

Current position:

Head of Parasitology Unit

Head of Human Microbiome Unit

Senior Researcher, PI

Children's Hospital and Research Institute "Bambino Gesù"

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PUTIGNANI LORENZA PhD

**PERSONAL
DATA****EDUCATION-
PROFESSIONAL
QUALIFICATION**

August 2012-to date LONDON SCHOOL OF TROPICAL MEDICINE AND HYGIENE, Medical Parasitology, LSTMH Distance Learning Courses, London, UK.

2005-2009 MEDICINE SPECIALTY PROGRAM IN CLINICAL PATHOLOGY with a final dissertation in *Pathology (70/70 summa cum laude)* at the II Faculty of Medicine, University of Rome "Sapienza", Rome, Italy. *Thesis title*: "The model of mitosomes in the early protists: a study on biochemical and structural mitochondrial alterations in the biogenesis and progression of breast cancer". *Supervisor Prof. Maria Rosaria Torrisi, Prof. Paola Grammatico.*

2000-2002 POST-DOCTORAL RESEARCH PROGRAM IN MOLECULAR AND CELLULAR PARASITOLOGY at the Division of Infection & Immunity, Faculty of Biomedical & Life Sciences, University of Glasgow, Glasgow, Scotland (UK). *Supervisors Prof. Jonathan M. Wastling, Prof. Andrew Tait, Prof. Huw Smith.*

1997 PROFESSIONAL BODY MEMBERSHIP, REGISTER N°2504 (27/2/1997)

1996-1999 Ph.D. PROGRAM IN "MICROBIOLOGY and EPIDEMIOLOGY" with final dissertation in *Molecular Parasitology* at the I Faculty of Medicine, University of Rome "Sapienza", Italy. *Thesis title*: "Genetic variation in *Cryptosporidium parvum*: identification and molecular characterisation of polymorphic genetic markers. Genotyping and karyotyping analysis of isolates of the parasite". *Supervisor Prof. Lia Paggi.*

1994 CHEMISTRY PROFESSIONAL ABILITATION.

1994 GRADUATION in CHEMISTRY (110/110 summa cum laude) with final dissertation in Organic Chemistry at the University of Rome "Sapienza", Italy. *Thesis title*: "Reactivity in lateral chain of intermediate aromatic radical cations. Competition between C-H and C-C bond cleavage". *Supervisor Prof. Enrico Baciocchi.*

June 2013 to date

❖ **Head of Research Unit “Human Microbiome”, Area of Multimodal Laboratory Research**

Research and activity interest

1. Meta-omic platforms: study of gut microbiota in pediatric diseases: MD PEDIGREE European Project; OPBG meta-omics Consortium.
2. Translational activities with clinical OPBG Consortium
3. Design and optimization of bioinformatic pipelines in metaproteomics, metagenomics, metabolomics, collaboration study with Fondazione Bruno Kessler; Istituto di Analisi dei Sistemi ed Informatica (IASI) - CNR –Rome; Department of Chemistry, University of Rome
4. Metaproteomic analysis on neonatal mouse: a model for early gut microbiota programming
- 5 Ecological and metabolomic analysis of the early life microbiota programming in at term healthy neonates

January 2012-to date.

❖ **Head of Parasitology Unit**

Research and activity interests:

Development of diagnostic and translational lines for the detection and study of parasites:

1. Implementation of direct and indirect first level and advanced diagnostic investigations.
2. MALDI-TOF MS applied to *Acanthamoeba* characterization and diagnosis.
3. Biocomputing *in silico* study for the characterization of parasite, collaboration study amongst Unit of Parasitology, Trento University, Health Institute, Rome
4. Gruppo di studio ESCMID sulla Toxoplasmosi nei trapianti di organo solido e midollo.
5. Genotyping of *Blastocystis hominis* pathogenic and commensal strains
6. Cell culture from reference and clinical *Giardia* spp. strains
7. Vitality assays for *Cyclospora*, *Cryptosporidium*, *Giardia* searching in food
8. Screening e monitoring of globalization-dependent parasitosis
9. Preparation of Guidelines for screening and monitoring of parasitosis in adopted and migrant children
10. Preparation of Guidelines for screening and monitoring of blood parasites in organ donors (e.g., *Leishmania* spp., *Toxoplasma gondii*, *Trypanosoma cruzi*).
11. Real-time PCR procedures using lyophilized systems for oro-faecal and blood parasites.
12. Study of the “High mobility Group Box 1” (HMGB1) protein as a new marker of fecal intestinal inflammation in preterm infants with *necrotizing enterocolitis* (NEC).
13. Yeast identification and typing, collaboration with San Camillo Hospital, Treviso, Italy.

Research activities

Research interests:

1. Application of metaproteomics, metagenomics and metabolomics approaches to complex biosystems: study of gut microbiota in mouse and human neonates. Study of the lung microbiota in fibrosis cystic patients. Study of correlation between inflammatory bowel diseases (IBD), genetic defect (e.g., Williams Syndrome) in early infancy and children and gut microbiota shaping and modulation.
2. Development of MALDI-TOF-based methods (“Matrix-assisted laser desorption ionization- time of flight-mass spectrometry”) for bacteria and fungi identification by mass peptide profiling identification.
3. Development of MALDI-TOF, rep-PCR, PFGE methods for typing of

pathogens with especially reference to nosocomial outbreak control (e.g., drug resistant *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*).

Project leaders: Dr. Lorenza Putignani.

4. Development of MALDI-TOF MS for *foodomic* analyses on human and formula milk

5. Organellar proteomics on *Cryptosporidium parvum* mitochondrial subproteome

6. Proteomic analyses of milk constituents.

2010-2011.

❖ **Visiting Professor**, University of Rome Sapienza, II Faculty of Medicine, **Microbiology and Clinical Microbiology**, Via di Grottarossa, 1035-1039, Rome.

January 2009-to December 2011.

January 2009- December 2011.

❖ **Researcher** at the Microbiology and Virology Unit, Area Immunology, Children's Hospital and Research Institute "*Bambino Gesù*" of Rome, Italy.

Research interests:

1. Development of MALDI-TOF-based methods ("Matrix-assisted laser desorption ionization- time of flight-mass spectrometry") for bacteria and fungi identification by mass peptide profiling identification.

2. Population diversity and genotyping of the parasite *Cryptosporidium* spp. Correlation between clinical severity and genotyping of parasite isolates.

3. Studies of HIV genotyping.

4. Development of Point of care (POC) methodologies for HIV and cryptosporidiosis diagnosis and control in depressed areas.

Project leaders: Dr. Lorenza Putignani.

January 2006- December 2008.

❖ **Consulting researcher** at the Microbiology and Virology Unit Children's Hospital and Research Institute "*Bambino Gesù*" of Rome, Italy.

Research interests:

1. Population diversity and genotyping of the parasite *Cryptosporidium* spp. Correlation between clinical severity and genotyping of parasite isolates.

2. Cellular and molecular biology of the parasite *Cryptosporidium parvum*.

3. Organellar (mitochondriomics) and global proteomics of the parasite *Cryptosporidium parvum*, sporozoite and merozoite stages.

4. Study of alterations of the mitochondrial metabolism in the pathogenesis and progression of cancer: the model of early protists applied to breast cancer.

5. Development of DNA-based molecular methods for advanced diagnostics: Real-Time PCR and "loop-mediated isothermal amplification" (LAMP)-based methods for the identification and detection of important pathogens in clinical specimens: *Toxoplasma gondii*, *Aspergillus* spp., Epstein-Barr (EBV) virus, Coxsackie virus.

Project leaders: Dr. Lorenza Putignani.

June 2004-December 2005.

❖ **Bio-Security Officer** at the Molecular Microbiology Unit of the National Institute for Infectious Diseases (INMI), "*Spallanzani*" Hospital of Rome, Italy.

Research interests:

1. Development and application of molecular tools for the identification and characterisation of pathogens with special reference to parasitology and mycology items.

2. Development of molecular tools for the identification of bioterrorism agents (molecular detection of *Bacillus anthracis*).

Project leaders: Prof. Paolo Visca and Dr. Lorenza Putignani.

February 2002-June 2004.

❖ **Postdoctoral research scientist** at the Molecular Microbiology Unit of the National Institute for Infectious Diseases (INMI), “Spallanzani” Hospital of Rome, Italy.

Research interest:

1. Molecular microbiology. Topological studies of the *N*⁶-ornithine hydroxylase enzyme involved in the early-step of the pyoverdine biosynthesis, siderophore for iron-uptaking in *Pseudomonas aeruginosa*: localization and partner interaction analysis. Structure-function studies.

