

Curriculum vitae et studiorum- Clara Iannuzzi



CLARA IANNUZZI

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FORMAZIONE ACCADEMICA ED ESPERIENZE PROFESSIONALI

Dal 2018 a oggi: Professore Associato in Biochimica (S.S.D. BIO/10) presso il Dipartimento di Medicina di Precisione dell’Università degli Studi della Campania “L. Vanvitelli”, Napoli (Italia).

Dal 2014-2017: Ricercatore a tempo determinato legge 240/10, art. 24, comma b (RTDb) presso il Dipartimento di Medicina di Precisione dell’Università degli Studi della Campania “L. Vanvitelli”. L’inquadramento come RTDb era finalizzato alla realizzazione di un Programma di Ricerca di alta qualificazione selezionato dal MIUR mediante il Programma per Giovani Ricercatori "Rita Levi Montalcini".

Dal 2007-2013: Career Development Fellowship presso il “National Institute for Medical Research, Molecular Structure Division”, Londra (UK).

Dal 2002- 2006: Dottorato di Ricerca in Biochimica Cellulare (XVIII ciclo) presso l’Università degli Studi della Campania “L. Vanvitelli” (già Seconda Università degli Studi di Napoli).

2002: Diploma di Laurea in Chimica (indirizzo Chimica biologica), conseguito presso la Facoltà di Scienze Matematiche, Fisiche e Naturali, Università degli Studi di Napoli “Federico II”.

FINANZIAMENTI BASATI SU PEER-REVIEW

- 2020: Finanziamento progetto nell'ambito del Programma VALERE finanziato dall' l'Università degli Studi della Campania "L. Vanvitelli". Ruolo: Coordinatore di unità.
- 2012: Programma per Giovani Ricercatori "Rita Levi Montalcini" bando 2012 (MIUR). Ruolo: Unico responsabile scientifico.
- 2010: Programma per Giovani Ricercatori "Rita Levi Montalcini" bando 2010 (MIUR). Ruolo: Unico responsabile scientifico.

INTERESSI SCIENTIFICI

L'attività di ricerca della Prof.ssa Iannuzzi è documentata da numerose pubblicazioni scientifiche su riviste peer-reviewed, 2 capitoli di libri internazionali e molteplici comunicazioni a congressi internazionali. Questi i suoi principali interessi scientifici affrontati con un approccio biochimico e biofisico:

- Caratterizzazione strutturale di proteine mediante l'utilizzo di tecniche biofisiche. Relazione tra struttura e funzione in proteine mediante la caratterizzazione delle interazioni funzionali utilizzando tecniche ad alta risoluzione.
- Protein folding, misfolding e aggregazione amiloide in proteine. Caratterizzazione dei meccanismi molecolari alla base le processo di aggregazione amiloide e meccanismi di tossicità alla base delle patologie neurodegenerative.
- Ruolo delle modifiche post-traduzionali nella citotossicità delle proteine nelle malattie neurodegenerative e legate all'invecchiamento. In particolare, il ruolo della glicazione proteica, una modifica post-tradizionale non-enzimatica che contribuisce alla formazione degli aggregati amiloidi e tossicità nelle malattie neurodegenerative.

PUBBLICAZIONI SCIENTIFICHE (ULTIMI 10 ANNI)

1. Iannuzzi, C., Liccardo, M., Sirangelo, I. Overview of the Role of Vanillin in Neurodegenerative Diseases and Neuropathophysiological Conditions. *Int J Mol Sci.* 2023 Jan 17;24(3):1817. doi: 10.3390/ijms24031817.
2. Sirangelo, I., Liccardo, M., Iannuzzi, C. Hydroxytyrosol prevents doxorubicin-induced oxidative stress and apoptosis in cardiomyocytes. *Antioxidants (Basel)* 2022, 11:1087. doi:10.3390/antiox11061087.
3. Palinski, W., Monti, M., Camerlingo, R., Iacobucci, I., Bocella, S., Pinto, F., Iannuzzi, C., Mansueto, G., Pignatiello, S., Fazioli, F., Gallo, M., Marra, L., Cozzolino, F., De Chiara, A., Pucci, P., Bilancio, A., de Nigris, F. Lysosome purinergic receptor P2X4 regulates neoangiogenesis induced by microvesicles from sarcoma patients. *Cell Death Dis* 2021, 12, 797. doi:10.1038/s41419-021-04069-w.
4. 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.

