ALESSANDRA DEL GIUDICE

Curriculum Vitae

Personal Information

Del Giudice
Alessandra
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Date of birth: 29/10/1988
Nationality: Italian

Short biography

Alessandra Del Giudice received her PhD in Chemical Sciences at Sapienza University of Rome where she is currently a research fellow since 2017. Her PhD work focused on the application of scattering techniques and optical spectroscopies for the study of protein processes as unfolding and oligomerization. Her current research interests comprise the structural characterization of soft matter systems formed by the self-assembly of amphiphilic molecules. In addition, Alessandra is the operator of the SAXSlab Sapienza facility, giving technical assistance and scientific support to users for running in-lab small angle X-ray scattering experiments, with a focus on projects in which the structural understanding of systems at the colloidal scale can help guiding a transition towards more sustainable ingredients and processes.

Current Position

22/12/2021 – present Fixed-term Researcher type A (RTDA)
(D.M.1062/2021 PON "Research and Innovation" 2014-2020, "Research contracts on Green topics")
Sapienza University of Rome (Italy), Department of Chemistry

- Structural investigations on the colloidal scale for the development of alternative materials and technologies in the green transition
- Collaboration with CR Competence AB (Lund, Sweden) on "Green coacervates for pharma and food"
- Management of SAXSLab Sapienza instrumentation
- SAXS data analysis
- Physical Chemistry teaching activity (CHIM/02 disciplinary sector)

Previous positions

2018 -2021 Post-doctoral researcher
Sapienza University of Rome (Italy), Department of Chemistry

- Structural studies on soft matter systems
- Management of a new laboratory SAXS facility of Sapienza University (installation in October 2018)
- SAXS data analysis

2017-2018 Post-doctoral researcher
Sapienza University of Rome (Italy), Department of Chemistry / CNIS (Interdepartmental research center on nanotechnologies applied to engineering of Sapienza)

- Structural studies with X-ray scattering techniques

Education

2013-2016 PhD in Chemical Sciences Sapienza University of Rome (Italy)
with honors
Thesis: "Structural and spectroscopic studies of proteins in stress conditions"
Field: Physical Chemistry, Biophysical Chemistry
Courses attended: Biopolymers and biomaterials, Structural characterization of materials

2011-2013 Master's Degree in Chemistry (Inorganic-Physical Chemistry) Sapienza University of Rome (Italy)
110/110 cum laude
Thesis: "Denaturation and stabilization of Human Serum Albumin: combined effect of drugs"

2007-2011 Bachelor's Degree in Chemistry Sapienza University of Rome (Italy)
110/110 cum laude
Thesis: "The effect of pH on the stability of Human Serum Albumin: spectroscopic investigations"

Fellowships and awards:

2021 "Finanziamento per Avvio alla Ricerca" research grant by the Sapienza University of Rome ("Human Serum Albumin as a pH-dependent carrier: interplay between the acid conformational transitions and ligand binding/release").

2020 "Finanziamento per Avvio alla Ricerca" research grant by the Sapienza University of Rome ("Promoting functionality studies of proteins, peptides and self-assembled nanocarriers at SAXSLab Sapienza").

2019 Assignment of a "Finanziamento per Avvio alla Ricerca" research grant by the Sapienza University of Rome ("A physical-chemical view on the consequences of protein chemical damage induced by hypochlorite: studying model proteins to understand general phenomena").

2019/09 "Langmuir" prize for the oral presentation at the European Colloids and Interface Society conference ("Self-assembly of model amphiphilic peptides in non-aqueous solvents: changing driving forces, same structure?")

2019/07 Award for the best oral presentation by a young scientist at the national meeting of the Division of Physical Chemistry of the Italian Chemical Society ("The effect of fatty acid binding in the acid isomerizations of albumin investigated with a continuous acidification method")

2019/06 Award for the best oral presentation at the "Convegno Giovani Ricercatori" at the Department of Chemistry, Sapienza University of Rome ("The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite")

2018/09 Travel grant for the XXIV National Congress of the Italian Society of Pure and Applied Biophysics (SIBPA), Ancona, Italy

2017/10 Best poster prize at the "São Paulo FAPESP School on Biophysical Methods to Study Biomolecular Interactions", São Paulo, Brasil ("The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite")

