CURRICULUM VITAE ALESSANDRA CAMARCA

PERSONAL INFORMATION

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Nationality	**ITALIAN**

WORK EXPERIENCE

Period (from – to)	**SEPTEMBER 2017- PRESENT**
Name of employer	National Research Council of Italy, Institute of Food Sciences (CNR-ISA)
Occupation or position held	Permanent Researcher, third level
Period (from – to)	**NOVEMBER 2014-MARCH 2015**
Name of employer	National Research Council of Italy, Institute of Food Sciences (CNR-ISA)
Occupation or position held	Temporary Researcher, third level
Period (from – to)	**JANUARY 2013-OCTOBER 2014**
Name of employer	Department of Medical and Translational Sciences (DISMET), Federico II University of Naples
Occupation or position held	Post-doctoral research activity in the context of the EU project: Prevent CD Contract N. Food-CT-2006-3638. The research activity was carried out at ISA-CNR.
Period (from – to)	**OCTOBER 2012-DECEMBER 2012**
Name of employer	National Research Council of Italy, Institute of Food Sciences (CNR-ISA)
Occupation or position held	Research contract spent on “Evaluation of the immunomodulatory effects of polyphenols and carotenoid extracts from functional foods”.
Period (from – to)	**JANUARY 2008-SEPTEMBER 2012**
Name of employer	European Laboratory for Food Induced Diseases (ELFID) and Department of Medical and Translational Sciences (DISMET), Federico II University of Naples
Occupation or position held	Research fellowships on “Analysis of the immune response in a cohort of children at high risk to develop celiac disease” and “Analysis of the intestinal immune response to food antigens in type 1 diabetes patients”. The research activity was carried out at ISA-CNR.
Period (from – to)	**JANUARY 2007-DECEMER 2007**
Name of employer	San Raffaele Telethon Institute for Gene therapy (SR-Tiget)
Occupation or position held	Research contract on “Identification and validation of novel biomarkers for Regulatory T cells”. The research activity was carried out at ISA-CNR.
Period (from – to)	**MAY 2004-DECEMER 2006**
Name of employer	European Laboratory for Food Induced Diseases (ELFID) and Department of Medical and Translational Sciences (DISMET), Federico II University of Naples
Occupation or position held	Research fellowship on “Study of regulatory cells in the intestinal mucosa of celiac disease patients”. The research activity was carried out at ISA-CNR.

VISITING SCIENTIST

Period (from – to)	**MARCH 2009**
Name of employer	Centre for Immune Regulation (CIR), University of Oslo and Rikshospitalet.
Occupation or position held	Research activity on "Generation of HLA-DQ2 tetramers specific for a gliadin peptide immunodominant in celiac disease patients".

EDUCATION

Period (from – to)	**OCTOBER 2000 – NOVEMBER 2003**
Name and type of organization providing education	University of Naples Federico II, Italy
Title of qualification awarded	PhD in Biological Chemistry and Molecular Biology
Period (from – to)	**SEPTEMBER 1998 – MARCH 2000**
Name and type of organization providing education	University of Naples Federico II, Italy
Title of qualification awarded	Degree in Biological Sciences

NATIVE LANGUAGE **ITALIAN**

OTHER LANGUAGES

ENGLISH

Reading	Advanced
Writing	Advanced
Talking	Upper intermediate

Research Activities (main)

Dr. Camarca is an expert in mucosal immunology, in particular in gluten-induced enteropathy (Coeliac Disease). Her research has mainly been focused on gluten immunogenic sequences, cellular biology of gluten-specific T-lymphocytes, immunological potential of alternative cereals for celiac diet, enzymatic strategies for gluten detoxification, immune-modulatory properties of bio/chemical molecules. To this scope the main experimental approaches are: primary intestinal gluten-specific T cell lines (iTCLs), in vivo short gluten challenge in celiac subjects, ex-vivo isolated peripheral blood mononuclear cells.
More recently she has also acquired expertise in fluorescence spectroscopy, applied to the characterization of biomolecules interaction and to the development of biosensors.

RESEARCH ON GLUTEN-INDUCED ENTEROPATHY (COELIAC DISEASE)

Evaluation of the effect of specific endopeptidases on gluten degradation, with particular attention to the residual ability of digested gluten to activate intestinal CD4+T lymphocytes (iTCLs). The same experimental model has been used for validation of alternative enzymatic strategies for gluten detoxification (i.e. wheat flour transamidation).

Assessment of the immunogenicity of cereals alternative to hexaploid wheat (Triticum aestivum) for CD patients. In particular, the ability to activate intestinal gluten-specific T cell lines has been studied for T. Monococcum, avena, and beer extracts. The T. Monococcum immune-toxicity has also been evaluated by in vivo short-term gluten challenge in celiac subjects.

