


Andrea Zandrini
Center for Colloid and Surface Science – CSGI
50019 – Sesto Fiorentino (FI)
Department of Molecular and Traslational Medicine – DMMT
Università degli Studi di Brescia
25123 – Brescia (BS)



Andrea Zandrini (AZ), Ph.D.

Biotechnologist, AZ is a Recognized Researcher (R2) at Center for Colloid and Surface Science, Firenze. He is currently employed in the laboratory of Prof. Paolo Bergese at Università degli Studi di Brescia.

During his MSc, AZ focused on the study of the interaction between synthetic gold nanoparticles and soft, bio-nanoparticles known as extracellular vesicles (EVs). During his Ph.D., AZ extensively analyzed these bio-colloids from a physicochemical, “nanotechnological” point of view, exploiting many of the techniques normally used in colloid chemistry and surface science. To date, AZ's scientific interests are still focused on the study of EVs and other biomaterials employing nanotechnology, and on their application in bio-nanomedicine. He is also interested in the use of nanotechnology and biosensors in different fields, e.g. for imaging purposes and food safety.

AZ is currently involved in the development of new drug delivery strategies using hybrid nanodevices. His work is carried out in the frame of the european project “BOW: Biogenic Organotropic Wetsuits” funded from the H2020 FET Proactive program (N° 952183). He is the main author or co-author of several papers on international peer-reviewed journals and two book chapters.

Academic qualifications

- Ph.D. in Technology for Health (*May 2018*)
Università degli Studi di Brescia, Faculty of Engineering, Department of Information Engineering. Thesis: “Exploring and exploiting Extracellular Vesicles by Nanotechnology”.
Advisors: Prof. Paolo Bergese, Prof. Marco Rusnati
- M.Sc. in Medical Biotechnology (110/110 and honors, *Oct 2014*)
Università degli Studi di Brescia, Faculty of Medicine. Thesis: “A study of a colorimetric nanoplasmonic assay to determine purity and titrate Extracellular Vesicle preparations”.
Advisor: Prof. Paolo Bergese
- B.Sc. in Biotechnology (110/110, *Oct 2012*)
Università degli Studi di Brescia, Faculty of Medicine. Thesis: “Purificazione di popolazioni esosomiali sieriche di pazienti affetti da discrasie plasmacellulari”.
Advisor: Dr. Doris Ricotta

Research employment history

- Recognized Researcher (R2) (*Sep 2021 -*)
Center for Colloid and Surface Science – CSGI, Firenze. “BOW: Biogenic Organotropic Wetsuits”.
Development of new drug delivery strategies using hybrid nanodevices.
Advisor: Prof. Paolo Bergese

- Research fellow (*Sep 2020 – Aug 2021*)
Department of Molecular and Translational Medicine – DMMT, Università degli Studi di Brescia.
Engineering and functionalization of extracellular vesicles for the targeted treatment of Triple-Negative Breast Cancer (TNBC).
Advisor: Dr. Annalisa Radeghieri
- Research fellow (*Mar 2019 – Aug 2020*)
Department of Animal Science, Food and Nutrition –DLANA, Università Cattolica del Sacro Cuore di Piacenza - Innovative one-day molecular methods to evaluate the compliance of European Regulation microbiological criteria in Food.
Advisor: Prof. Paolo Ajmone Marsan
- Scholarship holder (*Feb 2018 - Feb 2019*)
IZS della Lombardia e dell'Emilia Romagna “Bruno Ubertini” – Application of nanomechanical and plasmonic biosensors to enhance the detection of toxins produced by *Bacillus Cereus*.
Advisor: Dr. Barbara Bertasi
- Visiting scientist (*Feb 2017 - Jul 2017*)
Royal College of Surgeons in Ireland (RCSI) of Dublin, Department of Pharmaceutical and Medicinal Chemistry.
Functionalization of extracellular vesicles with Near-Infrared (NIR) fluorophores with clinical and research potential.
Advisors: Dr. Marco Monopoli, Prof. Donal F. O’Shea.

