

Curriculum Vitae

PERSONAL INFORMATION

Name/Surname Laura Bordoni

EDUCATION

PhD in “Life and Health Sciences” - Molecular Biology and cellular Biotechnology. School of Pharmacy and Health Products, University of Camerino. Thesis: “How gene-environment interactions can influence health: a nutrigenetic and nutrigenomic approach”. [December 2014-November 2017]

Post-graduate master in Sociology and didactic methods for science teaching, Università Dante Alighieri [March 2020]

Post-graduate master in Didactic of scientific disciplines, UniPegaso [June 2019]

Post-graduate diploma in Systematic Revision and Meta-analysis for evidence-based guidelines production with Cochrane method. University of Verona [April-July 2016]

National habilitation as professional biologist.
(*national exam*) [June 2014]

Master Degree in Food Science and Human Nutrition (LM-61) - Faculty of Medicine, University of Perugia. [December 2013]
Final grade: 110/110 cum Laude
Thesis: “Epigenetic role of polyunsaturated fatty acids in carcinogenesis”.

Bachelor Degree in Biological Sciences, curriculum analytical biology (L-13) - Faculty of Science, Polytechnic University of Marche. [March 2010]
Final grade: 110/110 cum Laude
Thesis: “Diet and CVD, a nutrigenetic approach”

High school diploma - Liceo Scientifico “Corridoni – Campana”, Osimo. [June 2007]
Final grade: 100/100

OTHER COURSES

- Bioinformatics workshop: Introduction to NGS data analysis. (Barcelona, Josep Carreras Leukaemia Research Institute. March 2019) COST CM1406
- Workshop on “Nutrigenetics, nutrigenomics and precision nutrition” (University of North Carolina at Chapel Hill, USA. May 2017)
- Second Summer school on Nutrigenomics (University of Camerino, September 2016)
- Chromatin, epigenome and drug discovery training school - COST CM1406 (II University of Napoli, April 2016)
- Training on MeSAP-PCR (University of Palermo, Genetics and molecular biology department, May 2015)
- Summer School on Nutrigenomics (University of Camerino, September 2014)
- 8° Professional updating course on Dietetics and Human Nutrition. (Scuola di Nutrizione Salernitana, Bologna 2014)

- Master on Europroject management (Europa Cube- Innovation Business School, Perugia. April-October 2013).
- Exams for Teaching Expertise Improvement (pf24): Pedagogy, Social Pedagogy, Inclusion didactics (2CFU M-PED/03; 4CFU M-PED/04); Psychology (3CFU M-PSI/01; 3CFU M-PSI/04,M-PSI/07);Anthropology(3CFU M-FIL/03; 3CFU M-DEA/01); Didactic technologies and methodologies (6 CFU M-PED/03)

WORK AND TRAINING EXPERIENCES

October 2018 – up to date: Post-doctoral Research Fellow at Unit of Molecular Biology, School of Pharmacy and Health Products, University of Camerino

October 2019 – November 2019: Visiting scientist at Human Nutrition Research Center, Newcastle University. Training on mtDNA isolation and NGS technology.

April 2018 – Up to date: Untenured adjunct Professor for the Epigenetics Course (Biological science master degree) and the Applied Nutrition Course (Fitness and Health products science bachelor degree) at University of Camerino.

June 2018– September 2018: Volunteer attendee at Unit of Molecular Biology, School of Pharmacy and Health Products, University of Camerino

March 2018 – June 2018: Research fellow at Unit of Molecular Biology, School of Pharmacy and Health Products, University of Camerino

December 2017 – February 2018: Volunteer attendee at Biochemistry and Molecular Biology department, School of Pharmacy and Health Products, University of Camerino.

December 2014 – November 2017: PhD candidate in “Life and Health Sciences” at University of Camerino. Research topic: “How genome-environment interactions can influence health status: focus on nutrigenetics and nutrigenomics”.

June – July 2016 – Visiting scientist at Chromatin Laboratory, Faculty of Medicine, University of Valencia, Spain. Training on Chromatin Immunoprecipitation for histone modifications assessment.