Study of the immune response to gluten in children at high risk to develop celiac disease, including first relatives of celiac patients, type-1 diabetes patients and potential-CD subjects.

Study of the repertoire of gluten immunogenic peptides in celiac disease patients.

RESEARCH ON IMMUNOMODULATORY PROPERTIES OF BIO/CHEMICAL MOLECULES

Study of the effect of bisphenol A on activation of peripheral blood mononuclear cells and on differentiation of monocyte-derived dendritic cells.

Study of the immunomodulatory effect of polyphenols and carotenoid extracts from potentially functional foods, exploiting ex-vivo isolated peripheral blood mononuclear cells from healthy donors.

RESEARCH ON FLUORESCENCE SPECTROSCOPY APPLIED TO THE DEVELOPMENT OF BIOSENSORS

Development of FRET-based immuno-sensors for antibiotics (neomycin and Penicillin G). Identification, purification and characterization of appropriate antibodies to be used as molecular recognition elements (MREs) for biosensors.

Development of photonic immuno-sensors for six emerging and endemic swine viruses, namely: African Swine Fever Virus (ASFV), Classical Swine Fever Virus (CSFV), Porcine Reproductive and Respiratory Syndrome Virus (PPRSV), Porcine Parvovirus (PPV), Porcine Circovirus 2 (PCV2), and Swine Influenza Virus A (SIV). In particular, Dr. Camarca has worked on the identification, purification and characterization of suitable antibodies to be used as MREs for the sensors, by immune-chemical techniques.

Characterization of a possible probe for a Nicotinamide Adenin Mononucletide (NMN)-biosensor. The binding of NMN to different E.Coli NMN-deamidase mutants, was investigated by fluorescence spectroscopy.

Research Projects (main)

2007	Ruolo dell'Immunità intestinale nel diabete di tipo 1, finanziato da Regione Campania, L.R. n5/2002-Finanziamento 2007
2011-2012	PreventCD: Influence of the dietary history in the prevention of coeliac disease: possibilities of induction of tolerance for gluten in genetically predisposed children. EU-FP6-2005-FOOD4B-Contract n. 036383.
2011-2013	MIUR-PRIN 2009 (2009LC892E). Risposta adattativa T nella malattia celiaca: identificazione degli epitopi del glutine e pattern di citochine prodotte.
2015	Progetto Bandiera Interomics (WP5 applicazioni in ambito diagnostico, biomedico e di processo in relazione alla celiachia). Progetto finanziato dal MIUR.
November 2017- October 2021	Swine diseases field diagnostics toolbox (SWINOSTICS)". GA number: 771649. Type of project: Horizon 2020.
January-December 2020	Nutrizione, Alimentazione & Invecchiamento Attivo (NUTR-AGE) Progetto DISBA-FOE CNR 2019.
May 2021-May 2022	Code:Re-Farm Consumer-driven demands to reframe farming systems. GA number: 101000216. Type of Project: Horizon 2020.
October 2020-May 2022	E-Crops Tecnologie per l'Agricoltura Digitale Sostenibile. Programma PON "R&I" 2014-2020-Azione II-OS1.b.
July 2019-February 2023	Understanding and targeting the extracellular NADome in inflammation. PRIN 2017 CBNCYT

Publications

38 articles in International Scientific Journals (ISI WoS)

2 Chapters in international books

2 Articles in National or not ISI Scientific Journals

27 abstracts in international or national congresses

Date, 22/09/2022

Alessandra Camarca

Main Publications

Photonic Label-Free Biosensors for Fast and Multiplex Detection of Swine Viral Diseases. Gómez-Gómez, M., Sánchez, C., Peransi, S., Zurita, D., Bellieres, L., Recuero, S., Rodrigo, M., Simón, S., **Camarca, A**., ….Giusti, A., Griol, A. Sensors, 2022, 22(3), 708.

Characterization of two NMN deamidase mutants as possible probes for an NMN biosensor. **Camarca, A**., Minazzato, G., Pennacchio, A., ...D'Auria, S., Raffaelli, N. International Journal of Molecular Sciences, 2021, 22(12), 6334.

Emergent biosensing technologies based on fluorescence spectroscopy and surface plasmon resonance. **Camarca, A**., Varriale, A., Capo, A., ...D'auria, S., Staiano, M. Sensors (Switzerland), 2021, 21(3), pp. 1–35, 906.

Fluorescence polarization assay to detect the presence of traces of ciprofloxacin. El Kojok, H., El Darra, N., Khalil, M., Pennacchio A., Staiano M., **Camarca A.,** D'Auria, S., Varriale, A. Scientific Reports, 2020, 10(1), 4550.

