## PERSONAL INFORMATION

# Antonina Gucciardi

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## PROFILE

Research in the field of analytical chemistry and biochemistry with particular reference to separative techniques and innovative diagnostic methodologies for the study of biologically active molecules, both endogenous or exogenous, for laboratory medicine and clinical and basic research.

## WORK EXPERIENCE

October 2014 – now

### Researcher

Paediatric Research Institute “Città della Speranza”, Padova, Italy.

- Term contract for project research activities. Project: "Pre-natal and early life origin of chronic obstructive lung respiratory diseases: identification of novel diagnostic biomarkers and therapeutic targets by applying the metabolomic approach". Research advisor Prof. Eugenio Baraldi.
  Application of metabolomic analysis for the identification of possible biomarkers of disease, with the use of mass spectrometry ESI-MS / MS, UPLC-QTof, HPLC and UPLC-QQQ and multivariate statistical analysis. Development of analytical methods, chromatographic and mass spectrometry, for the characterization and quantification of metabolites.

Clinical research

October 2013 – September 2014

### Post-doc Fellow

Laboratory of Mass Spectrometry - Department of Women’s and Children’s Health, University of Padova, Italy.

- Project : “Metabolomic analysis in children with food allergy: biomarker based prediction of disease outcome” (research advisor Prof. Eugenio Baraldi).
  Analysis of biological samples by mass spectrometry (HPLC-QTof, UPLC-MS / MS) and identification of metabolites predictive of allergic diseases.

Clinical research

October 2011 – September 2013

### Senior scientist

Laboratory of Mass Spectrometry - Department of Women’s and Children’s Health, University of Padova, Italy.

- Senior research grant from the University of Padova. Project : "Mitochondrial β-oxidation defects: use of stable-isotope labeled tracers in vitro with mass spectrometric analysis and development of compartmental model."
  Mitochondrial enzyme kinetic was evaluated by i*n vitro* fibroblasts experiments with labeled stable isotopes, analysis by mass spectrometry and calculation by a new multicompartmental model. Development of the model was conducted in collaboration with Maria Gianna Toffolo, a professor at Department of Information Engineering of the University of Padua.

Biochemical research

May 2010 – September 2011

### Post-doc Fellow

Laboratory of Mass Spectrometry - Department of Women’s and Children’s Health, Padova, Italy.

- Fellowship funded by Pediatric Foundation Salus Pueri of Padova to develop a mass spectrometry metabolomic approach for the application in newborn rare disease.
  The work was based on the use of tandem mass spectrometry for the study and diagnosis of inherited metabolic diseases through metabolomic approach.

Pediatric research

August 2007 -July 2009

### Research fellow

Laboratory of Mass Spectrometry - Department of Women's and Children's Health, Padova, Italy.

- Fellowship funded by Rare Diseases Centre, Venetian Region, University Hospital of Padova, Italy. Objectives: Development of tandem mass spectrometry methods for newborn screening and diagnosis of rare disease. (Advisor Dr. Giuseppe Giordano)
  The activity focused on the use of tandem mass spectrometry instruments for the development of new analytical methods to study inherited metabolic diseases and for early diagnosis by expanded newborn screening.

Pediatric research

March 2007 – August 2007

### Research Fellow

Laboratory of Nutrition and Metabolism of the Department of Pediatrics, University of Padova, Italy.

- Project: "Study of phosphatidylcholine and surfactant protein SP-B in acute respiratory disease". (Supervisor Prof. Carlo Ori - Dr. Paola E. Cogo)

Pediatric research

January 2004 – July 2007

### PhD Fellow

Laboratory of Nutrition and Metabolism of the Department of Pediatrics, University of Padova, Italy.

- Fellowship funded by the University of Padova. Research activity focused on studying the surfactant metabolism in newborns with respiratory disease and the intestinal fatty acid absorption by the use of stable isotopes in vivo and mass spectrometry analysis. (Supervisor Dr. Paola Cogo.)
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Pediatric research

March 2004 - November 2005

### Postgraduate Fellow

Laboratory of Nutrition and Metabolism of the Department of Pediatrics, University of Padova, Italy.

