

CURRICULUM VITAE ET STUDIORUM

PERSONAL DETAILS:

- *University Address:* Dpt. of Biological, Chemical and Pharmaceutical Sciences and Technologies
Via Archirafi, 28 - 90123 - Palermo, Italia
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<http://www.unipa.it/persona/docenti/a/mario.allegra/en/index.html>
- *Place and date of birth:* Palermo, 9th Febbraio 1973

EDUCATION:

- 1991 - 1997 **Degree in Chemistry and Pharmaceutical Technologies** (110/110 summa cum laude),
School of Pharmacy - University of Palermo
- 1997 **"First Certificate in English"** (B),
University of Cambridge, United Kingdom
- 2002 **"Zertifikat Deutsch"** (Gut),
Goethe Institut, Germany
- 2015 **"PhD in Molecular Medicine"**
School of Medicine - University of Palermo

POST-LAUREAM QUALIFICATIONS:

1998

- Personal research training fellowship on a project titled: *"Differential role of Lipocortin 1 and chemokines on the outcome of ischemia-reperfusion injury"*. Funded by University of Palermo in collaboration with the Department of Biochemical Pharmacology, William Harvey Research Institute, St. Bartholomew's and the Royal London School of Medicine and Dentistry, London, United Kingdom.



2000

- Career award for a project titled: "*Evaluation of the prooxidants/antioxidants balance, peroxidative injury against LDL and risk of cardiovascular disease in thalassemia intermedia patients*". Funded by Assessorato della Sanità, Regione Sicilia.

2000

- Personal research training fellowship on a project titled: "*Kinetics of the oxidation of melatonin by myeloperoxidase: the interaction between melatonin and oxoferryl intermediates*". Funded by the European Science Foundation in collaboration with the Department of Physical Chemistry, University of Palermo and the Institute of Chemistry, University of Vienna, Austria.

2001

- Personal research training fellowship on a project titled: "*Kinetic studies of the oscillatory dynamics induced by melatonin in the peroxidase-oxidase reaction of myeloperoxidase*". Funded by the European Science Foundation in collaboration with the Department of Physical Chemistry, University of Palermo and the Institute of Chemistry, University of Vienna, Austria.

2002

- *Senior Lecturer in Biochemistry* at the University of Palermo

2014

- *Associate Professor in Biochemistry* at the University of Palermo

LECTURING:

2001

- Invited speaker at "Round table on oxidative stress and cancer: insights on experimental and clinical perspectives". National Academy of Medicine; June 25-26, 2001, Cagliari, Italy.

2001

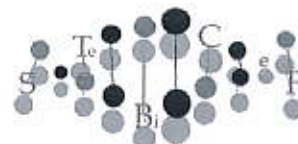
- Temporary Professor of Chemistry and Biochemistry at the School of Medicine and Dentistry, University of Palermo

2002-2014

- Contract Professor of Biochemistry at the School of Pharmacy, University of Palermo.

2015...

- Associate Professor of Biochemistry at the School of Pharmacy, University of Palermo.



SECTION OF PHARMACEUTICAL AND BIOLOGICAL CHEMISTRY
PROF. MARIO ALLEGRA

SCIENTIFIC ACTIVITY:

- *January 1993 - March 1997*

Experimental thesis concerning synthesis and characterisation of nanoparticulate drug delivery systems for the release and the targeting of antibiotic, antitumoral and antiviral drugs. Tutor: Prof. G. Giammona, Department of Chemistry and Pharmaceutical Technologies, **University of Palermo**

- *April 1997 - August 1998*

Study of the influence of supplementation with antioxidants on plasma and lipoproteins redox balance in β -thalassemia patients. Tutor: Prof. M.A. Livrea, Department of Pharmaceutical, Toxicological and Biological Chemistry, **University of Palermo**

- *September 1998 - August 1999*

Study of the differential role of chemokines and lipocortin 1 on the outcome of ischemia reperfusion injury. Tutor: Prof. M. Perretti. Department of Biochemical Pharmacology, William Harvey Research Institute, St. Bartholomew's and the Royal London School of Medicine and Dentistry, **University of London UK**.

- *November 2000 - December 2000*

Investigation of the mechanism of reaction of myeloperoxidase with melatonin. Tutor: Prof. C. Obinger, Institute of Chemistry, **University of Vienna**

- *February 2001 - March 2001*

Evaluation of the mechanism of reaction of myeloperoxidase, lactoperoxidase and horseradish peroxidase with indol derivatives. Tutor: Prof. C. Obinger, Institute of Chemistry, **University of Vienna**.

- *August 2001- September 2001*

Evaluation of the chemistry of melatonin's interaction with reactive species. Tutor: Prof. R.J. Reiter, Department of Cellular and Structural Biology, The **University of Texas** Health Science Center at San Antonio. USA.

