

PERSONAL INFORMATION

Mario Allegra



<http://www.unipa.it/persone/docenti/a/mario.allegra>

POSITION

Associate Professor of Biochemistry - University of Palermo

WORK EXPERIENCE

1998–2001

Post doc at:

- Department of Biochemical Pharmacology, St. Bartholomew's and the Royal London School of Medicine and Dentistry, London, UK;
- Institute of Chemistry, University of Vienna;
- Dipartimento Farmacochimico, Tossicologico e Biologico, Facoltà di Farmacia, Università di Palermo.

2002–2014

Lecturer, School of Pharmacy, University of Palermo.

2015–Present

Associate Professor of Biochemistry, Department of Biological, Chemical and Pharmaceutical Sciences and Technologies, University of Palermo.

EDUCATION AND TRAINING

1991–1997

Degree in Chemistry and Pharmaceutical Technologies (summa cum laude)

School of Pharmacy, University of Palermo. ITALY

2012–2015

PhD in Molecular Medicine.

School of Medicine and Dentistry, University of Palermo. ITALY

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
First Certificate in English - University of Cambridge, United Kingdom.					
German	B1	B1	B1	B1	B1
Zertifikat Deutsch - Goethe Institut, Germany.					

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

- Organisational / managerial skills**
- *Member of the **Teaching Committee***, School of Pharmacy, University of Palermo (2011-2013).
 - *Member of the **Pharmaceutical Training Committee***, School of Pharmacy, University of Palermo (2009...).
 - *Coordinator of the **Teachers-Students Commission***, Department of Biological, Chemical and Pharmaceutical Sciences and Technologies, University of Palermo (2018...).
 - *Member of the **Commission for Quality Control of Teaching***, Department of Biological, Chemical and Pharmaceutical Sciences and Technologies, University of Palermo (2016...).
 - *Member of the **Editorial Board of Antioxidants*** (2019...)

Job-related skills

TEACHING ACTIVITY:

2001

- **Temporary Professor of Biochemistry**, School of Medicine, University of Palermo.

2002-2015

- **Temporary Professor of Biochemistry**, School of Pharmacy, University of Palermo.

2015...

- **Associate Professor of Biochemistry**, School of Pharmacy, University of Palermo.

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 b-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**.

· September 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.

· September 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 – March 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*.

COLLABORATION WITH ACADEMIC RESEARCH GROUP:

· Prof. M. Perretti, Department of Biochemical Pharmacology, Barts and The London School of Medicine and Dentistry, **Queen Mary University of London**.

· Prof. F. D'Acquisto, Department of Biochemical Pharmacology, Barts and The London School of Medicine and Dentistry, **Queen Mary University of London**.

· Prof. C. Obinger, Institut für Chemie, **Wien Universität**.

· Prof. R. Reiter, Department of Cellular and Structural Biology, **University of Texas Health Science Center at San Antonio**.

· Dr. M. Dr. M. Waugh, Department Cellular and Molecular Biology, **University College London**.

· Prof. A. Ianaro, Dipartimento di Farmacologia Sperimentale, **Università di Napoli Federico II**.

· Prof. P. D'Alessio, Inserm U935, **Université Paris-Sud 11**, Hôpital Paul Brousse, Paris.

· Dr. Antonio Cilla, Nutrition and Food Chemistry Area, Faculty of Pharmacy, **University of Valencia**, Spain,

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**.

2004

· "International Workshop on Heme-oxygenase and Oxidative Stress". October 3-4, 2004. **Catania, Italy**.

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**.

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

2017

· "International 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 b-thalassemia intermedia patients. (2001) *Free Radical Research* 34: 529-540.

3. Tesoriere L, **Allegra M**, D'Arpa D, Butera D, Livrea MA: Reaction of melatonin with hemoglobin-

derived oxoferyl radicals and inhibition of the hydroperoxide-induced hemoglobin denaturation in red blood cells. (2001) *Journal of Pineal Research* 31: 114-119.