2017/10 Travel grant for the international school "São Paulo FAPESP School on Biophysical Methods to Study Biomolecular Interactions", São Paulo, Brasil

2016 Successful candidate for the assignment of the Erasmus + Unipharma Graduates scholarship for a 3-month visiting period during PhD at Lund University, Division for Pure and Applied Biochemistry/Division of Physical Chemistry ("Molecular aspects of fiber forming proteins")

2015 Successful candidate for the assignment of the Erasmus + Unipharma Graduates scholarship for a 6-month visiting period during PhD at Lund University, Division for Pure and Applied Biochemistry/MaxLab synchrotron ("Multi-probe characterization of protein processes")

2015	Assignment of a "Finanziamento per Avvio alla Ricerca" research grant by the Sapienza University of Rome ("Human Serum Albumin under oxidative stress: structural and spectroscopic studies to characterize the oxidation process and evaluate the effect of antioxidants")
2014/02	Best poster prize at the HERCULES school, Grenoble, France within "Session B: applications to biomolecular structure and dynamics" ("Ibuprofen and propofol cobinding effect on Human Serum Albumin unfolding in urea")
2014	Grant for the collaboration as tutor of the spectroscopy course at the Department of Chemistry, Sapienza University of Rome
2013-2016	PhD scholarship for the Chemical Sciences PhD Course at Department of Chemistry, Sapienza University of Rome
2013	Acknowledged as "Excellent graduate" of the academic year 2013 by the Sapienza University of Rome.
2011	Grant for the collaboration as assistant in the didactic laboratories of physical chemistry (thermodynamics and spectroscopy) at the Department of Chemistry, Sapienza University of Rome

Student supervision:

2024-present	assistance in supervision of 1 PhD student
2022-present	assistance in supervision of 1 PhD student
2022	assistance in supervision of 2 Master's students
2019-2021	assistance in supervision of 2 PhD students
2021	1 Master's Student
2017	1 Master's Student
2016	2 Bachelor's students
2014	1 Master's Student

Department of Chemistry, Sapienza University of Rome

Teaching:

2020,2021,2022,2024	Lecturer- Small angle X-ray scattering basics and applications (PhD course in Chemical Sciences)
2023-present	Lecturer RTDa - Laboratory of Physical Chemistry I (Bachelor's Degree in Chemical Sciences)
2022-present	Lecturer RTDa - Elements of Physical Chemistry (Bachelor's Degree in Biotechnology)
2022-2023	Lecturer RTDa - Biophysical Chemistry (Master's Degree in Chemistry)
2014	Tutor - Physical Chemistry II with laboratory (Spectroscopy)

Sapienza University of Rome, Italy

Organization:

2024/06 - Local organizing commitee for the Symposium of Young Chemistry (Department of Chemistry, Sapienza University of Rome, Italy)

2023/08 - Local organizing commitee for the annual meeting of the Italian Society of Synchrotron Radiation (SILS) (Department of Chemistry, Sapienza University of Rome, Italy)

2022/06 - Local organizing commitee for the First Symposium of Young Chemistry (Department of Chemistry, Sapienza University of Rome, Italy)

Institutional:

2022-present Member of the Faculty of Mathematical Physical and Natural sciences of Sapienza University of Rome

2018-2021 Post-doc elected representative in the Department Council (Department of Chemistry, Sapienza University of Rome, Italy)

Reviewing:

2017- present Reviewer for physical chemistry and colloid chemistry journals: JCIS, RSC Advances, Biomacromolecules, Langmuir, ColSurfB, PCCP

Memberships:

2023 - present Italian *Synchrotron* Radiation Society (SILS)
2018 - present Italian Society of Pure and Applied Biophysics (SIBPA)
2017 - present Italian Chemical Society (SCI)
2016 - present European Colloids and Interface Society (ECIS)

Major collaborations:

L. Galantini, Self-assembly of amphiphilic molecules from biological precursors, Dpt of Chemistry, Sapienza

CR Competence AB/T. Nylander, Green coacervates for pharma and food, Lund, Sweden

Karin Schillén, Characterization of bile-salts and polymers mixtures, Division of Physical Chemsitry, Lund University, Sweden

Ulf Olsson, Peptide self-assembly, Division of Physical Chemistry, Lund University, Sweden