In Celiac Disease Patients the In Vivo Challenge with the Diploid Triticum monococcum Elicits a Reduced Immune Response Compared to Hexaploid Wheat. Picascia, S., **Camarca, A.**, Malamisura, M., ...Auricchio, R., Gianfrani, C. Molecular Nutrition and Food Research, 2020, 64(11), 1901032.

The intestinal expansion of TCRγδ+ and disappearance of IL4+ T cells suggest their involvement in the evolution from potential to overt celiac disease. Vitale, S., Santarlasci, V., **Camarca, A**., ...Auricchio, R., Gianfrani, C. European Journal of Immunology, 2019, 49(12), pp. 2222–2234.

Design and development of photonic biosensors for swine viral diseases detection. Griol, A., Peransi, S., Rodrigo, M., ...**Camarca A.,** D'Auria S., Varriale, A., Giusti, A. Sensors (Switzerland), 2019, 19(18), 3985.

Lack of immunogenicity of hydrolysed wheat flour in patients with coeliac disease after a short-term oral challenge. Mandile, R., Picascia, S., Parrella, C., **Camarca, A**.,....Gianfrani, C., Auricchio, R. Alimentary Pharmacology and Therapeutics, 2017, 46(4), pp. 440–446.

Gliadin-reactive T cells in Italian children from preventCD cohort at high risk of celiac disease. **Camarca, A.,** Auricchio, R., Picascia, S.,...Troncone, R., Gianfrani, C. Pediatric Allergy and Immunology, 2017, 28(4), pp. 362–369.

Gliadin-specific CD8+ T cell responses restricted by HLA class I A0101 and B0801 molecules in celiac disease patients. Picascia, S., Sidney, J., **Camarca, A.**, ...Sette, A., Gianfrani, C. Journal of Immunology, 2017, 198(5), pp. 1838–1845.

Microwave-based treatments of wheat kernels do not abolish gluten epitopes implicated in celiac disease. Gianfrani, C., Mamone, G., la Gatta, B., **Camarca A.,** ...Picariello, G., Di Luccia, A. Food and Chemical Toxicology, 2017, 101, pp. 105–113.

Human peripheral blood mononuclear cell function and dendritic cell differentiation are affected by bisphenol-A exposure. **Camarca, A.,** Gianfrani, C., Ariemma, F., ...Formisano, P., Valentino, R.V. PLoS ONE, 2016, 11(8), e0161122

HLA-DQ2.5 genes associated with celiac disease risk are preferentially expressed with respect to non-predisposing HLA genes: Implication for anti-gluten T cell response. Pisapia L*., **Camarca A***, Picascia S, Bassi V, Barba P, Del Pozzo G, Gianfrani C. Journal of Autoimmunity 2016. Jun;70:63-72.

Engineering of Kuma030: A Gliadin Peptidase That Rapidly Degrades Immunogenic Gliadin Peptides in Gastric Conditions. Wolf C, Siegel JB, Tinberg C, **Camarca A,** Gianfrani C, Paski S, Guan R, Montelione G, Baker D, Pultz IS. J Am Chem Soc. 2015 Oct 14;137(40):13106-13.

Extensive in vitro gastrointestinal digestion markedly reduces the immune-toxicity of Triticum monococcum wheat: implication for celiac disease. Gianfrani C, **Camarca A,** Mazzarella G, Di Stasio L, Giardullo N, Ferranti P, Picariello G, Rotondi Aufiero V, Picascia S, Troncone R, Pogna N, Auricchio S, Mamone G. Mol Nutr Food Res. 2015 Sep;59(9):1844-54.

Tolerogenic effect of mesenchymal stromal cells on gliadin-specific T lymphocytes in celiac disease. Ciccocioppo R, **Camarca A,** Cangemi GC, Radano G, Vitale S, Betti E, Ferrari D, Visai L, Strada E, Badulli C, Locatelli F, Klersy C, Gianfrani C, Corazza GR. Cytotherapy. 2014 May 13.

Cereal-based gluten-free food: how to reconcile nutritional and technological properties of wheat proteins with safety for celiac disease patients. Lamacchia C, **Camarca A,** Picascia S, Di Luccia A, Gianfrani C. Nutrients. 2014 Jan 29;6(2):575-90.

T300A variant of autophagy ATG16L1 gene is associated with decreased antigen sampling and processing by dendritic cells in pediatric Crohn's disease. Strisciuglio C, Miele E, Wildenberg ME, Giugliano FP, Andreozzi M, Vitale A, Capasso F, **Camarca A,** Barone MV, Staiano A, Troncone R, Gianfrani C. Inflamm Bowel Dis. 2013 Oct;19(11):2339-48.

