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**Education and Training:**

1988 - Degree in Biological Science 109/110, University of Naples “Federico II”.

1988-1991, 1995-1996 - Scholarship for Specialisation in Microbiology, Medical School, Second University of Naples.

1991-1995 - PhD student in Biochemical Sciences, University of Naples “Federico II”.

1993-1994 - Visiting scientist at the Molecular Biology laboratory of Prof. J. Hershey, Department of Biological Chemistry, School of Medicine, University of California, Davis, USA.

1996 - Specialisation in Microbiology cum laude, Medical School, Second University of Naples.

1996 - PhD in Biochemical Sciences, University of Naples “Federico II”.

1999-2019 - Researcher in Physiology, Department of Precision Medicine, University of Campania “Luigi Vanvitelli”, Naples, Italy.

2002 to date Biology Manager (I level), Policlinico Hospital of University of Campania “Luigi Vanvitelli”, Department of Integrated Activity of the Laboratory Services and Public Health, Laboratories of Clinical and Molecular Medicine, Unit of Clinical Biochemistry.

2019 to date Associate Professor in Physiology, Department of Precision Medicine, University of Campania “Luigi Vanvitelli” Naples, Italy.

**Scientific activity:**

The research activity is mainly aimed at identifying the factors and mechanisms involved in the physiological processes of aging and related diseases. In particular, attention is paid to the implication of amyloid aggregates in neurodegenerative and systemic diseases such as Alzheimer's, Parkinson's and type II diabetes. The fields of greatest interest are: (i) biophysical aspects and molecular mechanisms underlying the amyloid aggregation process; (ii) pathophysiological processes induced by the interaction of amyloid aggregates with the cell membrane and identification of the mechanisms that induce cellular dysfunction; (iii) identification

of molecules inhibiting the formation and toxicity of amyloid aggregates; (iv) role of extracellular matrix components, such as glycosaminoglycans, in the formation of amyloid fibrils and their effect on the cytotoxic properties of amyloid aggregates; (v) study of glycation as a pathophysiological factor in the amyloid aggregation process and identification of the mechanisms of cytotoxicity; (vi) identification of natural substances able to interfere with the formation of AGEs and their effect in maintaining cellular functions; (vii) pathophysiological effects induced by AGEs in Diabetes and related neurological complications; (viii) AGEs as biochemical and metabolomics biomarkers of dietary exposures and subclinical inflammation in early diseases.

**h-index:** 23 (Scopus); 25 (Google Scholar)

**Citations:** 1349 (Scopus); 1722 (Google Scholar)

**Author of more than 60 peer-reviewed scientific publications**

**Scientific publications:**

1. Iannuzzi C, Liccardo M, Sirangelo I. Overview of the Role of Vanillin in Neurodegenerative Diseases and Neuropathophysiological Conditions. *Int J Mol Sci.* 2023 24(3):1817. doi: 10.3390/ijms24031817.
2. Borriello M, Lauria F, Sirangelo I, Aleksandrova K, Hebestreit A, Siani A, Russo P. Association between Urinary Advanced Glycation End Products and Subclinical Inflammation in Children and Adolescents: Results from the Italian I.Family Cohort. *Nutrients.* 2022 14(19):4135. doi: 10.3390/nu14194135.
3. Sirangelo I, Liccardo M, Iannuzzi C. Hydroxytyrosol Prevents Doxorubicin-Induced Oxidative Stress and Apoptosis in Cardiomyocytes. *Antioxidants (Basel).* 2022 11(6):1087. doi: 10.3390/antiox11061087.
4. Sirangelo I, Iannuzzi C. Understanding the Role of Protein Glycation in the Amyloid Aggregation Process. *Int J Mol Sci.* 2021 22(12):6609. doi: 10.3390/ijms22126609.
5. Sirangelo I, Borriello M, Liccardo M, Scafuro M, Russo P, Iannuzzi C. Hydroxytyrosol Selectively Affects Non-Enzymatic Glycation in Human Insulin and Protects by AGEs Cytotoxicity. *Antioxidants (Basel).* 2021 10(7):1127. doi: 10.3390/antiox10071127.
6. Sirangelo I, Sapiro L, Ragone A, Naviglio S, Iannuzzi C, Barone D, Giordano A, Borriello M. Vanillin Prevents Doxorubicin-Induced Apoptosis and Oxidative Stress in Rat H9c2 Cardiomyocytes. *Nutrients.* 2020 12(8):2317. doi: 10.3390/nu12082317.
7. Sirangelo I, Borriello M, Vilasi S, Iannuzzi C. Hydroxytyrosol Inhibits Protein Oligomerization and Amyloid Aggregation in Human Insulin. *Int J Mol Sci.* 2020 21(13):4636. doi: 10.3390/ijms21134636.
8. Borriello M, Iannuzzi C, Sirangelo I. Pinocembrin Protects from AGE-Induced Cytotoxicity and Inhibits Non-Enzymatic Glycation in Human Insulin. *Cells.* 2019 8(5):385. doi: 10.3390/cells8050385.
9. Iannuzzi C, Borriello M, D'Agostino A, Cimini D, Schiraldi C, Sirangelo I. Protective effect of extractive and biotechnological chondroitin in insulin amyloid and age induced toxicity. *J Cell Physiol* 2019 234(4):3814-3828. doi: 10.1002/jcp.27153.
10. Sirangelo I, Borriello M, Irace G, Iannuzzi C. Intrinsic blue-green fluorescence in amyloid fibrils. *AIMS Biophysics* 2018 5(2):155-165. doi: 10.3934/biophy.2018.2.155.

