bettati S, Mozzarelli A.
Allosteric communication between alpha and beta subunits of tryptophan synthase: modelling the open-closed transition of the alpha subunit
Biochim. Biophys. Acta, 2006, 1764, 1102-1109

Ronda L, Bruno S, Viappiani C, Abbruzzetti S, Mozzarelli A, Lowe KC, Bettati S.
Circular dichroism spectroscopy of tertiary and quaternary conformations of human hemoglobin entrapped in wet silica gels
Protein Sci. 2006, 15, 1961-1967

Mozzarelli A, Bettati S Exploring the pyridoxal 5'-phosphate-dependent enzymes. The Chemical Record 2006, 6, 275-287

Campanini B, Schiaretti F, Abbruzzetti S, Kessler D, Mozzarelli A.
Sulfur Mobilization in Cyanobacteria: the Catalytic Mechanism of L-Cystine *C-S* Lyase (C-DES) from *Synechocystis*
J. Biol. Chem. 2006, 281, 38769-38780

Abbruzzetti S, Bruno S, Faggiano S, Grandi E, Mozzarelli A, Viappiani C.
Time-resolved methods in Biophysics. 2. Monitoring haem proteins at work with nanosecond laser flash photolysis.
Photochem Photobiol Sci. 2006, 5,1109-1120

Spyrakis F, Cozzini P, Bertoli C, Marabotti A, Abraham DJ, Kellogg GE, Mozzarelli A.
Energetics of the protein-DNA-water interaction
BMC Structural Biology, 2007, on-line

Baldini G, Cannone F, Chirico G, Collini M, Campanini B, Bettati S, Mozzarelli A.
Evidence of discrete substates and unfolding pathways in green fluorescent protein
Biophys. J., 2007, 92 1724-1731

Bruno S, Ronda L, Bettati S, Mozzarelli A.
Trapping hemoglobin in rigid matrices: fine tuning of oxygen binding properties by modulation of encapsulation protocols
Artificial Cells, Blood Substitutes & Biotechnology, 2007, 35, 69-79

Bruno S, Faggiano S, Spyrakis F, Mozzarelli A, Abbruzzetti S, Grandi E, Viappiani C, Feis A, Mackowiak S, Smulevich G, Cacciatori E, Dominici P
The Reactivity with CO of AHb1 and AHb2 from Arabidopsis thaliana is Controlled by the Distal HisE7 and Internal Hydrophobic Cavities.
J Am Chem Soc 2007, 129, 2880-2889

Amadasi A, Bertoldi M, Contestabile R, Bettati S, Cellini B, di Salvo ML, Borri Voltattorni C, Bossa F, Mozzarelli A.
Pyridoxal 5'-Phosphate Enzymes as Targets for Therapeutic Agents
Curr. Med Chem.2007, 14, 1291-1324

Spyrakis F, Amadasi A, Fornabaio M, Abraham DJ, Mozzarelli A, Kellogg GE, Cozzini P.
Simple, Intuitive Calculations of Free Energy of Binding for Protein-Ligand Complexes. 4. Scoring Docked Ligand Conformations using Free Energy Correlations.
Eur. J. Med. Chem., 2007, 42, 921-933

Chattopadhyay A, Meier M; Ivaninskii S; Burkhard P; Speroni F; Campanini B; Bettati S, Mozzarelli A; Rabeh W, Li L. Cook PF
Structure, Mechanism and Conformational Dynamics of O-Acetylserine Sulfhydrylase from *Salmonella typhimurium*: Comparison of A and B Isozymes
Biochemistry 2007, 46, 8315-8330

Ronda L, Faggiano S, Bettati S, Hellmann N, Decker H, Weidenbach T, Mozzarelli A.
Hemocyanin from *E. californicum* encapsulated in silica gels: oxygen binding and conformational states
Gene, 2007, 398, 202-207

Bruno S, Faggiano S, Spyrakis F, Mozzarelli A, Cacciatori E, Dominaci P, Grandi E, Abbruzzetti S, Viappiani C.
Different roles of protein dynamics and ligand migration in non-symbiotic hemoglobins AHb1 and AHb2 from *Arabidopsis thaliana*
Gene, 2007, 398, 224-233