Cedric Dicko, Multi-probe characterization of protein processes, Division of Pure and Applied Biochemistry, Lund University, Sweden

F. Sparla (Fabit dpt.), S. Fermani (Chemistry dpt.), Structural studies of proteins involved in photosynthesis regulation, University of Bologna, Italy

M. D'Abramo, Combination of experimental and MD-computed SAXS to characterize protein conformational landscapes, Dpt of Chemistry, Sapienza

Track record

I have contributed so far as coauthor to 60 original research articles (10 as main -first/co-first/co-corrisponding- author), 1 review paper and 1 book chapter. In most cases my contribution has mainly been the small-angle X-ray scattering characterization and consequent structural interpretation of several systems belonging to the soft matter and colloidal domain: proteins in solutions, self-assembled amphiphilic molecules, polymer-surfactant mixtures, nanomaterials, complex liquids.

SCOPUS data: 62 documents, 700 citations, H index 17

Selected oral presentations:

4-6/09/2024 Congresso della Società Chimica Italiana, Milan, Italy
"Unfolding and refolding of Albumin induced by a time-programmable dissipative pH-jump "

4-8/09/2023 37th ECIS conference, Naples, Italy
"Unfolding and refolding of Albumin induced by a time-programmable dissipative pH-jump "

4-8/10/2021 20th IUPAB Congress, Sao-Paulo, Brasil /online event
"Regulation of the photosynthetic AB-GAPDH via self-assembly"

5/03/2020 Mini-Symposium on "Peptide Self-Assembly", Lund, Sweden

"Polymorphic self-organization of lipopeptides with single or double lauroyl chains" (invited)

8-13/09/2019 33rd ECIS conference, Leuven, Belgium
"Self-assembly of model amphiphilic peptides in non-aqueous solvents: changing driving forces, same structure?"
("Langmuir" prize for best oral)

1-4/07/2019 XLVII National Congress of the Physical Chemistry Division of the Italian Chemical Society, Rome, Italy
"The effect of fatty acid binding in the acid isomerizations of albumin investigated with a continuous acidification method" (Best presentation from a young scientist)

25-26/06/2019 VIII Young Researchers Symposium of the Department of Chemistry (Sapienza), Rome, Italy
"The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite" (Best oral award)

3-8/09/2017 31st ECIS conference, Madrid, Spain
"Time-dependent pH scanning of the acid-induced unfolding of Human Serum Albumin"

15-18/09/2014 2nd Joint AIC-SILS Conference, Firenze, Italy
"Structural insights into the shape and assembly of photosynthetic GAPDH/CP12/PRK complex by small angle X-ray scattering"

Overall, I have personally given 19 oral presentations at conferences. I have also delivered invited guest seminars regarding my research during interviews abroad (ESRF, Max Planck Inst. Golm, MAXIV, Elettra) and about the principles and applications of SAXS (Xenocs webinar, Nanoinnovation, Master courses).

Other experiences abroad

Research visiting periods:

2021-2023 Study of more sustainable surfactant-polymer coacervates with CR Competence AB and Prof. T. Nylander (Physical Chemistry division), Chemical Center, Lund, Sweden

2018-2019 Study of the self-assembly of model peptides in the lab of Prof. U. Olsson (Physical Chemistry division), Chemical Center, Lund, Sweden

2016 Molecular aspects of fiber-forming proteins,
2015 Multi-probe characterization of protein processes,
C. Dicko (Pure and Applied Biochemistry division), Chemical Center, Lund, Sweden

International schools and workshops:

2019/11/20-22 International GISAXS workshop, DESY, Hamburg, Germany
2017/10/16-30 FAPESP School on Biophysical Methods to Study Biomolecular Interactions, São Paulo, Brasil
2017/09/25-27 SAXS excites symposium, Graz University of Technology, Austria
2016/06/20-27 School on "Scattering Methods Applied to Soft Condensed Matter", Bombannes, France
2015/02/23-03/06 IFF Spring School - Functional Soft Matter, Forschungszentrum Jülich, Germany
2014/02/23-03/26 Higher European Research Course for Users of Large Experimental Systems, Grenoble (EPN campus)/Saclay (Soleil, LLB), France

Experiments with large scale facilities:

ESRF, bio-SAXS beamline BM29 (Grenoble)
14 beamtimes 2014-2024 (Italian structural biology BAG)
SAXS and SEC-SAXS measurements
Time-dependent pH jumps of albumin, SEC-SAXS on HOCl-treated albumin and lysozyme, tests of reversibility
Dimerization-prone proteins with partially flexible domains (Sapienza Biochemistry group)
Self-assembled nanoaggregates of bile salts and their derivatives, of their mixtures, and coaggregates with block-copolymers
Protein complexes involved in the regulation of photosynthetic organisms and their components (Bologna group)

MAXIV, CoSAXS (Lund)
31/03/2023
SAXS study on the formation of coacervates by in-situ dilution and mixing with microfluidics chip
09/12/2021
SAXS study on the co-assembly of bile salts and cationic polymers

ISIS, INTER (Oxford)
11-17/12/2022
Neutron reflectometry measurements on surface deposition of coacervates

ESRF, time-resolved ID09 (Grenoble)
20-24/09/2017
Commissioning of stopped-flow setup (acid and detergent-induced protein unfolding)

SOLEIL, SWING (Saclay)
7-9/06/2018
SAXS of self-assembled aggregates formed by stimuli-responsive amphiphiles based on biological precursors
26-28/02/2016
Tests of SURF platform. Reversibility of HOCl-induced structural transitions and time-dependent acidification of albumin

MAXLab I911-4 (Lund)
16-18/06/2015
22-25/05/2015
Use of SUrF platform: effect of oxidation on albumin.

Description of main research results:

I am a passionate physical chemist with interest in the structural understanding of soft-matter systems, especially involving biological molecules. My research has a focus on the use of solution scattering and spectroscopy techniques, and small angle X-ray scattering in particular, as a versatile tool to "see" how the structure at the dimensional scale within 1-100 nm is changing as a function of a known perturbation, with minimum sample preparation artifacts and with an average and representative view of the system under relevant conditions. This approach, combined with other techniques and aided by modelling has been successful to help disclosing interesting phenomena.
I have shown the that the most abundant plasma protein, albumin, is highly resistant to HOCl chemical damage, but undergoes a reproducible structural transition above a critical level of modification, a behavior explaining why its structure is suitable to work as a scavenger in blood but might have further physiological implications. Albumin multi-domain structure is indeed prone to structural

rearrangements in perturbed conditions, as those occurring as a function of pH, which have been object of my works using time-dependent acidification protocols allowing to explore the conformational transitions of the protein, disclose structural intermediates and study the effect of its physiological ligands.

I have studied plant proteins involved in the photosynthetic metabolism which in response to fluctuating redox environment self-associate in supramolecular complexes with regulatory role, highlighting the intrinsic dynamism of the protein complexes and of the flexible scaffold protein elements.

After the PhD I have embraced the interest in the intriguing self-assembly properties of peptide-based and bile-acid based amphiphiles and I have also been working as a dedicated post-doc at SAXSLab Sapienza, supporting experiments, data analysis and interpretation of several users and collaborating with many research groups. This has allowed me to contribute to different research works adding the unbiased insight of the SAXS characterization to the understanding of the nanoscale structure and structural changes of self-assembling systems of surfactants and polymers, of nanoparticles, of complex natural materials and of proteins of interest for human health.

Full list of publications:

(1) Del Giudice, A.; Del Giudice, D.; Spatola, E.; Alemanno, V.; Galantini, L.; Di Stefano, S. An Albumin Unfolding and Refolding Cycle Induced by a Time-Controlled PH Jump. *Org. Biomol. Chem.* **2024**. https://doi.org/10.1039/d4ob01289e.

(2) D'Annibale, V.; Piccirillo, L.; Pacini, B.; Sennato, S.; Marconi, C.; Giudice, A. Del; di Gregorio, M. C.; Schillén, K.; D'Abramo, M.; D'Annibale, A.; et al. A Spectroscopic and Structural Study on the Solvent-Promoted Stereospecific Self-Assembly of New Porphyrin-Bile Salt Conjugates. *Colloids Surfaces A Physicochem. Eng. Asp.* **2024**, *700*, 134507. https://doi.org/10.1016/j.colsurfa.2024.134507.

