Alessandra Del Giudice

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Current Position

01/05/2018 – present **Post-doctoral researcher**
Sapienza University of Rome (Italy), Department of Chemistry
- Structural studies on soft matter systems
- Management of a lab SAXS facility (SAXSLab Sapienza, installation in October 2018)
- SAXS data analysis

01/05/2017 – 30/04/2018 **Post-doctoral researcher**
Sapienza University of Rome (Italy), Department of Chemistry / CNIS
- Structural studies with X-ray scattering techniques

Education

2013-2016 **PhD in Chemical Sciences**
Sapienza University of Rome (Italy)
Classification: 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)
Classification: 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)
Classification: 110/110 *cum laude*
Thesis: "The effect of pH on the stability of Human Serum Albumin: spectroscopic investigations"

Scientific activities

Research experience

April 2014- present
Sapienza University of Rome, Department of Chemistry
Structural and spectroscopic studies of proteins in stress conditions

May 2018 – present
Sapienza University of Rome, Department of Chemistry (Prof. Luciano Galantini)
Characterization of supramolecular structures formed by amphiphilic molecules based on biological precursors

May 2017 – present
Sapienza University of Rome, Department of Chemistry (Prof. Luciano Galantini) and Lund University, Division of Physical Chemistry (Prof. Karin Schillén)
Characterization of bile-salts and charged block copolymer mixtures

April 2018 – present
Collaboration with Lund University, Division of Physical Chemistry (Prof. Ulf Olsson)
Self- assembly of model peptides: the effect of non-aqueous solvents

November 2013- present
Collaboration with the University of Bologna, Department of Pharmacy and Biotechnology (Prof. Francesca Sparla) and Department of Chemistry (Prof. Simona Fermani)
Small angle X-ray scattering study of photosynthetic proteins and their regulatory complexes

April -July 2016
Lund University, Division of Pure and Applied Biochemistry (Soft biomaterials and catalysts group, Dr. Cedric Dicko) and Division of Physical Chemistry (Prof. Karin Schillén).
(Visiting PhD student with Erasmus + Unipharma Graduates Scholarship)
Molecular aspects of fiber forming proteins.

March - September 2015
Lund University, Division of Pure and Applied Biochemistry (Dr. Cedric Dicko) and Max Lab Synchrotron (I911-SAXS beamline).
(*Visiting PhD student with Erasmus + Unipharma Graduates Scholarship)*
Multi-probe characterization of protein processes.

Publications

Polymorphic Self-Organization of Lauroyl Peptide in Response to pH and Concentration
F. Novelli, A. Strofaldi, S. De Santis, A. Del Giudice, S. Casciardi, L. Galantini, S. Morosetti, N. V. Pavel, G. Masci, A. Scipioni
Langmuir **2020**, acs.langmuir.9b02924.

C-12 vs C-3 Substituted Bile Salts: An Example of the Effects of Substituent Position and Orientation on the Self-Assembly of Steroid Surfactant Isomers
J. Cautela, E. Severoni, C. Redondo-Gómez, M. C. di Gregorio, A. Del Giudice, S. Sennato, R. Angelini, M. D'Abramo, K. Schillén, L. Galantini
Colloids Surfaces B Biointerfaces **2020**, *185*.

Deoxycholic acid and l-Phenylalanine enrich their hydrogel properties when combined in a zwitterionic derivative
L. Travaglini, M. C. di Gregorio, E. Severoni, A. D'Annibale, S. Sennato, F. Tardani, M. Giustini, M. Gubitosi, A. Del Giudice, L. Galantini
J. Colloid Interface Sci. **2019,** 554, 453-462.

Tuning and controlling the shape of mesoporous silica particles with CTAB/sodium deoxycholate catanionic mixtures
L. Travaglini, P. Picchetti, A. Del Giudice, L. Galantini, L. De Cola
Micropor. Mesopor. Mat., **2019**, *279*, 423-431.

Arabidopsis and Chlamydomonas phosphoribulokinase crystal structures complete the redox structural proteome of the Calvin–Benson cycle
L. Gurrieri, A. Del Giudice, N. Demitri, G. Falini, N. V. Pavel, M. Zaffagnini, M. Polentarutti, P. Crozet, C. H. Marchand, J. Henri, P. Trost, S. D. Lemaire, F. Sparla, S.Fermani
PNAS, **2019**, *116* (16), 8048-8053.

A fluorescence study of the loading and time stability of doxorubicin in sodium cholate/PEO-PPO-PEO triblock copolymer mixed micelles
E. Tasca, A. Del Giudice, L. Galantini, K. Schillén, A. M. Giuliani, M. Giustini
J. Colloid Interface Sci., **2019**, *540*, 593-601.

Block copolymers as bile salt sequestrants: Intriguing structures formed in a mixture of an oppositely charged amphiphilic block copolymer and bile salt
K. Schillen, L. Galantini, G. Du, A. Del Giudice, V. Alfredsson, A. M. Carnerup, N. V. Pavel, G. Masci, B. Nyström
Phys. Chem. Chem. Phys., **2019**, **21**, 12518-12529.

Bile Salts: Natural Surfactants and Precursors of a Broad Family of Complex Amphiphiles
M.C. di Gregorio, L. Travaglini, A. Del Giudice, J. Cautela, N.V. Pavel, L. Galantini
Langmuir, **2019**, *35* (21), 6803-6821.