- Research fellowship sponsored by Milupa S.p.A. Project: "Intestinal fat malabsorption in the preterm newborn". (Advisor Dr. Virgilio P. Carnielli)
  Preparation of biological samples (blood, faeces), separation of lipids and amino acids (extraction and TLC chromatography); analysis by gas chromatography interfaced with quadrupole and isotope ratio mass spectrometer (GC-MS and GC-IRMS); management and resolution of the instrumental problems; statistical elaboration of analytical data.

Pediatric research

July 2001 - December 2003

### Postgraduate Fellow

Laboratory of Nutrition and Metabolism of the Department of Pediatrics, University of Padova, Italy.

- Research fellowship sponsored by Nutricia S.p.A. Project: "Metabolism of long chain polyunsaturated fatty acids (LCPUFA) from phospholipids or triglycerides in formula fed newborn infants". (Advisor Dr. Virgilio P. Carnielli)
  Preparation of biological samples, separation of lipid classes, amino acids, proteins (extraction and TLC chromatography); analysis by gas chromatography interfaced with quadrupole and isotope ratio mass spectrometer (GC-MS and GC-IRMS); management and resolution of the instrumental problems; statistical elaboration of analytical data.

Pediatric research

June 2000 - May 2001

### Postgraduate Fellow

Department of Environmental Health and Preventive Medicine, University of Padova, Italy.

- Research fellowship funded by INCO-DC Programme of the European Commission contract n° IC18-CT98-0341. Project: "Cytochrome P-450 as a biological marker of susceptibility and effect of occupational and environmental exposure to volatile organic chemicals (VOC's), polycyclic aromatic hydrocarbons (PAH's) and petrol-diesel hydrocarbons (PDH's)".
  Research activity: identification and quantification of urinary biomarkers of VOC's exposure by gas chromatography-mass spectrometry.

Clinical research

April – October 2000

### Pharmacy traineeship

Farmacia Dal Fra, Padova, Italy

- 6-months professional training in a public pharmacy

Pharmacy

March 1999 - March 2000

### Undergraduate Student Internship

Mass Spectrometry Service, National Council of Research CNR-ISTM, Padova, Italy

- Internship period for master degree research and thesis development. (Supervisor Prof. Piero Traldi and Dr. Roberta Seraglia)

Research

## EDUCATION AND TRAINING

2007

### Ph.D. Degree: Developmental Science

EQF 8

University of Padova, School of Medicine, Department of Women's and Children's Health, Padova, Italy.

- Thesis title: "Use of stable isotopes as tracers for biological studies in humans".

2000

### National Board Certification in Pharmacy

University of Padova , Padova, Italy

2000

### Master degree (Laurea) in Chemistry and Pharmaceutical Technologies

EQF 7

Pharmaceutical Sciences Department, University of Padova, Padova, Italy.

- Thesis title: "Quantitative determination of triglycerides in butter and margarine by mass spectrometry".

1991

### High school diploma (classical studies)

EQF 4

Liceo Classico "L. Ximenes", Trapani, Italy

## PERSONAL SKILLS

Mother tongue(s): Italian

Other language(s)

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | B2 | C1 | C1 | C1 | C1 |

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- Excellent communication and interpersonal skills and contact with the audience acquired through various work experiences (cash register and desk in ice cream shop and restaurant, call-center operator, promoter in exhibitions and supermarkets).

Organisational / managerial skills

- Able to work independently including planning & executing activities with minimum supervision.
- Able to organize tasks in a team situation and able to motivate colleagues and meet deadlines.
- Good teamwork skills, taking into account individual differences and needs. Effective listening and sharing ideas.
- Excellent organizational skills, management and planning of time and work. Strong problem-solving and meeting goals skills.

Job-related skills

- mentoring and tutoring (assist undergraduate, graduate and Ph.D students in the performance of experiments; supervisor of 2 degree thesis in medicine and pharmacy)
- learn new knowledge from everyone in an organization

Digital competence

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

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

Digital competences.:

- Operating system: Windows
- Microsoft Office: Excellent knowledge of Word, Excel, Access, Powerpoint
- Other programs: GraphPad Prism, Statistica, SPSS, Photoshop, Adobe Premiere
- Instruments: Delta XL Plus, GC-combustion III, Gas Bench e GC/MS quadrupole (Md800, Voyager) from ThermoFinnigan; GC/FID and GC/MS 5890, 6890 e 5976 from Agilent; LC-ESI/MS/MS HPLC Alliance, Quattro Ultima, Quattro Premier XE, QTof Synapt G2, Xevo TQ-S, Acquity UPLC e UPC2 from Waters. Use of MALDI/TOF limited to thesis internship period.
- Instrument management software: Masslynks (Waters), Chemstation (Agilent), Isodat and Xcalibur (Thermo).