Eaton WA, Henry ER, Hofrichter J, Bettati S, Viappiani C, Mozzarelli A.
Evolution of Allosteric Models for Hemoglobin.
IUMBM Life.2007, 59, 586-599

Cannone F, Collini M, Chirico G, Baldini G, Bettati S, Campanini B, Mozzarelli A.
Enviromental effects on the oscillatory unfolding kinetics of GFP
Eur. Biophys. J. 2007, 36, 795-803

Ronda L, Pioselli B, Bruno S, Micalella C, Bettati S, Mozzarelli A.
Biocatalysis in a confined environment: lessons from enzymes immobilized in wet, nanoporous silica gels
Chemistry-Today, 2007, 25, 10-15

Abbruzzetti S, Grandi E, Bruno S, Faggiano S, Spyrakis F, Mozzarelli A, Cacciatori E, Dominici P, Viappiani C.
Ligand migration in non-symbiotic hemoglobin AHb1 from *Arabidopsis thaliana*
J.Phys. Chem. B 2007, 111, 12582-12590

Raboni S, Mozzarelli A, Cook PF.
Control of ionizable residues in the catalytic mechanism of tryptophan synthase from Salmonella typhimurium
Biochemistry, 2007, 46, 13223-13234

Tripathi A, Fornabaio M, Spyrakis F, Mozzarelli A, Cozzini P, Kellogg GE
Complexity in Modeling and Understanding Protonation States: Computational Titration of HIV-1 Protease Inhibitor Complexes.
Chemistry and Biodiversity, 2007, 4, 2564-2577

Amadasi A, Surface JA, Spyrakis F, Cozzini P, Mozzarelli A, Kellogg GE
Robust classification of "relevant" water molecules in putative protein binding sites
J. Med. Chem. 2008, 51, 1063-1067

Ronda L, Bruno S, Faggiano S, Bettati S, Mozzarelli A.
Oxygen binding to haem proteins in solution, encapsulated in silica gels and in the crystalline state
Methods Enzymol. 2008, 437B, 309-326

Abbruzzetti S, Bruno S, Faggiano S, Ronda L, Grandi E, Mozzarelli A, Viappiani C
Characterization of ligand migration mechanisms inside haemoglobins from the analysis of geminate rebinding kinetics
Methods Enzymol. 2008, 437B, 327-342

Portoro I, Kocsis L, Herman P, Caccia D, Perrella M, Ronda L, Bruno S, Bettati S, Micalella C, Mozzarelli A, Varga A, Vas M, Lowe KC, Eke A.
Towards a novel haemoglobin-based oxygen carrier: Euro-PEG-Hb, physico-chemical properties, vasoactivity and renal filtration
Biochim. Biophys. Acta. 2008, 1784,1402–1409

Mozzarelli A. Hemoglobin-based oxygen carriers as blood substitutes, Biochim. Biophys. Acta. 2008, 1784, 1363-1364

Marabotti A, Spyrakis F, Facchiano A, Cozzini P, Alberti S, Kellogg GE, Mozzarelli A.
Energy-based prediction of amino acid-nucleotide base recognition
J. Compt. Chem. 2008, 29, 1955-1969

Moniot S, Bruno S, Vonrhein C, Didierjean C, Boschi-Muller S, Vas M, Bricogne G, Branlant G, Mozzarelli A, Corbier C.
Trapping of the thioacyl-glyceraldehyde-3-phosphate dehydrogenase intermediate from *Bacillus stearothermophilus*: direct evidence for a flip-flop mechanism.
J. Biol. Chem. 2008, 283, 21693-21702.

Ronda L, Abbruzzetti S, Bruno S, Bettati S, Mozzarelli A, Viappiani C.
Ligand-induced tertiary relaxations during the T-to-R quaternary transition in hemoglobin
J. Phys. Chem. B 2008, 112, 12790-12794

Amadasi A, Mozzarelli A, Meda C, Maggi A, Cozzini P.
Identification of xenoestrogens in food additives by an integrated *in silico* and *in vitro* approach.
Chemical Research in Toxicology, 2009, 22, 52-63

Raboni S, Bettati S, Mozzarelli A.