11. Intemann T, Pigeot I, De Henuau S, Eiben G, Lissner L, Krogh V, Dereń K, Molnár D, Moreno LA, Russo P, Siani A, Sirangelo I, Tornaritis M, Veidebaum T, Pala V. I. Family consortium. Urinary sucrose and fructose to validate self-reported sugar intake in children and adolescents: results from the I.Family study. *Eur J Nutr* 2019 58(3):1247-1258. doi: 10.1007/s00394-018-1649-6.
12. Iannuzzi C, Borriello M, Portaccio M, Irace G, Sirangelo I. Insights into Insulin Fibril Assembly at Physiological and Acidic pH and Related Amyloid Intrinsic Fluorescence. *Int J Mol Sci* 2017 18(12) pii: E2551. doi: 10.3390/ijms18122551.
13. Iannuzzi C, Borriello M, Irace G, Cammarota M, Di Maro A, Sirangelo I. Vanillin Affects Amyloid Aggregation and Non-Enzymatic Glycation in Human Insulin. *Sci Rep* 2017 7(1):15086. doi: 10.1038/s41598-017-15503-5.
14. Sirangelo I, Iannuzzi C. The Role of Metal Binding in the Amyotrophic Lateral Sclerosis-Related Aggregation of Copper-Zinc Superoxide Dismutase. *Molecules* 2017 22(9) pii: E1429. doi: 10.3390/molecules22091429.
15. Sirangelo I, Vella FM, Irace G, Manco G, Iannuzzi C. Glycation in Demetalated Superoxide Dismutase 1 Prevents Amyloid Aggregation and Produces Cytotoxic Ages Adducts. *Front Mol Biosci* 2016 3:55. doi: 10.3389/fmolb.2016.00055.
16. Iannuzzi C, Borriello M, Carafa V, Altucci L, Vitiello M, Balestrieri ML, Ricci G, Irace G, Sirangelo I. D-ribose-glycation of insulin prevents amyloid aggregation and produces cytotoxic adducts. *Biochim Biophys Acta* 2016 1862(1):93-104. doi: 10.1016/j.bbadi.2015.10.021.
17. Iannuzzi C, Carafa V, Altucci L, Irace G, Borriello M, Vinciguerra R, Sirangelo I. Glycation of Wild-Type Apomyoglobin Induces Formation of Highly Cytotoxic Oligomeric Species. *J Cell Physiol* 2015 230(11):2807-20. doi:10.1002/jcp.25011.
18. Iannuzzi C, Irace G, Sirangelo I. The effect of glycosaminoglycans (GAGs) on amyloid aggregation and toxicity. *Molecules* 2015 20(2):2510-28. doi: 10.3390/molecules20022510.
19. Sirangelo I, Giovane A, Maritato R, D'Onofrio N, Iannuzzi C, Giordano A, Irace G, Balestrieri ML. Platelet-activating factor mediates the cytotoxicity induced by W7FW14F apomyoglobin amyloid aggregates in neuroblastoma cells. *J Cell Biochem* 2014 115(12):2116-22. doi: 10.1002/jcb.24888.
20. Iannuzzi C, Irace G, Sirangelo I. Differential effects of glycation on protein aggregation and amyloid formation. *Front Mol Biosci* 2014 1:9. doi:10.3389/fmolb.2014.00009.
21. Iannuzzi C, Maritato R, Irace G, Sirangelo I. Glycation accelerates fibrillization of the amyloidogenic W7FW14F apomyoglobin. *PLoS One* 2013 8(12): e80768. doi: 10.1371/journal.pone.0080768.
22. Iannuzzi C, Maritato R, Irace G, Sirangelo I. Misfolding and amyloid aggregation of apomyoglobin. *Int J Mol Sci* 2013 14(7):14287-300. doi: 10.3390/ijms140714287.
23. Servillo L, D'Onofrio N, Longobardi L, Sirangelo I, Giovane A, Cautela D, Castaldo D, Giordano A, Balestrieri ML. Stachydrine ameliorates high-glucose induced endothelial cell senescence and SIRT1 downregulation. *J Cell Biochem* 2013 114(11):2522-30. doi: 10.1002/jcb.24598.
24. Infusini G, Iannuzzi C, Vilasi S, Maritato R, Birolo L, Pagnozzi D, Pucci P, Irace G, Sirangelo I. W-F substitutions in apomyoglobin increase the local flexibility of the N-terminal region causing amyloid aggregation: a H/D exchange study. *Protein Pept Lett* 2013 20(8):898-904. doi: 10.2174/0929866511320080006.