2. Evolutionary genomics. Comparative genomics of the pyoverdine genomic cluster in *Pseudomonas* spp. (*P. syringae*, *P. tomato*, *P. fluorescens*, *P. aeruginosa*, *P. putida*). “Structure-function” relationship and “gene loss” studies. Phylogenetic linkages “ancestor-eukaryote” between the γ -proteobacteria *Pseudomonas* and the parasite model *Cryptosporidium parvum* with reference to its organellar complement evolution”.

Project leaders: Prof. Paolo Visca and Dr. Lorenza Putignani.

February 2000-January 2002.

❖ **Postdoctoral research scientist** at the Division of Infection & Immunity Faculty of Biomedical & Life Sciences of the “University of Glasgow”, Glasgow, Scotland (UK).

Research interest:

1. Molecular and cellular parasitology. Molecular and cellular characterization of the organellar complement in the *Cryptosporidium parvum* parasite. Identification of organelle related extranuclear genomes in the parasite.

2. Molecular and clinical parasitology. Monitoring of water parasite infection committed by the “Scottish Executive’s Drinking Water Quality Division” (Scotland, UK).

3. Comparative genomics. Comparative analysis of organellar-related sequences among Apicomplexan parasites. Comparative genomic analysis amongst *Cryptosporidium parvum* and prokaryotic microorganisms: genome evolution of early stage parasites.

Project leaders: Dr. Jonathan M. Wastling, Prof. Andrew Tait, Prof. Huw Smith and Dr. Lorenza Putignani.

November 1996-December 1999.

❖ **Ph. D student** at the Institute of Parasitology, I Faculty of Medicine, University of Rome “Sapienza”, Rome, Italy.

Research interest:

1. Molecular Parasitology. Analysis and characterisation of *Cryptosporidium parvum* polymorphic genes. Development of genetic markers for the identification of different genotypes. Analysis of the *Cryptosporidium parvum* karyotype.

Project leaders: Prof. Lia Paggi, Dr. Andrea Crisanti and Dr. Furio Spano.

January 1995-October 1996.

❖ **Postgraduate fellowship** at the Institute of Parasitology, I Faculty of Medicine, University of Rome “Sapienza”, Italy.

Research interest:

1. Molecular Parasitology. Characterisation of *Toxoplasma gondii* surface antigens.

Project leader: Dr. Andrea Crisanti.

April-December 1994.

❖ **Postgraduate fellowship** at the Institute of Microbiology, I Faculty of Medicine, University of Rome “Sapienza”, Italy.

Research interest:

1. Molecular Microbiology. Cloning and expression analysis of the N^6 -ornithine hydroxylase enzyme involved in the early-step of the pyoverdine biosynthesis for the iron-uptake system in *Pseudomonas aeruginosa*".

Project leader: Prof. Paolo Visca.

1992-1994.

❖ **Graduate student project** at the "Center of Reaction Mechanisms" of the Institute of Chemistry, University of Rome "Sapienza", Italy.

Research interest:

1. Mechanisms of radical reactions. Side-chain fragmentation of aromatic radical cations with analysis of possible bond cleavages: a model system for coal and lignin depolymerizations processes and biochemical redox patterns.

Project leader: Prof. Enrico Baciocchi.

- PUBLICATIONS**
1. Baciocchi, E., Bietti M., **Putignani L.**¹Steenken, S. "Side-chain fragmentation of arylalkanol radical cations. Carbon-carbon and carbon-hydrogen bond cleavage and the role of α and β -OH groups". *Journal of American Chemical Society* 118: (25), 5952-5960, **1996**, *Journal IF 8.6. Normalised IF 8.*
 2. Spano, F., Puri C., Ranucci L., **Putignani L.** and Crisanti A. "Cloning of the entire COWP gene of *Cryptosporidium parvum* and ultrastructural localization of the protein during sexual parasite development". *Parasitology* 114: 427-437, **1997**, *Journal IF 1.7. Normalised IF 2.*
 3. Spano, F., **Putignani L.**, McLauchlin J., Casemore D. and Crisanti A. "PCR-RFLP analysis of *Cryptosporidium* oocyst wall protein (COWP) gene discriminates between *C. wrairi* and *C. parvum*, and between *C. parvum* isolates of human and animal origin". *FEMS Microbiology Letters* 150: 209-217, **1997**, *Journal IF 2.2. Normalised IF 2.*
 4. Spano, F., **Putignani, L.**, Naitza, S., Puri, C., Wright, S. and Crisanti A. "Molecular cloning and expression analysis of a *Cryptosporidium parvum* gene encoding a new member of the thrombospondin family". *Molecular and Biochemical Parasitology* 92: 147-162, **1998**, *Journal IF 2.9. Normalised IF 6.*
 5. Spano, F., **Putignani L.**, Guida S. and Crisanti A. "*Cryptosporidium parvum*: PCR-RFLP analysis of the TRAP -C1 (Thrombospondin-related adhesive protein of *Cryptosporidium*-1) gene discriminates between two alleles differentially associated with parasite isolates of animal and human origin". *Experimental Parasitology* 90 (2): 195-198, **1998**, *Journal IF 1.8. Normalised IF 4.*
 6. Spano, F., **Putignani, L.**, Crisanti, A., Morgan, Una M., Le Blancq, S. M., Tchack, L., Tzipori, S. and Widmer, G. "A multilocus genotypic analysis of *Cryptosporidium parvum*: from different hosts and geographical origin". *Journal of Clinical Microbiology* 36: 3255-3259, **1998**, *Journal IF 4.2. Normalised IF 6.*
 7. **Putignani, L.**, Sallicandro, P., Alano, P., Abrahamsen, M. S., Crisanti, A. and Spano, F. "Chromosome mapping in *Cryptosporidium parvum* and establishment of a long-range restriction map for chromosome VI". *FEMS Microbiology Letters* 175(2): 231-238, **1999**, *Journal IF 2.2. Normalised IF 2.*
 8. Ambrosi, C., Leoni, L., **Putignani, L.**, Orsi, N. and Visca, P. "Pseudobactin biogenesis in the plant growth-promoting rhizobacterium *Pseudomonas* strain B10: identification and functional analysis of the L-ornithine N(5)-oxygenase (*psbA*) gene". *Journal of Bacteriology* 182(21): 6233-6238, **2000**, *Journal IF 3.9. Normalised IF 6.*
 9. **Putignani, L.**, Ambrosi, C., Ascenzi, P. and Visca, P. "Expression of L-Ornithine N^6 -oxygenase (PvdA) in fluorescent *Pseudomonas* species: an

¹ Alphabetical order for contributing authors, as used in chemistry journals. Paper corresponding to a graduation project and therefore equivalent to a first name authorship.