- *February 2004*

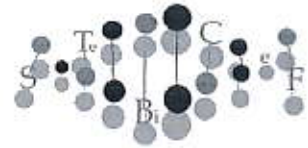
Investigation of the mechanism of reaction of myeloperoxidase with betalains from Cactus Pear Fruits. Tutor: Prof. C. Obinger, Department of Chemistry, **University of Vienna**.

- *October 2004 - February 2005*

Evaluation of betalain effects on the neutrophil-mediated endothelial dysfunction. Tutor: Prof. M. Perretti, Department of Biochemical Pharmacology, Barts and The Royal School of Medicine and Dentistry, Queen Mary **University of London, UK**.

- *October 2005 - December 2005*

Investigation of betalain effects on the LPS-induced macrophages dysfunction. Tutor: Prof. M. Perretti, Department of Biochemical Pharmacology, Barts and The Royal School of Medicine and Dentistry, Queen Mary **University of London, UK**.



- *January 2007 – February 2007*

Evaluation of betalain effects on lymphocyte activation. Tutor: Dr. F. D'Acquisto, Department of Biochemical Pharmacology, Barts and The Royal School of Medicine and Dentistry, Queen Mary University of London, UK.

- *January 2010 – February 2010*

Evaluation of betalain interaction with lipid rafts. Tutor: Dr. M. Waugh, Department Cellular and Molecular Biology, University College London, UK.

- *September 1999 - present*

Study of the interaction of melatonin with catalytic heme proteins: basic biochemical mechanisms and implications in inflammatory processes.

Study of the molecular mechanisms of the anti-inflammatory and anti-tumoral effects of betalains pigments from cactus pear fruits in *in vitro*, *ex vivo*, and *in vivo*.

LABORATORY TECHNIQUES MASTERED

- *Analytical Chemistry:*

High Pressure Liquid Chromatography (HPLC), UV-Visible spectrophotometry.

- *Physical Chemistry:*

Stopped-flow spectroscopy, Enzyme kinetics at pre-steady and steady state.

- *Biochemistry techniques:*

Protein and enzymatic assays, Enzyme-linked immunosorbent assay, Western Blotting, Real-Time, Reverse-Transcriptase, Polymerase Chain Reaction, Flow cytometry, Cell culturing.



INVITED SPEAKER AT INTERNATIONAL CONGRESSES:

2002

- "Second International Symposium on Antioxidants in nutrition and therapy: mechanisms in physiology-pathology-pharmacology". October 2-4, 2002, **Bali, Indonesia**.

2005

- "International Symposium on Human Health Effects of Fruits and Vegetables". August 17-20, 2005. **Quebec City, Canada**.

2006

- "IV International Congress on Pigments in Food". October 9-12, 2006. **Stuttgart, Germany**.

2009

- "SFRR - Europe Meeting 2009". August 26-29, 2009. **Rome, Italy**.

2012

- "16th SFRR - Biennial Meeting 2012". September 6-9, 2012. **London, UK**.

2013

- "Workshop on oxidative stress, inflammation and metabolic diseases". May 30, 2013. **Catania, Italy**.

2013

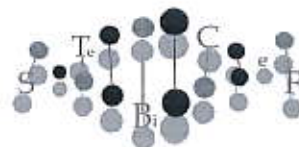
- "VIII International Congress on Cactus Pear and Cochineal". October 28-31, 2013. **Palermo, Italy**.

2017

- "Workshop on new frontiers in biochemistry and molecular medicine". May 25, 2017. **Catania, Italy**.

FULL PAPERS

1. Allcock GH, **Allegra M**, Flower RJ, Perretti M: Neutrophil accumulation induced by bacterial lipopolysaccharide: effects of dexamethasone and annexin 1. (2001) *Clinical and Experimental Immunology* 123: 62-67.
2. Tesoriere L, D'Arpa D, Butera D, **Allegra M**, Renda D, Maggio A, Bongiorno A, Livrea MA: Oral supplements of vitamin E improve measures of oxidative stress in plasma and reduce oxidative damage to LDL and erythrocytes in β -thalassemia intermedia patients. (2001) *Free Radical Research* 34: 529-540.



