Giuliana Costanzo

Date of birth: 25 May 1993
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EDUCATION AND PROFESSIONAL EXPERIENCES

- **Master in Regulatory Affairs**: Department of Biomedical and Biotechnological Sciences, University of Catania (**February 2024/June 2025).** Final Mark 110/110 cum laude. Dissertation:The effect of Blended Pricing in indication extensions: assessing the impact of transitions from rare to rare, rare to non-rare, and non-rare to rare on negotiations timelines and discount structures- implications and policy proposal. Supervisor: Prof. F. Drago.

- **Research fellow**: Department of Drug and Health Science, University of Catania (**April 2024/April 2025**). Research project: Molecular modeling studies, synthesis, and chemical characterization of an activator of HDAC1-mediated deacetylation with neuroprotective activity in early AD stages. Supervisor: Prof. L. Pasquinucci.

- **Ph.D. in Pharmaceutical Biotechnology:** Department of Drug and Health Science, University of Catania (**October 2020/January 2024**). Research project: Design, synthesis, and biological evaluation of new ligands as potential therapeutic agents for persistent pain treatment. Supervisor: Prof. L. Pasquinucci.

- **Visiting Ph.D. Student:** Institut für Pharmazeutische und Medizinische Chemie (Münster-Germany) (**March-September 2023**) Research activity: Design and synthesis of novel morphane derivatives. Supervisor: Prof. Dr. Bernhard Wünsch**.**

- **Qualification to practice as Pharmacist :** University of Catania (**December 2019**). Final Mark: 413/450.

- **Master degree in Pharmacy :** Department of Drug and Health Science, University of Catania (**July 2019**). Final Mark 110/110 cum laude. Dissertation: Binding assays on new bifunctional derivatives with sigma1 receptor antagonist/HDACi profile. Supervisors: Prof. A. Marrazzo and Prof. O. Prezzavento.

- **High School Diploma** : Classical Maturity (**July 2012**). Final Mark : 100/100.