- immunochemical and *in silico* study”. *Biochemical and Biophysical Research Communication* 313: 245-257, **2004**, *Journal IF 2.5. Normalised IF 4.*
- 10. Putignani, L.,** Tait, A., Smith, H.V., Horner, D., Tovar, J., Tetley, L., and Wastling, J.M. “Characterisation of a novel mitochondrion-like organelle in *Cryptosporidium parvum*”. *Parasitology* 129 (1): 1-18, **2004**, *Journal IF 1.6. Normalised IF 2.*
- 11. Ambrosi, C., Tiburzi, F., Imperi, F., Putignani, L. and Visca, P.** “Involvement of AlgQ in transcriptional regulation of pyoverdine genes in *Pseudomonas aeruginosa* PAO1”. *Journal of Bacteriology*, 187 (15): 5097-5107, **2005.**, *Journal IF 3.9. Normalised IF 6.*
- 12. Putignani, L.** “The unusual architecture and predicted function of the mitochondrion organelle in *Cryptosporidium parvum* and *hominis* species: the strong paradigm of the structure-function relationship”. *Parassitologia*, 47: 215-223, **2005.**
- 13. Putignani, L.,** Russo, C., Alano P. and Pozio, E. Proceeding from the COST ACTION 857 Workshop V, “Biodiversity and population genetics of Apicomplexa”. *Parassitologia*, 47: 183-184, **2005.**
- 14. Putignani, L.,** Possenti, A., Cherchi, S., Pozio, E., Crisanti A. and Spano, F. “Molecular characterisation of CpMIC1, a novel thrombospondin-related transmembrane adhesion of *Cryptosporidium parvum* micronemes”. *Molecular Biochemical Parasitology* 157: 98–101, **2008**, *Journal IF 2.9. Normalised IF 6.*
- 15. Putignani, L.,** Paglia M.G., Bordi, E., Nebuloso, E. Pucillo, L.P. and Visca, P. “Identification of pathogenic yeasts by DNA sequence analysis of the D2 variable region of the 25-28S rRNA gene”. *Mycoses* 51: 209-227, **2008**, *Journal IF 1.4. Normalised IF 2.*
- 16. Putignani, L.,** Raffa, S., Pescosolido, R., Aimati, L., Signore, F., Torrì, M. R. and Grammatico, P. “Alteration of expression levels of the oxidative phosphorylation system (OXPHOS) in breast cancer cell mitochondria”. *Breast Cancer Research and Treatment, Epub Sep 29, 2007*, Aug;110 (3): 439-452, **2008.**, *Journal IF 4.7. Normalised IF 6.*
- 17. Imperi, F., Putignani, L.,** F. Tiburzi, C. Ambrosi, R. Cipollone, P. Ascenzi and P. Visca “Membrane-association determinants of the ω -amino acid monooxygenase PvdA, a pyoverdine biosynthetic enzyme from *Pseudomonas aeruginosa*”. *Microbiology* 154: 2804-2813, **2008.**, *Journal IF 3.1. Normalised IF 4.*
- 18. Putignani, L.,** Antonucci, G., Paglia, M.G., Vincenzi, L., Festa A., De Mori, P., Loiacono, L. and Visca, P. “Cryptococcal lymphadenitis during immune restoration in AIDS: case report and review of the literature”. *International Journal of Immunopathology and Pharmacology*, 21: 751-756, **2008**, *Journal IF 3.1. Normalised IF 6.*
- 19. Putignani, L.,** Sessa, R., Petrucca, A., Manfredini C., Coltella, L., Menichella, D., Nicoletti, M., Russo, C. and Cipriani, P. “Genotyping of distinct clonal populations of *Pseudomonas aeruginosa* isolated from a multiple pulmonary colonization in a patient admitted to an Intensive Care Cardiology Unit”. *International Journal of Immunopathology and Pharmacology*, 21: Oct-Dec;21(4):941-7. **2008**, *Journal IF 3.1. Normalised IF 6.*
- 20. Beck, H.P. *, Blake, D. *, Felger, I. *, Gómez-Bautista M. *, Dardé, M.L. *, Ortega-Mora, L.M. *, Pedraza-Díaz, S. *, Putignani, L. *, Regidor-Cerrillo, J. *, Shiels, B. *, Tait, A. * and Weir, W. *** “Molecular approaches to diversity of populations of apicomplexan parasites”. *International Journal for Parasitology*, 39: 175-189, **2009**, *Journal IF 3.8. Normalised IF 6*
- 21. Hannuna K.Y., Putignani, L.,** Silvestri E., Pisa R., Angioli R and Signore F. “Incidental endometrial adenocarcinoma in early pregnancy: a case report and review of the literature” *International Journal of Gynecological Cancer*;19(9):1580-4, **2009**, *Journal IF 2.2, Normalised IF 4.*
- 22. Mellmann, L.A., Bimet, F., Drake, R.R., Ulrich E., Ilina, E.N., Kostrzewa, M.,**

- Maier, T., Mancinelli, L., Prévost, G., **Putignani, L.**, Tang, Y.W. and Harmsen, D. “High Inter-Laboratory Reproducibility of MALDI-TOF Mass Spectrometry-Based Species Identification of Nonfermenting Bacteria”. *Journal of Clinical Microbiology*, 47 (11): 3732-3734, **2009**, *Journal IF 4.2, Normalised IF 6*.
- 23. Putignani, L.**, and Menichella, D. “Global distribution, public health and clinical impact of the protozoan pathogen *Cryptosporidium*”, *Interdisciplinary perspective on Infectious Diseases*, Epub **2010** Jul 14. *Open Access Journal*.
- 24.** Rossi de Gasperis, M., Caione, M.D., Concato, C., Fiscarelli, E., Di Pietro, N., Salotti, V., **Putignani, L.**, Menichella, D. and Callea, F. “Quantitative recovery of proviral HIV-1 DNA from leukocytes by the Dried Buffy Coat Spot method for real-time PCR determination”. *Journal of Virological Methods*. **2010**, Sep 21. [Epub ahead of print], **2010** Dec;170(1-2):121-7. *Journal IF 2.1, Normalized IF 4*.
- 25.** Manco, M., **Putignani, L.** and Bottazzo, G.F. Gut microbiota, lipopolysaccharides and innate immunity in the pathogenesis of obesity and cardiovascular risk. *Endocrine Reviews*. **2010** Dec;31(6):817-44. Epub 2010 Jun 30 **2010** Jun 30. *Journal IF 18.6. Normalized IF 15*.
- 26. Putignani L.**, Carsetti R., Signore F. and Manco M. “Additional maternal and nonmaternal factors contribute to microbiota shaping in newborns”. **PNAS** **2010**. Sept 27. [Epub ahead of print] doi:10.1073/pnas.1010526107. 2010 Oct 19;107(42):E159; author reply E160. Epub 2010 Sep 27. PMID: 20876088. *Journal IF 9.6. Normalized IF 8*.
- 27.** Rossi de Gasperis, M., Caione, M.D., Concato, C., Fiscarelli, E., Di Pietro, N., Salotti, V., **Putignani, L.**, Menichella, D. and Callea, F. c-DNA of HIV-1 detection on spot of Buffy-Coat of leukocytes (DBCS). *Microbiologia Medica*, vol. 25(1), **2010**.
- 28. Putignani, L.**, Del Chierico, F., Onori, M., Mancinelli, L., Argentieri, M., Bernaschi, P., Coltella, L., Lucignano, B., Pansani, L., Ranno, S., Russo, C., Urbani, A., Federici, G., and Menichella, D. “MALDI-TOF mass spectrometry proteomic phenotyping of clinically relevant fungi”. *Molecular Biosystems*. **Epub 2010**. Oct 21. [Epub ahead of print]. **2011** Mar 1;7(3):620-9. PMID: 20967323, *Journal IF 4.1. Normalized IF 6*.
- 29. Putignani, L.**, Mancinelli, L., Del Chierico, F., Menichella, D., Adlerstein, D., Angelici, M.C., Marangi, M., Berrilli, F., Caffara, M., Regalbono, D. and Giangaspero, A. Investigation of *Toxoplasma gondii* presence in farmed shellfish by nested-PCR and real-time PCR fluorescent amplicon generation assay (FLAG). *Experimental Parasitology*. **Epub 2010** Oct 25. [Epub ahead of print] **2011** Feb;127(2):409-17, *Journal IF 1.8. Normalized IF 4*.
- 30.** Del Chierico, F., Onori, M., Di Bella, S., Bordi, E., Petrosillo, N., Menichella, D., Cacciò, S.M., Callea, F. and **Putignani, L.** Cases of cryptosporidiosis co-infections in AIDS patients: a correlation between clinical presentation and GP60 subgenotype lineages from aged formalin-fixed stool samples. *Annals of Tropical Medicine and Parasitology*. **2011** Jul;105(5):339-49. *Journal IF 1.4. Normalized IF 4*.
- 31.** Lucignano, B., Ranno, S., Liesenfeld, O., Pizzorno, B., **Putignani, L.**, Bernaschi, P. and Menichella D. Multiplex PCR allows rapid and accurate diagnosis of bloodstream infections in newborns and children with suspected sepsis. *Journal of Clinical Microbiology*. **2011** Jun; 49(6):2252-8. Epub **2011**, Apr 6. *Journal IF 4.2. Norm IF 6.0*.
- 32. Putignani, L.**, Raffa, S., Pescosolido, R., Aimati, L., Signore, F., Callea, F., Torrisi, M. R. and Grammatico, P. Preliminary evidences on mitochondrial injury and impaired oxidative metabolism in breast cancer. *Mitochondrion*. **2012 Feb 18** [Epub ahead of print], MITOCH-D-11-00090 **2011**, *Absolute IF 4.4. Normalized IF 6*.
- 33.** Del Chierico, F., Vernocchi, P., Bonizzi, L., Carsetti, R., Castellazzi, A.M., Dallapiccola, B., de Vos, W., Guerzoni, M. E., Lanciotti, R., Manco, M., Marseglia, G., Roncada, P., Salvatori, G., Signore, F., Urbani A. and **Putignani, L.**

Early-life gut microbiota under physiological and pathological conditions: the central role of combined meta-omics-based approaches. *Journal of Proteomics* **2012 Feb 23, 2012. Journal IF 5.7, Normalized IF 6.0.**

34. Del Chierico, F., Masotti, A., Onori, M., Fiscarelli, E., Mancinelli, L., Ricciotti, G., Dimiziani, L., Manetti, C., Urbani, A., Menichella, D. and **Putignani, L.** "MALDI-TOF MS proteomic phenotyping of filamentous and other fungi from clinical origin". *Journal of Proteomics* **2012 Apr 4** [Epub ahead of print], **2012, Absolute IF 5.7, Normalized IF 6.0.**

35. G. Rigon, C. Vallone, A. Starita, M. F. M. Vismara, P. Ialongo, **L. Putignani**, F. Signore. "Diagnostic Accuracy of MRI in Primary Cervical Cancer. *Open Journal of Radiology*, **2012**, 2, 14-21, doi:10.4236/ojrad.2012.21003, **Published Online March 2012** (<http://www.SciRP.org/journal/ojrad>).