14. Tesoriere L, Butera D, D'Arpa D, Di Gaudio F, **Allegra M**, Gentile C, Livrea MA: Increased resistance to oxidation of Betalain-enriched human low density lipoproteins. (2003) *Free Radical Research* 37:689-696.
15. Gentile C, Tesoriere L, **Allegra M**, Livrea MA and D'Alessio P: Antioxidant Betalains from Cactus Pear (*Opuntia ficus-indica*) Inhibit Endothelial ICAM-1 Expression. (2004) *N Y Acad Sci* 1028:481-6.
16. Tesoriere L, Butera D, Pintaudi AM, **Allegra M** and Livrea MA: Supplementation with cactus pear (*Opuntia ficus-indica*) fruit decreases oxidative stress in healthy humans: a comparative study with vitamin C. (2004) *Am J Clin Nutr* 80(2):391-5.
17. Tesoriere L, **Allegra M**, Butera D and Livrea MA: Absorption, excretion, and distribution of dietary antioxidant betalains in LDLs: potential health effects of betalains in humans. (2004) *Am J Clin Nutr* 80(4):941-5.
18. Tesoriere L, Butera D, **Allegra M**, Fazzari M and Livrea MA: Distribution of Betalain Pigments in Red Blood Cells after Consumption of Cactus Pear Fruits and Increased Resistance of the Cells to ex Vivo Induced Oxidative Hemolysis in Humans. (2005) *J Agric Food Chem* 53(4):1266-70.
19. **Allegra M**, Furtmueller PG, Jantschko W, Zederbauer M, Tesoriere L, Livrea MA, Obinger C: Mechanism of interaction of betanin and indicaxanthin with human myeloperoxidase and hypochlorous acid. (2005) *Biochem Bioph Res Co* 332: 837-844.
20. Tesoriere L, Fazzari M, **Allegra M**, Livrea MA: Biothiols, taurine, and lipid-soluble antioxidants in the edible pulp of sicilian cactus pear (*Opuntia ficus-indica*) fruits and changes of bioactive juice components upon industrial processing. (2005) *J Agric Food Chem* 53:7851-5.
21. Tesoriere L, **Allegra M**, Butera D, Gentile C, Livrea MA: Cytoprotective effects of the antioxidant phytochemical indicaxanthin in beta-thalassemia red blood cells. (2006) *Free Radic Res* 40:753-61.
22. Gentile C, Tesoriere L, Butera D, Fazzari M, Monastero M, **Allegra M**, Livrea MA: Antioxidant activity of Sicilian pistachio (*Pistacia vera* L. var. Bronte) nut extract and its bioactive components. (2007) *J Agric Food Chem* 55:643-8.
23. **Allegra M**, Tesoriere L, Livrea MA: Betanin inhibits the myeloperoxidase/nitrite-induced oxidation of human low-density lipoproteins. (2007) *Free Radic Res* 41:335-41.
24. Tesoriere L, **Allegra M**, Butera D, Gentile C, Livrea MA: Kinetics of the lipoperoxyl radical-scavenging activity of indicaxanthin in solution and unilamellar liposomes. (2007) *Free Radic Res* 41:226-33.
25. Tesoriere L, **Allegra M**, Gentile C, Livrea MA: Betacyanins as phenol antioxidants. Chemistry and mechanistic aspects of the lipoperoxyl radical-scavenging activity in solution and liposomes. (2009) *Free Radic Res* 43:706-17.