The Effect of Fatty Acid Binding in the Acid Isomerizations of Albumin Investigated With a Continuous Acidification Method
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
Colloids and Surfaces B: Biointerfaces, **2018**, *168*, 109-116.

Time-dependent pH scanning of the acid-induced unfolding of human serum albumin reveals stabilization of the native form by palmitic acid binding
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
J. Phys. Chem. B, **2017**, *121* (17), 4388–4399.

Structural response of Human Serum Albumin to oxidation: biological buffer to local formation of hypochlorite.
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
J. Phys. Chem. B **2016***, 120 (48),* 12261–12271.

Unravelling the shape and structural assembly of the photosynthetic GAPDH-CP12-PRK complex from Arabidopsis thaliana by small-angle X-ray scattering analysis.
A. Del Giudice, N. V. Pavel, L. Galantini, G. Falini, P. Trost, S. Fermani, F. Sparla
Acta Crystallogr. Sect. D Biol. Crystallogr. **2015**, *71*, 2372–2385.

Ibuprofen and Propofol Cobinding Effect on Human Serum Albumin Unfolding in Urea
A. Del Giudice, C. Leggio, N. Balasco, L. Galantini, N. V. Pavel
J. Phys. Chem. B **2014**, *118*, 10043–10051.

Conference talks

Polymorphic self-organization of lipopeptides with single or double lauroyl chains
A. Del Giudice, F. Novelli, S. De Santis, L. Galantini, N. V. Pavel, G. Masci, A. Scipioni
Mini-Symposium on "Peptide Self-Assembly"
Chemical Center, Lund University, Lund, 05/03/2020 (invited speaker)

Self-assembly of model amphiphilic peptides in non-aqueous solvents: changing driving forces, same structure?
A. Del Giudice, A. Rüter, N. V. Pavel, L. Galantini, U. Olsson
33rd ECIS conference, Leuven, 8-13/09/2019

The effect of fatty acid binding in the acid isomerizations of albumin investigated with a continuous acidification method
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
XLVII Congresso Nazionale della Divisione di Chimica Fisica, Rome, 1-4/07/2019

The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel

VIII Convegno Giovani Ricercatori del Dipartimento di Chimica, Sapienza University of Rome, 25-26/06/2019

The effect of fatty acid binding in the acid isomerizations of albumin investigated with a continuous acidification method
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
Biophysics@Rome, Rome, 15-16/05/2019

The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
XXIV Congresso Nazionale della Società Italiana di Biofisica Pura e Applicata, Ancona, 10-13/09/2018

The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
XXVI Congresso Nazionale della Società Chimica Italiana, Paestum, 10-14/09/2017

Time-dependent pH scanning of the acid-induced unfolding of Human Serum Albumin
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
31st ECIS conference, Madrid, 3-8/09/2017

The structural response of Human Serum Albumin to oxidation: a biological buffer to local formation of hypochlorite
A. Del Giudice, C. Dicko, L. Galantini, N. V. Pavel
16th European Student Colloid Conference, Florence, 19-22/06/2017.

Structural insights into the shape and assembly of photosynthetic GAPDH/CP12/PRK complex by small angle X-ray scattering
A. Del Giudice, S. Fermani, F. Sparla, P. Trost, N. V. Pavel
2nd Joint AIC-SILS Conference, Florence, September 15-18 2014.

Schools and courses

International workshop GISAXS 2019
22– 24 November 2019, DESY, Hamburg, Germany

Training course on Small Angle X-ray Scattering techniques on the Xeuss SAXS/WAXS equipment
8– 11 October 2018, Rome, Italy

São Paulo FAPESP School on Biophysical Methods to Study Biomolecular Interactions
16– 26 October 2017, São Paulo, Brasil

ECIS 2016 Training Course - Colloids and Interfaces in Cultural Heritage
1- 3 September 2016, Rome, Italy

13th European Summer School on "Scattering Methods Applied to Soft Condensed Matter"
20 - 27 June 2016, Bombannes, France

46th IFF Spring School - Functional Soft Matter
23 February - 6 March 2015, Forschungszentrum Jülich, Germany

Higher European Research Course for Users of Large Experimental Systems.
Session B: applications to biomolecular structure and dynamics
23 February - 26 March 2014, Grenoble/Saclay, France

Skills

Main experimental techniques	Small Angle X-Ray Scattering	Circular Dichroism
	Dynamic Light Scattering	Fluorescence
	Size Exclusion Chromatography	UV-visible spectroscopy
Programming languages	Matlab, Fortran, basics of Bash scripting, basics of Python	
Languages	Italian (Mother tongue), English (C1/C2)	

Other accomplishments

- Assignment of a "Finanziamento per Avvio alla Ricerca" research grant by the Sapienza University of Rome (November 2019).
- "Langmuir" prize for the oral presentation at the European Colloids and Interface Society conference (September 2019)
- 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 (July 2019)
- Award for the best oral presentation at the "Convegno Giovani Ricercatori" at the Department of Chemistry, Sapienza University of Rome (June 2019)
- Successful candidate for the assignment of the Erasmus + Unipharma Graduates scholarship (2016 and 2015).
- Assignment of a "Finanziamento per Avvio alla Ricerca" research grant by the Sapienza University of Rome (2015).
- Winner of a grant for a collaboration as tutor at the Department of Chemistry, Sapienza University of Rome (March-August 2014, for the Spectroscopy course).
- Acknowledged as "Excellent graduate" of the academic year 2013 by the Sapienza University of Rome.
- Qualification to professional practice as Chemist (2013).