36. C. Vallone, G. Rigon, V. Lucantoni, **L. Putignani**, and F. Signore. Pregnancy in HIV-positive patients: Effects on Vaginal Flora. *Infectious Diseases in Obstetrics and Gynecology*, **2012**, doi:10.1155/2012/287849, **Published Online May 2012.**

37. Di Girolamo, F., Del Chierico, F., Caenaro, G., Lante, I. Muraca, M., **Putignani, L.** Human serum proteome analysis: new source of markers in metabolic disease", *Target Biomarkers Medicine, Invited review*, **2012**, 6(6), 759-773, **Absolute IF 2.26, Normalized IF 4.0.**

38. Petrucca, A., Del Chierico, F. and **Putignani, L.** Just keep going on description or interpret "life" of gut microbial ecosystems? *Target On line Cell comment* ([http://www.cell.com/abstract/S0092-8674\(12\)00629-0#Comments](http://www.cell.com/abstract/S0092-8674(12)00629-0#Comments)) to Gut Immune Maturation Depends on Colonization with a Host-Specific Microbiota, *Cell*, Volume 149, Issue 7, 1578-1593, 22 June **2012.**

39. Special Issue: Frontiers in Cellular and Infection Microbiology: Research Topic, Editor Putignani Lorenza "Human gut microbiota: onset and shaping through life stages and perturbations", *Editorial, Open Access Journal*, **2012.**

40. L. Putignani, O. Massa, A. Alisi. Engineered *Escherichia coli* as new source of flavonoids and terpenoids, *Target Food Research International, Special Issue in "Foodomics: how molecules impact food quality and safety, nutrition and human health"*. Invited review, **2012, Absolute IF 2.4 , Normalized IF 6.0.**

41. Bernaschi P, Del Chierico F, Petrucca A, Argentieri A, Ciofi Degli Atti M, Ciliento G, Carletti M, Muraca M, Locatelli F, **Putignani L.** Microbial tracking of multidrug-resistant *Klebsiella pneumoniae* isolates in a pediatric hospital setting. *Int J Immunopathol Pharmacol.* **2013 Apr-Jun**;26(2):463-72. **Absolute IF 3.4, Normalized IF 6.**

42. Di Girolamo F, Lante I, Muraca M, **Putignani L.** The Role of Mass Spectrometry in the "Omics" Era. *Curr Org Chem.* **2013 Dec**;17(23):2891-2905. **Absolute IF 3.04, Norm IF 6.**

43. Del Chierico F, Petrucca A, Mortera SL, Vernocchi P, Rosado MM, Pieroni L, Carsetti R, Urbani A, **Putignani L.** A metaproteomic pipeline to identify newborn mouse gut phylotypes. *J Proteomics.* **2014 Jan 31**; 97:17-26. **Absolute IF 4.08, Normalized IF 6.**

44. Del Chierico F, Petrucca A, Vernocchi P, Bracaglia G, Fiscarelli E, Bernaschi P, Muraca M, Urbani A, **Putignani L.** Proteomics boosts translational and clinical microbiology. *J Proteomics.* **2014 Jan 31**; 97:69-87. **Absolute IF 4.08, Normalized IF 6.**

45. Del Chierico F, Gnani D, Vernocchi P, Petrucca A, Alisi A, Dallapiccola B, Nobili V, **Putignani L.** Meta-omic platforms to assist in the understanding of NAFLD gut microbiota alterations: tools and applications. *Int J Mol Sci.* **2014 Jan 7**;15(1):684-711. **Absolute IF 2.46, Normalized IF 6.**

46. Putignani L, Del Chierico F, Petrucca A, Vernocchi P, Dallapiccola B. The human gut microbiota: a dynamic interplay with the host from birth to senescence settled during childhood. *Pediatr Res.* **2014 Jul**;76(1):2-10. **Absolute IF 2.67, Normalized IF 6.**

47. Pietrantoni E, Del Chierico F, Rigon G, Vernocchi P, Salvatori G, Manco M, Signore F, **Putignani L.** Docosaheanoic acid supplementation during

- pregnancy: a potential tool to prevent membrane rupture and preterm labor. *Int J Mol Sci.* **2014** May 7;15(5):8024-36. **Absolute IF 2.46, Normalized IF 6.**
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77. **L. Putignani,** *Invited Lecture*, Genotyping of *Cryptosporidium* spp. isolates from different Tanzania areas. Ospedale Pediatrico Bambino Gesù, **XXVII Congresso Nazionale della Società Italiana di Parassitologia (SOIPA)**, Alghero, 26-29 Giugno 2012.

78. F. Del Chierico, P. Vernocchi, S. Levi Mortera, L. Laghi, L. Vannini, F. Signore, E. Buffone, A. Petrucca, R. Carsetti, R. Lanciotti, M. E. Guerzoni, P. Roncada, L. Bonizzi, A.M. Castellazzi, M. Manco, G.L. Marseglia, G. Salvatori, M. Soriani, B. Dallapiccola, M. Muraca, S. Fuentes, A. Urbani, W. M. de Vos, **L. Putignani**. Succession of early microbial consortia in the developing infant gut microbiota unveiled by meta-omics approaches. Keystone Symposia on Molecular and Cellular Biology, 4rd-9rd **March 2012, Keystone Resort, Keystone, Colorado, USA**. Poster.
79. Del Chierico F., Vernocchi P., Levi Mortera S., Laghi L., Signore F., Buffone E., Petrucca A., Carsetti R., Lanciotti R., Guerzoni M.E., Roncada P., Bonizzi L., Castellazzi A.M, Manco M., Marseglia G.L., Salvatori G., Soriani M., Dallapiccola B., Muraca M., Urbani A., de Vos W., **Putignani P**. Succession of early microbial consortia in the developing infant gut microbiota unveiled by meta-omics approaches. **Human Microbiome International Congress, 19-22 March 2012, Paris, France**.
80. P. Vernocchi, F. Del Chierico, M. Valerio, L. Casadei, A. Masotti, F. Majo, C. Rizzo, E. Fiscarelli, C. Manetti, M. Muraca, V. Lucidi, B. Dallapiccola, **L. Putignani**. "Gut microbiota in cystic fibrosis (CF) patients: metabolome unveiled by GC-MS-SPME and ¹H-NMR combined technologies". **The Microbiota and Immunity in Human Diseases, Children's Hospital Bambino Gesù, 3-4 May 2013, Rome, Italy**.
81. F. Del Chierico, P. Vernocchi, **L. Putignani**, B. Dallapiccola, S. Levi Mortera, A. Urbani, I. Messana, T. Cabras, B. Manconi, M.T. Sanna, F. Iavarone, M. Castagnola, A. Vitali. "Connections among the human oral microbiome, metabolome and salivary proteome". **The Microbiota and Immunity in Human Diseases, Children's Hospital Bambino Gesù, 3-4 May 2013, Rome, Italy**.
82. G. Tabanelli, F. Patrignani, G. Vinderola, P. Vernocchi, F. Del Chierico, F. Gardini, G. Rehneimer, **L. Putignani**, R. Lanciotti. "Effects of a sub-lethal high pressure homogenization treatment on probiotic cell response *in vitro* and mouse model". **The Microbiota and Immunity in Human Diseases, Children's Hospital Bambino Gesù, 3-4 May 2013, Rome, Italy**.
83. F Del Chierico, A Petrucca, S Fuentes, A Miccheli, P Vernocchi, G Salerno, A Masotti, G Praticò, G Capuani, C Vallone, E Buffone, F Signore, G Rigon, G Salvatori, WM de Vos,, B Dallapiccola, **L Putignani**. "Study of early-life gut microbiota programming under determinants of variability by metagenomic and metabolomic integrated approaches". **The Microbiota and Immunity in Human Diseases, Children's Hospital Bambino Gesù, 3-4 May 2013, Rome, Italy**.
84. F. Del Chierico, P. Vernocchi, D. C. Accardi, L. Mazzone, G. Giovagnoli, G. Valeri, S. Vicari, **L. Putignani**. "Factors influencing the human gut microbiome and its effect on the development of diet-related diseases and brain development". **The Microbiota and Immunity in Human Diseases, Children's Hospital Bambino Gesù, 3-4 May 2013, Rome, Italy**.
85. F. Del Chierico, P. Vernocchi, V. Giorgio, C. Rizzo, A. Alisi, V. Nobili, **L. Putignani**. "Gut microbiota profiling in NAFLD patients by culture-based MALDI-TOF and GC- mass spectrometry". **The Microbiota and Immunity in Human Diseases, Children's Hospital Bambino Gesù, 3-4 May 2013, Rome, Italy**.
86. G. Tabanelli, F. Patrignani, G. Vinderola, P. Vernocchi, F. Del Chierico, F. Gardini, G. Rehneimer, **L. Putignani**, R. Lanciotti. "Effect of a sub-lethal high pressure homogenization (HPH) treatment on response mechanisms and specific functional properties of probiotic bacteria". **International Conference on FoodOmics 3rd Edition, "2013 FoodOmics, the Science for Discovering", 22-24 May 2013, Cesena, Italy**.
87. F. Del Chierico, P. Vernocchi, A. Petrucca, V. Giorgio, A. Alisi, V. Nobili, **L. Putignani**. "Proteomics boosts translational and clinical microbiology: the case of gut microbiota profiling in NAFLD patients". **VIII Italian Proteomic Association ItPA National Congress, 18th-21st June 2013, Padua, Italy**.
88. S. Levi Mortera, A. Petrucca, F. Del Chierico, P. Vernocchi, **L. Putignani**, A. Urbani. "Database Comparison and Bioinformatic Tools for Metaproteomic Approaches in Investigations on Microbial Populations". **VIII Italian Proteomic Association ItPA National Congress, 18th-21st June 2013, Padua, Italy**.
89. **L. Putignani**. Gut microbiota in cystic fibrosis (CF) patients: a combined -omic translational workflow. **28-31 August, 2013. Trento, Italy. 5th Congress of the Italian society for evolutionary biology (SIBE)**.

