

PERSONAL INFORMATION

Sara Crotti, PhD

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PREFERRED JOB STUDIES APPLIED FOR

Researcher
Pharmaceutical & analytical chemistry.

PERSONAL STATEMENT

Research in bioanalytical and biomedical applications of mass spectrometric methodologies.

WORK EXPERIENCE

from June, 2015 to present

Researcher

Paediatric Research institute

▪ Nano-inspired Biomedicine Lab

Development and application of new mass spectrometry-based approaches for TDM of antineoplastic drugs. Translational researches devoted to biomarkers discovery and validation for cancer diagnosis and prediction of treatment response.

from June 2013, to May 2015-

Post doc fellow

C.R.O.- National Cancer Institute, Aviano

▪ Experimental and Clinical Pharmacology

Postdoctoral fellowship funded by the project AIRC-5x1000: “*Application of Advanced Nanotechnology in the Development of Cancer Diagnostics Tools*”. Application of advanced nanotechnologies for cancer diagnosis and to the application of new mass spectrometry-based approaches for TDM purposes.

from November, 2012 to June 2013

Research Collaborator

Department of Surgical, Oncological and Gastroenterological Sciences, University of Padua.

▪ Molecular Biology Lab and Centre for Colon Disease Prevention

Colorectal cancer biomarkers discovery through advanced nanotechnologies (mesoporous silica chips) for mass spectrometry-based analysis.

from January, 2009-to November 2012

PhD Student

Cà Foscari University of Venice

▪ Department of Molecular Sciences and Nanosystems (DSMN)

Elemental speciation studies and investigations on the metal-proteins interactions using either inorganic or organic mass spectrometry methodologies (ICP-MS, ESI-MS and MALDI-TOF/TOF).

from April, 2008 to December, 2008

Research Collaborator

National Research Council (Cnr)

- Institute of Molecular Science and Technologies (ISTM)

Investigations on the ionization mechanisms occurring in ESI-MS, development of new techniques for MALDI-TOF analysis (Sieve Based Device: SDB) and metabolic profiling studies using nano-fluidic devices coupled to MS (nESI-MS).

from December, 2006 to March,
2008

Research fellow

Ion Source & Biotechnologies Srl

- via Fantoli 16/A, Milano

Characterization and validation of a new ionization source (Surface Activated Chemical Ionization: SACI-MS) coupled to traditional mass spectrometric instrumentations with application focused in biomedical and forensic fields.

from October, 2005 to November
2006

Research Collaborator

University of Milan

- Dept. of Pharmaceutical Science, Biochemistry and Molecular Biology of Lipids and Mass Spectrometry Lab.

Researches on the of neuroactive steroids alteration in plasma and nervous tissues in diabetes by GC-MS and LC-MS. Pharmacokinetics studies (plasma and tissues) and drugs characterization.

EDUCATION AND TRAINING

September, 2012

PhD in Chemical Sciences

Dept. of Molecular Sciences and Nanosystems, Cà Foscari University, Venice.

May, 2012

Attendance at the national School: "*Analytical & bioanalytical technologies and Mass Spectrometry*"

Dept. of chemistry, University of Parma

September, 2009

Attendance at the summer school: "*Innovative methods in the Analysis Environmental Chemistry*"

Foundation for the University and High Culture - Province of Belluno.

October, 2005

Master's level degree in Pharmaceutical Technologies & Chemistry

Dept. Pharmaceutical Science, University of Milan.

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B2	B2	B1	B2
Français	B1	B2	B2	B1	B2

Communication skills and didactic activities

- Good skills to communicate and collaborate closely with analytical chemistry, molecular biology, clinicians and biostatistics to plan, perform experiments, and conduct data analysis.
- Trainer on site at the CNR-ISOF (Bologna) for the use of ESI-MS instrumentation.
- Didactic support at Cà Foscari University of Venice, DAIS A.Y. 2008/2009; A.Y. 2009/2010; A.Y. 2011/2012;
- Didactic support at University of Padua – Dept. Of Chemistry A.Y. 2013/2014; A.Y. 2014/2015;
- Tutor/thesis supervisor of undergraduate students;

Organisational / managerial skills

- Good analytical, organizational and time management skills;
- Good experience in supervising undergraduate/graduate students and technicians in lab activities;