Other skills

- I enjoy cooking, especially traditional Sicilian recipes, and share conviviality with family and friends.

Driving licence

Car driving licence category B.

## ADDITIONAL INFORMATION

Publications

(anti chronological order)

1. Lucca F, Da Dalt L, Ros M**, Gucciardi A**, Pirillo P, Naturale M, Perilongo G, Giordano G, Baraldi E. Asymmetric dimethylarginine and related metabolites in exhaled breath condensate of children with cystic fibrosis. Clin Respir J. 2016 May 23. doi: 10.1111/crj.12502. [Epub ahead of print]
2. D'Andrea G, Leone M, Bussone G, Fiore PD, Bolner A, Aguggia M, Saracco MG, Perini F, Giordano G, **Gucciardi A**, Leon A. Abnormal tyrosine metabolism in chronic cluster headache. Cephalalgia. 2016 Mar 22. pii: 0333102416640502. [Epub ahead of print]
3. **Gucciardi A**, Zaramella P, Costa I, Pirillo P, Nardo D, Naturale M, Chiandetti L, Giordano G. Analysis and interpretation of acylcarnitine profiles in dried blood spot and plasma of preterm and full-term newborn. Pediatr Res. 2015 Jan;77(1-1):36-47.
4. **Gucciardi A**, Legnini E, Di Gangi IM, Corbetta C, Tomanin R, Scarpa M, Giordano G. A column-switching HPLC-MS/MS method for Mucopolysaccharidosis type I analysis in a multiplex assay for the simultaneous newborn screening of 6 lysosomal storage disorders. Biomedical Chromatography Biomed Chromatogr. 2014 Aug;28(8):1131-9.
5. Giordano G, **Gucciardi A**, Di Gangi IM, Pirillo P, Costa I, Donazzolo E, Naturale M, Carraro S, Baraldi E, Reniero F. Approccio metabolomico alla diagnostica clinica delle colestasi. Lygang