PUBBLICATIONS

1. Reale C., **Costanzo G.,** Cosentino G., Parenti C., Pasquinucci L. PET imaging of the opioid system using radioligands: Synthetic approaches and translational applications. Eur J Med Chem. 2025 Jun 11;296:117865. doi: 10.1016/j.ejmech.2025.117865.
2. Cosentino G.,Dichiara M., **Costanzo G.**, Coco A., Pasquinucci L., Marrazzo A., Rescifina A., Amata E. Design and Synthesis of Tetrahydropyrrolo[3,4-c]pyrazole Sigma-1 Receptor Ligands. CheMedChem 2025. https://doi.org/10.1002/cmdc.202401015.
3. **Costanzo G.,** Coco A., Cosentino G., Patamia V., Parenti C., Amata E., Marrazzo A., Rescifina A., Pasquinucci L. Design, Synthesis, and Evaluation of Novel (-)-cis-N-Normetazocine Derivatives: In Vitro and Molecular Modeling Insights. Chem Biol Drug Des. 2024 Dec;104(6):e70037. doi: 10.1111/cbdd.70037.
4. **Costanzo G.,** Cosentino G., Grasso M., Patamia V., Zuccalà S., Coco A., Novello E., Al-Khrasani M., Morrone R., Pitari G.M., Amata E., Marrazzo A., Rescifina A., Pasquinucci L., Parenti C. Novel sigma 1-antagonists with cis-(+)-normetazocine scaffold: synthesis, molecular modeling, and antinociceptive effect. RSC Med Chem. 2024 Nov 29. doi: 10.1039/d4md00397g.
5. Cosentino G., Dichiara M., Ambrosio F.A., Leotta C.G., Costa G., Procopio F., **Costanzo G.**, Raffa A., Artacho-Cordón A., Ruiz-Cantero M.C., Pasquinucci L., Marrazzo A., Pitari G.M., Cobos E.J., Alcaro S., Amata E. Development of selective sigma-1 receptor ligands with antiallodynic activity: A focus on piperidine and piperazine scaffolds. Eur J Med Chem. 2024 Nov 10;281:117037. doi: 10.1016/j.ejmech.2024.117037.
6. **Costanzo G**., Cosentino G., Pasquinucci L., Amata E., Schepmann D., Wünsch B. Two-Step Synthesis of Enantiomerically Pure Morphans from (R)-Carvone. ChemMedChem. 2024 Sep 5:e202400596. doi: 10.1002/cmdc.202400596.
7. Turnaturi, R., Piana, S., Spoto, S., **Costanzo, G**., Reina, L., Pasquinucci, L., Parenti, C. From Plant to Chemistry: Sources of Antinociceptive Non-Opioid Active Principles for Medicinal Chemistry and Drug Design. *Molecules* 2024, *29*, 815. https://doi.org/10.3390/molecules29040815.
8. Dichiara M., Cosentino G., Giordano G., Pasquinucci L., Marrazzo A., **Costanzo G.**, Amata E. Designing drugs optimized for both blood-brain barrier permeation and intra-cerebral partition. Expert Opin Drug Discov. 2023 Dec 25:1-13. doi: 10.1080/17460441.2023.2294118.
9. Denaro S., Pasquinucci L., Turnaturi R., Alberghina C., Longhitano L., Giallongo S., **Costanzo G.**, Spoto S., Grasso M., Zappalà A., Li Volti G., Tibullo D., Vicario N., Parenti R., Parenti C. Sigma-1 Receptor Inhibition Reduces Mechanical Allodynia and Modulate Neuroinflammation in Chronic Neuropathic Pain. Mol Neurobiol. 2024 May;61(5):2672-2685. doi: 10.1007/s12035-023-03717-w.
10. Turnaturi, R., Piana, S., Spoto, S., **Costanzo, G.,** Reina, L., Pasquinucci, L., Parenti, C. From Plant to Chemistry: Sources of Active Opioid Antinociceptive Principles for Medicinal Chemistry and Drug Design. Molecules 2023, 28, 7089. https://doi.org/10.3390/molecules28207089.
11. Dichiara M., Ambrosio F.A., Lee S.M., Ruiz-Cantero M.C., Lombino J., Coricello A., Costa G., Shah D., **Costanzo G.**, Pasquinucci L., Son K.N., Cosentino G., González-Cano R., Marrazzo A., Aakalu V.K., Cobos E.J., Alcaro S., Amata E. Discovery of AD258 as a Sigma Receptor Ligand with Potent Antiallodynic Activity. J Med Chem. 2023 Aug 24;66(16):11447-11463. doi: 10.1021/acs.jmedchem.3c00959.
12. **Costanzo G.,** Turnaturi R., Parenti C., Spoto S., Piana S., Dichiara M., Zagni C., Galambos A.R., Essmat N., Marrazzo A., Amata E., Al-Khrasani M., Pasquinucci L. New Insights into the Opioid Analgesic Profile of cis-(—)-N-Normetazocine-derived Ligands. Molecules 2023 Jun 17, 28, 4827. https://doi.org/10.3390/molecules28124827.

13. **Costanzo G.,** Patamia V., Turnaturi R., Parenti C., Zagni C., Lombino J., Amata E., Marrazzo A., Pasquinucci L., Rescifina A. Design, synthesis, in vitro evaluation, and molecular modeling studies of N-substituted benzomorphans, analogs of LP2, as novel MOR ligands. Chem Biol Drug Des.2023 Feb 22. doi: 10.1111/cbdd.14220.
14. Turnaturi R., Chiechio S., Pasquinucci L., Spoto S., **Costanzo G.**, Dichiara M., Piana S., Grasso M., Amata E., Marrazzo A., Parenti C. Novel N-normetazocine Derivatives with Opioid Agonist/Sigma-1 Receptor Antagonist Profile as Potential Analgesics in Inflammatory Pain. Molecules. 2022 Aug 12;27(16):5135. doi: 10.3390/molecules27165135.