25. Vilasi A, Vilasi S, Romano R, Acernese F, Barone F, Balestrieri ML, Maritato R, Irace G, Sirangelo I. Unraveling amyloid toxicity pathway in NIH3T3 cells by a combined proteomic and <sup>1</sup>H-NMR metabonomic approach. *J Cell Physiol* 2013;228(6):1359-67. doi: 10.1002/jcp.24294.
26. Sirangelo I, Irace G, Balestrieri ML. Amyloid toxicity and platelet-activating factor signaling. *J Cell Physiol* 2013;228(6):1143-8. doi: 10.1002/jcp.24284.
27. Marfella R, D'Onofrio N, Sirangelo I, Rizzo MR, Capoluongo MC, Servillo L, Paolisso G, Balestrieri ML. Polyphenols, Oxidative Stress, and Vascular Damage in Diabetes. Cap.15 p.p. 145-156. In: V. Preedy, ed. *Diabetes: Oxidative Stress and Dietary Antioxidants* 2013 Academic Press ISBN:9780124055223.
28. Infusini G, Iannuzzi C, Vilasi S, Birolo L, Pagnozzi D, Pucci P, Irace G, Sirangelo I. Resolution of the effects induced by W → F substitutions on the conformation and dynamics of the amyloid-forming apomyoglobin mutant W7FW14F. *Eur Biophys J* 2012;41(7):615-27. doi: 10.1007/s00249-012-0829-1.
29. Sorrentino A, Giosafatto CV, Sirangelo I, De Simone C, Di Pierro P, Porta R, Mariniello L. Higher susceptibility to amyloid fibril formation of the recombinant ovine prion protein modified by transglutaminase. *Biochim Biophys Acta* 2012;1822(10):1509-15. doi: 10.1016/j.bbadi.2012.06.003.
30. Irace G, Maritato R, Sirangelo I. The effect of heparin on amyloid aggregation and toxicity. *Curr Topic Pept Prot Res* 2012;13:11.
31. Ortore MG, Spinozzi F, Vilasi S, Sirangelo I, Irace G, Shukla A, Narayanan T, Sinibaldi R, Mariani P. Time-resolved small-angle x-ray scattering study of the early stage of amyloid formation of an apomyoglobin mutant. *Phys Rev E Stat Nonlin Soft Matter Phys* 2011;84(6):061904. doi: 10.1103/PhysRevE.84.061904.
32. Vilasi S, Sarcina R, Maritato R, De Simone A, Irace G, Sirangelo I. Heparin induces harmless fibril formation in amyloidogenic W7FW14F apomyoglobin and amyloid aggregation in wild-type protein in vitro. *PLoS One* 2011;6(7):e22076. doi: 10.1371/journal.pone.0022076.
33. Sirangelo I, Irace G. Inhibition of aggregate formation as therapeutic target in protein misfolding diseases: effect of tetracycline and trehalose. *Expert Opin Ther Targets* 2010;14(12):1311-21. doi: 10.1517/14728222.2010.531012.
34. Vilasi S, Sirangelo I, Irace G, Caputo I, Barone MV, Esposito C, Ragone R. Interaction of 'toxic' and 'immunogenic' A-gliadin peptides with a membrane-mimetic environment. *J Mol Recognit* 2010;23(3):322-8. doi: 10.1002/jmr.987.
35. Sirangelo I, Iannuzzi C, Vilasi S, Irace G, Giuberti G, Misso G, D'Alessandro A, Abbruzzese A, Caraglia M. W7FW14F apomyoglobin amyloid aggregates-mediated apoptosis is due to oxidative stress and AKT inactivation caused by Ras and Rac. *J Cell Physiol* 2009;221(2):412-23. doi: 10.1002/jcp.21871.
36. Vilasi S, Iannuzzi C, Portaccio M, Irace G, Sirangelo I. Effect of trehalose on W7FW14F apomyoglobin and insulin fibrillization: new insight into inhibition activity. *Biochemistry* 2008;47(6):1789-96. doi: 10.1021/bi701530w.
37. Vilasi S, Iannuzzi C, Irace G, Sirangelo I. Amyloid aggregation of W7FW14F apomyoglobin mutant. *Curr Topic Biochem Res* 2008;10(1):91-99.
38. Iannuzzi C, Vilasi S, Portaccio M, Irace G, Sirangelo I. Heme binding inhibits the fibrillization of amyloidogenic apomyoglobin and determines lack of aggregate cytotoxicity. *Protein Sci* 2007;16(3):507-16. doi: 10.1110/ps.062471107.

