

## CURRICULUM VITAE

Surname: Rossi

Name: Mauro

Place and date of birth: Casagiove (CE), Italy, September 24<sup>th</sup> 1959

Position: senior and staff researcher at Consiglio Nazionale delle Ricerche-Istituto di Scienze dell'Alimentazione (Institute of Food Sciences; www.isa.cnr.it).

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### Academic Qualifications

1985 Master's degree in Biological Sciences University of Naples (110/110 cum laude)

1986 Post-graduate training in Biochemistry University of Naples

1990 Postgraduate degree in General Pathology University of Naples

### Scientific Activity

1985-86.

Post-graduate training at the Department of Biochemistry University of Naples (Prof. G.Sannia).

Topic: the enzyme laccase, secreted by the basidiomycetes *P ostreatus*.

Research activities: purification and biochemical characterization of laccase.

Methods: *in vitro* culture of mycelium, affinity chromatography, enzyme assay of laccase, SDS-PAGE, Edman degradation for evaluation of the laccase N-terminal aa. sequence.

1986-89

Fellow at the International Institute of Genetics & Biophysics CNR, Naples, Italy (Prof. M. Iaccarino).

Topic: Analysis of the regulation of glutamine synthetase (GS) isoenzymes in *Rhizobium leguminosarum*.

Research activities: a) biochemical characterization of GS isoforms and analysis of the post-translational regulation; b) molecular biology studies: analysis of transcription and cloning of the gene encoding for GSII.

Methods: bacterial cultures, enzyme assays of GS and GDH, SDS-PAGE and 2D electrophoresis, Western blotting, production of rabbit polyclonal antibodies, affinity chromatography, nucleic acid purification, DNA electrophoresis, analysis of restriction maps, DNA cloning, Southern blot hybridization. .

1989-94

Contract Researcher at the Dept. Pediatrics, University of Naples, Naples, Italy (Prof. S.Auricchio).

Topic: Analysis of the regulatory pattern of intestinal lactase in man and animal models.

Research activities: a) enzyme assays of intestinal hydrolases, *in vitro* biosynthesis of lactase, aminopeptidase N and sucrase in man and rabbit; b) analysis of lactase mRNA expression and related genetic regulatory mechanisms; c) morphological studies: enzymo- and immuno-histochemistry and *in situ* hybridization concerning the lactase distribution in the intestinal epithelium.

Methods: organ culture of human and rabbit jejunal mucosa specimens, metabolic labeling of proteins, immunoprecipitation techniques, Western blotting, fluorography, enzymatic

deglycosylation enzyme assays of intestinal disaccharidases, purification of enterocytes, subcellular fractionation, RNA isolation, S1-mapping, Northern analysis, enzyme- and immunohistochemistry and *in situ* hybridization technique.

1990

Visiting scientist, Dept. Biochemistry, Panum Institute (Prof. O.Noren and Dr. M. Danielsen), University of Copenhagen, Copenhagen, Denmark

Research activities: biosynthetic studies on pig intestinal mucosa specimens focused on the synthesis and processing of brush border enzymes lactase and aminopeptidase N; use of immunological and electrophoretic techniques.

1993

Visiting scientist, Dept. Biochemistry, ETH (Prof. G.Semenza), Zurich, Switzerland

Research activities: assessment of *in vitro* biosynthesis of lactase in organ culture after metabolic labeling; evaluation of lactase mRNA levels in human jejunal samples by S1-mapping.

1994-98

Contract Researcher at the Istituto di Scienze dell'Alimentazione, CNR, Avellino, Italy

Topic: 1) Development of immunomodulatory strategies for tolerance recover to food antigens; 2) The role of enterocytes in oral tolerance to food antigens.

Research activities: analysis of gliadin uptake in intestinal cell lines: assessment of growth rate, cytotoxicity, signaling and chemokine production; development of immunodulatory protocols for *in vivo* tolerance induction.