● CONFERENCE PARTECIPATIONS

1. **Costanzo G.,** Cosentino G., Patamia V., Grasso M., Marrazzo A., Amata E., Parenti C., Rescifina A., Pasquinucci L. Synthesis and biological evaluation of novel S1R ligands. 5th European Symposium/ 1st Meeting of the European Network for Sigma-1 Receptor as a Therapeutic Opportunity (SIGMA-1EUROPE - CA23156), Granada, 25-27 June 2025. (Poster Presentation)
2. **Costanzo G.,** Patamia V., Cosentino G., Parenti C., Marrazzo A., Amata E., Rescifina A., Pasquinucci L. Design, synthesis, and biological evaluation of new ligands as potential therapeutic agents for persistent pain treatment. Congresso Congiunto delle Sezioni Sicilia e Calabria 2024, Messina, 2-3 December 2024. (Oral communication)
3. **Costanzo G.**, Cosentino G., Patamia V., Marrazzo A., Parenti C., Amata E., Rescifina A., Pasquinucci L. Design, synthesis, and biological evaluation of new ligands as potential therapeutic agents for persistent pain treatment. Merck Young Chemists' Symposium 2024, Rimini, 13-15 November, 2024. (Oral communication)
4. **Costanzo G.,** Cosentino G., Patamia V., Grasso M., Marrazzo A., Amata E., Parenti C., Rescifina A. and Pasquinucci L. Synthesis and biological evaluation of novel σ1R ligands. AMYCBIOMED 2024, Rome, 23-25 September, 2024. (Oral Communication)
5. **Costanzo G.**, Coco A., Scarlatti A., Siano G., Cosentino G., Di Primio C., Amata E., Marrazzo A., Rescifina A. and Pasquinucci L. Investigation of Tau-Dependent Epigenetic Reprogramming in Alzheimer's Disease. SCI 2024 – XXVIII National Congress, Milano, 26-30 August, 2024. (Poster Presentation)
6. **Costanzo G**., Rita Turnaturi, Nunzio Vicario, Carmela Parenti, Agostino Marrazzo, Emanuele Amata and Lorella Pasquinucci. Novel *N*-normetazocine Derivatives with Opioid Agonist/Sigma-1 Receptor Antagonist Profile as Potential Analgesics for Pain Treatment. SCISiCa 2023, Palermo, 11-12 December 2023. (Oral Communication)
7. **Costanzo G**., Cosentino G., Patamia V., Turnaturi R., Parenti C., Rescifina A., Marrazzo A., Amata E,. Pasquinucci L. Novel N-Normetazocine derivatives with sigma-1 receptor antagonist profile a potential analgesic for inflammatory pain management. NMMC 2023, Chieti, 17-20 September 2023. (Poster Presentation)
8. **Costanzo G**., Patamia V., Amata E., Rescifina A.,and Pasquinucci L., Synthesis, in vitro evaluation, and molecular modeling studies of LP2 analogues. Convegno congiunto sezioni Calabria e Sicilia Società Chimica Italiana, Reggio Calabria, 01-02 December, 2022. (Poster Presentation)
9. **Costanzo G.**, Al-Khrasani M., Turnaturi R., Amata E., Marrazzo A., Parenti C., Pasquinucci L. Design, synthesis, and biological evaluation of new hybrid MOR agonist/HDACi compounds: an innovative approach for persistent pain management. NMMC 2022, Bari, 11-14 September, 2022. (Flash Oral communication)