Tryptophan synthase: a mine for enzymologists
Cellular and Molecular Life Science, 2009, 66, 2391- 2403

Caccia D, Ronda L, Frassi R, Perrella M, Del Favero E, Bruno S, Pioselli B, Abbruzzetti S, Viappiani C, Mozzarelli A.
PEGylation promotes hemoglobin tetramer dissociation
Bioconjug. Chem. 2009, 20, 1356-66.

Bettati S, Viappiani C, Mozzarelli A.
Hemoglobin: an "evergreen" red protein
Biochim. Biophys. Acta, 2009, 1794, 1317–1324.

Singh R, Mozzarelli A
Cofactor Chemogenomics in "Chemogenomics Methods and Applications" Jacoby E. (Ed.)
Humana Press, Series: Methods in Molecular Biology , Vol. 575, 2009.

Jacoby E, Mozzarelli A.
Chemogenomic Strategies to Expand the Bioactive Chemical Space.
Curr. Med. Chem. 2009, 16, 4374-4381

Abbruzzetti S, Faggiano S, Bruno S, Spyrakis F, Mozzarelli A, Dewilde S, Moens L, Viappiani C.
Ligand migration through the internal hydrophobic cavities in human neuroglobin
Proc. Natl. Acad. Sci. USA, 2009 106, 18984-18989

Faggiano S, Abbruzzetti S, Spyrakis F, Grandi E, Viappiani C, Bruno S, Mozzarelli A, Cozzini P, Astegno A, Dominici P, Brogioni S, Feis A, Smulevich G, Carrillo O, Schmidtke P, Bidon CA, Luque FJ.
Structural Plasticity and Functional Implications of Internal Cavities in Distal Mutants of Type 1 Non-Symbiotic Hemoglobin AHb1 from *Arabidopsis thaliana*.
J. Phys. Chem. B. 2009, 113, 16028–16038

Salsi E, Bayden A, Spyrakis F, Amadasi A, Campanini B, Bettati S, Cozzini P, Kellogg GE, Cook PF, Dodatko T, Roderick SL, Mozzarelli A.
Design of *O*-acetylserine sulfhydrylase inhibitors by mimicking Nature
J. Med Chem. 2010, 53, 345-356
Salsi E, Bayden A, Spyrakis F, Amadasi A, Campanini B, Bettati S, Cozzini P, Kellogg GE, Cook PF, Dodatko T, Roderick SL, Mozzarelli A.
Design of *O*-acetylserine sulfhydrylase inhibitors by mimicking Nature
J. Med Chem. 2010, 53, 345-356

Raboni S, Contestabile R, Spyrakis F, Campanini B, Amadasi A, Bettati S, Peracchi A, Mozzarelli A.
Pyridoxal 5'-Phosphate-Dependent Enzymes: Catalysis, Conformation and Genomics
Comprehensive Natural Products II Chemistry and Biology; Mander, L., Lui, H.-W, Eds., Elsevier: Oxford, 2010; Vol. 7, pp 253-350.

Salsi E, Campanini B, Bettati S, Raboni S, Roderick S, Cook PF, Mozzarelli A.
A two-step process controls the formation of the bienzyme cysteine synthase complex
J. Biol. Chem. 2010, 285,12813-12822

Mozzarelli A, Ronda L, Faggiano S, Bettati S, Bruno S.

Haemoglobin-based oxygen carriers: research and reality towards an alternative to blood transfusions
Blood Transfusion, 2010, 8 Suppl 3:s59-s68

Faggiano S, Bruno S, Ronda L, Jankevics H, Mozzarelli A.
Polymerized and PEG-conjugated hemoglobins: a globin-based calibration curve for dynamic light scattering analysis
Anal. Biochem. 2010, 401, 266–270

Tian H, Guan R, Salsi E, Campanini B, Bettati S, Kumar VP, Karsten WE, Mozzarelli A, Cook PF.
Identification of the Structural Determinants for the Stability of Substrate and Aminoacrylate External Schiff Bases in *O*-Acetylserine Sulfhydrylase-A
Biochemistry, 2010, 49, 6093-6103

Bruno S, Ronda L, Faggiano S, Bettati S, Mozzarelli A
Oxygen delivery via allosteric effectors of haemoglobin and blood substitutes
Burger's Medicinal Chemistry, Drug Discovery and Development, 7th Ed, 2010, Vol. 4, pp 609 - 659.