5. Sirangelo, I.; Iannuzzi, C. Understanding the Role of Protein Glycation in the Amyloid Aggregation Process. *Int. J. Mol. Sci.* 2021, 22, 6609. doi:10.3390/ijms22126609
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. *International Journal of Molecular Sciences* 2020, 21, 4636. doi:10.3390/ijms21134636.
8. Delfi M, Leone S, Emendato A, Ami D, Borriello M, Natalello A, Iannuzzi C, Picone D. Understanding the self-assembly pathways of a single chain variant of monellin: A first step towards the design of sweet nanomaterials. *Int J Biol Macromol.* 2020, 152: 21-29. doi: 10.1016/j.ijbiomac.2020.02.229.
9. Esposito R, Delfino I, Portaccio M, Iannuzzi C, Lepore M. An insight into pH-induced changes in FAD conformational structure by means of time-resolved fluorescence and circular dichroism. *European Biophysics Journal* 2019, 48(4): 395-403. doi: 10.1007/s00249-019-01369-0.
10. Borriello M, Iannuzzi C, Sirangelo I. Pinocembrin Protects from AGE-Induced Cytotoxicity and Inhibits Non-Enzymatic Glycation in Human Insulin. *Cells* 2019 Apr 26;8(5). pii: E385. doi: 10.3390/cells8050385.
11. Varone A, Mariggò S, Patheja M, Maione V, Varriale A, Vessichelli M, Spano D, Formiggini F, Lo Monte M, Brancati N, Frucci M, Del Vecchio P, D'Auria S, Flagiello A, Iannuzzi C, Luini A, Pucci P, Banci L, Valente C, Corda D. A signalling cascade involving receptor-activated phospholipase A(2), glycerophosphoinositol 4-phosphate, Shp1 and Src in the activation of cell motility. *Cell Communication and Signaling* 2019 Mar 1;17(1):20. doi:10.1186/s12964-019-0329-3.
12. Iannuzzi C, Borriello M, D'Agostino A, Cimini D, Schiraldi C, Sirangelo I. Protective effect of extractive and biotechnological chondroitin in insulin amyloid and advanced glycation end product-induced toxicity. *Journal of Cellular Physiology* 2019, 234(4): 3814-3828. doi:10.1002/jcp.27153.
13. 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.
14. Adinolfi S, Puglisi R, Crack JC, Iannuzzi C, Dal Piaz F, Konarev PV, Svergun DI, Martin S, Le Brun NE, Pastore A. The Molecular Bases of the Dual Regulation of Bacterial Iron Sulfur Cluster Biogenesis by CyaY and IscX. *Frontiers in Molecular Biosciences* 2018, 4:97. doi: 10.3389/fmolb.2017.00097.
15. 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. *International Journal of Molecular Sciences* 2017, 18(12): 2551. doi:10.3390/ijms18122551.
16. Iannuzzi C, Borriello M, Irace G, Cammarota M, Di Maro A, Sirangelo I. Vanillin affects amyloid aggregation and non-enzymatic glycation in human insulin. *Scientific Reports* 2017, 7(1):15086. doi: 10.1038/s41598-017-15503-5.
17. 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.
18. Iannuzzi A, Pereira J, Iannuzzi C, Fu B, Ferguson-Smith M. Pooling strategy and chromosome painting characterize a living zebroid for the first time. *PLoS One* 2017 Jul 12;12(7):e0180158. doi: 10.1371/journal.pone.0180158.