Methods: cell cultures of intestinal adenocarcinoma cell lines and lymphocytes, SDS-PAGE, Western blotting, immunoprecipitation techniques, *in vitro* proliferation assay, assays of kinase activity, autoradiography, development of ELISA assays for cytokines and cytotoxicity.

1995

Visiting scientist Kennedy Institute of Rheumatology (Dr. M. Londei), London, UK.

Research activities: analysis of anergy induction in T cells: assessment of MAP kinase transduction pattern following the engagement of CD4 molecule.

1998-present

Senior and staff research scientist at the Istituto di Scienze dell'Alimentazione, CNR, Avellino, Italy

Recent scientific interests: immunology of the small intestine, mainly on the mechanisms of tolerance to food antigens; development of immunomodulatory strategies for intestinal hypersensitivity to food proteins in animal models; probiotics and gut immune system; Enzymatic strategies to detoxify gluten in Celiac Disease.

## Honors

- 1993. FEBS Fellowship awarded by the Federation of European Biochemical Societies (FEBS).
- 2005. - Section Editor of 'International Reviews of Immunology (ISSN 0883-0185)' (Informa Healthcare, London UK).
- 2007. Gastroenterology cover and editorial (vol. 133, issue 3) awarded by the American Gastroenterology Association (AGA) Institute

- 2008-present. Member of the Scientific Committee of ELFID (European Laboratory for the Investigation of Food-Induced Diseases- ELFID)
- 2011. DAA-CNR (FOOD AREA) Price for Excellence awarded by CNR for the project: "Production of detoxified gluten for celiac disease patients following enzyme treatment of wheat flour".
- 2011. Startup CNR-II Sole 24ore Price awarded by Festival della Scienza Genova, Italy, for the project: Safecereals.
- 2012. Entrepreneurial journey to Silicon Valley-certificate of completion awarded by M31 USA (Santa Clara, CA, USA).
- 2013. Agri-Food Open Innovation day finalist project: Safecereals awarded by Intesa San Paolo, Milan, Italy.
- 2014. Italian professorship qualification for full professor in Applied Biology (05/F1) assigned by MIUR.

## Patents

- Trattamento enzimatico di farine di cereali tossici per i pazienti celiaci. Inventors: M.Rossi, C.Gianfrani, R.A. Siciliano. Rif.CNR 1838. Deposit n: MI2006A2080, 10-30-2006.
- Treatment of cereal flour and semolina for consumption by celiac patients. Inventors M Rossi, C Gianfrani, RA Siciliano-filing date: October 29, 2007. Deposit n: WO 2008/053310 A2, PCT/IB2007/003245. National phases: Canada (CA 2667834), Europe (EP2094860), US (12312240).
- Nuovo metodo immunologico per la rilevazione di glutine negli alimenti. Inventors: Sabato D'Auria, Mauro Rossi, Mosè Rossi. Deposit n: NA2006A000035, 8-30-2006.
- Produzione di glutine in forma solubile mediante trattamento enzimatico della farina. Inventor: Mauro Rossi. Deposit n: MI2009A001739, 10-12-2009.
- Apparecchiatura per la rilevazione della presenza di un analita in un campione di sostanza, in particolare di prodotto alimentare. Inventors: Sabato D'Auria, Mauro Rossi, Alberto Luini. Rif.CNR 10298. Deposit n: TO2013A001057, 12-20-2013. Luongo D, Severino L, Bergamo P, D'Arienzo R, Rossi M. Trichotheccenes NIV and DON modulate the maturation of murine dendritic cells. *Toxicon*. 2010 Jan;55(1):73-80.