(3) Antignano, I.; Casciardi, S.; D'Acunzo, F.; Del Giudice, A.; Gatti, L.; Gentili, P.; Mura, F.; Ricci, A.; Masci, G. Hybrid Copper-Polyelectrolyte Nanoaggregates Obtained with Smart Block Copolymers Based on 4-[(Hydroxyimino)Aldehyde]Butyl Methacrylate (HIABMA) in Water and Acetonitrile. *Polymer (Guildf).* **2024**, *306*, 127197. https://doi.org/10.1016/j.polymer.2024.127197.

(4) Del Giudice, A.; Gubitosi, M.; Sthoer, A.; Köhler, S.; Ayscough, S.; Skoda, M. W. A.; Nylander, T.; Halthur, T. Towards Natural Care Products: Structural and Deposition Studies of Bio-Based Polymer and Surfactant Mixtures. *Colloids Surfaces A Physicochem. Eng. Asp.* **2024**, 134365. https://doi.org/10.1016/J.COLSURFA.2024.134365.

(5) Natarajan, L.; De Sciscio, M. L.; Nardi, A. N.; Sekhar, A.; Del Giudice, A.; D'Abramo, M.; Naganathan, A. N. A Finely Balanced Order-Disorder Equilibrium Sculpts the Folding-Binding Landscape of an Antibiotic Sequestering Protein. *Proc. Natl. Acad. Sci. U. S. A.* **2024**, *121* (20), e2318855121. https://doi.org/10.1073/pnas.2318855121.

(6) Catalano, F.; Santorelli, D.; Astegno, A.; Favretto, F.; D'Abramo, M.; Del Giudice, A.; De Sciscio, M. L.; Troilo, F.; Giardina, G.; Di Matteo, A.; et al. Conformational and Dynamic Properties of the KH1 Domain of FMRP and Its Fragile X Syndrome Linked G266E Variant. *Biochim. Biophys. Acta - Proteins Proteomics* **2024**, *1872* (4), 141019. https://doi.org/10.1016/j.bbapap.2024.141019.

(7) Zumpano, R.; Del Giudice, A.; Resta, S.; D'Annibale, A.; Sciubba, F.; Mura, F.; Parisi, G.; di Gregorio, M. C.; Galantini, L. Sodium Lauryl Ether Sulfates, Pivotal Surfactants for Formulations: Rationalization of Their Assembly Properties. *Colloids Surfaces A Physicochem. Eng. Asp.* **2024**, *686*, 133375. https://doi.org/10.1016/j.colsurfa.2024.133375.

(8) Mazzapioda, L.; Piccolo, F.; Del Giudice, A.; Silvestri, L.; Navarra, M. A. Lithiated Nafion Membrane as a Single-Ion Conducting Polymer Electrolyte in Lithium Batteries. *Mater. Renew. Sustain. Energy* **2024**, 1–10. https://doi.org/10.1007/s40243-023-00249-0.

(9) Battista, S.; Allegritti, E.; Marconi, C.; Bellio, P.; Galantini, L.; Del Giudice, A.; Celenza, G.; Fagnani, L.; Giansanti, L. Influence of Lipid Composition on Physicochemical and Antibacterial Properties of Vancomycin-Loaded Nanoscale Liposomes. *ACS Appl. Nano Mater.* **2024**, *7* (1), 1348–1356. https://doi.org/10.1021/acsanm.3c05419.

(10) Zhang, L.; Fan, Y.; Galantini, L.; Schillén, K.; Del Giudice, A.; Du, G.; Wang, Y. Noncovalent Bile Acid Oligomers as Facial Amphiphilic Antimicrobials. *Langmuir* **2023**, *39* (1), 495–506. https://doi.org/10.1021/acs.langmuir.2c02787.

