PERSONAL INFORMATION

Anna Laura Capriotti

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Sex F | Date of birth 05/05/1983 | Nationality Italian

Current Position: Associate Professor (CHIM03/A1), Department of Chemistry, Sapienza University of Rome

PhD awarded less than 10 Years ago: Yes

Scientific Profile: The research interest of Anna Laura Capriotti is focused on developing innovative analytical methods in the field of metabolomics, lipidomics, proteomics, and peptidomics based on liquid chromatography coupled to high-resolution mass spectrometry for determining substances present in complex biological matrices. In this regard, the ongoing collaboration with Prof. Giulio Caracciolo and Prof. Daniela Pozzi (Department of Molecular Medicine, Sapienza University of Rome) demonstrated how proteomics can be used for diagnosis of disease, including cancer, using the protein corona approach in personalized medicine and how the detailed protein corona composition can be exploited for a special targeting approach, called active targeting. Apart from this collaboration, prof. Capriotti also had experience in the development of analytical methods for small molecules in disease, including prostate cancer, in collaboration with Prof. Alessandro Sciarra (Department of Translational and Precision Medicine, Sapienza University of Rome) and Prof. Ana Lleo de Nalda (Humanitas University), with the final aim of screening compound classes and identified putative biomarkers for diagnosis and prognosis.

GOLDEN PARAGRAPH

Bibliometric Indicators:
Publications: 163; # Citations: 5027; H index: 38; H Index (5 y): 19

3 most relevant publications or patents:

1) Amante, E., Cerrato, A., Alladio, E., **Capriotti, A.L.***, Cavaliere, C., Marini, F., Montone, C.M., Piovesana, S., Laganà, A., Vincenti, M. Comprehensive biomarker profiles and chemometric filtering of urinary metabolomics for effective discrimination of prostate carcinoma from benign hyperplasia (2022) Scientific Reports, 12 (1), art. no. 4361, DOI: 10.1038/s41598-022-08435-2
2) Cerrato, A., Bedia, C., **Capriotti, A.L.***, Cavaliere, C., Gentile, V., Maggi, M., Montone, C.M., Piovesana, S., Sciarra, A., Tauler, R., Laganà, A. Untargeted metabolomics of prostate cancer zwitterionic and positively charged compounds in urine (2021) Analytica Chimica Acta, 1158, art. no. 338381, DOI: 10.1016/j.aca.2021.338381
3) Piovesana, S., **Capriotti, A.L.***, Cerrato, A., Crescenzi, C., La Barbera, G., Laganà, A., Montone, C.M., Cavaliere, C. Graphitized Carbon Black Enrichment and UHPLC- MS/MS Allow to Meet the Challenge of Small Chain Peptidomics in Urine (2019) Analytical Chemistry, 91 (17), pp. 11474-11481. DOI: 10.1021/acs.analchem.9b03034

ROLE IN THE PROJECT

Expert in omics sciences by liquid chromatography coupled to high resolution mass spectrometry in the field of biomarker discovery. As of proteomics, I am an expert in protein corona characterization for precision medicine, whereas, in the field of metabolomics, lipidomics, and peptidomics, I have worked in several research project for biomarker discovery.

WORK EXPERIENCE

2018-current
Associate Professor, Sapienza University of Rome, Piazzale Aldo Moro 5, 00185, Rome, Italy
Main duties/responsibilities:

- Teaching activity to bachelor's degree in chemistry (Analytical chemistry course) and master's degree in analytical chemistry (Environmental chemistry course)
- Supervision of doctoral thesis in chemical science (3), bachelor's and master's degree thesis in chemistry and analytical chemistry
- Responsibility for postdoctoral fellowships (3)
- Member of the board of the analytical chemistry division of the Italian Chemical Society
- Contact person for the Department of Chemistry of Sapienza University of Rome of the Human Technopole for the PN Proteomics
- Member of the research and "third mission" commission of the Department of Chemistry of Sapienza University of Rome
- Member of the teaching monitoring commission of the Department of Chemistry of Sapienza University of Rome
- Member of the teaching personnel of the Ph.D. course in chemical science of the Department of Chemistry of Sapienza University of Rome
- Member of the scientific committee of the research centre for the applied sciences for the environmental protection and cultural heritage

Sector: University and Research

2015-2018
Assistant Professor (RTD-B), Sapienza University of Rome, Piazzale Aldo Moro 5, 00185, Rome, Italy
Main duties/responsibilities:

- Teaching activity to bachelor's degree in chemistry (Analytical chemistry course) and master's degree in analytical chemistry (Environmental chemistry course)
- Supervision of doctoral thesis in chemical science (2), bachelor's and master's degree thesis in chemistry and analytical chemistry
- Responsibility for postdoctoral fellowships (1)
- Member of the board of the Interdivisional group of separation science of the Italian Chemical Society
- Member of the teaching personnel of the Ph.D. course in chemical science of the Department of Chemistry of Sapienza University of Rome
- Member of the scientific committee of the research centre for the applied sciences for the environmental protection and cultural heritage