Teaching and tutoring

- Lecturer in Chemistry (*2021 -*)
Università degli Studi di Brescia. Appointed by the board of the M.Sc. in Pharmacy.
- Lecturer in Nanochemistry (*2020 -*)
Università degli Studi di Brescia. Appointed by the board of the M.Sc. in Medical Biotechnology.
- Co-tutor (*2021 – 2022*)
Università degli Studi di Brescia, B.Sc in Biotechnology. Thesis: “A preliminary study on the interaction of gold nanoparticles and lipoproteins”. B.Sc student: Marianna Bertoni.
- Co-tutor (*2019 -*)
Università degli Studi di Brescia, Ph.D. in Precision Medicine. Thesis: “EV-based nanotherapeutics”. Ph.D. student: Rossella Zenatelli.
- Co-tutor (*2019-2020*)
Università degli Studi di Brescia, M.Sc. in Medical Biotechnology. Thesis: “Field flow fractionation methods in extracellular vesicle research”. M.Sc. student: Paola Benedetti.
- Co-tutor (*2018-2019*)
Università degli Studi di Brescia, M.Sc. in Science and Technology for Population Health and Wealth. Thesis: “A first study of bovine plasma extracellular vesicles: towards advanced monitoring of inflammation in periparturient dairy cows”. M.Sc. student: Tatiana Pilipenko.
- Co-tutor (*2015-2016*)
Università degli Studi di Brescia, M.Sc. in Medical Biotechnology. Thesis: “Colloidal properties of nanosized extracellular vesicles from different MM and MGUS phenotypes: a preliminary study with nanoplasmonic techniques and atomic force microscopy”. M.Sc. student: Elisa Polini.



- Co-tutor (2015-2016)
Università degli Studi di Brescia, B.Sc. in Biotechnology. Thesis: “Preparazione e caratterizzazione di nanosistemi ibridi: quantum dots/vescicole extracellulari”. B.Sc. student: Serena Ducoli.

Awards

- ISEV2020 Meeting (20 - 22 Jul 2020)
Winner of the “Outstanding oral presentation” prize with the seminar “*The CONAN assay: purity grade and concentration of EV microliter formulations by colloidal nanoplasmonics*”. Selected among more than 150 oral contributions.
- EVita Society (May 2020)
Winner of the society scholarship for the participation at ISEV2020 Meeting.
- Covers of international peer-reviewed journals:
 - Analytical Chemistry, Volume 87, Issue 8 (<http://pubs.acs.org/toc/ancham/87/8>).
 - Biochemistry, Volume 56, Issue 48 (<https://pubs.acs.org/toc/bichaw/56/48>).
 - Biomaterials Science Sci., Volume 8. (<https://dx.doi.org/10.1039/c9bm01007f>).

Other professional activities

Editorial activities

- Serving as reviewer for the international journals:
 - Biosensors
 - Current Pharmaceutical Design
 - Frontiers in Immunology
 - International Journal of Molecular Science
 - Journal of Clinical Medicine
 - PLoS ONE

Others

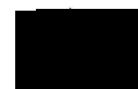
- Member of the ISEV (International Society of Extracellular Vesicles)
- Member of the EVIta (Società Italiana per le Vescicole Extracellulari)

Publications

AZ is author and co-author of 18 peer-reviewed publications (h-index 13, total citations 513. Source: Google Scholar accessed in 2022 – 08 –08), covering a prominent role (first/joint first/corresponding author) in 6 of them. AZ is also author of two book chapters.

Indexed publications (SCOPUS, WOS, PubMed)

- 1 **A Zendrini**, G Guerra, K Sagini, T Vagner, D Di Vizio, P Bergese. “*On the surface-to-bulk partition of proteins in extracellular vesicles*”. *Colloids Surf B Biointerfaces*. 2022 Jul Article in press. doi: [10.1016/j.colsurfb.2022.112728](https://doi.org/10.1016/j.colsurfb.2022.112728)
- 2 A Radeghieri, S Alacqua, **A Zendrini**, V Previcini, F Todaro, G Martini, P Bergese. “*Active antithrombin glycoforms are selectively physisorbed on plasma extracellular vesicles*” *J Ex Bio*. 2022 Jul Article in press. doi: [10.1101/2021.07.16.452649](https://doi.org/10.1101/2021.07.16.452649)