10. **Costanzo G.**, Turnaturi R., Marrazzo A., Parenti C., Pasquinucci L. Nuovi ligandi a struttura benzomorfanica potenzialmente utili per il trattamento del dolore cronico. Convegno Regionale della Sezione SCI Sicilia 2021, 02 December, 2021. (Oral Communication)
11. **Costanzo G**, Turnaturi R, Marrazzo A, Parenti C. and Pasquinucci L. Hybrid MOR agonist/HDACi molecules as potential new drugs for persistent pain management: design, synthesis and biological evaluation. Pharma Day 2022, 01 June, 2022. (Poster Presentation)
12. **Costanzo G,** Turnaturi R, Marrazzo A, Pasquinucci L. Hybrid MOR agonist/HDACi molecules as potential new drugs for persistent pain management: design, synthesis and biological evaluation. AMYC BIOMED-virtual conference, 3-5 November, 2021. (Poster Presentation)
13. **Costanzo G**, Turnaturi R, Marrazzo A, Pasquinucci L. Hybrid MOR agonist/HDACi compounds as potential therapeutic agents for persistent pain management: design, synthesis and biological evaluation. XXVII Congresso Nazionale della Società Chimica Italiana, 14-23 September, 2021. (Poster Presentation)
14. **Costanzo G,** Turnaturi R, Barbaraci C, Marrazzo A, Pasquinucci L. Design, synthesis and biological evaluation of hybrid MOR agonist/ HDACi molecules as potential therapeutic agents for chronic pain treatment. Paul Ehrlich (PE) Euro-PhD Network virtual meeting - #PEVM2021, 26-28 July, 2021 (Poster Presentation)
15. **Costanzo G,** Turnaturi R, Marrazzo A, Pasquinucci L. Hybrid MOR agonist/HDACi compounds as potential therapeutic agents for persistent pain management: design, synthesis and biological evaluation. European School of Medicinal Chemistry, June 28-July 1, 2021. (Poster Presentation)

FELLOWSHIPS

1. Fellowship assigned by the Scientific Committee to attend the AMYCBIOMED 2024, Rome, 23-25 September, 2024.
2. Fellowship assigned by the Scientific Committee to attend the SCI 2024 – XXVIII National Congress, Milano, 26-30 August 2024.
3. Fellowship assigned by the Scientific Committee to attend the SCISiCa 2023, Palermo, 11-12 December 2023.

AWARDS

1. "Best Thesis" for the year 2025 for Master in Regulatory Affairs assigned by the Committee. Title of thesis: The effect of Blended Pricing in indication extensions: assessing the impact of transitions from rare to rare, rare to non-rare, and non-rare to rare on negotiations timelines and discount structures-implications and policy proposal.
2. "Best PhD Thesis" for the year 2024 assigned by the Scientific Committee of the SCI Sicilia section. Title of thesis: Design, synthesis, and biological evaluation of new ligands as potential therapeutic agents for persistent pain treatment.
3. "Best poster" assigned by the Scientific Committee during the Convegno congiunto sezioni Calabria e Sicilia Società Chimica Italiana, Reggio Calabria, 01-02 December, 2022.

SUMMER SCHOOLS AND COURSES

1. Health and safety in the workplace, November 28, 2024 (Catania).
2. 5th MS Pharma School, May 30-31, 2022 (Pozzuoli).

3. Radiation protection and safety of radiation sources -SPPR, July 20, 2021 (Catania).
4. European School of Medicinal Chemistry, June 28-July 1, 2021. (Online)

SKILLS AS SUPERVISOR

1. "Cultore della Materia" (Subject Expert and Teaching Assistant) in Chemical Toxicological Analysis I and Laboratory of Extractive and Synthetic Preparation of Drugs AA 2023-2024. (Decision n. 21a/2024/v2).
2. "Cultore della Materia" (Subject Expert and Teaching Assistant) in Pharmaceutical and Nutraceutical-Food Analysis 2 and Toxicological Chemistry AA 2023-2024. (Decision n. 181b/2023/v13).
3. Experience in training students for the Course of Laboratory of drug analysis III, UNICT, AA 2021-22, 2022-2023.

REFERENCES

1. Prof.ssa Lorella Pasquinucci, University of Catania (lpasquin@unict.it).
2. Prof. Dr. Bernhard Wünsch, University of Münster (wuensch@uni-muenster.de).

DICHIARAZIONE SOSTITUTIVA DI CERTIFICAZIONE (art. 46 e 47 D.P.R. 445/2000) La sottoscritta Giuliana Costanzo, ai sensi e per gli effetti degli articoli 46 e 47 e consapevole delle sanzioni penali previste dall'articolo 76 del D.P.R. 28 dicembre 2000, n. 445nelle ipotesi di falsità in atti e dichiarazioni mendaci, dichiara che le informazioni riportate nel presente curriculum vitae, redatto in formato europeo, corrispondono a verità.

Catania, 12/07/2025

Giuliana Costanzo