Ronda L, Pioselli B, Bruno S, Faggiano S, Mozzarelli A.
Electrophoretic analysis of PEGylated hemoglobin-based blood substitutes.
Anal. Biochem. 2011, 408, 118-123.

Faggiano S, Bruno S, Ronda L, Pizzonia P, Pioselli B, Mozzarelli A (2011). Modulation of expression and polymerization of hemoglobin Polytaur, a potential blood substitute.
Arch. Biochem. Biophys. 2011, 505, 42-47.

Salsi E., Campanini B, Bettati S, Guan R, Cook PF, Mozzarelli A.
Exploring *O*-acetylserine sulfhydrylase-B isoenzyme from *Salmonella typhimurium* by fluorescence spectroscopy
Arch. Biochem. Biophys. 2011, 505, 178-185

Spyrakis F, Faggiano S, Abbruzzetti S, Dominici P, Cacciatori E, Astegno A, Droghetti E, Feis A, Smulevich G, Bruno S, Mozzarelli A, Cozzini P, Viappiani C, Bidon CA, Luque FJ.
Histidine E7 Dynamics Modulates Ligand Exchange between Distal Pocket and Solvent in AHb1 from *Arabidopsis thaliana*
J. Phys. Chem. B 2011, 115, 4138-4146

Pearson A, Mozzarelli A.
X-ray crystallography marries spectroscopy to unveil structure and function of biological macromolecules
Biochim. Biophys. Acta 2011, 1814, 731-733

Ronda L, Bruno S, Bettati S, Mozzarelli A.
Protein crystal microspectrophotometry
Biochim. Biophys. Acta 2011, 1814, 734-741

Ronda L, Bazhulina NP, Morozova EA, Revtovich SV, Chekhov VO, Nikulin AD, Demidkina TV, Mozzarelli A.
Exploring methionine gamma-lyase structure-function relationship via microspectrophotometry and X-ray crystallography.
Biochim Biophys Acta. 2011, 1814, 834-842

Spyrakis F, Bruno S, Bidon-Chanal A, Luque FJ, Abbruzzetti S, Viappiani C, Dominici P, Mozzarelli A.
Oxygen binding to *Arabidopsis thaliana* AHb2 nonsymbiotic hemoglobin: evidence for a role in oxygen transport.
IUBMB Life 2011, 63, 355-62

Passera E, Campanini B, Rossi F, Casazza V, Rizzi M, Pellicciari R, Mozzarelli A.
Human kynurenine aminotransferase II: reactivity with substrates and inhibitors
FEBS J. 2011, 278, 1882-1900

Peracchi A, Mozzarelli A
Exploring and exploiting allostery: Models, evolution, and drug targeting
Biochim. Biophys. Acta - Proteins and Proteomics, 2011, 1814, 922-933

Bisht NK, Abbruzzetti S, Uppal S, Bruno S, Spyrakis F, Mozzarelli A, Viappiani C, Kundu S.
Ligand migration and hexacoordination in type 1 non symbiotic rice hemoglobin
Biochim. Biophys. Acta - Proteins and Proteomics, 2011, 1814, 1042-1053

Pioselli B, Paredi G, Mozzarelli A.
Proteomic analysis of pork meat in the production of cooked ham
Molecular BioSystems, 2011, 7, 2252-2260

Bruno S, Ronda L, Abbruzzetti S, Viappiani C, Bettati S, Maji S, Mozzarelli A.
Protein encapsulation, conformations, and nanobiotools.
Encyclopedia of Nanoscience and Nanotechnology, American Scientific Publishers, Ed. H. S. Nalwa, 2011, vol. 21, 481-517

