

## PERSONAL INFORMATION

Marco Caterino, Ph.D.

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 marco-caterino

Gender Male | Date of birth 25 June 1986

## WORK EXPERIENCE

Oct 2017 – Present

## Post-doctoral Research Fellow

Department of Pharmacy - University of Naples Federico II, via D. Montesano 49, I-80131 Naples - Italy.

Oct 2018

## Synchrotron Beamline Investigator at Elettra

IUVIS Beamline, Elettra - Sincrotrone Trieste S.C.p.A., S.S. 14 - km 163.5 in AREA Science Park, I-34149 Basovizza, Trieste - Italy.

*Ligand Interaction with Different Topology Structures of G-Quadruplex DNA by means of UV Resonant Raman Spectroscopy.*

Dec 2017

## Synchrotron Beamline Investigator at Elettra

IUVIS Beamline, Elettra - Sincrotrone Trieste S.C.p.A., S.S. 14 - km 163.5 in AREA Science Park, I-34149 Basovizza, Trieste - Italy

*UltraViolet Resonance Raman Spectroscopy on G-quadruplex systems.*

Oct 2016

## Synchrotron Beamline Investigator at ESRF

MX1841 at ID30A - European Synchrotron Radiation Facility, 71 Avenue des Martyrs, 38000 Grenoble - France

*Macromolecular X-ray crystallography on diverse protein-metal adducts.*

Jan – Jun 2015

## Visiting Ph.D. student

Institut für Chemie, Technische Universität Berlin, Str. des 17. Juni, 10623 Berlin - Germany  
Physical-chemical investigation on the selective pharmacokinetics of a ruthenium(III)-based prodrug in the prof. P. Hildebrandt's laboratories

## EDUCATION AND TRAINING

2014 – 2017

## Ph.D. in Chemical Sciences

University of Naples Federico II, Naples - Italy

Thesis Title: '*Raman-assisted crystallography applied to protein metalation*'

2011 – 2013

Master of Science in Biology *cum laude*

University of Naples Federico II, Naples - Italy

Molecular Biology | Structural Biology | Biochemistry | Genetics

- 2018** **Caterino, M.**, Herrmann, M., Merlino, A., Riccardi, C., Montesarchio, D., Mroginski, M.A., Musumeci, D., Ruffo, F., Paduano, L., Hildebrandt, P., Kozuch, J., Vergara, A.. *On the pH-modulated Ru-based prodrug activation mechanism*. Inorganic Chemistry, under revision.
- Di Fonzo, S., Bottari, C., Brady, J., Tavagnacco, L., **Caterino, M.**, Petraccone, L., Amato, J., Giancola, C., Cesàro, A.. *Crowding and conformation interplay on human DNA G-Quadruplex by Ultraviolet Resonant Raman Scattering*. Physical Chemistry Chemical Physics, under revision.
- Merlino, A., **Caterino, M.**, Vergara, A.. *Raman-markers of X-ray radiation damage of proteins*. International Journal of Bioclogical Macromolecules, (111) 1194-1205.
- Caterino, M.**, Squillaro, T., Montesarchio, D., Giordano, A., Giancola, C., Melone, M.A.B. (2018). *Huntingtin: a new option for fixing the Huntington's disease ticking-down clock*. Neuropharmacology, (135), 126-138.
- Caterino, M.**, Virgilio, A., Esposito, V., Petraccone, L., Galeone, A., Giancola, C.. *G-triplex stability in human telomeric DNA with epigenetic modification/oxidative damage to thymine*. Journal of Thermal Analysis and Calorimetry. <https://doi.org/10.1007/s10973-018-7355-z>.
- Colarusso, A., **Caterino, M.**, Fabbri, A., Fiorentini, C., Vergara, A., Sica, F., Parrilli, E., Tutino, M.L.. *High yield purification and first structural characterization of the full-length bacterial toxin CNF1*. Biotechnology Progress, 34(1), 150-159.
- 2017** Pagano, B., **Caterino, M.**, Filosa, R., Giancola, C.. *Binding of Harmine Derivatives to DNA: A Spectroscopic Investigation*. Molecules. 22(11), 1831.
- 2016** **Caterino, M.**, Petruk, A. A., Vergara, A., Ferraro, G., Marasco, D., Doctorovich, F., Estrin, D.A., Merlino, A. *Mapping the protein-binding sites for iridium(III)-based CO-releasing molecules*. Dalton Transactions. 45(30), 12206-12214.
- 2015** Merlino, A., **Caterino, M.**, Russo Krauss, I. R., Vergara, A. *Missing gold atoms in lysozyme crystals used to grow gold nanoparticles*. Nature Nanotechnology. 10(4), 285.
- Di Fiore, A., Vergara, A., **Caterino, M.**, Alterio, V., Monti, S. M., Ombouma, J., Dumy, P., Vullo, D., Supuran, C.T., Winum, J.Y., De Simone, G. *Hydroxylamine-O-sulfonamide is a versatile lead compound for the development of carbonic anhydrase inhibitors*. Chemical Communications. 51(57), 11519-11522.
- 2014** **Caterino, M.**, Merlino, A., Balsamo, A., Krauss, I. R., Parisi, S., Vergara, A. *Reaction of Hg<sup>2+</sup> insertion into cysteine pairs within bovine insulin crystals followed via Raman spectroscopy*. Journal of Solution Chemistry. 43(1), 135-143.