90. **L. Putignani.** Metodiche di studio tecnico di misurazione. **Microbiota e patologie dell'apparato digerente: nuove conoscenze e prospettive di cura. Roma 5 Ottobre, 2013**
91. L. Putignani. Il microbiota umano: un'interazione dinamica tra ospite e batteri dalla nascita alla senescenza. **Tecnoscienza: per l'uomo, oltre la natura". 21 giugno, Auditorium dell'Ospedale Pediatrico Bambino Gesù, Roma.**
92. P. Vernocchi, F. Patrignani, C. Montanari, G.P. Parpinello, D.I. Serrazanetti, F. Del Chierico, **L. Putignani**, G. Tabanelli, E. Bargossi, L. Siroli, F. Gardini, R. Lanciotti. "Yeast microbial ecology, aroma profiles and safety features of wines from biological or biodynamic grapes in relation to starter addition". **2nd International Conference on Microbial Diversity, "Microbial Interactions in Complex Ecosystems", 23-25 October 2013, Turin, Italy.**
93. **L. Putignani.** "Microbiota dell'età pediatrica: evoluzione e manifestazioni patologiche", Microbiota come genotipo esteso, **Scuola di Genetica in Cortona. 23-24, June, 2014.**
94. **L. Putignani, Invited Lecture, WebValley 2014,** Biocomputing analyses of dysbiosis status in IBD-IBS, Trento, Italy.
95. **HUPO 2014, World Congress of Proteomics,** Madrid, Spain 5-8 October 2014, Putignani L., **Invited Keynote Lecture:**
96. Abruzzo, Invited
97. P. Vernocchi *et al.*, **Putignani L.**, Gut microbiota metabolome in pediatric diseases, "Metabolomic Approaches: Advanced Analytical Tools Challenges, Perspectives and Applications", Padova, 10/11 Novembre **2014**
98. **Putignani L., Invited Lecture:** Gut aerobes, Advances on gut microbiota and fecal microbiota transplantation, **EAGEN, Postgraduate Course, 10 September 2014, Gemelli, Rome, Italy**
99. **Putignani L., Invited Lecture,** "Microbiota intestinale: riflessi su crescita e patologia". I migliori stili della nostra vita", organizzato dal DIPO di Mantova, Dipartimento Interaziendale Provinciale Oncologico, 28-29 Novemvre **2014, MAMU, Mantova, Italy.**
100. G. Bracaglia, S. Ranno, F. Del Chierico, R. Boldrini, L. Cerroni, O. Sanguenza, P. Bravo, A. Diociaiuti, M. El Achem, F. Callea and **L. Putignani.** A case of Sparganum infection in an Italian diver, XXVIII Congresso Nazionale SoIPA, Roma 24-27 Giugno.
101. G. Bracaglia, S. Ranno, M. Santoro, L. Losito, L. De Maio, M. Muraca, **L. Putignani.** Comparative study of *Giardia lamblia*, *Cryptosporidium parvum*, *Entamoeba histolytica* and *Dientamoeba fragilis* in faecal samples by Real-time PCR approach. XXVIII Congresso Nazionale SoIPA, Roma 24-27 Giugno.
102. G. Bracaglia, S. Ranno, M. Santoro, F. Del Chierico, H. Tchidjou, F. Callea, M. Muraca, **L. Putignani.** Globalization effects on parasites distribution, XXVIII Congresso Nazionale SoIPA, Roma 24-27 Giugno.
103. S. Ranno & G. Bracaglia, M. Santoro, F. Del Chierico, C. Accardi, M. Muraca, **L. Putignani.** Genotyping of *Blastocystis hominis* from faecal samples in Rome, XXVIII Congresso Nazionale SoIPA, Roma 24-27 Giugno.
104. S. Ranno & G. Bracaglia, M. Gramegna, L. Turner, M. Santoro, M. Muraca, **L. Putignani.** A Lyophilised Real-time PCR system for Leishmania spp. screening. XXVIII Congresso Nazionale SoIPA, Roma 24-27 Giugno.
105. M. Santoro, G. Bracaglia, S. Ranno, M. Gramegna, L. Ventura, M. Muraca, **L. Putignani.** New molecular methods in diagnostic parasitology: PCR procedures using lyophilized systems for oro-faecal parasites. XXVIII Congresso Nazionale SoIPA, Roma 24-27 Giugno.
106. - Turner L. J., Ventura L., Incandela M.L., Ranno S., Bracaglia G., Santoro M., Moiana A., **Putignani L.**, Gramegna M. A novel Real-Time PCR-based kit for the diagnosis of Leishmania infection: integration into a routine reference laboratory. AMP Annual Meeting. Washington DC, 12-15/11/**2014.**
107. - Santoro M., Ranno S., Bracaglia G., Motta M., Muraca M., **Putignani L.** Valutazione di tecniche di concentrazione del campione fecale a fresco per il recupero quantitativo e differenziale di parassiti intestinali. XLIII Congresso Nazionale AMCLI. Rimini, 4-7/11/**2014.**
108. P. Vernocchi, F. Del Chierico, D. C. Accardi, G. Catesini, A. Russo, C. Rizzo, P. Paci, M. Muraca, V. Lucidi, V. Nobili, B. Dallapiccola, **L. Putignani,** Gut microbiota metabolome in pediatric diseases. Metabolomic Approaches: Advanced Analytical Tools. Challenges, Perspectives and Applications IMaSS- Padova, 10-11 November 2014