Mozzarelli A., Bettati S. Eds.
Chemistry and biochemistry of oxygen therapeutics: from transfusion to artificial blood.
John Wiley and Sons Ltd, Chichester, UK , 2011, ISBN 978-0-470-68668-3

Bettati S, Mozzarelli A.
Hemoglobin reactivity and regulation, in "Chemistry and biochemistry of oxygen therapeutics: from transfusion to artificial blood", Mozzarelli A., Bettati S. Eds. John Wiley and Sons Ltd, Chichester, UK, 2011, 11-19 ISBN 978-0-470-68668-3

Kim HW, Mozzarelli A, Sakai H, Jahr J.
Academia-Industry collaboration in blood substitute development: issues, case histories and a proposal
"Chemistry and biochemistry of oxygen therapeutics: from transfusion to artificial blood", Mozzarelli A., Bettati S. Eds. John Wiley and Sons Ltd, Chichester, UK, 2011, 413-428

Ahmed MH, Spyrakis F, Cozzini P, Tripathi PK, Mozzarelli A, Scarsdale JN, Safo MA, Kellogg GE.
Bound Water at Protein-Protein Interfaces: Partners, Roles and Hydrophobic Bubbles as a Conserved Motif.
PlosOne. 2011, 6(9):e24712

Mozzarelli A, Bettati S, Campanini B, Salsi E, Raboni S, Singh R, Spyrakis F, Kumar VP, Cook PF

The multifaceted pyridoxal 5'-phosphate-dependent *O*-acetylserine sulfhydrylase
Biochem. Biophys. Acta - Proteins and Proteomics, 2011, 1814, 1497–1510

Conti P, Tamborini L, Pinto A, Blondel A, Minoprio P, Mozzarelli A, De Micheli C.
Drug Discovery Targeting Amino Acid Racemases
Chem. Rev. 2011, 111, 6919-6946, IF 33

Abbruzzetti S, Faggiano S, Spyrakis F, Bruno S, Mozzarelli A, Astegno A, Dominici P, Viappiani C.
Oxygen and nitric oxide rebinding kinetics in nonsymbiotic hemoglobin AHb1 from Arabidopsis thaliana.
IUBMB Life. 2011, 63, 1093-1100

Coppola D, Bruno S, Ronda L, Viappiani C, Abbruzzetti S, di Prisco G, Verde C, Mozzarelli A.
Low affinity PEGylated hemoglobin from Trematomus bernacchii, a model for hemoglobin-based blood substitutes
BMC Biochemistry 2011, 12, 66 on line

Paredi GL, Raboni S, Bendixen E, de Almeida A, Mozzarelli A.
Muscle to meat" molecular events and technological transformations: the proteomics insight
J. Proteomics, 2012, 75, 4275-4289

Amori L, Katkevica S, Bruno A, Campanini B, Felici P, Mozzarelli A, Costantino G.
Design and synthesis of *trans*-2-substituted-cyclopropane-1-carboxylic acids as the first non-natural small molecule inhibitors of *O*-acetylserine sulfhydrylase
Med. Chem. Commun.**, 2012,** 3, 1111-1116.

Spyrakis F, Felici P, Bayden AS, Salsi E, Miggiano R, Kellogg GE, Cozzini P, Cook PF, Mozzarelli A.
Fine tuning of the active site modulates specificity in the interaction of O-acetylserine sulfhydrylase isozymes with serine acetyltransferase
BBA - Proteins and Proteomics, 2013, 1834, 169–181

Gabba M, Abbruzzetti S, Spyrakis F, Forti F, Bruno S, Mozzarelli A, Luque JL, Viappiani C, Cozzini P, Nardini M, Germani F, Bolognesi M, Moens L, Dewilde S.
CO Rebinding Kinetics and Molecular Dynamics Simulations Highlight Dynamic Regulation of Internal Cavities in Human Cytoglobin
PlosOne, 2013;8(1):e49770.