- 3 S Ducoli, S Federici, R Nicsanu, **A Zendrini**, C Marchesi, L Paolini, A Radeghieri, P Bergese, LE Depero. “A different protein corona cloaks “true-to-life” nanoplastics with respect to synthetic polystyrene beads”. *Environ. Sci: Nano*. 2022 Feb 9;1414. doi: [10.1039/d1en01016f](https://doi.org/10.1039/d1en01016f)
- 4 **A Zendrini**, V Carta, V Filipello, L Ragni, E Cosciani-Cunico, S Arnaboldi, B Bertasi, N Franceschi, P Ajmone-Marsan, D De Medici, MN Losio. “One-day molecular detection of salmonella and campylobacter in chicken meat: A pilot study”. *Foods*. 2021 May 19;10(5):1132. doi: [10.3390/foods10051132](https://doi.org/10.3390/foods10051132)
- 5 C Montis, L Caselli, F Valle, **A Zendrini**, F Carlà, R Schweins, M Maccarini, P Bergese, D Berti. “Shedding light on membrane-templated clustering of gold nanoparticles”. *J Colloid Interface Sci*. 2020 Aug 1;573:204-214. Epub 2020 Apr 1. doi: [10.1016/j.jcis.2020.03.123](https://doi.org/10.1016/j.jcis.2020.03.123)
- 6 C Gissi, A Radeghieri, C Antonetti Lamorgese Passeri, M Gallorini, L Calciano, F Veronesi, **A Zendrini**, A Cataldi, P Bergese, N Maffulli, AC Berardi. “Extracellular vesicles from rat-bone-marrow mesenchymal stromal/stem cells improve tendon repair in rat Achilles tendon injury model in dose-dependent manner: a pilot study” *PLoS One*. 2020 Mar 12;15(3):e0229914. doi: 10.1371/journal.pone.0229914.
- 7 **A Zendrini**, L Paolini, S Busatto, A Radeghieri, M Romano, MH Wauben, MJC Van Herwijnen, P Nejsum, A Borup, A Ridolfi, C Montis, P Bergese. “Augmented COLORimetric NANoplasmonic (CONAN) method for grading purity and determine concentration of EV microliter volume solutions”. *Front Bioeng Biotechnol*. 2019 7: 452. Published online 2020 Feb 12. doi: [10.3389/fbioe.2019.00452](https://doi.org/10.3389/fbioe.2019.00452)
- 8 S Busatto, **A Zendrini**, A Radeghieri, L Paolini, M Romano, M Presta, P Bergese. “The Nanostructured Secretome”. *Biomater. Sci*. 2019 Dec 4. doi: [10.1039/C9BM01007F](https://doi.org/10.1039/C9BM01007F)
- 9 MP Monopoli, **A Zendrini***, D Wu, S Cheung, G Sampetro, B Ffrench, J Nolan, O Piskareva, RL Stalings, S Ducoli, P Bergese, DF O’Shea. “Endogenous exosome labelling with an amphiphilic NIR-fluorescent probe”. *Chem Commun (Camb)*. 2018 Jun 26;54(52):7219-7222. doi: [10.1039/c8cc02135j](https://doi.org/10.1039/c8cc02135j)
- 10 L Paolini, **A Zendrini**, A Radeghieri “Biophysical properties of extracellular vesicles in diagnostics”. *Biomark Med*. 2018 Apr;12(4):383-391. doi: [10.2217/bmm-2017-0458](https://doi.org/10.2217/bmm-2017-0458)
- 11 C Montis, S Busatto, F Valle, **A Zendrini**, A Salvatore, Y Gerelli, D Berti, P Bergese. “Biogenic Supported Lipid Bilayers from Nanosized Extracellular Vesicles”. *Adv. Biosys*. 2018,2, 1700200. doi: [10.1002/adbi.201700200](https://doi.org/10.1002/adbi.201700200)
- 12 S Federici, A Ridolfi, **A Zendrini**, A Radeghieri, E Bontempi, LE Depero, P Bergese. “Interaction of Extracellular Vesicles with Si Surface Studied by Nanomechanical Microcantilever Sensors”. *Appl. Sci*. 2018, 8, 3 404 doi: [10.3390/app8030404](https://doi.org/10.3390/app8030404)
- 13 C Montis, **A Zendrini***, F Valle, S Busatto, L Paolini, A Radeghieri, A Salvatore, D Berti, P Bergese. “Size distribution of extracellular vesicles by optical correlation techniques”. *Colloids Surf B Biointerfaces*. 2017 Oct 1;158:331-338. doi: [10.1016/j.colsurfb.2017.06.047](https://doi.org/10.1016/j.colsurfb.2017.06.047)
- 14 A Radeghieri, G Savio, A Zendrini, G Di Noto, A Salvi, P Bergese, G Piovani. “Cultured human amniocytes express bTERT, which is distributed between nucleus and cytoplasm and is secreted in extracellular vesicles”. *Biochem Biophys Res Commun* 2017 Jan 29;483(1):706-711. doi: [10.1016/j.bbrc.2016.12.077](https://doi.org/10.1016/j.bbrc.2016.12.077)
- 15 L Paolini, **A Zendrini***, G Di Noto, S Busatto, E Lottini, A Radeghieri, A Dossi, A Caneschi, D Ricotta, P Bergese. “Residual matrix from different separation techniques impacts exosome biological activity”. *Sci Rep*. 2016 Mar 24;6:23550. doi: [10.1038/srep23550](https://doi.org/10.1038/srep23550)