4. **Allegra M**, Furtmüller PG, Regelsberger G, Turco-Liveri ML, Tesoriere L, Perretti M, Livrea MA, Obinger C: Mechanism of reaction of melatonin with human myeloperoxidase. (2001) *Biochemical and Biophysical Research Communications* 282: 380-386.
5. Olsen LF, Lunding A, Lauritsen FR, and **Allegra M**: Melatonin activates the peroxidase-oxidase reaction and promotes oscillations. (2001) *Biochemical and Biophysical Research Communications* 284: 1071-1076.
6. Tesoriere L, Avellone G, Ceraulo L, D'Arpa D, **Allegra M**, Livrea MA: Oxidation of melatonin by oxoferyl hemoglobin: a mechanistic study. (2001) *Free Radical Research* 35: 633-642.
7. Tesoriere L, D'Arpa D, Butera D, Pintaudi AM, **Allegra M**, Livrea MA: Exposure to malondialdehyde induces an early redox unbalance precede membrane toxicity in human erythrocytes. (2002) *Free Radical Research* 36: 89-97.
8. **Allegra M**, Gentile C, Tesoriere L, Livrea MA: Protective effect of melatonin against cytotoxic actions of malondialdehyde: an in vitro study on human erythrocytes. (2002) *Journal of Pineal Research* 32: 187-193.
9. Jantschko W, Furtmüller PG, **Allegra M**, Livrea MA, Jakopitsch C, Regelsberger G and Obinger C: Redox intermediates of plant and mammalian peroxidases: a comparative transient-kinetic study of their reactivity toward indole derivatives. (2002) *Archives of Biochemistry and Biophysics* 398: 12-22.
10. Reiter RJ, Tan D-X Tan and **Allegra M**: Melatonin: Reducing molecular pathology and dysfunction due to free radicals and associated reactants. (2002) *Neuroendocrinology Letters* 23 Suppl 1: 3-8.
11. Tan DX, Reiter RJ, Manchester LC, Yan MT, El-Sawi M, Sainz RM, Mayo JC, Kohen R, **Allegra M**, Hardeland R: Chemical and physical properties and potential mechanisms: melatonin as a broad spectrum antioxidant and free radical scavenger. (2002) *Current Topics in Medicinal Chemistry* 2:181-97.
12. Butera D, Tesoriere L, Di Gaudio F, Bongiorno A, **Allegra M**, Pintaudi AM, Kohen R, Livrea MA: Antioxidant activities of Sicilian Prickly pear (*Opuntia Ficus Indica*) fruit extracts and reducing properties of its betalains: betanin and indicaxanthin. (2002) *Journal of Agricultural and Food Chemistry* 50: 6895-901.
13. **Allegra M**, Reiter RJ, Tan D-X, Gentile C, Tesoriere L, and Livrea MA: The chemistry of melatonin's interaction with reactive species. (2003) *Journal of Pineal Research* 34: 1-10.
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**, Furthmüller 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 Biophys Res Commun* 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.
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) *B J 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) *B J 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 high reducing power and antioxidant capacity. (2016) *Helyion* 2: Article number e00193.
39. Gambino G, **Allegra M**, Sardo P, Attanzio A, Tesoriere L, Livrea MA, Ferraro G, Carletti F: Brain distribution and modulation of neuronal excitability by indicaxanthin from *Opuntia ficus indica* administered at nutritionally-relevant amounts. (2018) *Frontiers in Aging Neuroscience* 10: Article number 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, Busa' 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, 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) *Oxidative Medicine and Cellular Longevity* 2019: Article number 3457846.

45. **Allegra M**, Tutone M, Tesoriere L, Almerico AM, Culletta G, Livrea MA, Attanzio A: Indicaxanthin, a multi-target natural compound from *Opuntia ficus-indica* fruit: From its poly-pharmacological effects to biochemical mechanisms and molecular modelling studies. (2019) *European Journal of Medicinal Chemistry* 179:753-764.

46. Attanzio A, Diana P, Barraja P, Carbone A, Spanò V, Parrino B, Cascioferro SM, **Allegra M**, Cirrincione G, Tesoriere L, Montalbano A: Quality, functional and sensory evaluation of pasta fortified with extracts from *Opuntia ficus-indica* cladodes. (2019) *Journal of the Science of Food and Agriculture* 99:4242-4247.

47. Attanzio A, Frazzitta A, Cilla A, Livrea MA, Tesoriere L, **Allegra M**: 7-keto-cholesterol and cholestan-3beta, 5alpha, 6beta-Triol induce eryptosis through distinct pathways leading to NADPH oxidase and nitric oxide synthase activation. (2019) *Cellular Physiology and Biochemistry* 53:933-47.

48. Attanzio A, D'Anneo A, Pappalardo F, Bonina FP, Livrea MA, **Allegra M**, Tesoriere L: Phenolic composition of hydrophilic extract of manna from sicilian *Fraxinus angustifolia* vahl and its reducing, antioxidant and anti-inflammatory activity in vitro. (2019) *Antioxidants* 8: Article number 494.

49. **Allegra M**: Antioxidant and anti-inflammatory properties of plants extract. (2019) *Antioxidants* 8: Article number 549.

50. **Allegra M**, Restivo I, Fucarino A, Pitruzzella A, Vasto S, Livrea MA, Tesoriere L, Attanzio A: Proeryptotic activity of 4-hydroxynonenal: A new potential physiopathological role for lipid peroxidation products. (2020) *Biomolecules* 10: Article number 770.

51. **Allegra M**, D'Anneo A, Frazzitta A, Restivo I, Livrea MA, Attanzio A, Tesoriere L: The phytochemical indicaxanthin synergistically enhances cisplatin-induced apoptosis in hela cells via oxidative stress-dependent p53/p21/waf1 axis. (2020) *Biomolecules* 10: Article number 994.

52. De Cicco P, Busà R, Ercolano G, Formisano C, **Allegra M**, Tagliatela-Scafati O, Iannaro A: Inhibitory effects of cynaropicrin on human melanoma progression by targeting MAPK, NF- κ B, and Nrf-2 signaling pathways in vitro. (2020) *Phytotherapy Research in press*.

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Independent user	Independent user	Independent user