Singh R, Spyrakis F, Cozzini P, Paiardini A, Pascarella S, Mozzarelli A.
Chemogenomics of Pyridoxal 5'-phosphate Dependent Enzymes
J Enzyme Inhib Med Chem. 2013 28, 183-194

Ronda L, Bettati S, Henry ER, Kashav T, Sanders JM, Royer WE, Mozzarelli A.
Tertiary and Quaternary Allostery in Tetrameric Hemoglobin from 2 Scapharca inaequivalvis
Biochemistry, 2013, 52, 2108–2117

Campanini B, Spyrakis F, Peracchi A, Mozzarelli A.
Serine racemase: a key player in neuron activity and in neuropathologies.
Front. Biosci. 2013 18, 1112-1128.

Mozzarelli A, Viappiani C.
Oxygen binding and sensing proteins.
Biochim. Biophys. Acta, 2013, 1834, 1683

Ronda L, Merlino A, Bettati S, Verde C, Balsamo A, Mazzarella L, Mozzarelli A, Vergara A.
Role of tertiary structures on the Root effect in fish hemoglobins.
Biochim Biophys Acta. 2013 1834, 1885-1893.

Paredi GL, Sentandreu MA, Mozzarelli A, Fadda S, Hollung C, de Almeida AM.
Muscle and meat: New horizons and applications for proteomics on a farm to fork perspective
J. Proteom. 2013, 88, 58-82

Ronda L, Mozzarelli A, Aloe R, Lippi G.
Development of a novel, hemolysis-resistant reagent for assessment of α-amylase in biological fluids.
Clin Chem Lab Med. 2013, 51, 1409-1415

Ahmed MH, Habtemariam M, Safo MK, Scarsdale JN, Spyrakis F, Cozzini P, Mozzarelli A, Kellogg GE. Unintended consequences? Water molecules at biological and crystallographic protein–protein interfaces
Comput. Biol. Chem. 2013, 47, 126–141

Marchetti M, Bruno S, Campanini B, Peracchi A, Mai N, Mozzarelli A.
ATP binding to human serine racemase is cooperative and modulated by glycine.
FEBS Journal 2013, 280, 5853–5863

Spyrakis F, Singh R, Cozzini P, Campanini B, Salsi E, Felici P, Raboni S, Benedetti P, Cruciani G, Kellogg GE, Cook PF, Mozzarelli A.
Isozyme-specific ligands for *O*-acetylserine sulfhydrylase, a novel antibiotic target
PlosOne, 2013, 8, e0077558

Campanini B, Bettati S, di Salvo ML, Mozzarelli A, Contestabile R.
Asymmetry of the active site loop conformation between subunits of glutamate-1-semialdehyde aminomutase in solution.
BioMed Research International, 2013, 353270

Spyrakis F, Cellini B, Bruno S, Benedetti P, Carosati E, Cruciani G, Micheli F, Felici A, Cozzini P, Kellogg GE, Borri Voltattorni C, Mozzarelli A.
Targeting cystalysin, a virulence factor of *Treponema denticola*-supported periodontitis
MedChemComm 2014, 9, 1501-1511

Micalella C, Caglio R, Mozzarelli A, Valetti F, Pessione E, Giunta C, Bruno S.
Ormosil gels doped with engineered catechol 1,2 dioxygenases for chlorocatechols bioremediation
Biotech. Appl.Biochem. 2014, 61, 297-303

Viappiani C, Abbruzzetti S, Ronda L, Bettati S, Henry ER, Mozzarelli A, Eaton EA
Experimental basis for a new allosteric model for multi-subunit proteins
Proc. Natl. Acad. Sci. USA 2014, 111, 12758-12763.

Pellegrino S, Ronda L, Annoni C, Contini A, Erba E, Gelmi ML, Ronda L, Piano R, Paredi GL, Mozzarelli A, Bettati S.