Sector: University and Research

2011-2015
Assistant Professor (RTD-A, Sapienza University of Rome, Piazzale Aldo Moro 5, 00185, Rome, Italy
Main duties/responsibilities:

- Teaching activity to bachelor's degree in chemistry (Analytical chemistry course) and master's degree in analytical chemistry (Environmental chemistry course)

- Supervision of doctoral thesis in chemical science (1), bachelor's and master's degree thesis in chemistry and analytical chemistry

Sector: University and Research

EDUCATION AND TRAINING

2009-2012

PhD in analytical chemistry of the real systems (XXV)

Sapienza University of Rome, ITALY

Shortgun proteomic approach for characterizing "protein coronas" (Supervisor: Prof. Aldo Laganà)

2007-2009

Master's Degree in analytical chemistry and applied methodologies

Sapienza University of Rome, ITALY

Proteomics analysis for the evaluation of the altered protein expression in mouse brain tissue in microgravitational environment (Supervisor: Prof. Aldo Laganà)

PERSONAL SKILLS

Organisational / managerial skills

- leadership (currently responsible for a team of 2 postdoctoral fellows, 1 PhD student, and 4 master's degree thesis)
- organization and delegation (currently member of the board of the Analytical Chemistry Division of the Italian Chemical Society)
- communication and motivation (participation in several conferences with scientific presentation)
- forward planning and strategic thinking (participation in several multidisciplinary research projects)

ADDITIONAL INFORMATION

Most relevant publications in the last 10 Years

1) Giulimondi, F., Vulpis, E., Digiacomo, L., Giuli, M.V., Mancusi, A., **Capriotti, A.L.**, Laganà, A., Cerrato, A., Zenezini Chiozzi, R., Nicoletti, C., Amenitsch, H., Cardarelli, F., Masuelli, L., Bei, R., Screpanti, I., Pozzi, D., Zingoni, A., Checquolo, S., Caracciolo, G. Opsonin-Deficient Nucleoproteic Corona Endows UnPEGylated Liposomes with Stealth Properties In Vivo (2022) ACS Nano, 16 (2), pp. 2088-2100. DOI: 10.1021/acsnano.1c07687

2) Cerrato, A., Aita, S.E., **Capriotti, A.L.***, Cavaliere, C., Montone, C.M., Piovesana, S., Laganà, A. Fully Automatized Detection of Phosphocholine-Containing Lipids through an Isotopically Labeled Buffer Modification Workflow (2021) Analytical Chemistry, 93 (45), pp. 15042-15048. DOI: 10.1021/acs.analchem.1c02944

3) Cerrato, A., Aita, S.E., **Capriotti, A.L.***, Cavaliere, C., Montone, C.M., Laganà, A., Piovesana, S. A new opening for the tricky untargeted investigation of natural and modified short peptides (2020) Talanta, 219, art. no. 121262, DOI: 10.1016/j.talanta.2020.121262

4) **Capriotti, A.L.**, Cerrato, A., Laganà, A., Montone, C.M., Piovesana, S., Zenezini Chiozzi, R., Cavaliere, C. Development of a Sample-Preparation Workflow for Sulfopeptide Enrichment: From Target Analysis to Challenges in Shotgun Sulfoproteomics (2020) Analytical Chemistry, 92 (11), pp. 7964-7971. DOI: 10.1021/acs.analchem.0c01342

5) La Barbera, G., **Capriotti, A.L.***, Caracciolo, G., Cavaliere, C., Cerrato, A., Montone, C.M., Piovesana, S., Pozzi, D., Quagliarini, E., Laganà, A. A comprehensive analysis of liposomal biomolecular corona upon human plasma incubation: The evolution towards the lipid corona (2020) Talanta, 209, art. no. 120487, DOI: 10.1016/j.talanta.2019.120487

6) Giulimondi, F., Digiacomo, L., Pozzi, D., Palchetti, S., Vulpis, E., **Capriotti, A.L.**, Chiozzi, R.Z., Laganà, A., Amenitsch, H., Masuelli, L., Mahmoudi, M., Screpanti, I., Zingoni, A., Caracciolo, G. Interplay of protein corona and immune cells controls blood residency of liposomes (2019) Nature Communications, 10 (1), art. no. 3686, DOI: 10.1038/s41467-019-11642-7

7) Papi, M., Palmieri, V., Digiacomo, L., Giulimondi, F., Palchetti, S., Ciasca, G., Perini, G., Caputo, D., Cartillone, M.C., Cascone, C., Coppola, R., **Capriotti, A.L.**, Laganà, A., Pozzi, D., Caracciolo, G. Converting the personalized biomolecular corona of graphene oxide nanoflakes into a high-throughput diagnostic test for early cancer detection (2019) Nanoscale, 11 (32), pp. 15339-15346. DOI: 10.1039/c9nr01413f