June 2014 – November 2014. Research fellow at Department of Biomedical Sciences and Public Health, Faculty of Medicine, Polytechnic University of Marche. Molecular study of determinants of HIV resistance to anti-retrovirals, developing plasmid vectors for HIV genome cloning. PRIN project: “Study of determinants of secondary and primary resistance to antiretrovirals to support control strategies of hiv-1 transmission”.

Aprile - Maggio 2014. Volunteer attendee at molecular biology and genetics of Advanced technologies for ageing, INRCA-IRCCS Ancona. Study of miRNA and mobile elements (Alu, LINE) in hypoxic tumoral cells through RT-PCR.

CURRICULAR TRAINING EXPERIENCES

December 2012 - December 2013 Experimental thesis at the faculty of Experimental Medicine, Biochemistry and physiology department, University of Study of Perugia. In vitro study of gene expression in cancer cells after treatment with omega-3 fatty acids.

October 2012 – November 2012 Curricular internship at the Public Health Department, University of study of Perugia. Comet test and micronuclei test to study genotoxicity of food extracts.

September 2011 - December 2011. Curricular Internship at the Department of Life and environmental sciences, Polytechnic University of Marche. Food chemistry analysis for honey characterization (potentiometric titration, pH and acidity assessment, conductivity analysis, hydroxymethylfurfural determination through White spectrophotometric method).

SCIENTIFIC PRODUCTION

Contributes in scientific journals:

- A Pilot Study on the Effects of L-Carnitine and Trimethylamine-N-Oxide on Platelet Mitochondrial DNA Methylation and CVD Biomarkers in Aged Women. Bordoni L, Sawicka AK, Szarmach A, Winklewski PJ, Olek RA, Gabbianelli R. Int J Mol Sci. 2020 doi: 10.3390/ijms21031047.
- Mitochondrial DNA methylation and copy number predict body composition in a young female population. Bordoni L., Smerilli V., Nasuti C., Gabbianelli R. J Transl Med. 2019;17(1):399. doi: 10.1186/s12967-019-02150-9.
- Extra Virgin Olive Oil and Nigella sativa Oil Produced in Central Italy: A Comparison of the Nutrigenomic Effects of Two Mediterranean Oils in a Low-Grade Inflammation Model. Bordoni L, Fedeli D, Fiorini D, Gabbianelli R. Antioxidants (Basel). 2019 Dec 24;9(1). pii: E20. doi: 10.3390/antiox9010020.
- Positive effect of an electrolyzed hydrogen rich reduced water on gut permeability, fecal microbiota and liver in an animal model of Parkinson's disease. Bordoni L, Gabbianelli R, Fedeli D, Fiorini D, Bergheim I, Nasuti C. Plos One, 14(10):e0223238. doi: 10.1371/journal.pone.0223238.
- Anti-Inflammatory, Anti-Arthritic and Anti-Nociceptive Activities of Nigella sativa Oil in a Rat Model of Arthritis. Cinzia Nasuti, Donatella Fedeli, Laura Bordoni, Marco Piangerelli, Maurizio Servili, Roberto Selvaggini and Rosita Gabbianelli. Antioxidants 2019, 8(9), 342; <https://doi.org/10.3390/antiox8090342>
- Early impairment of epigenetic pattern in neurodegeneration: additional mechanisms behind pyrethroid toxicity. Bordoni L, Nasuti C, Fedeli D, Galeazzi R, Laudadio E, Massaccesi L, López-Rodas G, Gabbianelli R. Exp Gerontol. 2019 ;124:110629. doi: 10.1016/j.exger.2019.06.002.
- HTR2C gene variant and salivary cortisol levels after endurance physical activity: a pilot study. Bordoni L, Fedeli D, Piangerelli M, Gabbianelli R. Lifestyle Genom. 5:1-5. doi: 10.1159/000499842.
- Primers on nutrigenetics and nutri(epi)genomics: origins and development of precision nutrition. Bordoni L, Gabbianelli G. 2019 Biochimie 160, 156-171 <https://doi.org/10.1016/j.biochi.2019.03.006>
- Epigenetic memory of early-life parental perturbation: dopamine decrease and DNA methylation changes in offspring. Bordoni L, Nasuti C, Di Stefano A, Marinelli L and Gabbianelli R. Oxidative Medicine and Cellular Longevity 2019. <https://doi.org/10.1155/2019/1472623>
- Antioxidant and Anti-Inflammatory Properties of Nigella sativa Oil in Human Pre-Adipocytes. Bordoni L, Fedeli D, Nasuti C, Maggi F, Papa F, Wabitsch M, De Caterina R and Gabbianelli G. Antioxidants 2019, 8, 51; doi:10.3390/antiox8020051
- Zic1 mRNA is transiently upregulated in subcutaneous fat of acutely cold-exposed mice. Perugini J*, Bordoni L*, Venema W, Acciarini S, Cinti S, Gabbianelli R, Giordano A. J Cell Physiol. 2018;1–6. DOI: 10.1002/jcp.27301. *equal contribution