109. Zandonà A, Chierici M, Jurman G, Del Chierico F, Cucchiara S, Putignani L, Furlanello C. A metagenomic pipeline integrating predictive profiling methods and complex networks for the analysis of NGS microbiome data. NIPS 2014, workshop on Machine Learning in Computational Biology, Montreal, Canada. Dec 13, 2014. (poster).
110. P. Vernocchi, F. Majo, F. Alghisi, M. Valerio, L. Casadei, F. Del Chierico, A. La Stora, F. De Filippis, C. Rizzo, E. Fiscarelli, C. Manetti, M. Muraca, V. Lucidi, D. Ercolini, B. Dallapiccola, L. Putignani. "Gut microbiota in cystic fibrosis (CF) patients: a combined -omic translational workflow". ESPGHAN, June 2014, Tel Aviv (Israele).
111. "Gut microbiota metabolome in pediatric diseases" P. Vernocchi, F. Del Chierico, D. C. Accardi, G. Catesini, A. Russo, C. Rizzo, P. Paci, M. Muraca, V. Lucidi, V. Nobili, B. Dallapiccola, L. Putignani. Metabolomic 2014-Metabolomic Approaches: Advanced Analytical Tools Challenges, Perspectives and Applications. 10-11 November 2014, Padova, Italy.
112. Del Chierico F. La metagenomica e fenotipi malattia. Microbioteat. Nutrire la vita. Roma, 18 Settembre 2015
113. Francesca Patrignani, Lorenzo Siroli, Diana. I Serrazanetti, Pamela Vernocchi, Federica Del Chierico, Alessandra Russo, Lorenza Putignani, Fausto Gardini, Rosalba Lanciotti. "Innovative washing solution based on Lactococcus lactis, nisin producing strain, and thyme essential oil at industrial level to improve safety and quality of minimally processed lamb's lettuce". 13th Symposium on Bacterial Genetics and Ecology (BAGECO13), June 14 - 18, 2015 in Milan, Italy.
114. Pamela Vernocchi, Federica Del Chierico, Sofia Reddel, Alessandra Russo, Livia Mancinelli, Giorgia Bracaglia, Simona Giancristoforo, Tania Napolitano, Alessandro G. Fiocchi, May El Hachem, Bruno Dallapiccola, Paolo Rossi, Lorenza Putignani. "Probiotics persistence in gut microbiota of allergic children addressed by systems biology based profiling". 8th Probiotics, prebiotics & New Foods, 13-15 Settembre 2015, Università Urbaniana Roma.
115. P. Vernocchi, Del Chierico, P. Paci, A. Russo, F. Majo, M. Valerio, L. Casadei, La Stora, F. De Filippis, C. Rizzo, E. Fiscarelli, L. Farina, M. Muraca, C. Manetti, D. Ercolini, V. Lucidi, B. Dallapiccola, L. Putignani. "Gut microbiota meta-omics charts supporting CF patients' laboratory and clinical management". 8th Probiotics, prebiotics & New Foods, 13-15 Settembre 2015, Università Urbaniana Roma.
116. Russo A, Filoni S, Del Chierico F., Faraci S, Rea F, Angelino G, Torroni F, Romeo E, De Angelis P and Putignani L., Gut microbiota profiling in pediatric inflammatory bowel disease. 8th Probiotics, prebiotics & New Foods, 13-15 Settembre 2015, Università Urbaniana Roma
117. Cardile S, Del Chierico F, Russo A, Vernocchi P, Bracaglia G, Bernaschi P, Pansani L, Argentieri M, Pietrobattista A, Torre G and Putignani L Gut microbiota profiling in an infant colonized by multiresistant germ candidate to liver transplantation. ". 8th Probiotics, prebiotics & New Foods, 13-15 Settembre 2015, Università Urbaniana Roma
118. Del Chierico F, Vernocchi P, Alisi A, Nobili V, Putignani L Gut microbiota profiling in NASH/NAFLD patients by 454 pyrosequencing and GC- mass spectrometry. ". 8th Probiotics, prebiotics & New Foods, 13-15 Settembre 2015, Università Urbaniana Roma
119. Del Chierico F. La spettrometria di massa per la caratterizzazione di agenti patogeni e commensali: una lente su abitanti del sistema uomo amici e nemici. Scuola di formazione permanente di medicina di laboratorio. SiBioC. Roma, Ottobre 2015.
120. Vernocchi P., Patrignani F., Braschi G., Montanari C., Serrazanetti D. I., Del Chierico F., Accardi D. C., Putignani L., Lanciotti R. Yeasts isolated from organic or biodynamic grapes: genomic and proteomic identification. 3rd International Conference on Microbial Diversity, 27. Ottobre 2015 Perugia Italia.
121. S. Levi Mortera, P. Vernocchi, F. Del Chierico, M. M. Rosado, R. Carsetti, A. Urbani, L. Putignani. LC-MS Approaches for a Metaproteomic Description of Perinatal Mouse Gut Microbiota in Correlation with Genetic Background and Feeding Controls. EuPa 2015, Milano 2015.
122. Del Chierico F., Vernocchi P., Levi Mortera S., Dallapiccola B., Urbani A., Putignani L. Proteomics-based analyses for gut microbiota investigations. EuPa 2015, Milano 2015.
123. Del Chierico F., Vernocchi P., Levi Mortera S., Dallapiccola B., Urbani A., **Putignani L.** Proteomics-based analyses for gut microbiota investigations. EuPa 2015, Milano 2015.
- 124-194. *Nel Triennio 2016-GIUGNO 2018 sono state effettuate più di settanta*

comunicazioni a Congresso.

195-225. During **2019** more than 30 Communications have been given at congresses.

226-236. Durante il **2020** 10 Communications have been given at on-line congresses.

236-246. Durante il **2021** 10 Communications have been given at on-line congresses until June 2021.

Congress Organization

1. The microbiota and immunity in human diseases. International Symposium. **Rome. 3-4 May, 2013.**
2. Proteomica e genomica: un ponte tra ricerca traslazionale e diagnostica infettivologica, Corso ECM. **Roma, 3 Giugno 2013.**
3. Discipline "omiche" e Medicina di sistema: nuovi potenziali traslazionali e diagnostici Corso ECM Roma. **11 Giugno 2014.**
4. La Parassitologia: una disciplina tra "antico" e "moderno", Corso ECM, Roma. **7 Ottobre 2013.**
5. La parassitologia ai tempi della globalizzazione: un'interazione crescente tra medicina tropicale e avanzamenti tecnologici. Corso ECM, Roma. **16-17 Aprile 2015.**
6. Microbioteat, EXPO 2015, Vaticano, Auditorium San Paolo, 18 settembre **2015** (http://www.orpha.net/actor/ItaliaNews/2015/doc/depliant_micro_ita4.pdf).
7. La proteomica come ponte tra ricerca traslazionale e clinica. Corso ECM, Roma 30-31 Maggio **2017.**
8. Microbiota: la medicina clinica e la medicina di laboratorio si parlano. Corso ECM, Roma 22 Novembre **2017.**
9. La prospettiva One Health nella diagnostica infettivologica. Corso ECM, Roma 15 Marzo **2018.**
10. Microbiota: la medicina clinica e la medicina di laboratorio si parlano- II edizione. Corso ECM, Roma 28 Novembre **2018.**
11. La proteomica come ponte tra ricerca traslazionale e clinica – III edizione. Corso ECM, Roma 14/15 Giugno **2018.**
12. La spettrometria di massa nella ricerca e pratica clinica. Corso ECM, Roma 11-12 Giugno **2019.**
13. La spettrometria di massa nella medicina personalizzata. Corso ECM, Roma 5 Maggio **2021.**

Assigned Grants

1. British-Italian Joint Research Programme of **The British Council, Ministero dell'Istruzione dell'Università e della Ricerca, Conferenza dei Rettori delle Università Italiane (CRUI), 2002 edition:** "Study of bacterial-like sequences in the genome of the protozoan human parasite *Cryptosporidium parvum*". **Principal Investigator:** Dr. **Putignani Lorenza** and Dr. Jonathan M. Wastling. Partnership between University of Rome III (Rome, Italy) and University of Glasgow (Glasgow, Scotland, UK).
2. STSM **Short Term Scientific mission**, COST Action 857, "European Cooperation in the field of scientific and technical research", **Gene expression of Apicomplexa parasites:** "Proteome analysis of the mitochondrion-like organelle of *Cryptosporidium parvum*: an approach to highlight central metabolic pathways of the parasite". 2005-2006 **Edition.** Renewal for **2007-2008.** **Principal Investigator:** Dr. **Lorenza Putignani** and Dr. Jonathan M. Wastling. Partnership between Microbiology and Virology Unit Children's Hospital and Research Institute "Bambino Gesù" (Rome, Italy) and University of Liverpool (Liverpool, UK).
3. Applicability of the loop-mediated isothermal amplification (LAMP) technology applied to the development of molecular assays in the field of infectiology by testing clinical samples, **DiaSorin GRANT, Proponente Dr. Menichella, PI Lorenza Putignani.**
4. **Ricerca Corrente OPBG 2009-2010:** "The early Apicomplexa protists as a new model for the understanding of human infectious diseases and pathologies: a novel approach to treat emerging public health challenges through global technological platforms as DNA, protein expression profiling and phylogenomics" (RC 200702P002153). **PI:** Dr. **Lorenza Putignani.**
5. **Ricerca Corrente OPBG 2011:** "Utilizzo di piattaforme proteomiche avanzate per la descrizione del proteoma di patogeni emergenti: dal modello del parassita *Cryptosporidium spp.* ai sistemi complessi" (RC 201102P002581). **Principal Investigator:** Dr. **Lorenza Putignani.**