8) La Barbera, G., **Capriotti, A.L.**, Cavaliere, C., Ferraris, F., Montone, C.M., Piovesana, S., Zenezini Chiozzi, R., Laganà, A. Saliva as a source of new phosphopeptide biomarkers: Development of a comprehensive analytical method based on shotgun peptidomics (2018) Talanta, 183, pp. 245-249. DOI: 10.1016/j.talanta.2018.02.085

Projects/Grants

Most important research projects:

2021-2023
Progetto LazioInnova “Inibizione della GTPasi umana Rac1 come strategia per lo sviluppo di nuovi farmaci contro malaria e leishmaniosi
28.126,12 EUROS

2018-2022
2017Y2PAB8
PRIN2017 Project “Cutting Edge Analytical Chemistry Methodologies and Bio-Tools to Boost Precision Medicine in Hormone-Related Diseases”
136.877 EUROS

2018-2022
Progetto di Ricerca scientifica 2018 “Development of innovative and high performant analytical methods based on metabolomics and lipidomics for identification of new biomarkers in gut microbiota”
31.000 EUROS

2017-2020
BRIC ID23
INAIL project: “Confronto fra tecniche di microbiologia classica etecniche alternative chimiche, di biologia molecolare, di metagenomica e metaproteomica, per lo studio del bioaerosol negli ambienti di lavoro”
540.000 EUROS (100.000 EUROS Capriotti’s unity budget)

2016-2020
20160169
Progetto AGER – seconda edizione (2016) “Valorization of Italian OLive products through INnovative analytical tools – VIOLIN”.
1.000.008 EUROS (120.000 EUROS Capriotti’s unity budget)

2016-2019
2015TWP83Z
PRIN2015 Project “Multifunctional nanotools for advanced cancer diagnostics”
312.119 EUROS (46.284 EUROS Capriotti’s unity budget)

2016-2029
MA216154C86719AC
Finanziamento per l’acquisizione di una Medie Attrezzature Scientifiche: ““Valuable products from agro-food industry waste: isolation of bioactive peptides on laboratory preparative scale by means bidimensional chromatography techniques”
65.000 EUROS

Patents

1) Capriotti, A.L., Cavaliere, C., Cerrato, A., Micalizzi, G., Mondello, L., Montone, C.M., Piovesana, S., Laganà, A., Metodo per l'estrazione di policosanoli da canapa industriale e relativa miscela." No. 102021000020228. Depositato il 29.07.2021
2) Laganà A., Capriotti A. L., Montone C. M., Cannazza G., Linciano P., Citti C., Russo F., Luongo L., Iannotta M., Belardo C., Maione S., Vandelli M. A., Forni F., Gigli G. Isolamento di nuovi fitocannabinoidi dalla Cannabis sativa L. (9 luglio 2020) depositato negli USA: n. Provisional US63/050,240_10.07.2020. Brevetto per invenzione

Conferences

Plenary Lectures:

1) "Analytical challenges and issues in separation, enrichment and identification of bioactive peptides with a particular emphasis on short peptide analysis", invited following the EuCheMS lecture award, EuroAnalysis, Istanbul, 1-5/09/2019
2) "Separation and Enrichment of Peptides and Amino Acids: A Piece in the Puzzle of the Bioactivity of Protein Derivatives", 2nd International Symposium on Bioactive peptides, Valencia 22-24/05/2019

Invited oral communications (8) at the XXVII Naitional Congress of the Italian Chemical Society, ACS Fall meeting 2021, 48th Interational Symposium on High-Performance Liquid Phase Separations and Related Techniques, Giornate di chimica analitica in memoria del prof. Francesco Dondi, XXVI Congress of the Italian Chemical Society, XXVI National congress of the Analytical Chemistry Division of the Italian Chemical Society, VII Convegno Giovani, XXV National congress of the Analytical Chemistry Division of the Italian Chemical Society

Oral communications (6) at XXV National congress of the Italian Chemical Society, Incontri di Scienza delle Separazioni 2013, XXIV National Congress of the Analytical Chemistry Division of the Italian Chemical Society, XXIII National Congress of the Analytical Chemistry Division of the Italian Chemical Society, XXII National Congress of the Analytical Chemistry Division of the Italian Chemical Society, IV Convegno Giovani

Honours and awards

2018: EuCheMS Lecture Award 2017 by European Chemical Society
2017: Young research award by the Interdivisional Group of Separation Science of the Italian Chemical Society
2015: Young research award by the Analytical Chemistry Division of the Italian Chemical Society
2013: PhD Thesis Award 2013 by "Sapienza Università Editrice"
2010: Best Master's Degree Thesis 2010 by the Italian Chemical Society

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Location, Date Rome, 30/04/2022
Signature