- 16 G Di Noto, A Bugatti, **A Zendrini**, EL Mazzoldi, A Montanelli, L Caimi, M Rusnati, D Ricotta, P Bergese. “*Merging colloidal nanoplasmonics and surface plasmon resonance spectroscopy for enhanced profiling of multiple myeloma-derived exosomes*”. *Biosens Bioelectron.* 2016 Mar 15;77:518-24. doi: [10.1016/j.bios.2015.09.061](https://doi.org/10.1016/j.bios.2015.09.061)
- 17 D Maiolo, L Paolini, G Di Noto, **A Zendrini**, D Berti, P Bergese, D Ricotta. “*Colorimetric nanoplasmonic assay to determine purity and titrate extracellular vesicles*”. *Anal Chem.* 2015 Apr 21;87(8):4168-76. doi: [10.1021/ac504861d](https://doi.org/10.1021/ac504861d)
- 18 G Di Noto, L Paolini, **A Zendrini**, A Radeghieri, L Caimi, D Ricotta. “*C-src enriched serum microvesicles are generated in malignant plasma cell dyscrasia*”. *PLoS One.* 2013 Aug 5;8(8):e70811. doi: [10.1371/journal.pone.0070811](https://doi.org/10.1371/journal.pone.0070811)

* joint-first author.

Non-indexed publications and pre-prints

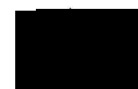
- 1 A Ridolfi, L Conti, M Brucale, R Frigerio, J Cardellini, A Musicò, M Romano, **A Zendrini**, L Polito, G Bergamaschi, A Gori, C Montis, L Barile, D Berti, A Radeghieri, P Bergese, M Cretich, F Valle. “*Compositional profiling of extracellular vesicles/lipoproteins mixtures by AFM nanomechanical imaging*”. *BioRxiv.* doi: [10.1101/2022.07.19.500441](https://doi.org/10.1101/2022.07.19.500441)

Book chapters

- 1 M Romano, **A Zendrini**, L Paolini, S Busatto, AC Berardi, P Bergese, A Radeghieri. “*Extracellular Vesicles in regenerative medicine*”. *Nanomaterials for Theranostics and Tissue Engineering*, edited by A Rainer and F Rossi. ISBN: 978-0-12-817838-6. Published: January 2020. Elsevier’s “Micro & Nano Technologies” book series. doi: [10.1016/B978-0-12-817838-6.00002-4](https://doi.org/10.1016/B978-0-12-817838-6.00002-4)
- 2 L Paolini, G Di Noto, **A Zendrini**, P Bergese, D Ricotta. “*Exploiting Exosomes for Differential Diagnosis of Multiple Myeloma and Monoclonal Gammopathy of Undetermined Significance*”. *Novel Implications of Exosomes in Diagnosis and Treatment of Cancer and Infectious Diseases*, edited by J Wang, ISBN 978-953-51-3336-0, Print ISBN 978-953-51-3335-3, Published: July 12, 2017. doi: [10.5772/intechopen.69398](https://doi.org/10.5772/intechopen.69398)