6. Studio di cellule staminali e di precursori ematopoietici su sangue di cordone ombelicale: applicazioni oncoematologiche e trapiantologiche, **Fondazione MPS**, Bando Aprile 2010 (n°14), Richiesta di contributo n°41638. Istituto proponente: Ospedale San Camillo-Forlanini; Istituto collaborativo: OPBG (LP).
7. **OPBG Grant 201103X002675**: The proteomics in microbiology: from axenic cultures to systems biology.
8. **Italian Proteomics Association**, ItPA, Supervisor of a Mobility fellowship, **2011**, Study of neonatal gut microbiota under breast versus formula feeding.
9. **Project Submitted: Project Title**: Sviluppo di una piattaforma biotecnologica miniaturizzata per la determinazione quali-quantitativa di agenti patogeni emergenti in molluschi bivalvi edibili, MINISTERO DELLE POLITICHE AGRICOLE AMBIENTALI E FORESTALI. **2012**. Istituto proponente: Università di Foggia; Istituto collaborativo: OBG, L. Putignani.
10. **Ricerca Corrente OPBG 2012**: “Il ruolo emergente della proteomica traslazionale nello studio e nella diagnostica delle malattie infettive” (RC 201202P002736). **Principal Investigator**: LP.
11. **Ricerca Corrente OPBG 2012**: *Sviluppo di metodi POC (“point of care”) per la raccolta ed il trattamento di campioni fecali da sottoporre ad analisi remota real-time PCR e di sequenziamento per l’identificazione diagnostica e la sorveglianza epidemiologica di parassiti gastrointestinali emergenti: il caso del reservoir Tanzania*. **Principal Investigator**: Prof. **Francesco Callea**.
12. **PRIN 2010-2011**, Protocollo 2010p7LFW4, Responsabile scientifico, Annunziata Giangaspero UO2: *Genomica e interazione ospite-agente patogeno: un modello di studio nella prospettiva della One-Health/ Genomics and host-pathogen interactions: a model study in the One-Health perspective*. Finanziamento complessivo ricevuto: 532.000 euro; Finanziamento UO2: 81.180.36 Ricercatore di UO2, 10,000 euro.
13. **7° Framework Programme, ICT-2011.5.2**, MD PEDIGREE, 600932, OPBG, Novembre 2012, Coordinatore Prof. B. Dallapiccola.
14. **CONTO CAPITALE**, Ministero Salute **2012**, Studio integrato del metagenoma e del metaproteoma in patologie pediatriche associate ad alterazioni del microbiota intestinale, Coordinatore Prof. B. Dallapiccola.
15. **PON 2012-REGIONE PUGLIA**, UOS Unità di Parassitologia (Co-PI Lorenza Putignani), UO Facoltà di Agraria, PI, Prof. Annunziata Giangaspero, **2014**.
16. **Ricerca Corrente OPBG 2013**. “La proteomica traslazionale nello studio e nella diagnostica delle malattie infettive: ontologie proteomiche versus ontologie geniche”. RC2013/02P002991.
17. **Ricerca Corrente Bambino Gesù Hospital and Research Institute (OPBG) 2013**: “Studio integrato del meta genoma e del metaproteoma in patologie pediatriche associate ad alterazioni del microbiota intestinale”. RC201302G003050
18. **Ricerca Corrente Bambino Gesù Hospital and Research Institute (OPBG) 2014**. “Integrazione di profili enterotipici microbici e fenotipi omico-clinici come nuovo approccio traslazionale per il controllo della salute nell’infanzia e per il trattamento di patologie pediatriche complesse: il ruolo di microbioti endogeni”.
19. **HORIZON PHC-5, TRACKING GUT MICROBIOTA DYSBIOSIS AND HOST RESPONSE TO PREVENT IBD AND IBS THROUGHOUT LIFE-DYSBIOTRACK**, Coordinator PI, **Putignani L.**, *I round selection exceeded, II round under evaluation*, 19 August **2014**
20. **Tribif**, Persistenza di probiotici, somministrati per via orale, sul microbiota intestinale di bambini allergici all’uovo, **Project Fiocchi-Putignani, 2014**
21. **Dicofarm**, Studio dell’effetto dell’alimentazione (materna, artificiale o mista) sul microbiota intestinale e salivare di bambini nei primi mesi di vita: strumento utile per disegnare un piano nutrizionale personalizzato”, **Project Salvatori-Putignani, 2014**
22. **Biolife**,
23. **Bifiderm**, “Studio dell’effetto di alimenti funzionali sul microbiota intestinale del bambino e sulla dermatite atopica”, **Project Maya El-Hachem-Putignani, 2014**.
24. **PROGETTO TRIBIF**: Titolo: “Persistence of orally ingested probiotics in gut microbiome”.
25. **PROGETTO MINISYSTEM**, Titolo: “Valutazione di tecniche di concentrazione del

- campione fecale A fresco per il recupero QUANTITATIVO E DIFFERENZIALE di parassiti intestinali*”.
- 26. PROGETTO DICOFARM 1.** Titolo: “*Study of the feeding (breast or formula) effects on gut and oral microbiota in neonates: tools for personalized nutritional treatment in early life*”.
- 27. PROGETTO ALIMENTI FUNZIONALI.** Titolo: “*STUDIO DELL’EFFETTO DI ALIMENTI FUNZIONALI SUL MICROBIOTA INTESTINALE DEL BAMBINO E SULLA DERMATITE ATOPICA*”.
- 28. PROGETTO MPS.** Titolo “*Studio di cellule staminali e di precursori ematopoietici su sangue di cordone ombelicale: applicazioni oncoematologiche e trapiantologiche*”.
- 29. PROGETTO DICOFARM 2.** Titolo: “*La proteina “High Mobility Group Box 1(HMGB1) come nuovo marcatore fecale di infiammazione intestinale in neonati pretermine affetti da Enterocolite Necrotizzante (NEC)*”.
- 30. PROGETTO ABSCIEX,** Titolo “*Ottimizzazione di protocolli di proteomica, metaproteomica e metABolomica*”.
- 31. PROGETTO SIDERAL (PharmaNutra)** Titolo:” “*studio dell’effetto della supplementazione di ferro sullo sviluppo del gut microbiota in bambini nati pretermine*”.
- 32. PROGETTO NOVARTIS,** Titolo: “*Gut and lung microbiota modulation in CF children: an integrated –omics approaches to unveil the effects of determinants of variability on microbiota structure and metabolism*”.
- 33. PROGETTO VERTEX** Innovation Awards, Titolo: “*Gut and lung microbiota modulation in very young CF children: a route to unveil pulmonary dynamics*”.
- 35) PROGETTO RICERCA CORRENTE 2013,** Titolo: “*La proteomica traslazionale nello studio e nella diagnostica delle malattie infettive: ontologie proteomiche versus ontologie geniche*”. RC2013/02P002991, Bando 2013 Ricerca corrente Ministero della Salute (MS)
- 36) PROGETTO RICERCA CORRENTE 2013,** Titolo” *Studio integrato del metagenoma e del metaproteoma in patologie pediatriche associate ad alterazioni del microbiota intestinale*”. RC201302G003050
Bando 2013 Ricerca corrente Ministero della Salute (MS)
- 37) PROGETTO RICERCA CORRENTE 2014,** Titolo: “*Integrazione di profili enterotipici microbici e fenotipici omico-clinici come nuovo approccio traslazionale per il controllo della salute nell’infanzia e per il trattamento di patologie pediatriche complesse: il ruolo dei microbioti endogeni*”. Bando 2014 Ricerca corrente Ministero della Salute (MS)
- 38) FONDAZIONE FRANCISCO,** Titolo: “*Progetto Francisco*”. Committente: FONDAZIONE FRANCISCO-Donazione spontanea
- 39) FONDAZIONE LUCA BARBARESCHI, Committente: FONDAZIONE L. BARBARESCHI-Donazione spontanea,** Direttore Scientifico OPBG – Prof. B. Dallapiccola/CoPI Unità di Metagenomica OPBG Dott.ssa L. Putignani. Acquisto piattaforma Next Generation Sequencing (NGS) Roche 454, Roche real-time 480 e reagenti
- 40) FONDAZIONE ROMA,** Titolo: “*ANALISI METAGENOMICA DI CAMPIONI FECALI*”. Progetti Fondazione Roma
- 41) FONDAZIONE VERONESI POST DOCTORAL FELLOW,** Titolo “*CHARACTERIZATION OF MITOCHONDRIAL INJURY DURING OXIDATIVE STRESS IN BREAST CANCER: A MODEL FOR THE “MITOCHONDRIOPATHY CANCER*”.
- 42) PROGETTO PRIN,** Titolo: “*GENOMICA E INTERAZIONE OSPITE-AGENTE PATOGENO: UN MODELLO DI STUDIO NELLA PROSPETTIVA DELLA ONE-HEALTH*”. Programmi di Ricerca di rilevante Interesse Nazionale (PRIN).
- 43) PROGETTO PON,** Titolo “*Allestimento Mantenimento e Spedizione dei ceppi in vitro di protozoi quali Giardia duodenalis, Cryptosporidium parvum e Toxoplasma gondii*”. Programma Operativo Nazionale (PON).
- 44) PROGETTO CONTO CAPITALE,** Titolo: “*Studio integrato del metagenoma e del metaproteoma in patologie pediatriche associate ad alterazioni del microbiota intestinale*”. Conto capitale 2012-Regione Lazio e Ministero della Salute
- 45) Bando SIR 2014-RBSI14LREE,** Titolo: “*COMBINED GENETIC, SEROLOGIC,*