Assay 2012 17(1):25-32
6. Di Gangi IM, Pirillo P, Carraro S, **Gucciardi A**, Naturale M, Baraldi E, Giordano G. Online trapping and enrichment ultra performance liquid chromatography-tandem mass spectrometry method for sensitive measurement of "arginine-asymmetric dimethylarginine cycle" biomarkers in human exhaled breath condensate. Anal Chim Acta. 2012 Nov 19;754:67-74. doi: 10.1016/j.aca.2012.09.03
7. **Gucciardi A**, Pirillo P, Di Gangi IM, Naturale M, Giordano G. A rapid UPLC-MS/MS method for simultaneous separation of 48 acylcarnitines in dried blood spots and plasma useful as a second-tier test for expanded newborn screening. Anal Bioanal Chem. 2012 Aug;404(3):741-51. doi: 10.1007/s00216-012-6194-1.
8. Giordano G, Di Gangi IM, **Gucciardi A**, Naturale M. Quantification of underivatised amino acids on dry blood spot, plasma, and urine by HPLC-ESI-MS/MS. Methods Mol Biol. 2012;828:219-42. doi: 10.1007/978-1-61779-445-2_18.
9. Di Gangi IM, Chiandetti L, **Gucciardi A**, Moret V, Naturale M, Giordano G. Simultaneous quantitative determination of N(G),N(G)-dimethyl-l-arginine or asymmetric dimethylarginine and related pathway's metabolites in biological fluids by ultrahigh-performance liquid chromatography/electrospray ionization-tandem mass spectrometry. Anal Chim Acta 2010; 677:140-148
10. Verlato G, Cogo PE, Balzani M, **Gucciardi A**, Burattini I, De Benedictis F, Martiri G, Carnielli VP. 2008 Surfactant status in preterm neonates recovering from respiratory distress syndrome. Pediatrics Jul;122(1):102-8.
11. **Gucciardi A**, Cogo PE, Traldi U, Eaton S, Darch T, Simonato M, Ori C, Carnielli VP. 2008. Simplified method for microlitre deuterium measurements in water and urine by gas chromatography-high-temperature conversion-isotope ratio mass spectrometry. Rapid Commun Mass Spectrom 22(13):2097-103.
12. Cogo PE, Toffolo GM, Ori C, Vianello A, Chierici M, **Gucciardi A**, Cobelli C, Baritussio A, Carnielli VP. Surfactant disaturated-phosphatidylcholine kinetics in acute respiratory distress syndrome by stable isotopes and a two compartment model. Respir Res. 2007 Feb 21;8:13.
13. Tessari P, Kiwanuka E, Millioni R, Vettore M, Puricelli L, Zanetti M, **Gucciardi A**, Tosolini M, Cogo P, Carnielli V, Tiengo A, Barazzoni R. Albumin and fibrinogen synthesis and insulin effect in type 2 diabetic patients with normoalbuminuria. Diabetes Care. 2006 Feb;29(2):323-8.
14. Cogo P.E, **Gucciardi A**, Traldi U, Hilkert A.W, Verlato G, Carnielli V.P. Measurement of pulmonary surfactant disaturated-phosphatidylcholine synthesis in human infants using deuterium incorporation from body water. J Mass Spectrom 2005;40: 875-881
15. Cogo P.E, Toffolo G.M, **Gucciardi A**, Benetazzo A, Cobelli C, Carnielli V.P. Pulmonary surfactant disaturated-phosphatidylcholine kinetics in infants with bronchopulmonary dysplasia by stable isotopes and a two compartment model. J Appl Physiol, 2005; 99: 323-329
16. Cogo P. E, Baritussio A, Rosso F, **Gucciardi A**, Moretti V, Badon T, Duner E, Zimmernann L.J, Carnielli V.P. Surfactant Associated Protein B (SP-B) kinetics in vivo in newborn infants by stable isotopes. Pediatr Res, 2005; 57 (4): 519-522
17. Verlato G, Cogo P.E, Benetti E, Gomirato S, **Gucciardi A**, Carnielli V. Kinetics of surfactant in respiratory diseases of the newborn infant. J Matern Fetal Neonatal Med. 2004;16 Suppl 2:21-4.
18. Cogo P. E, Zimmermann L.J.I, Verlato G, Midrio P, **Gucciardi A**, Ori C, Carnielli V.P. A dual stable isotope tracer method for the measurement of surfactant disaturated-phosphatidylcholine (DSPC) net synthesis in infants with congenital diaphragmatic hernia (CDH).Pediatr Res, 2004; 56:184-190.
- 19. Verlato G, Cogo P.E, Pesavento R, Gomirato S, Benetazzo A, **Gucciardi A**, Grazzini M, Carnielli V. P. Surfactant kinetics in newborn infants with pneumonia and Respiratory Distress Syndrome (RDS). Ital J Pediatr 2003; 29:354-357.

## Presentations

- Invited speaker at Advanced School of Applied Mass Spectrometry and Complementary Techniques App-MS 2014, 10-14 March 2014, Milan, Italy
- Invited speaker at Advanced course on the coupling of mass spectrometry with separation techniques in liquid phase LC-MS 2014, 23-26 June 2014, Lucca, Italy

## Honours and awards

- “DSM-SCI 2001” Award from The Division of Mass Spectrometry of the Italian Chemical Society as the young researcher in mass spectrometry.
- Senior Research Grants (24-months research grants of 21,304 euro/year) awarded for independent research projects.
- “Travel Award for Young Investigator”, Mass Spectrometry Application to the Clinical Laboratory Conference MSACL 2014, San Diego, CA. March 1-5, 2014.
- “Travel Award for Young Investigator”, Mass Spectrometry Application to the Clinical Laboratory
- Conference MSACL EU 2015, Salzburg, A.Sepember 8-11, 2015.

Memberships

- Member of Italian Mass spectrometry Society IMASS
- Admitted to the Order of Pharmacists of Padova ( n°4064 from 05/02/2013)