39. Vilasi S, Dosi R, Iannuzzi C, Malmo C, Parente A, Irace G, Sirangelo I. Kinetics of amyloid aggregation of mammal apomyoglobins and correlation with their amino acid sequences. *FEBS Lett* 2006 580(6):1681-4. doi: 10.1016/j.febslet.2006.02.018.
40. Malmo C, Vilasi S, Iannuzzi C, Tacchi S, Cametti C, Irace G, Sirangelo I. Tetracycline inhibits W7FW14F apomyoglobin fibril extension and keeps the amyloid protein in a pre-fibrillar, highly cytotoxic state. *FASEB J* 2006 20(2):346-7. doi: 10.1096/fj.05-4652fje.
41. Sirangelo I, Malmo C, Iannuzzi C, Mezzogiorno A, Bianco MR, Papa M, Irace G. Fibrillogenesis and cytotoxic activity of the amyloid-forming apomyoglobin mutant W7FW14F. *J Biol Chem* 2004 279(13):13183-9. doi: 10.1074/jbc.M308207200.
42. Sirangelo I, Iannuzzi C, Malmo C, Irace G. Tryptophanyl substitutions in apomyoglobin affect conformation and dynamic properties of AGH subdomain. *Biopolymers* 2003 70(4):649-54. doi: 10.1002/bip.10503.
43. Sirangelo I, Dal Piaz F, Malmo C, Casillo M, Birolo L, Pucci P, Marino G, Irace G. Hexafluoroisopropanol and acid destabilized forms of apomyoglobin exhibit structural differences. *Biochemistry* 2003 42(2):312-9. doi: 10.1021/bi020447f.
44. Sirangelo I, Malmo C, Casillo M, Irace G. Resolution of tryptophan-ANS fluorescence energy transfer in apomyoglobin by site-directed mutagenesis. *Photochem Photobiol* 2002 76(4):381-4. doi: 10.1562/0031-8655.
45. Sirangelo I, Malmo C, Casillo M, Mezzogiorno A, Papa M, Irace G. Tryptophanyl substitutions in apomyoglobin determine protein aggregation and amyloid-like fibril formation at physiological pH. *J Biol Chem* 2002 277(48):45887-91. doi: 10.1074/jbc.M207659200.
46. Sirangelo I, Casillo M, Malmo C, Irace G. Role of tryptophanyl residues in driving myoglobin folding. *Boll Soc Ital Biol Sper* 2001 77(1-3):1-6.
47. Sirangelo I, Tavassi S, Martelli PL, Casadio R, Irace G. The effect of tryptophanyl substitution on folding and structure of myoglobin. *Eur J Biochem* 2000 267(13):3937-45. doi: 10.1046/j.1432-1327.2000.01401.x.
48. Sirangelo I, Tavassi S, Irace G. Tryptophanyl contributions to apomyoglobin fluorescence resolved by site-directed mutagenesis. *Biochim Biophys Acta* 2000 1476(2):173-80. doi: 10.1016/S0167-4838(99)00257-5.
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50. Sirangelo I, Bismuto E, Tavassi S, Irace G. Apomyoglobin folding intermediates characterized by the hydrophobic fluorescent probe 8-anilino-1-naphthalene sulfonate. *Biochim Biophys Acta* 1998 1385(1):69-77. doi: 10.1016/S0167-4838(98)00038-7.
51. Sirangelo I, Bismuto E, Tavassi S, Irace G. Near-ultraviolet circular dichroic activity of apomyoglobin: resolution of the individual tryptophanyl contributions by site-directed mutagenesis. *Eur Biophys J* 1998 27(1):27-31.
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53. Bismuto E, Irace G, Sirangelo I, Gratton E. Pressure-induced perturbation of ANS-apomyoglobin complex: frequency domain fluorescence studies on native and acidic compact states. *Protein Sci* 1996 5(1):121-6. doi: 10.1002/pro.5560050115.