Molecular insights into dimerization inhibition of c-Maf transcription factor
Biochim Biophys Acta: Proteins and Proteomics 2014, 1844, 2108–2115

Bruno S, Pinto A, Paredi GL, Tamborini L, De Micheli C, La Pietra V, Marinelli L, Novellino E, Conti P, Mozzarelli A
Discovery of covalent inhibitors of glyceraldehyde-3-phosphate dehydrogenase, a target for the treatment of protozoal infections
J Med Chem 2014, 57, 7465-7471

Nakagawa A, Lui FE, Wassaf D, Yefidoff-Freedman R, Casalena D, Palmer MA, Meadows J, Mozzarelli A, Ronda A, Abdulmalik O, Bloch KD, Safo MK, Zapol WM
Identification of a Small Molecule that Increases Hemoglobin Oxygen Affinity and Reduces SS Erythrocyte Sickling
ACS Chem. Biol. 2014, 9, 2318-2325

Marchetti M, Bruno S, Campanini B, Bettati S, Peracchi A, Mozzarelli A.
Regulation of human serine racemase activity and dynamics by halides, ATP and malonate
Amino Acids 2015, 47, 163-173

Campanini B, Pieroni M, Raboni S, Bettati S, Benoni R, Pecchini C, Costantino G, Mozzarelli A
Inhibitors of the Sulfur Assimilation Pathway in Bacterial Pathogens as Enhancers of Antibiotic Therapy
Curr. Med. Chem. 2015, 22, 187-213

Ronda L, Bruno S, Bettati S, Storici P, Mozzarelli A.
From Protein Structure to Function via Single Crystal Spectroscopy
Frontiers in Molecular Biosciences 2015, 2, 12 DOI:10.3389/fmolb.2015.00012

Henry ER, Mozzarelli A, Viappiani C, Abbruzzetti S, Bettati S, Ronda L, Bruno S, Eaton WA
Experiments on Hemoglobin in Single Crystals and Silica Gels Distinguish among Allosteric Models
Biophys. J. 2015, 109, 1264-1272

Campanini B, Benoni R, Bettati S, Beck C, Hayes C, Mozzarelli A,
Moonlighting O-acetylserine sulfhydrylase: New functions for an old protein
Biochim. Biophys. Acta: Proteins and Proteomics 2015, 1854, 1184-1193

Ronda L, Bruno S, Campanini B, Mozzarelli A, Abbruzzetti A, Viappiani C, Cupane A, Levantino M, Bettati S
Immobilization of Proteins in Silica Gel: Biochemical and Biophysical Properties
Current Organic Chemistry, 2015, 19, 1653-1668

Dell'Acqua M, Ronda L, Piano R, Pellegrino S, Clerici F, Rossi E, Abbiati G, Mozzarelli A, Gelmi ML
MediaChrom: a new class of pyrazinoindolone based polarity-sensitive dyes
J. Org. Chem. 2015, 80, 10939-10954

Dellafiora L, Marchetti ML, Spyrakis F, Orlandi V, Campanini B, Cozzini P, Mozzarelli A
Expanding the chemical space of human serine racemase inhibitors
Bioorg Med Chem Letters 2015, 25, 4297-4303

Paredi GL, Raboni S, Marchesani F, Ordoudi SA, Tsimidou MZ, Mozzarelli A.
Insight of Saffron Proteome by Gel-Electrophoresis
Molecules 2016, 21, 167

Benoni R, Pertinhez TA, Spyrakis F, Davalli S, Pellegrino S, Paredi GL, Pezzotti A, Bettati S, Campanini B, Mozzarelli A.
Structural insight into the interaction of *O*-acetylserine sulfhydrylase with competitive, peptidic inhibitors by Saturation Transfer Difference-NMR
FEBS Lett. 2016, 590, 943-953

Pieroni M, Annunziato G, Beato C, Wouters R, Benoni R, Campanini B, Pertinhez TA, Bettati S, Mozzarelli A, Costantino G.
Rational Design, Synthesis and Preliminary Structure-Activity Relationships of α-Substituted-2-Phenylcyclopropane Carboxylic Acids as Inhibitors of Salmonella Typhimurium O-Acetylserine Sulfhydrylase
J. Med. Chem. 2016, 59, 2567-2578

Beato, C., Pecchini, C.,Cocconcelli, C., (...), Mozzarelli, A., Costantino, G.
Cyclopropane derivatives as potential human serine racemase inhibitors: Unveiling novel insights into a difficult target
J. Enzyme Inhib. Med. Chem. 2016, 31, 645-652