Talks

- 1 “*At which size does the membrane-to-lumen protein partition switch?*”. ISEV2022 Meeting, Lyon, France, 25-29 May 2022.
- 2 “*On the surface-to-bulk partition of proteins in extracellular vesicles*”. 2nd Lugano ExoDay, Lugano, Switzerland, 13 Apr 2022.
- 3 “*Specific antithrombin glycoforms adsorb onto plasma extracellular vesicles*”. 2nd EVita symposium, Lucca, 20-22 Sep 2021.
- 4 “*The CONAN assay: purity grade and concentration of EV microliter formulations by colloidal nanoplasmonics*”. ISEV2020 Meeting, 20 - 22 Jul 2020.
- 5 “*Plasmonic Exosomes for Enhanced Monitoring of Monoclonal Gammopathies*”. INSTM National Young Researcher Forum on Material Science and Technology, Ischia Terme, 11 –13 Jul 2016.
- 6 “*Plasmonic Exosomes*”. 3rd italian experience in biomedical research: young minds at work, Desenzano del Garda, 23 –24 Oct 2015.

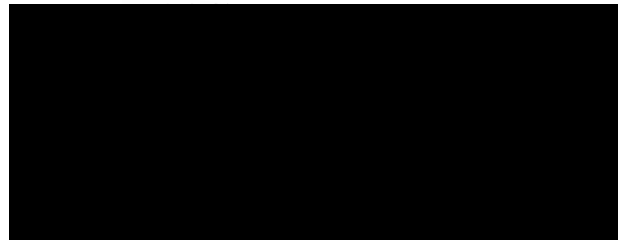


Posters

- 1 **A Zendrini**, A Radeghieri, S Ducoli, T Pilipenko, P Ajmone Marsan, E Trevisi, A Minuti, P Bergese. “*A first study of bovine plasma Extracellular Vesicles: towards advanced monitoring of inflammation in periparturient dairy cows*”. 1st EVIta Symposium, Palermo 6-8 Nov 2019.
- 2 V Filipello, V Carta, **A Zendrini**, A Bianchi, MN Losio. “*Detection of Hepatitis (HEV) virus in Hunted Ungulates of the Italian central alps, Lombardy Region*”. One Health EJP ASM 2019, Dublin 22-24 May 2019.
- 3 B Bertasi, M Tilola, R Benevenia, L Mangeri, **A Zendrini**, S Scaramagli, E Delibato, A Gattuso, S Peletto. “*Evoluzione delle metodiche molecolari quantitative nell’identificazione di specie per il controllo delle frodi alimentari*”. XVIII Congresso Nazionale S.I.Di.L.V. Perugia 7-9 Nov 2018.
- 4 A Radeghieri, S Ducoli, **A Zendrini**, L Paolini, S Busatto, G Savio, P Bergese, G Piovani. “*Improving cell viability by extracellular vesicles from Amniotic fluid cells*”. ISEV Meeting 2018, Barcelona 2-6 May 2018.
- 5 L Paolini, N Bontempi, A Radeghieri, A Castelli, **A Zendrini**, S Busatto, E Monti, I Alessandro, P Bergese. “*Probing nanosized extracellular vesicle (EV) populations by Surface Enhanced Raman Spectroscopy (SERS)*”. ISEV Meeting 2017, Toronto 18-21 May 2017.
- 6 G Di Noto, **A Zendrini**, D Maiolo, P Bergese, D Ricotta. “*Free light chain-mediated extracellular vesicles processing in Multiple Myeloma*” ISEV Meeting 2014, Rotterdam 30 Apr –3 May 2014.

Brescia, 08/08/2022

Andrea Zendrini



Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli art. 46 e 47 del D.P.R. 445/2000. Autorizzo il trattamento dei dati personali contenuti nel presente curriculum vitae ai sensi del D. Lgs. 196/2003 e del GDPR 679/16.