- 11th Congress of the International Society of Nutrigenetics/Nutrigenomics (ISNN) : Abstracts. [No authors listed] J Nutrigenet Nutrigenomics. 2017;10(3-4):93-125. doi: 10.1159/000480052.
- Permethrin pesticide induces NURR1 up-regulation in dopaminergic cell line: Is the pro-oxidant effect involved in toxicant-neuronal damage? Bordoni L, Fedeli D, Nasuti C, Capitani M, Fiorini D, Gabbianelli R. Comp Biochem Physiol C Toxicol Pharmacol. 2017;201:51-57. doi: 10.1016/j.cbpc.2017.09.006.
- Angiotensin-Converting Enzyme (ACE) Ins/Del polymorphism and body composition: the intermediary role of hydration status. Bordoni L, Napolioni V, Marchegiani F, Amadio E and Gabbianelli R. J Nutrigenet Nutrigenomics. 2017 Mar 18;10(1-2):1-8. doi: 10.1159/000458154.
- Nutritional Epigenetics: A New Level of Complexity About Impact of Diet on Health. Bordoni L. EC Nutrition 7.5 (2017): 185-186.
- 2nd European Summer School on Nutrigenomics. September 5-9, 2016, Camerino, Italy: Abstracts. J Nutrigenet Nutrigenomics. 2016;9(2-4):127-149. doi: 10.1159/000448866
- Obesity-related genetic polymorphisms and adiposity indices in a young Italian population. Bordoni L, Marchegiani F, Piangerelli M, Napolioni V, Gabbianelli R. IUBMB Life. 2017 Jan 16. doi: 10.1002/iub.1596.
- 10th Congress of the International Society of Nutrigenetics/Nutrigenomics (ISNN). Abstracts. J Nutrigenet Nutrigenomics. 2016;9(2-4):151-210. doi:10.1159/000448491
- In Vivo and in Silico Studies to Identify Mechanisms Associated with Nurr1 Modulation Following Early Life Exposure to Permethrin in Rats. Fedeli D, Montani M, Bordoni L, Laudadio E, Galeazzi R, Gabbianelli R. Neuroscience. 2017 ;340:411-423. doi: 10.1016/j.neuroscience.2016.10.071
- Intergenerational Effect of Early Life Exposure to Permethrin: Changes in Global DNA Methylation and in Nurr1 Gene Expression. Bordoni L, Nasuti C, Mirto M, Caradonna F, Gabbianelli R. Toxics 2015, 3: 451-461; doi: 10.3390/toxics3040451

Book Chapters:

- "Nutrigenomics and food pesticides". Bordoni L. and Gabbianelli R. Nutrigenetics and Nutrigenomics. Edited by: De Caterina R., Martinez J.A., and Kohlmeier M. Elsevier S&T.

Oral communications:

- NugoWeek 2019. Bern 9-13/09/2019. Platelet mitochondrial DNA methylation and CVD risk: what is the role of trimethylamine-N-oxide and carnitine supplementation during physical activity?
- Oral presentation at the Congress "CIBO E NUTRACEUTICI: PAROLA CHIAVE "CARATTERIZZAZIONE", University of Camerino, 9/7/2019. "Platelet mitochondrial DNA methylation and micronutrient supplementation for CVD prevention".
- Oral presentation at "III European Summer School on Nutrigenomics", University of Camerino 2018. "Permethrin exposure and neurodegeneration: which mechanism behind the damage?"
- Oral presentation at Foodomics 2018, Cesena, University of Bologna, January 2018. "Nutriepigenomics and epigenetic inheritance: insights on food pesticides and neurodegeneration".
- Oral presentation at the "II European Summer School on Nutrigenomics", University of Camerino, september 2016. "A systematic review on the Paleo diet and its effects on metabolic health: Keyson for an applied evidence-based nutrition".