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55. Sirangelo I, Irace G, Bismuto E. Resolution of the individual tryptophanyl contributions to the near-ultraviolet dichroic activity of apomyoglobin. *Photochem Photobiol* 1994 59(6):611-4. doi: 10.1111/j.1751-1097.1994.tb09664.x.
56. Sirangelo I, Bismuto E, Irace G. Solvent and thermal denaturation of the acidic compact state of apomyoglobin. *FEBS Lett* 1994 338(1):11-5. doi: 10.1016/0014-5793(94)80107-X.
57. Bismuto E, Gratton E, Sirangelo I, Irace G. Structure and dynamics of the acidic compact state of apomyoglobin by frequency-domain fluorometry. *Eur J Biochem* 1993 218(1):213-9. doi: 10.1111/j.1432-1033.1993.tb18367.x.
58. Bismuto E, Sirangelo I, Irace G. Folding and dynamics of melittin in reversed micelles. *Biochim Biophys Acta* 1993 1146(2):213-8. doi: 10.1016/0005-2736(93)90358-7.
59. Bismuto E, Sirangelo I, Irace G. Salt-induced refolding of myoglobin at acidic pH: molecular properties of a partly folded intermediate. *Arch Biochem Biophys* 1992 298(2):624-9. doi: 10.1016/0003-9861(92)90458-9.
60. Bismuto E, Sirangelo I, Irace G. Fluorescence lifetime distribution of 1,8-anilinonaphthalenesulfonate (ANS) in reversed micelles detected by frequency domain fluorometry. *Biophys Chem* 1992 44(2):83-90. doi: 10.1016/0301-4622(92)85040-B.
61. Bismuto E, Sirangelo I, Irace G. Conformational dynamics of unfolded peptides as a function of chain length: a frequency domain fluorescence approach. *Arch Biochem Biophys* 1991 291(1):38-42. doi: 10.1016/0003-9861(91)90102-O.
62. Bismuto E, Sirangelo I, Adinolfi A, Galdiero F, Tufano MA, Sommese L, Irace G. Molecular organization and dynamics of the outer membrane of *Salmonella typhimurium* mutant strains detected by frequency domain fluorometry. *Arch Biochem Biophys* 1991 286(2):518-23. doi: 10.1016/0003-9861(91)90074-S.
63. Bismuto E, Sirangelo I, Adinolfi G, Irace G. Dynamic fluorescence of extrinsic fluorophores as a tool for studying protein conformational substates. *Biol Metals* 1990 2(1): 131-132.
64. Bismuto E, Sirangelo I, Irace G. Conformational substates of myoglobin detected by extrinsic dynamic fluorescence studies. *Biochemistry* 1989 28(19):7542-5.

**Teaching Activities University of Campania “Luigi Vanvitelli”:**

-Cdl Medicine and Surgery

2003-2017 Biophysics and Physiology

2017 to date Medical Physiology

-Cdl Medicine and Surgery - Avellino

2008-2010 Biophysics and Physiology

**-CdL Biomedical Laboratory Techniques**

2002-2011 Biophysics and Physiology

2009-2011 Human Physiology

2012 to date Human Physiology and Biophysics

**-CdL Biomedical Laboratory Techniques “A. Caserta - Maddaloni”**

2012 to date Human Physiology and Biophysics

**-CdL Medical Radiology Techniques for Pictures and Radiotherapy**

2016 to date Physiology

**-CdL Nursing Sciences - Pediatric Nursing - Obstetrics**

2016 to date Human Physiology

**-CdL Technician for Environmental Prevention and Workplaces**

2005-2006 Physiology

**-CdL Orthoptist and Assistant of Ophthalmology**

1999-2002 Medical Biophysics