## CONFERENCE CONTRIBUTIONS

- 2018**  
 Oral **Caterino, M.**, Di Fonzo, S., Amato, J., Petraccone, L., Brady, J.W., Cesaro, A., Giancola, C. *UV Resonance Raman Spectroscopy applied to structural dynamics of DNA G-quadruplexes*. BIONIC 2018. International Symposium Biology of non-canonical nucleic acids: from humans to pathogens. 26-28 September 2018, Padova - Italy. Flash presentation.
- Caterino, M.**, Di Fonzo, S., Amato, J., Petraccone, L., Brady, J.W., Cesaro, A., Giancola, C. *DNA G-quadruplexes and their ligands interactions: an UV Resonance Raman Scattering study*. XLVI Congresso della Divisione di Chimica Fisica della SCI. 25-28 June 2018, Bologna - Italy.
- Caterino, M.**. *Ultraviolet Resonance Raman Spectroscopy applied to DNA G-quadruplexes*. 1<sup>st</sup> Italian workgroup "NON-CANONICAL in GENE REGULATION". 7 June 2018, Padova - Italy.

Poster **Caterino, M.**, Di Fonzo, S., Amato, J., Petraccone, L., Brady, J.W., Cesaro, A., Giancola, C. *DNA G-quadruplexes and their ligands interactions: an UV Resonance Raman Scattering study*. BIONIC 2018. International Symposium Biology of non-canonical nucleic acids: from humans to pathogens. 26-28 September 2018, Padova - Italy.

## 2016

Oral **Caterino, M.**, Merlino, A., Paduano, L., Ruffo, F., Montesarchio, D., Kozuch, J., Hildebrandt, P., Vergara, A.. *Binding and release of a Ru-based anti-cancer drug studied via Raman-assisted crystallography and SERS*. XLIV Congresso della Divisione di Chimica Fisica della SCI. 20-23 September 2016, Naples - Italy.

Poster **Caterino, M.**, Petruk, A., Vergara, A., Ferraro, G., Marasco, D., Doctorovich, F., Estrin, D., Merlino, A.. *Mapping the protein-binding sites for Ir(III)-based CO-releasing molecules*. XLIV Congresso della Divisione di Chimica Fisica della SCI. 20-23 September 2016, Naples - Italy.

## 2015

Oral Di Fiore, A., De Simone, G., Vergara, A., **Caterino, M.**, Alterio, V., Monti, S.M., Ombouma J., Dumy, P., Supuran, C., Winum, J.Y.. *A new lead compound for the development of Carbonic Anhydrase inhibitors*. 29<sup>th</sup> Annual Symposium of the Protein-Society. 22-25 July 2015, Barcelona - Spain.

Merlino, A., **Caterino, M.**, Russo Krauss, I., Vergara, A.. *Ain't gold all that glitters: missing gold atoms in the structure of lysozyme crystals used to co-crystallize gold nanoparticles*. 29<sup>th</sup> Annual Symposium of the Protein-Society. 22-25 July 2015, Barcelona - Spain.

## PROTEIN DATA BANK ENTRIES

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4YVY 5JMG 5JML 6ETL 6ETM 6ETN 6ETO 6ETP 6ETQ 6ETR

## OTHER ACTIVITIES

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Hard Science Laboratory. Futuro Remoto 2016. 7-9 October 2016, Naples - Italy.

International Year of Crystallography 2014 (IYCr2014). Dept. of Chemical Sciences - University of Naples Federico II. 11 April 2014, Naples - Italy.

Crystallization Laboratory. "Open Day" of the Polytechnic School of Basic Sciences - University of Naples Federico II. Eidtion 2014, 2015, and 2016.

Teaching assistant for the "Biomolucules Spectroscopy" course held by prof. Sica. Department of Chemical Sciences - University of Naples Federico II. Academic years 2014, 2015, 2016.

Teaching assistant for the "Physical risk and physico-chemical laboratory methods" course held by prof. Merlino. Department of Chemical Sciences - University of Naples Federico II. Academic years 2014, 2015, 2016.

## ATTENDED COURSES

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Raman microspectroscopy  
Expression and purification of recombinant proteins  
Mass spectrometry  
Physical-chemistry of nucleic acids  
X-ray crystallograsphy on single protein crystals  
FT-IR microspectroscopy  
On-electrode Surface Enhanced Raman Spectroscopy

## LANGUAGE SKILLS

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Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user  
Common European Framework of Reference (CEF) level