Immunogenic peptides can be detected in whole gluten by transamidating highly susceptible glutamine residues: implication for searching of gluten-free cereals. Mamone G, **Camarca A,** Fierro O, Sidney J, Mazzarella G, Addeo F, Auricchio S, Troncone R, Sette A, Gianfrani C. J Agric Food Chem. 2012 Dec 18.

Immunogenicity of monococcum wheat in celiac patients. Gianfrani, C., Maglio, M., **Camarca A.**,...Auricchio, S., Mazzarella, G. American Journal of Clinical Nutrition, 2012, 96(6), pp. 1339–1345

Reproducibility of the in vivo short wheat challenge, a sensitive tool to monitor immune responsiveness to gluten. **Camarca A,** Radano G, Di Mase R, Terrone G, Maurano F, Auricchio S, Troncone R, Greco L, and Gianfrani C. Clin Exp Immunol. 2012 Aug;169(2):129-36.

Shotgun proteome analysis of beer and the immunogenic potential of beer polypeptides. Picariello G, Mamone G, Nitride C, Addeo F, **Camarca A,** Vocca I, Gianfrani C, Ferranti P. J Proteomics. 2012 Oct 22;75(18):5872-82.

Repertoire of gluten peptides active in celiac disease patients: Perspectives for translational therapeutic applications. **Camarca, A.,** del Mastro, A., Gianfrani, C. Endocrine, Metabolic and Immune Disorders - Drug Targets, 2012, 12(2), pp. 207–219

Short wheat challenge is a reproducible in-vivo assay to detect immune response to gluten. **Camarca, A.,** Radano, G., Di Mase, R., ...Greco, L., Gianfrani, C. Clinical and Experimental Immunology, 2012, 169(2), pp. 129–136

Peripheral blood immune response elicited by beta-lactoglobulin in childhood cow's milk allergy. Vocca, I., Canani, R.B., **Camarca, A**., ...Troncone, R., Gianfrani, C. Pediatric Research, 2011, 70(6), pp. 549–554

Celiac disease: What is new on disease pathogenesis and management. **Camarca, A.,** Mazzarella, G., Gianfrani, C. Italian Journal of Allergy and Clinical Immunology, 2009, 19(1), pp. 12–21

Immunogenicity of two oat varieties, avena genziana and avena Potenza, in relation to their safety for celiac patients. Maglio M, Mazzarella G, Barone MV, Gianfrani C, Pogna N, Gazza L, Stefanile R, **Camarca A**, Colicchio B, Nanayakkara M, Miele E, Iaquinto G, Giardullo N, Maurano F, Santoro P, Troncone R, Auricchio S. Scand J Gastroenterology 2011, 46, 1194-205.

Intestinal T-cell responses to gluten peptides are largely heterogeneous: implication for a peptide-based therapy in celiac disease. **Camarca A**, Anderson RP, Mamone G, Fierro O, Facchiano A, Costantini S, Zanzi D, Sidney J, Auricchio S, Sette A, Troncone R and Gianfrani C. J. Immunol. 2009 182: 4158-4166.

Regulatory T cells in the coeliac intestinal mucosa. A new perspective for treatment? Gianfrani, C., **Camarca, A.,** Salvati, V., ...Roncarolo, M.G., Troncone, R. Pediatric and Adolescent Medicine, 2008, 12, pp. 181–187

Gliadin activates HLA class I-restricted CD8+ T-cells in coeliac intestinal mucosa and induces the enterocyte apoptosis. Mazzarella G, Stefanile R, **Camarca A,** Giliberti P, Casentini E, Marano C, Iaquinto G, Giardullo N, Auricchio S, Sette A, Troncone R, Gianfrani C. Gastroenterology 2008;134:1017–1027.

Transamidation inhibits the intestinal immune response to gliadin in vitro. Gianfrani C, Siciliano RA, Facchiano AM, **Camarca A,** Mazzeo MF, Costantini S, Salvati V, Maurano F, Mazzarella G, Iaquinto G and Rossi M. Gastroenterology 2007; 133:780-789.

Highly efficient gluten degradation by lactobacilli and fungal proteases during food processing: new perspectives for celiac disease. Rizzello CG, De Angelis M, Di Cagno R, **Camarca A,** Silano M, Losito I, De Vincenti M, De Bari MD, Palmisano F, Maurano F, Gianfrani C, and Gobbetti M. Applied and Environmental Microbiology 2007; 73:4499-507.

Gliadin-specific type 1 regulatory T cells from the intestinal mucosa of treated celiac patients inhibit pathogenic T cells. Gianfrani, C., Levings, M.K., Sartirana, C., ...Troncone, R., Roncarolo, M.-G. Journal of Immunology, 2006, 177(6), pp. 4178–4186