CURRICULUM VITAE OLGA FIERRO

PERSONAL INFORMATION

Surname, Name	**OLGA FIERRO**
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ORCID/SCOPUS	**0000-0001-9962-4734**
Nationality	**ITALIAN**

WORK EXPERIENCE

Period (from – to)	**2001 - PRESENT**
Name of employer	National Research Council of Italy, Institute of Food Sciences (CNR-ISA)
Type of business or sector	Public Research Institution
Occupation or position held	Researcher

Period (from – to)	**2000 - 2001**
Name of employer	National Research Council of Italy, Institute of Food Sciences (CNR-ISA)
Type of business or sector	Public Research Institution
Occupation or position held	Researcher (Art. 23 DPR171/91)

EDUCATION

Period (from – to)	**1996 - 1999**
Name and type of organization providing education	University of Naples “Federico II”, Italy
Title of qualification awarded	PhD in Agricultural Chemistry

Period (from – to)	**1995**
Name and type of organization providing education	University of Naples “Federico II”, Italy
Title of qualification awarded	Chemical Profession Qualifying Exam

Period (from – to)	**1988 - 1994**
Name and type of organization providing education	University of Naples “Federico II”, Italy
Title of qualification awarded	Chemistry Degree

NATIVE LANGUAGE **ITALIAN**

OTHER LANGUAGES

ENGLISH

Reading	Advanced
Writing	Advanced
Talking	Advanced

TRAINING
(main)

Period (from – to)	**2015 - 2015**
Name and type of organization providing education	University of Urbana – Champaign, Illinois, USA
Title of qualification awarded	Training course in "Principles of Fluorescence Techniques"
Period (from – to)	**1995 - 1996**
Name and type of organization providing education	University of Naples "Federico II", Italy
Title of qualification awarded	CNR fellowship – Title: Riconoscimento cellulare nel parassitismo, fattori di aggressione nei patogeni e resistenza indotta

ORGANIZATIONAL CAPACITY
(main)

Supervisor of Organic Synthesis Laboratory at ISA -CNR

Supervisor of the PerSeptive Biosystems 9050 continuous flow synthesizer

Coordinator and Advisory Board Member of:
First International Course "Advanced Applications of Fluorescence Techniques" ISA – CNR
2nd International Course "Advanced Fluorescence Applications in Biotechnology and Biology" ISA - CNR

Member of the commission for testing important scientific equipment purchased at ISA – CNR with *ad hoc* funds from Regione Campania

Research Activities/Projects
(main)

Chemistry and applications of synthetic peptides

Technologies

Solid phase peptide synthesis (SPPS) is the major breakthrough allowing for the chemical synthesis of peptides and small proteins. In her laboratory Dr. Fierro uses Fmoc/tBu SPPS strategy. Syntheses are carried out in the C to N direction on a PerSeptive Biosystems 9050 continuous flow synthesizer or manually when it is necessary. Synthetic peptides are checked by MALDI-TOF mass spectrometry and HPLC analysis

Research

Laboratory of Dr. Fierro focuses on the study of chemistry and biology of bioactive peptides and synthetic analogs in food and pharmacological field. This study encompasses solid phase chemistry, molecular design, structure analysis, combinatorial synthesis and biological investigations. Targets are selected on the basis of novel molecular architecture, important biological activity and interesting mechanism of action. In addition, she is interested in the development of new and/or improved chemical methods (*via* SPPS or classical organic liquid-phase synthesis) for the synthesis of organic compounds of biological importance

Outlines

- Design and synthesis of modified peptides: D-amino acid, unnatural amino acid, heavy amino acid (labelled with ^{13}C and/or ^{15}N) insertion; cyclisation; phosphorylation or sulfurylation; biotinylation, fluorescent-probe peptide labelling; conjugation to carrier proteins; branching of peptides (MAPs – Multiple Antigenic Peptides used for direct immunisation to produce antibodies).
- Synthesis and biological characterization (antimicrobial, antifungine and haemolytic activity, protease and peptidase inhibition) of new bioactive peptidomimetics (pseudopeptides, retro-inverso peptides, peptoids).
- Synthetic peptide combinatorial libraries for immunological studies and bioactive peptides identification.
- Synthesis and characterization of non-proteinogenic amino acids like those of beta-amino acids family H_2N-CH(R)-CH(R')-CO_2H, (β R=H, β^3 R'=H and β,β-disubstituted) in

diastereomeric and enantiomeric pure form, these residues may be new molecular tools having stabilizing properties of peptide sequence

Most Recent Projects

Title: IBISBA 1.0 (Industrial Biotechnology Innovation and Synthetic Biology Accelerator). H2020-EU 1.4.1.2. 2017-2021

Title: ADViSE (Antitumor Drugs and Vaccines from Sea). POR-FESR Regione Campania 2014-2020

Title: Nutrizione, Alimentazione & Invecchiamento (NUTR-AGE). FOE-2019, DSB.AD004.271

Reviewer activity

Referee for

Journal of Peptide Science
Peptides
Molecules
Plos ONE
Journal of Agricultural and Food Chemistry
Food Chemistry
Food

Teaching Activities

(main)

Lecturer for the APTEA course at ISA – CNR (2013)
Lecturer for the course "Addetto al Controllo Qualità nell'Industria Alimentare" at Istituto IPSIA "G.Giorgi"-Avellino, Italy (2009)
Lecturer for the course "Addetto al Controllo degli Alimenti per Tecnico Chimico e Biologico" at ISA – CNR (2009)
Tutor/co-tutor of several graduation thesis on solid phase synthesis of biological peptides and their analogs

Publications

26 Articles in International Scientific Journals (ISI WoS)

6 Chapters in books (3 international, 3 national),

1 Articles in National or not ISI Scientific Journals

21 abstracts in international or national congresses

Date, February, 18, 2022

Main publications

Camarca, A., Auricchio, R., Picascia, S., **Fierro, O.**, Maglio, M., Miele, E., Malamisura, B., Greco, L., Troncone, R., Gianfrani, C.: "Gliadin-reactive T cells in Italian children from prevent CD cohort at high risk of celiac disease"; *Pediatric Allergy and Immunology*, 28 (4), 2017, 362-369.