Communications at congresses:

- Lignans phytocomplexes extracted from legumes act as anti-inflammatory agents in a model of adipocytes metaflammation: antioxidant properties and nutriepigenomic effects. Gabbianelli R, Sagratini G, Merelli E, Wabitsch M, Piangerelli M, Giusti F, Bordoni L.
- Nugo week 2018, Newcastle, UK: Mechanisms behind pyrethroid toxicity: involvement of epigenetic impairment in a progressive model of neurodegeneration induced by neonatal pesticide exposure. Bordoni L, Nasuti C, Galeazzi R, Laudadio E, Massaccesi Luca, López-Rodas G and Gabbianelli R.
- Summer school on Nutrigenomics 2018, Jesi, Italy. Can Nigella sativa Oil Control Inflammation in Human Pre-Adipocytes? Bordoni L, Fedeli D, Maggi F, Papa F, Sawicka A, Olek R, De Caterina R, Wabitsch M, Gabbianelli R
- Congresso Alimenti e Nutraceutici: qualità e salute del consumatore. Università di Camerino, 2018. Improvement of intestinal permeability and fecal butyrate content in an animal model of Parkinson's disease treated with an electrolyzed-reduced water. Bordoni L, Nasuti C, Fedeli D, Fiorini D, Gabbianelli R.
- Congress "The many faces of epigenetics", Oxford, 2017. New insights on molecular and epigenetic mechanisms of adipose browning in early cold exposure: focus on Zic1 expression regulation. Bordoni L*, Perugini J*, Acciarini S, Giordano A, Gabbianelli R and Cinti S.
- Congresso Alimenti e Nutraceutici, Camerino, Italy: qualità e salute del consumatore. Università di Camerino, 2017. Epigenetics of pesticide-induced neurodegeneration. Gabbianelli R, Bodoni L., Fedeli D., Nasuti C.
- Congress of the International society of Nutrigenetics and Nutrigenomics, Los Angeles, 2017. Early-life exposure to permethrin food contaminant inducing neurodegeneration: is it matter of epigenetics? Bordoni L, Nasuti C, Fedeli D, and Gabbianelli R.
- Congress of the International society of Nutrigenetics and Nutrigenomics, Los Angeles, 2017. Chemical stress induces up-regulation of Nurr1: role of antioxidants. Bordoni L, Fedeli D, Nasuti C, Fiorini D, Quassinti L, Bramucci M and Gabbianelli R
- Congress of the International society of Nutrigenetics and Nutrigenomics, Tel Aviv, 2016. Angiotensin-Converting Enzyme (ACE) I/D polymorphism influences body composition through the hydration status in a young Italian population. Bordoni L, Marchegiani F, Napolioni V, Gabbianelli R.
- Congress of the International society of Nutrigenetics and Nutrigenomics, Tel Aviv, 2016. Impact of Food Pesticides on the Gut Microbiota. Gabbianelli R, Fedeli D, Bordoni L, Fiorini, Ivan Dus D, Nasuti C.
- Chromatin and the environment, Spetse, Greece (EMBO course) 2016. Can Early Life Exposure to Permethrin lead to intergenerational effects? Gabbianelli R, Bordoni L, Nasuti C, Mirto M, Cruciata I, Caradonna F.
- 2° International congress of food science and technologies, Valencia, 2016. Tocotrienol's protective effect on neuronal damage induced by permethrin in PC12 cells. Bordoni L, Capitani M, Nasuti C, Manfredini S, Gabbianelli R. Poster Presentation
- Congresso alimenti funzionali e nutraceutici per la salute, Camerino, 2016. Neuroprotection of electrolyzed reduced water: in vitro study on PC12 cell line. Fedeli D, Nasuti C, Bordoni L, Montani M, Dus I, Gabbianelli R.
- Congress of the International society of Nutrigenetics and Nutrigenomics, Chapel Hill 2015. Protective effect of glutathione on damage induced by permethrin in a neuronal model of PC12 cells. Bordoni L, Capitani M, Nasuti C, Gabbianelli R.