SECTION OF PHARMACEUTICAL AND BIOLOGICAL CHEMISTRY
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26. Turco Liveri ML, Sciascia L, **Allegra M**, Tesoriere L, Livrea MA: Partition of indicaxanthin in membrane biomimetic systems. A kinetic and modeling approach. (2009) *J Agric Food Chem* 57:10959-63
27. **Allegra M**, D'Acquisto F, Tesoriere L, Livrea MA, Perretti M: Cross-talk between minimally primed HL-60 cells and resting HUVEC reveals a crucial role for adhesion over extracellularly released oxidants. (2011) *Biochem Pharmacol* 81:396-401.
28. Gentile C, **Allegra M**, Angileri F, Pintaudi AM, Livrea MA, Tesoriere L: Polymeric proanthocyanidins from Sicilian pistachio (*Pistacia vera* L.) nut extract inhibit lipopolysaccharide-induced inflammatory response in RAW 264.7 cells. (2012) *Eur J Nutr* 51(3):353-63.
29. Tesoriere L, Gentile C, Angileri F, Attanzio A, Tutone M, **Allegra M** and Livrea MA: Trans-epithelial transport of the betalain pigments indicaxanthin and betanin across Caco-2 cell monolayers and influence of food matrix. (2013) *Eur J Nutr* 52(3):1077-87.
30. Tesoriere L, Attanzio A, **Allegra M**, Gentile C, Livrea MA: Phytochemical indicaxanthin suppresses 7-ketocholesterol-induced THP-1 cell apoptosis by preventing cytosolic Ca²⁺ increase and oxidative stress. (2013) *BJ Nutr* 110(2):230-40.
31. Tesoriere L, Attanzio A, **Allegra M**, Gentile C, Livrea MA: Indicaxanthin inhibits NADPH oxidase (NOX)-1 activation and NF- κ B-dependent release of inflammatory mediators and prevents the increase of epithelial permeability in IL-1 β -exposed Caco-2 cells. (2014) *BJ Nutr* 111(3):415-23.
32. **Allegra M**, Ianaro A, Tersigni M, Panza E, Tesoriere L, Livrea MA: Indicaxanthin from cactus pear fruit exerts anti-inflammatory effects in carrageenin-induced rat pleurisy. (2014) *J Nutr* 144(2):185-92.
33. **Allegra M**, Tesoriere L, D'Acquisto F, Attanzio A, Livrea MA: Pro-oxidant activity of indicaxanthin from *Opuntia Ficus Indica* modulates arachidonate metabolism and prostaglandin synthesis through lipid peroxide production in LPS-stimulated RAW 264.7 macrophages. (2014) *Red Biol* 2:892-900.
34. Tesoriere L, Attanzio A, **Allegra M**, Cilla A, Gentile C, Livrea MA: Oxysterol Mixture in Hypercholesterolemia-Relevant Proportion Causes Oxidative Stress-Dependent Eryptosis. (2014) *Cell Physiol Biochem* 34:1075-1089.
35. **Allegra M**, Tesoriere L, Livrea MA, Ianaro A, Panza E: Cactus pear fruit extract exerts anti-inflammatory effects in carrageenin-induced rat pleurisy. (2015) *Acta Horticulturae* 1067:19-25.
36. **Allegra M**, Carletti F, Gambino G, Tutone M, Attanzio A, Tesoriere L, Ferraro G, Sardo P, Almerico AM, Livrea MA: Indicaxanthin from *Opuntia ficus-indica* Crosses the Blood-Brain Barrier and Modulates Neuronal Bioelectric Activity in Rat Hippocampus at Dietary-Consistent Amounts. (2015) *J Agric Food Chem* 63(33):7353-7360.



37. Tesoriere L, Attanzio A, **Allegra M**, Livrea MA: Dietary indicaxanthin from cactus pear (*Opuntia ficus-indica* L. Mill) fruit prevents eryptosis induced by oxysterols in a hypercholesterolaemia-relevant proportion and adhesion of human erythrocytes to endothelial cell layers. (2015) *B J Nutr* 114(03):368-375.
38. Attanzio A, Tesoriere L, **Allegra M**, Livrea MA: Monofloral honeys by Sicilian black honeybee (*Apis mellifera* ssp. *sicula*) have reducing power and antioxidant capacity. (2016) *Heliyon* 2(11):e00193.
39. Gambino G, **Allegra M**, Sardo P, Attanzio A, Tesoriere L, Livrea MA, Ferraro G and Carletti F: Brain distribution and electrophysiological effects on neuronal excitability of Indicaxanthin from *Opuntia Ficus Indica* at nutritionally-relevant concentrations. (2018) *Front in Aging Neuroscience* 10:133
40. Fiorica C, Palumbo FS, Pitarresi G, **Allegra M**, Puleio R, Giammona G: Hyaluronic acid and α -elastin based hydrogel for three dimensional culture of vascular endothelial cells. (2018) *Journal of Drug Delivery Science and Technology* 46:28-33.
41. Attanzio A, Tesoriere L, Vasto S, Pintaudi AM, Livrea MA, **Allegra M**: Short-term cactus pear [*Opuntia ficus-indica* (L.) mill] fruit supplementation ameliorates the inflammatory profile and is associated with improved antioxidant status among healthy humans. (2018) *Food and Nutrition Research* 62: Article number 1262.
42. **Allegra M**, De Cicco P, Ercolano G, Attanzio A, Busà R, Cirino G, Tesoriere L, Livrea MA, Ianaro A: Indicaxanthin from *Opuntia Ficus Indica* (L. Mill) impairs melanoma cell proliferation, invasiveness, and tumor progression. (2018) *Phytomedicine* 50:19-24.
43. Attanzio A, Frazzitta A, Vasto S, Tesoriere L, Pintaudi AM, Livrea MA, Cilla A, **Allegra M**: Increased eryptosis in smokers is associated with the antioxidant status and C-reactive protein levels. (2019) *Toxicology* 411:43-8.
44. Attanzio A, Frazzitta A, Busà R, Tesoriere L, Livrea MA, **Allegra M**: Indicaxanthin from *Opuntia ficus indica* (L. Mill) Inhibits Oxidized LDL-Mediated Human Endothelial Cell Dysfunction through Inhibition of NF- κ B Activation. (2019) *Oxid Med Cell Longev* doi: 10.1155/2019/3457846.