19. Sirangelo I, Vella FM, Irace G, Manco G, Iannuzzi C. Glycation in Demetalated Superoxide Dismutase 1 Prevents Amyloid Aggregation and Produces Cytotoxic Ages Adducts. *Frontiers in Molecular Biosciences* 2016, doi: 10.3389/fmolb.2016.00055.
20. 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. *Biochimica et Biophysica Acta-Molecular Basis of Disease* 2016, 1862(1):93-104. doi: 10.1016/j.bbadi.2015.10.021.
21. 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. *Journal of Cell Physiology* 2015, 230(11):2807-20. doi: 10.1002/jcp.25011.
22. Adrover M, Howes BD, Iannuzzi C, Smulevich G, Pastore A. Anatomy of an iron-sulfur cluster scaffold protein: Understanding the determinants of [2Fe-2S] cluster stability on IscU. *Biochimica et Biophysica Acta - Molecular Cell Research* 2015, 1853(6): 1448-1456. doi:10.1016/j.bbamcr.2014.10.023.
23. Iannuzzi C, Irace G, Sirangelo I. The Effect of Glycosaminoglycans (GAGs) on Amyloid Aggregation and Toxicity. *Molecules* 2015, 20: 2510-2528, ISSN: 1420-3049, doi: 10.3390/molecules20022510.
24. Ferriero R, Iannuzzi C, Manco G, Brunetti-Pierri N. Differential inhibition of PDKs by phenylbutyrate and enhancement of pyruvate dehydrogenase complex activity by combination with dichloroacetate. *Journal of Inherited Metabolic Disease* 2015, doi: 10.1007/s10545-014-9808-2.
25. Iannuzzi C, Irace G, Sirangelo I. Differential effects of glycation on protein aggregation and amyloid formation. *Frontiers in Molecular Biosciences* 2014, doi: 10.3389/fmolb.2014.00009.
26. Cigliano L, Strazzullo M, Rossetti C, Grazioli G, Auriemma G, Sarubbi F, Iannuzzi C., Iannuzzi L, Spagnuolo MS. Characterization of blood redox status of early and mid-late lactating dairy cows. *Czech Journal Of Animal Science* 2014, 59:170-181.
27. Iannuzzi A, Perucatti A, Genualdo V, Pauciullo A, Incarnato D, Musilova P, Rubes J, Iannuzzi C. The utility of chromosome microdissection in clinical cytogenetics: a new reciprocal translocation in sheep. *Cytogenetic And Genome Research* 2014, doi: 10.1159/000361000.
28. Iannuzzi C, Adrover M, Puglisi R, Yan R, Temussi PA, Pastore A. The role of zinc in the stability of the marginally stable IscU scaffold protein. *Protein Science* 2014, doi: 10.1002/pro.2501
29. Iannuzzi C, Maritato R, Irace G, Sirangelo I. Glycation Accelerates Fibrillization of the Amyloidogenic W7FW14F Apomyoglobin. *Plos One* 2013, doi: 10.1371/journal.pone.0080768.
30. 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. *Journal of Cellular Biochemistry* 2014, 115(12):2116-22, doi: 10.1002/jcb.24888.
31. Yan R, Adinolfi S, Iannuzzi C, Kelly G, Oregoni A, Martin S, Pastore A. Cluster and fold stability of *E. coli* ISC-type ferredoxin. *Plos One* 2013, 8(11):e78948. ISSN: 1932-6203, doi: 10.1371/journal.pone.0078948.
32. Yan R, Konarev PV, Iannuzzi C, Adinolfi S, Roche B, Kelly G, Simon L, Martin SR, Py B, Barras F, Svergun DI, Pastore A. Ferredoxin competes with bacterial frataxin in binding to the desulfurase IscS. *Journal of Biological Chemistry* 2013, 288:24777-24787. ISSN: 1083-351X, doi: 10.1074/jbc.M113.480327.

33. Iannuzzi C, Maritato R, Irace G, Sirangelo I. Misfolding and amyloid aggregation of apomyoglobin. International Journal of Molecular Sciences 2013, 14:14287-14300. ISSN: 1422-0067, doi: 10.3390/ijms140714287.
34. 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 and Peptide Letters 2013, 20(8):898-904. ISSN: 0929-8665, doi: 10.2174/0929866511320080006.