PRIZES AND AWARDS

2018 – *Poster prize* at Nugo Conference 2018, Newcastle, UK, for the Poster “Mechanisms behind pyrethroid toxicity: involvement of epigenetic impairment in a progressive model of neurodegeneration induced by neonatal pesticide exposure”. Bordoni L, Nasuti C, Galeazzi R, Laudadio E, Massaccesi Luca, López-Rodas G and Gabbianelli R.

2018 – *SAS Award 2017*, granted by University of Camerino to the best PhD students demonstrating outstanding research performance.

2017 - University of North Carolina, *Nutrition Research Unite Scholarship* for the course “Nutrigenetics, nutrigenomics and precision nutrition” attendance.

2016 - University of Camerino *Doctoral candidates research grants (DCR)* – Founded project “Nutrigenomic role of bioactive compound extracted from legumes: New Insights on Lignans” at the doctoral competition for research grant designed to support excellent doctoral candidates at the career stage at which they are starting their own independent research [peer review by external international referees]

2014 - *5x1000 Award for Master Thesis* with significant attention to innovative disciplinary issue. University of Study of Perugia.

2014 - *University of Camerino Scholarship* for the attendance to the first “Summer School on Nutrigenomics”.

SCIENTIFIC COLLABORATIONS

- Advanced Technology Center for Aging Research, Scientific Technological Area, INRCA-IRCCS, Ancona, Italy.
- Gdansk University of Physical Education and Sport, Gdansk, Poland.
- Biochemistry and molecular biology department, Chromatin laboratory, Faculty of Medicine, University of Valencia, Spain.
- Experimental and clinical medicine department, Center of Obesity, Polytechnic University of Marche, Ancona, Italy.
- Biochemistry and pharmaceutical science and technologies department (STEBICEF, Cellular Biology Unit), University of Palermo, Italy. of Palermo, Italia.

PROJECTS PRESENTED

- FAR (2019) Anti-obesity effect of selected and new ginsenosides from roots of Panax ginseng
- Michael J Fox Spring 2020 Targeted RFA Use of Parkinson’s Disease Biosamples: “From dysbiosis to mitochondrial epigenetics: the microbiome-mitochondrial axis as an early biomarker of PD”
- FY 2019 JSPS International Fellowships for Research in Japan – in collaboration with prof. Yasutomi Kamei. Title: “Analysis of the role of mitochondrial epigenetics in muscle atrophy (Submitted on March 2019)
- Project “Nutrigenomic role of bioactive compound extracted from legumes: New Insights on Lignans” (2016) Founded by School of Advanced Study, University of Camerino.
- Project FAR (2016) AEVOO: Authentication of Extra Virgin Olive Oil
- Project IBERSAN (2015): Protective effect of GSH on down regulation of Nurr1 in the Parkinson’s like disease animal model.

DIDACTIC ACTIVITY

- Untenured adjunct professor for the course “Applied Nutrition Module” (3 CFU) , University of Camerino, a.a.2017/2018 and 2018/2019.
- Untenured adjunct professor for the course “Epigenetics” (2 CFU) , University of Camerino, a.a.2017/2018 and a.a.2018/2019.

Hold seminars:

- Nutrigenetics from theory to practice: strengths and pitfalls. 19/4/2017. Course "Alimentazione del fitness". School of Pharmacy and Health products, University of Camerino.
 - Nutrition and scientific literature: how to recognize good scientific evidences. 20/4/2017 Course "Alimentazione del fitness". School of Pharmacy and Health products, University of Camerino.
 - Epigenetics and environment: focus on diet. 1/06/2017 Course "Epigenetics". School of bioscience and veterinary medicine, University of Camerino.
 - DNA methylation profiling. 6/6/2017 Course "Epigenetics ". School of bioscience and veterinary medicine, University of Camerino.
 - Chromatin remodelling and histone modification profiling. 8/06/2017 Course "Epigenetics ". School of bioscience and veterinary medicine, University of Camerino.
- Tutor for experimental thesis for Unicam students: Smerilli Vanessa (2019), Quadrini Elena (2019), Caperna Fabio (2017). Vitello Stefania (2016), Ionescu Daniela (2015).
- PARTICIPATION TO SEMINARS**
- Genetics and epigenetics of obesity: impact of genetics and metabolic imprinting on obesity risk in childhood and adulthood. (23/10/2014) AllMeetings ECM provider.
 - Human genetic variability in evolutionary key: species improvement and individual susceptibility. University of Camerino (19/03/2015)
 - Nutrition in endurance, power or mixed sports (02-03/2014). Scuola Nutrizione Salernitana.
 - Dietary supplements and (7/10/2014). Scuola Nutrizione Salernitana.
 - Epigenetic and nutrigenomics effects of Indicaxanthin from *Opuntia ficus-indica*. University of Camerino (20/03/2015).
 - Oligomeric structure of human Rad51: from the molecular details of DNA Repair to the development of tools for Fragment Based Lead Discovery. University of Camerino (8/04/2015)
 - Mechanobiology of human dendritic cells. University of Camerino (6/05/2015)
 - Nutrition and Epigenetics: evidences from different nitrogen introduction and the fall of some paradigms. University of Camerino (27/05/2015)
 - Epistemology: laws theories and scientific explanation. University of Camerino (14/10/2015)
 - Statistics and data management. University of Camerino (12-15/11/2015)
 - Proprietà intellettuale e comunicazione scientifica (12/05/2015)
 - SYSBIO-EPIGEN joint workshop: Epigenetics & Systems Biology. University of Milano Bicocca (11/03/2016)
 - Horizon 2020: Workshop for young researchers. University of Camerino (1/04/2016)
 - Statistics and Data Management. University of Camerino (3-6/10/2016).
 - Micronutrient and high impact nutrition. Metagenics. Osimo (28/01/2017)
 - Nutrition during pregnancy and breastfeeding. Scuola Nutrizione Salernitana. (online certified, 3/2017)
 - Nutrition during weaning and early life nutrition (online certified, 3/2017)
 - Micronutrizione, salute gastrointestinale e autoimmunità. Metagenics. Ancona (18/6/2017)
 - From marine chemical ecology to biotechnology: biomimetism approaches. University of Camerino (11/07/2017)
 - Overdominance at the SAMS1 Locus in Late-Onset Alzheimer's Disease. University of Camerino (12/07/2017)
 - Ruolo dell'integrazione nella modulazione dell'infiammazione, dell'immunità e della produzione di neurotrasmettitori. Metagenics (06/02/2018)

- OTHER**
- Member of Editorial Board for “EC Nutrition” (from October 2016)
 - Invited reviewer for scientific journals: International Union of Biochemistry and Molecular Biology (IUBMB Life), Molecular Biology Reports (MOLE), Molecular Genetics and Metabolism Reports (Elsevier)
 - Member of ADI –Doctoral Candidates and Doctors of Philosophy Italian Society (from January 2017)
 - Member of the organizing committee of “II Summer School on Nutrigenomics” (University of Camerino, September 2016)

PERSONAL SKILLS

LANGUAGES

Native language: italian.

Other languages

UNDERSTANDING

SPEAKING

WRITING

Listening

Reading

Spoken interaction

Spoken production

English

(TOEFLiBT certified 106 = IELTS 7.5)

C1 ADVANCED

C1 ADVANCED

C1 ADVANCED

C1 ADVANCED

C1 ADVANCED

French

(DELTA certified)

B1 BEGINNER

B1 BEGINNER

B1 BEGINNER

B1 BEGINNER

B1 BEGINNER

Job-related skills

Good command of the main molecular biology techniques: Pyrosequencing, PCR, RT-PCR, Chromatin immunoprecipitation, MS-HRM, ELISA immunoassay, Taqman genotyping, electrophoresis in agarose or acrylamide, enzymatic digestions, plasmid vector construction, cloning, sequencing, western blot, in vitro cells culture

Good skills on dietetics and human nutrition, acquired during the accademical education and post graduate courses attended.

Basic knowledge of statistical softwares for data analysis (SPSS, R, Gpower, Arlequin); Good knowledge of RevMan software for systematic review and meta-analysis productions.

Communication and organisational skills

Good communication skills, planning and problem solving ability gained through academic education; strong determination to reach prefixed objectives, integrity and preciseness, acquired in particular during more than 10 years of agonistic sport practice (volleyball, B2 national championship).