Job-related skills

- Mass spectrometry (MS) analyzers: IT, QqQ, TOF, qTOF;
- Ion sources: ESI, APCI, APPI, MALDI, EI, CI, ICP;
- Hyphenated chromatographic techniques: LC, GC, fast-GC;
- Biological sample preparation: LLE; SPE; 1D-GE;
- Development and application of targeted/untargeted approaches for lipids, metabolites, peptides, and xenobiotics analysis in biological samples; proteins digestion and MS/MS sequencing;
- Member of organizing committee on national and international scientific conferences;
- Reviewer for international journals in biological/ chemical fields.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
independent	independent	independent	independent	independent

- Good knowledge of MS Office and Open Office packages.
- Good knowledge of specialized software for mass spectrometry data interpretation and statistical analysis.
- Good ability in the use of scientific databases and in the use of search engines for proteomic and metabolomic data interpretation.

ADDITIONAL INFORMATION

Publications

1. Eleonora Calandra, Bianca Posocco, **Sara Crotti**, Elena Marangon, Luciana Giodini, Donato Nitti, Giuseppe Toffoli, Pietro Traldi and Marco Agostini.
Cross-validation of a mass spectrometric-based method for the therapeutic drug monitoring of irinotecan: implementation of matrix-assisted laser desorption/ionization mass spectrometry in pharmacokinetic measurements.
Analytical and bioanalytical chemistry (2016) DOI 10.1007/s00216-016-9634-5
2. Agatea L, **Crotti S**, Ragazzi E, Bedin C, Urso E, Mammi I, et al.
Peptide Patterns as Discriminating Biomarkers in Plasma of Patients With Familial Adenomatous Polyposis.
Clin Colorectal Cancer. 2015 Dec 19. DOI 10.1016/j.clcc.2015.12.002
3. Bedin C, **Crotti S**, Ragazzi E, Pucciarelli S, Agatea L, Tasciotti E, et al.
Alterations of the Plasma Peptidome Profiling in Colorectal Cancer Progression.
J Cell Physiol. 2015 Sep 17 DOI 10.1002/jcp.25196
4. **Crotti S**, Posocco B, Marangon E, Nitti D, Toffoli G, Agostini M.
Mass spectrometry in the pharmacokinetic studies of anticancer natural products.