(11) Binaymotlagh, R.; Hajareh Haghighi, F.; Di Domenico, E. G.; Sivori, F.; Truglio, M.; Del Giudice, A.; Fratoddi, I.; Chronopoulou, L.; Palocci, C. Biosynthesis of Peptide Hydrogel–Titania Nanoparticle Composites with Antibacterial Properties. *Gels* **2023**, *9* (12), 940. https://doi.org/10.3390/gels9120940.
(12) Pauw, B. R.; Smales, G. J.; Anker, A. S.; Balazs, D. M.; Beyer, F. L.; Bienert, R.; Bouwman, W. G.; Breßler, I.; Breternitz, J.; Brok, E. S.; et al. The Human Factor: Results of a Small-Angle Scattering Data Analysis Round Robin. *J. Appl. Crystallogr.* **2023**, *56* (6), 56. https://doi.org/10.1107/S1600576723008324.
(13) Gjerde, N. S.; Del Giudice, A.; Zhu, K.; Knudsen, K. D.; Galantini, L.; Schillén, K.; Nyström, B. Synthesis and Characterization of a Thermoresponsive Copolymer with an LCST-UCST-like Behavior and Exhibiting Crystallization. *ACS Omega* **2023**, *8*, 31145–31154. https://doi.org/10.1021/acsomega.3c03162.
(14) Jacob, P. L.; Brugnoli, B.; Del Giudice, A.; Phan, H.; Chauhan, V. M.; Beckett, L.; Gillis, R. B.; Moloney, C.; Cavanagh, R. J.; Krumins, E.; et al. Poly (Diglycerol Adipate) Variants as Enhanced Nanocarrier Replacements in Drug Delivery Applications. *J. Colloid Interface Sci.* **2023**, *641*, 1043–1057. https://doi.org/10.1016/j.jcis.2023.03.124.
(15) Salamone, T. A.; Rutigliano, L.; Pennacchi, B.; Cerra, S.; Matassa, R.; Nottola, S.; Sciubba, F.; Battocchio, C.; Marsotto, M.; Del Giudice, A.; et al. Thiol Functionalised Gold Nanoparticles Loaded with Methotrexate for Cancer Treatment: From Synthesis to in Vitro Studies on Neuroblastoma Cell Lines. *J. Colloid Interface Sci.* **2023**, *649*, 264–278. https://doi.org/10.1016/j.jcis.2023.06.078.
(16) Cerra, S.; Dini, V.; Salamone, T. A.; Hajareh Haghighi, F.; Mercurio, M.; Cartoni, A.; Del Giudice, A.; Marsotto, M.; Venditti, I.; Battocchio, C.; et al. Acrylates-Based Hydrophilic Co-Polymeric Nanobeads as Nanocarriers for Imaging Agents. *Colloids Surfaces A Physicochem. Eng. Asp.* **2023**, *674*, 131829. https://doi.org/10.1016/j.colsurfa.2023.131829.
(17) Del Giudice, A.; Gurrieri, L.; Galantini, L.; Fanti, S.; Trost, P.; Sparla, F.; Fermani, S. Conformational Disorder Analysis of the Conditionally Disordered Protein CP12 from Arabidopsis Thaliana in Its Different Redox States. *Int. J. Mol. Sci.* **2023**, *24* (11), 9308. https://doi.org/10.3390/ijms24119308.
(18) Tan, J. J.; Gjerde, N.; Del Giudice, A.; Knudsen, K. D.; Galantini, L.; Du, G.; Schillén, K.; Sande, S. A.; Nyström, B. Interactions in Aqueous Mixtures of Cationic Hydroxyethyl Cellulose and Different Anionic Bile Salts. *J. Agric. Food Chem.* **2023**, *71* (8), 3732–3741. https://doi.org/10.1021/acs.jafc.3c00076.
(19) Giacomazzo, G. E.; Schlich, M.; Casula, L.; Galantini, L.; Del Giudice, A.; Pietraperzia, G.; Sinico, C.; Cencetti, F.; Pecchioli, S.; Valtancoli, B.; et al. Ruthenium(Ii) Polypyridyl Complexes with π-Expansive Ligands: Synthesis and Cubosome Encapsulation for Photodynamic Therapy of Non-Melanoma Skin Cancer. *Inorg. Chem. Front.* **2023**, *10* (10), 3025–3036. https://doi.org/10.1039/d2qi02678c.