Iacomino, G., Di Stasio, L., **Fierro, O.**, Picariello, G., Venezia, A., Gazza, L., Ferranti, P., Mamone, G.: "Protective effects of ID331 *Triticum monococcum* gliadin on *in vitro* models of the intestinal epithelium"; *Food Chemistry*, 212, 2016, 537-542.

Picariello G., Sacchi R., **Fierro O.**, Melck D., Romano R., Paduano A., Motta A., Addeo F.: "High resolution C-13 NMR detection of short- and medium-chain synthetic triacylglycerols used in butterfat adulteration"; *European Journal of Lipid Science and Technology*, 115(8), 2013, 858-864.

Picariello G., Iacomino G., Mamone, G., Ferranti P., **Fierro O.**, Gianfrani C., Di Luccia A., Addeo F.: "Transport across Caco-2 monolayers of peptides arising from in vitro digestion of bovine milk proteins"; *Food Chemistry*, 139(1-4), 2013, 203-212.

Iacomino G., **Fierro O.**, D'Auria S., Picariello G., Ferranti P., Liguori C., Addeo F., Mamone G.: "Structural analysis and caco-2 cell permeability of the celiac-toxic α-gliadin peptide 31-55"; *Journal of Agricultural and Food Chemistry*, 61(5), 2013, 1088-1096.

Mamone G., Camarca A., **Fierro O.**, Sidney J., Mazzarella G., Addeo F., Auricchio S., Troncone R., Sette A., Gianfrani C.: "Immunogenic peptides can be detected in whole gluten by transamidating highly susceptible glutamine residues: implication in the search for gluten-free cereals"; *Journal of Agricultural and Food Chemistry*, 61(3), 2013, 747-754.

Pinto G., Caira S., Cuollo M., **Fierro O.**, Nicolai M.A., Chianese L., Addeo F.: "Lactosylated casein phosphopeptides as specific indicators of heated milks"; *Analytical and Bioanalytical Chemistry*, 402(5), 2012, 1961-1972.

Bonomi F., Brandt R., Favalli S., Ferranti P., **Fierro O.**, Frokiaer H., Ragg E., Iametti S.: "Structural determinants of the immunomodulatory properties of the C-terminal region of bovine beta-casein"; *International Dairy Journal*, 21(10), 2011, 770-776.

De Laurentiis A., Gaspari M., Palmieri C., Falcone C., Iaccino E., Fiume G., Massa O., Masullo M., Tuccillo F.M., Roveda L., Prati U., **Fierro O.**, et al.: "Mass spectrometry-based identification of the tumor antigen UN1 as the transmembrane CD43 sialoglycoprotein"; *Molecular & Cellular Proteomics*, 10(5), 2011, Special Issue.

Pinto G., Caira S., Cuollo M., Lilla, S., **Fierro O.**, Addeo F.: "Hydroxyapatite as a concentrating probe for phosphoproteomic analyses"; *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences*, 878(28), 2010, 2669-2678.

Palmieri C., Falcone C., Iaccino E., Tuccillo F.M., Gaspari M., Trimboli F., De Laurentiis A., Luberto L., Pontoriero M., Pisano A., Vecchio E., **Fierro O.**, et al.: "In vivo targeting and growth inhibition of the A20 murine B- cell lymphoma by an idiotype-specific peptide binder"; *Blood*, 116(2), 2010, 226-238.

Picariello G., Ferranti P., **Fierro O.**, Mamone G., Caira S., Di Luccia A., Monica S., Addeo F.: "Peptides surviving the simulated gastrointestinal digestion of milk proteins: biological and toxicological implications"; *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences*, 878(3-4), 2009, *295-308*.

Camarca A., Anderson RP., Mamone G., **Fierro O.**, Facchiano A., Costantini S., Zanzi D., Auricchio S., Troncone R. and Gianfrani C.: "Intestinal T-cell responses to gluten peptides are largely heterogeneous: implication for a peptide-based therapy in celiac disease"; *The Journal of Immunology*, *Journal of Immunology*, **82**, *7*, 2009, 4158-4166.

Spatuzza C., Schiavone M., Di Salle E., Janda E., Sardiello M., Fiume G., **Fierro O.**, Simonetta M., Argiriou N., Faraonio R., Capparelli R., Quinto I. and Scala G.: "Physical and functional characterization of the genetic locus of IBtk, an inhibitor of Bruton's tyrosine kinase: evidence for three protein isoforms of IBtk"; *Nucleic Acids Research,* **36**, *13*, 2008, 4402-4416.

Fierro O., Albrizio S., Carotenuto A., Caliendo G., Guarino D., Greco P., Campiglia P., Lama T. and Novellino E.: "Design, synthesis, and evaluation of Gluten peptide analogs as selective inhibitors of Human TG2", in Sylvie E. Blondelle (Ed) *Toward peptides as potential therapeutics,* (Proceedings of the 19th American Peptide Symposium) 2006, 401-402.

Bolognese A., **Fierro O.**, Guarino D., Longobardo L. and Caputo R.: "One-Pot Synthesis of Orthogonally Protected Enantiopure S-(Aminoalkyl)-cysteine Derivatives"; *European Journal of Organic Chemistry, 1*, 2006, 169-173.