- Mass Spectrom Rev. 2015 Aug 17. DOI 10.1002/mas.21478
5. Calandra E, **Crotti S**, Nitti D, Roverso M, Toffoli G, Marangon E, et al.
The development of a matrix-assisted laser desorption/ionization (MALDI)-based analytical method for determination of irinotecan levels in human plasma: preliminary results.
J Mass Spectrom. 2015;50(7):959-62. DOI 10.1002/jms.3610
6. Calandra, E., **S. Crotti**, M. Agostini, D. Nitti, M. Roverso, G. Toffoli, E. Marangon, B. Posocco, and P. Traldi.
Matrix-assisted Laser desorption/ionization, nanostructure-assisted Laser desorption/ionization and carbon nanohorns in the detection of antineoplastic drugs. 1. The cases of irinotecan, sunitinib and 6-alpha-hydroxy paclitaxel.
European Journal of Mass Spectrometry, 2014 20:445-459. DOI 10.1255/ejms.1302
7. **Crotti, S.**, M. V. Enzo, C. Bedin, S. Pucciarelli, I. Maretto, P. D. Bianco, P. Traldi, E. Tasciotti, M. Ferrari, F. Rizzolio, G. Toffoli, A. Giordano, D. Nitti, and M. Agostini.
Clinical predictive circulating peptides in rectal cancer patients treated with neoadjuvant chemoradiotherapy.
2014 Aug;230(8):1822-8. DOI 10.1002/jcp.24894
8. Molin, L., **S. Crotti**, R. Seraglia, Z. Czarnocki, J. Szawkato, J. K. Maurin, F. A. Plucinski, and P. Traldi.
Chemical aspects of the primary ionization mechanisms in matrix-assisted laser desorption ionization.
European Journal of Mass Spectrometry, 2014, 20:437-443. DOI 10.1255/ejms.1296
9. Marco Agostini, **Sara Crotti**, Chiara Bedin, Erika Cecchin, Isacco Maretto, Edoardo D'Angelo, Salvatore Pucciarelli, Donato Nitti
Predictive response biomarkers in rectal cancer neoadjuvant treatment
Frontiers in Bioscience S6, 110-119, January 1, 2014 DOI No:10.2741/S418
10. **Crotti S.**; Granzotto C.; Cairns W. R. L.; Cescon P., Barbante C.
Elemental labeling for the identification of proteinaceous-binding media in art works by ICP-MS.
J Mass Spectrom. 46(12): 1297-1303. DOI: 10.1002/jms.2021
11. Cristoni S, Molin L, **Crotti S**, Rossi Bernardi L, Seraglia R, Traldi P.
Sieve-based device for MALDI sample preparation. II. Instrumental parameterization.
J Mass Spectrom. 2009 Nov;44(11):1579-86. DOI: 10.1002/jms.1637
12. Molin L, Cristoni S, **Crotti S**, Bernardi LR, Seraglia R, Traldi P.
Sieve-based device for MALDI sample preparation. I. Influence of sample deposition conditions in oligonucleotide analysis to achieve significant increases in both sensitivity and resolution.
J Mass Spectrom. 2008 Nov;43(11):1512-20. DOI: 10.1002/jms.1428
13. Cristoni S, **Crotti S**, Zingaro L, Bernardi LR, Gottardo R, Politi L, Polettini A, Tagliaro F.
On the coupling of ion-exchange chromatography to surface-activated chemical ionization in the analysis of highly polar metabolites in diluted urine samples.
Rapid Commun Mass Spectrom. 2008 Jul;22(13):2134-8. DOI: 10.1002/rcm.3590
14. **Crotti S**, Stella L, Munari I, Massaccesi F, Cotarca L, Forcato M, Traldi P.
Claisen rearrangement induced by low-energy collision of ESI-generated, protonated benzyloxy indoles.
J Mass Spectrom. 2007 Dec;42(12):1562-8. DOI: 10.1002/jms.1334
15. Cristoni S, Basso E, Gerthoux P, Mocarrelli P, Gonella E, Brambilla M, **Crotti S**, Bernardi LR.
Surface-activated chemical ionization ion trap mass spectrometry for the analysis of cocaine and benzoylecgonine in hair after extraction and sample dilution.
Rapid Commun Mass Spectrom. 2007;21(15):2515-23. DOI: 10.1002/rcm.3107
16. **Crotti S**, Seraglia R, Traldi P.
Some thoughts on electrospray ionization mechanisms.
Eur J Mass Spectrom. 2011;17(2):85-99. DOI: 10.1255/ejms.1129
17. **Crotti S**, Traldi P.
Aspects of the role of surfaces in ionization processes.
Comb Chem High Throughput Screen. 2009 Feb;12(2):125-36. PubMed PMID: 19199882

Book chapters

Sara Crotti, Ilena Isak and Pietro Traldi.
Chapter 14, *Advanced Spectroscopic Detectors for Identification and Quantification: Mass Spectrometry on: Liquid Chromatography, Fundamentals and Instrumentation* (1st Edition)
Edit by S. Fanali, P.R. Haddad, C. F. Poole, and P. J. Schoenmakers. ISBN: 9780124158078

Presentations to Conferences and Seminars

Author of more than 25 scientific presentations (as oral contributes or conference posters) to national and international conferences.

Prizes

Start Cup Veneto 2009, first round awarded project (ProteoArt Group members: **Sara Crotti**, Clara Granzotto, Carlo Barbante)

- Research projects managed** 12-month project founded by “Progetto Ingenio, Regione Lombardia” entitled: “Development of new technologies for early diagnosis” (2007)
- Scientific collaborations with industrial partners** Società San Marco srl (2006); ISB srl (2007); ZaCh System SpA (2007); Aboca Società Agricola spa (2013); Alifax spa (2013); Euroclone spa (2013), DANI instruments Spa (2014-2016)
- Patents** International Patent Application No. WO2015145384
Title: Method for diagnosis of colorectal cancer by determining the level of fatty acids present in a biological fluid sample, and apparatus for implementing the method
Inventors: Massimiliano Saini, Manuela Bergna, Sara Crotti, Marco Agostini

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