(20) Triolo, A.; Chaban, V. V.; Lo Celso, F.; Leonelli, F.; Vogel, M.; Steinrücken, E.; Del Giudice, A.; Ottaviani, C.; Kenar, J. A.; Russina, O. Oleochemical Carbonates: A Comprehensive Characterization of an Emerging Class of Organic Compounds. *J. Mol. Liq.* **2023**, *369*, 120854. https://doi.org/10.1016/j.molliq.2022.120854.
(21) De Caro, L.; Giudice, A. Del; Morin, M.; Reinle-Schmitt, M.; Grandeury, A.; Gozzo, F.; Giannini, C. Small Angle X-Ray Scattering Data Analysis and Theoretical Modelling for the Size and Shape Characterization of Drug Delivery Systems Based on Vitamin E TPGS Micelles. *J. Pharm. Sci.* **2023**, *112* (1), 243–249. https://doi.org/10.1016/j.xphs.2022.09.029.
(22) Mattiello, S.; Guzzini, A.; Del Giudice, A.; Santulli, C.; Antonini, M.; Lupidi, G.; Gunnella, R. Physico-Chemical Characterization of Keratin from Wool and Chicken Feathers Extracted Using Refined Chemical Methods. *Polymers (Basel).* **2023**, *15* (1), 181. https://doi.org/10.3390/polym15010181.
(23) Binaymotlagh, R.; Del Giudice, A.; Mignardi, S.; Amato, F.; Marrani, A. G.; Sivori, F.; Cavallo, I.; Di Domenico, E. G.; Palocci, C.; Chronopoulou, L. Green In Situ Synthesis of Silver Nanoparticles-Peptide Hydrogel Composites: Investigation of Their Antibacterial Activities. *Gels* **2022**, *8* (11), 700. https://doi.org/10.3390/gels8110700.
(24) Antignano, I.; D'Acunzo, F.; Arena, D.; Casciardi, S.; Del Giudice, A.; Gentile, F.; Pelosi, M.; Masci, G.; Gentili, P. Influence of Nanoaggregation Routes on the Structure and Thermal Behavior of Multiple-Stimuli-Responsive Micelles from Block Copolymers of Oligo(Ethylene Glycol) Methacrylate and the Weak Acid [2-(Hydroxyimino)Aldehyde]Butyl Methacrylate. *Langmuir* **2022**. https://doi.org/10.1021/acs.langmuir.2c02515.
(25) Marotta, R.; Del Giudice, A.; Gurrieri, L.; Fanti, S.; Swuec, P.; Galantini, L.; Falini, G.; Trost, P.; Fermani, S.; Sparla, F. Unravelling the Regulation Pathway of Photosynthetic AB-GAPDH. *Acta Crystallogr. Sect. D Struct. Biol.* **2022**, *78* (11), 1399–1411. https://doi.org/10.1107/s2059798322010014.
(26) Piccinino, D.; Capecchi, E.; Trifero, V.; Tomaino, E.; Marconi, C.; Giudice, A. Del; Galantini, L.; Poponi, S.; Ruggieri, A.; Saladino, R. Lignin Nanoparticles as Sustainable Photoprotective Carriers for Sunscreen Filters. *ACS Omega* **2022**. https://doi.org/10.1021/ACSOMEGA.2C02133.
(27) Busato, M.; Tofoni, A.; Mannucci, G.; Tavani, F.; Del Giudice, A.; Colella, A.; Giustini, M.; D'angelo, P. On the Role of Water in the Formation of a Deep Eutectic Solvent Based on NiCl2·6H2O and Urea. *Inorg. Chem.* **2022**, *61* (23), 8843–8853. https://doi.org/10.1021/acs.inorgchem.2c00864.

(28) Migliorati, V.; Del Giudice, A.; Casu, A.; Falqui, A.; Podestà, A.; Milani, P.; Borghi, F. Crystalline Structuring of Confined Ionic Liquids at Room Temperature. *J. Phys. Chem. C* **2022**, *126* (31), 13477–13484. https://doi.org/10.1021/acs.jpcc.2c04022.
(29) Castrovilli, M. C.; Tempesta, E.; Cartoni, A.; Plescia, P.; Bolognesi, P.; Chiarinelli, J.; Calandra, P.; Cicco, N.; Verrastro, M. F.; Centonze, D.; et al. Fabrication of a New, Low-Cost, and Environment-Friendly Laccase-Based Biosensor by Electrospray Immobilization with Unprecedented Reuse and Storage Performances. *ACS Sustain. Chem. Eng.* **2022**, *10* (5), 1888–1898. https://doi.org/10.1021/acssuschemeng.1c07604.
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