## Publications (last five years)

### Papers

- Rossi M, Schwartz KB, Editorial: Celiac disease and intestinal bacteria: not only gluten? *Journal of Leukocyte Biology* 2010; 87: 749-751
- Bergamo P, Maurano F, Mazzarella G, Iaquinto G, Vocca I, Rivelli AR, De Falco E, Gianfrani C, Rossi M. Immunological evaluation of the alcohol-soluble protein fraction

- from gluten-free grains in relation to celiac disease. *Molecular Nutrition & Food Research* 2011 Aug;55(8):1266-70.
- Mazzarella G, Salvati VM, Iaquinto G, Stefanile R, Capobianco F, Luongo D, Bergamo P, Maurano F, Giardullo N, Malamisura B, Rossi M. Reintroduction of gluten following flour transamidation in adult celiac patients: a randomized, controlled clinical study. *Clinical & Developmental Immunology* 2012;2012:329150.
  - Lombardi E, Maurano F, Bergamo P, Bozzella G, Luongo D, Mazzarella G, Capobianco F, Rotondi Aufiero V, Iaquinto G, Rossi M. Selective inhibition of gliadin immune reactivity by transamidation of wheat flour with microbial transglutaminase, *Journal of Leukocyte Biology* 2013;93(4):479-88.
  - Mazzeo MF; Bonavita R; Maurano F; Bergamo P; Siciliano RA; Rossi M. Biochemical modifications of gliadins induced by microbial transglutaminase on wheat flour, *Biochimica et Biophysica Acta-General Subjects* 2013 Jul 25;1830(11):5166-5174.
  - Isticato R, Sirec T, Treppiccione L, Maurano F, De Felice M, Rossi M, Ricca E. Non-recombinant display of the B subunit of the heat labile toxin of *Escherichia coli* on wild type and mutant spores of *Bacillus subtilis*, *Microbial Cell Factories* 2013, 12:98.
  - Rossi M, Bot A. Editorial. The Th17 cell population and the immune homeostasis of the gastrointestinal tract. *International Reviews of Immunology* 2013, 32:471–474.
  - Luongo D, Miyamoto J, Bergamo P, Nazzaro F, Baruzzi F, Sashihara T, Tanabe S, Rossi M. Differential modulation of innate immunity in vitro by probiotic strains of *Lactobacillus gasseri*. *BMC Microbiology*, 2013 Dec 23;13(1):298.
  - Mazzarella G, Bergamo P, Maurano F, Luongo D, Aufiero VR, Bozzella G, Palmieri G, Troncone R, Auricchio S, David C, Rossi M. Gliadin intake alters the small intestinal mucosa in indomethacintreated HLA-DQ8 transgenic mice. *Am J Physiol Gastrointest Liver Physiol*. 2014 Aug 1;307(3):G302-12.
  - Bergamo P, Luongo D, Miyamoto J, Cocca E, Kishino S, Ogawa J, Tanabe S, Rossi M. Immune-modulatory activity of a gut microbial metabolite of dietary linoleic acid, 10-hydroxy-cis-12-octadecenoic acid, associated to improved antioxidant/detoxifying defences. *Journal of Functional Foods*, 2014 in press.
  - Rossi M. Vaccination and other antigen-specific immunomodulatory strategies in Celiac Disease. *Digestive Diseases* 2015, in press

### Book Chapters

- P Lavermicocca, M Rossi, F Russo R Srirajaskanthan, Table Olives: A Carrier for Delivering Probiotic Bacteria to Humans. In Victor R. Preedy and Ronald Ross Watson, editors: *Olives and Olive Oil in Health and Disease Prevention*, Oxford: Academic Press, 2010 pp. 735-743. ISBN: 978-0-12-374420-3.
- D'Arienzo R, Schwartz KB, Rossi M. Interaction of Probiotics with the Acquired Immune System in the Gut. In Malago JJ, Koninkx JFJG, Marinsek-Logar R (Eds): *Probiotic bacteria and Enteric Infections Cytoprotection by Probiotic Bacteria*. 1st Edition, 2011, XI, pp. 207-219, Springer Edition. ISBN: 978-94-007-0385-8.
- Bergamo P, Gianfrani C, Capobianco F, Moscaritolo S, Rossi M. Transamidation of wheat: An enzyme strategy to detoxify gluten. In Stern M (ed.): *Proceedings of the 24th Meeting*,

Working Group on Prolamin Analysis and Toxicity 2011, pp.91-94. Verlag  
Wissenschaftliche Scripten-Germany. ISBN: 978-3-942267-18-2.