COMUNICAZIONI A CONVEGNI INTERNAZIONALI

- Liccardo M., Misso G., Caraglia M., Sirangelo I., Iannuzzi C., FalcoM. "AGEs Affect Cancer-Related Process in Different Cellular Models" Bioprosys joint meeting 18-19 May 2023, Naples (Italy).
- Liccardo M., Borriello M., Sirangelo I. Iannuzzi C. "Hydroxytyrosol affects non-enzymatic glycation and protects by ages cytotoxicity" 61° SIB Congress, virtual conference 23th -24th Sep 2021.
- Conferenza Internazionale "5th World Congress on Biotechnology" tenutasi a Valencia (Spagna) dal 25 al 27 giugno 2014. Comunicazione orale dal titolo: Differential inhibition of PDKs by phenylbutyrate and identification of putative binding sites.
- Conferenza Internazionale "Biophysics of amyloids and prions" tenutasi a Napoli dal 25 al 26 maggio 2014. Comunicazione orale dal titolo: Insights into the molecular mechanism of glycation-stimulated protein aggregation.
- Iannuzzi C., Maritato R., Irace G., Sirangelo I. "Effect of glycation on amyloid aggregation and cytotoxicity" 5th World Congress on Biotechnology, 25th-27th June 2014 Valencia (Spagna).
- Conferenza Internazionale "6th International Conference on Fe-S cluster protein Biogenesis and regulation" tenutasi a Cambridge (UK) dal 22 al 25 agosto 2011. Comunicazione orale dal titolo: The role of CyaY in Fe-S cluster assembly on the E. coli IscU scaffold protein.
- Iannuzzi C., Adinolfi S., Howes B.D., Garcia-Serres R., Clémancey M., Latour J.M., Smulevich G., Pastore A. "A Mössbauer and resonance Raman study of the role of CyaY in iron sulfur cluster assembly on the E. coli IscU scaffold protein" Friedreich's Ataxia Scientific Conference, 5th-7th May 2011, Strasbourg (FR), comunicazione orale.
- Prischi F., Iannuzzi C., Pastore C., Adinolfi S., Martin.S., Pastore A. "A low resolution structure of an IscS/IscU/CyaY complex unveils the mechanism of iron-sulfur cluster assembly and the role of frataxin" Fe-S cluster discussion and frataxin twin meetings, 6th-8th May 2010, London (UK).
- Iannuzzi C., Prischi F., Adinolfi S., Martin S.R., Pastore A. "Bacterial frataxin CyaY is the gatekeeper of iron-sulfur cluster formation" FEBS Workshop on Understanding transient molecular interactions in biology, May 18th-21st 2010 Seville (Spain).
- Adrover M., Iannuzzi C., Martorell G., Pastore A., Martin S.R., Temussi P. "Protein stability and cold denaturation: the case study of Yfh1" Workshop Thermodynamically unstable proteins: chance or necessity? December 14th -16th 2009, Trieste (Italy).
- Iannuzzi C., Adinolfi S., Martin S.R., Prischi F., Pastore A. "Bacterial frataxin CyaY is the gatekeeper of iron-sulfur cluster formation catalyzed by IscS" Aug 30th- Sep 2nd 2009, Fifth International conference on Iron-sulfur cluster biogenesis and regulation University of Georgia, Athens, U.S.

- C. Iannuzzi, G. Irace, S. Vilasi, C. Malmo, I. Sirangelo “Heme binding inhibits amyloid fibrillation of W7FW14F apomyoglobin and determines lack of aggregate cytotoxicity” The 20th Symposium of the Protein Society, August 5th -9th 2006, San Diego-California.
- S. Vilasi, R. Dosi, C. Iannuzzi, C. Malmo, A. Parente, G. Irace and I. Sirangelo “kinetics of amyloid aggregation of mammal apomyoglobins and correlation with their amino acid sequences” EMBO-FEBS Workshop on Amyloid Formation, March 25th-28th 2006, Firenze (Italy).
- C. Iannuzzi, C. Malmo, S. Vilasi, G. Irace and I. Sirangelo “Effect of anti-aggregating agents on the fibrillation process of the amyloid-forming apomyoglobin mutant W7FW14F” 30th FEBS-Congress-9th IUBMB Congress, July 2nd-7th 2005, Budapest (Hungary).
- Sirangelo I., Iannuzzi C., Malmo C., Mezzogiorno A., Bianco M.R., Papa M., Irace G. (2004). “Amyloid-forming apomyoglobin mutant W7FW14F: fibrillogenesis and cytotoxic activity”. FEBS Congress, June 26th -July 1st 2004, Warsaw (Poland).
- C. Iannuzzi, C. Malmo, S. Vilasi, A. Mezzogiorno, M. Papa, G. Irace & I. Sirangelo (2004). “W7FW14F mutations induce apomyoglobin misfolding and amyloid-like fibril formation”. Summer school “Understanding Protein Stability”, May 8th-13th 2004, Stockholm (Sverige).

Napoli, 20 Luglio 2023

In Fede

A handwritten signature in black ink, appearing to read "Claudio Sirangelo". The signature is fluid and cursive, with "Claudio" on the left and "Sirangelo" on the right, connected by a horizontal line.