Bruno S, Margiotta M, Pinto A, Cullia G, Conti P, De Micheli C, Mozzarelli A.
Selectivity of 3-bromo-isoxazoline inhibitors between human and *Plasmodium falciparum* glyceraldehyde-3-phosphate dehydrogenases
Biorg Med Chem. 2016, 24, 2654-2659

Silkstone GSA, Silkstone RS, Wilson MT, Simons M, Bülow L, Kallberg K, Ratanasopa K, Ronda L, Mozzarelli A, Reeder BJ, Cooper CE
Engineering tyrosine electron transfer pathways decreases oxidative toxicity in hemoglobin: implications for blood substitute design
Biochem. J. 2016, 473, 3371-3383

Bruno S, Marchesani S, Dellafiora L, Margiotta M, Faggiano S, Campanini B, Mozzarelli A.
Human serine racemase is allosterically modulated by NADH and reduced nicotinamide derivatives
Biochemical J. 2016, 473 3505–3516

Annunziato G, Pieroni M, Benoni R, Campanini B, Pertinhez TA, Pecchini C, Bruno A, Magalhães J, Bettati S, Franko N, Mozzarelli A, Costantino G. Cyclopropane-1,2-Dicarboxylic Acids as new Tools for the Biophysical Investigation of O-Acetylserine Sulfhydrylases by Fluorimetric Methods and Saturation Transfer Difference (STD) NMR
J. Enzyme Inhib. Med. Chem. 2016, 31, 78-87

Bruno S, Marchesani S, Dellafiora L, Margiotta M, Faggiano S, Campanini B, Mozzarelli A.
Human serine racemase is allosterically modulated by NADH and reduced nicotinamide derivatives
Biochemical J. 2016, 473 3505–3516

Bruno S, Margiotta M, Marchesani F, Paredi G, Orlandi V, Faggiano S, Ronda L, Campanini B, Mozzarelli A. Magnesium and calcium ions differentially affect human serine racemase activity and modulate its quaternary equilibrium toward a tetrameric form

Biochim. Biophys. Acta 2017, 1865, 381–387

Elena Morozova, Vitalia Kulikova, Serena Faggiano, Samanta Raboni, Edi Gabellieri, Patrizia Cioni, Natalia Anufrieva, Svetlana Revtovich, Tatyana Demidkina and Andrea Mozzarelli, Soluble and nanoporous silica gel-entrapped *C. freundii* methionine γ-lyase
J. Nanosci. Nanotech, 2017, in press

Benoni R, De Bei O, Paredi GL, Hayes CS, Franko N, Mozzarelli A, Bettati S, Campanini B. Protein-protein interaction in cysteine biosynthesis: modulation of *E. coli* serine acetyltransferase catalytic activity in the cysteine synthase complex
FEBS Letters, 2017, 591, 1212-1224

Spyrakis F, Ahmed MH, Bayden AS, Cozzini P, Mozzarelli A, Kellogg GE
The Roles of Water in the Protein Matrix: A Largely Untapped Resource for Drug Discovery
J. Med. Chem, 2017, on-line, in press

Patents

Brevetto Italiano:
ENZIMI CATECOLO 1,2 DIOSSIGENASI INCAPSULATI IN GEL DI SILICE E/O DI ORMOSILI, PROCEDIMENTO DI INCAPSULAMENTO DI DETTI ENZIMI IN GEL DI SILICE E/O DI ORMOSILI, ED USO DI DETTI ENZIMI INCAPSULATI PER IL BIORISANAMENTO DI MATERIALI CONTAMINATI CON CATECOLI E LORO DERIVATI
TO2009A000082 data di deposito: 09/02/2009

Brevetto europeo/americano/indiano:
Method for the preparation of surfactant peptides
n. 12002678.6. data di deposito 17/04/2012, WO 2013156464 A1; US 20130303726 A1

Brevetto Italiano:
METODO PER LA DETERMINAZIONE DELL'ATTIVITA' DI ALFA-AMILASI"
MI2012A001636 data di deposito 01/10/2012