GUT IMMUNOLOGICAL AND MICROBIAL PROFILING TO PREDICT THE DISEASE COURSE IN PEDIATRIC INFLAMMATORY BOWEL DISEASE". Bando S.I.R-Scientific independence of young researcher MIUR 2014

46) PROGETTO REGIONE LAZIO-BANCA DEL LATTE, Titolo: "studio dell'effetto del latte materno (pastorizzato e non pastorizzato) sul microbiota intestinale del neonato". Progetti di Ricerca presentati da Università e Centri di Ricerca-LR 13/2008 REGIONE LAZIO

47) RICERCA FINALIZZATA LATTE, Titolo: "Novel formula milks and neonatal gut microbiota: a dynamic interplay approached by systems biology". Bando 2011-2012-Progetti Ordinari RF-Ministero della Salute

48) RICERCA FINALIZZATA DIETA MEDITERRANEA, Titolo: "Mediterranean diet and gut microbiota: an operational algorithm to unveil food effects on healthy growth and disease control". Bando 2011-2012-Progetti Ordinari RF-Ministero della Salute

49) PROGETTO EUROPEO FP7-MD-PAEDIGREE ICT-2011.5.2, Titolo: "MD-Paedigree: Model-Driven Paediatric European Digital Repository". Progetti del 7 Programma Quadro FP7-EU Project

50) PROGETTO EUROPEO HORIZON PHC-5-2014 "Health promotion and disease prevention: translating 'omics' into stratified approaches" Titolo: "Tracking gut microbiota dysbiosis AND HOST RESPONSE to prevent IBD and IBS throughout life (DYSBIOTRACK)".

51) PROGETTO EUROPEO HORIZON PHC-07- 2014 "Improving the control of infectious epidemics and foodborne outbreaks through rapid identification of pathogens", Titolo: "CLOSTRIDIUM DIFFICILE OUTBREAKS IN HOSPITALS AND ITS ASSOCIATION WITH FOOD AND THE MICROBIOTA".

52) Progetti HORIZON2020-EU Project, Proponente: Lynkeus SRL, Italia-Dott. Edwin Morley-Fletcher

53) PROGETTO EUROPEO HORIZON 2014 PICTS-IC (Paediatric-onset Inflammatory Bowel Disease Cohort and Treatment study – Inception Cohort): biomarkers for Crohn's disease prediction, diagnosis, course, and potential therapeutic targets.

54). BIFIDERM, 391 LB, Studio dell'effetto di alimenti funzionali sul microbiota intestinale del bambino e sulla dermatite atopica, 22 aprile 2014, GRANTED

55). GUT_DICOFARM, 784_OPBG_2014, Studio dell'effetto dell'alimentazione sul microbiota intestinale e salivare di bambini nei primi mesi di vita: strumento utile per disegnare un piano nutrizionale personalizzato, 1° luglio 2014, GRANTED

56). TRIBIF, 787_OPBG_2014, Persistenza di probiotici, somministrati per via orale, sul microbiota intestinale di bambini allergici all'uovo, 1° luglio 2014, GRANTED

57). RC_OMICHE, 201402G0033251, Integrazione di profili enterotipici microbici e fenotipici omico-clinici come nuovo approccio traslazionale per il controllo della salute nell'infanzia e per il trattamento di patologie pediatriche complesse: il ruolo dei microbioti endogeni, 2014, GRANTED

58). RC_PROBIOTICI, 201502P003534, Persistenza di probiotici nel microbiota intestinale di bambini: studio integrato di systems biology, 2015, GRANTED

59). MetaASD, Microbiota intestinale, alimentazione e disturbi gastrointestinali in soggetti con disturbi dello spettro autistico, 2015, GRANTED

60). CARDIOMICS, Phenotypic, Clinical, Genetic and proteomic characterization of Pulmonary Artery Hypertension (PAH): generation of PAH integrated biomarkers, 2015, GRANTED

61). LISTERIA, Stress response mechanisms of *Listeria monocytogenes* exposed to citral, carvacrol, (E)-2-Hexenal and thyme essential oil, 2015, GRANTED

62). VALERIANA, Potential of *Lactococcus lactis*, nisin producing strain, and thyme essential oil used as innovative washing solution at industrial level to improve safety and quality of minimally processed lamb's lettuce, 2015, GRANTED

63). LIEVITI, Yeasts isolated from organic or biodynamic grapes: genomic and proteomic identification, 2015, GRANTED

64). FOODOMICS, Treviso-Foodomics, 2015, GRANTED 62. ALLERGENOMICS, Galbusera Allergenomics, 2015, GRANTED.

65). CCM 2015 AMR, Ministero della Salute, Il modello One-Health per il contenimento

delle resistenze di possibile origine zoonosica in sanità pubblica: sviluppo di un network medico-veterinario applicato alla prevenzione e controllo della circolazione di *Escherichia coli* produttore di ESBL. 2015, GRANTED

66). Fondazione Malattie Rare, Il microbiota intestinale nella medicina dei sistemi applicata alla diagnosi e alla terapia in neonatologia e pediatria, 2016, GRANTED.

67). Progetto SOFAR, GRANTED

68). Progetto DMG, GRANTED

69). Progetto Wasserman, GRANTED

70). Progetto Galbusera, GRANTED

71). Progetto Ferrero, GRANTED

72). Progetto RF GR-2018-12368106 64, GRANTED.

73). Progetto RF GR-2016-02364891, GRANTED

74). PROGETTO STRATEGICO “SYSTEMS MEDICINE DELLE MALATTIE PEDIATRICHE, 2017-2019, GRANTED

75). RICERCA CORRENTE 2017, GRANTED

76). RICERCA CORRENTE 2018, GRANTED

70). FONDAZIONE BAMBINO GESU' 2019, GRANTED

71). STUDIO DI SOMMINISTRAZIONE DI PROBIOTICI IN PAZIENTI DOWN, GRANTED, 2019

72). RICERCA CORRENTE 2020

73). RICERCA CORRENTE 2021

75). JUST ITALY, UNDER REVISION, 2021

76). FONDAZIONE BAMBINO GESU', UNDER REVISION, 2020

77). PROGETTO MISE PER AGGIORNAMENTO BREVETTO INDICE DI DISBIOSI-PROFILO METAGENOMICO DI MICROBIOMA INTESTINALE, 2021, GRANTED

78). PROGETTO MICROBIOTA INTESTINALE IN DOWN PATIENTS, GRANTED, 2021

79). VARIE ATTIVITA' DI SERVICE PER PROFILO DI MICROBIOTA MEDIANTE TARGETED-METAGENOMICA

Patent

Operational algorithm for metaproteomic analyses of gut microbiota protein reservoir, Register number unde registration

Peer Reviewing activities

1. Transactions of the Royal Society of Tropical Medicine & Hygiene

2. Parasitology

3. Electrophoresis

4. Journal of Proteome Research

5. Advances in Parasitology

6. Medical Mycology

7. Frontiers in Microbiology

8. Frontiers in Molecular and Infection Microbiology

9. European Journal of Medical Research.

10. PLOS one

1. Frontiers in Molecular and Infection Microbiology

2. BMC, Infectious Diseases

3. European Journal of Medical Research.

Academic activities

1. Visiting Professor, WebWalley International - Fondazione Bruno Kessler (FBK) in San Lorenzo in Banale, Trentino (June 22 - July 12, 2014).

2. Visiting Professor, University of Rome Sapienza, II Faculty of Medicine, Microbiology and Clinical Microbiology, Via di Grottarossa, 1035-1039, Rome. January 2009-to December 2011.

3. Tutor e Relatore Esterno Tesi di Laurea, OPBG-ROMA III, Microbiologia Clinica, Sessione di Laurea Maggio 2014

4. Tutor e Relatore Esterno Tesi di Laurea, OPBG-ROMA III, Microbiologia Clinica, Tesi di Laurea in corso

5. Tutor di Specializzandi in Parassitologia Clinica, UOS di Parassitologia OPBG-Campus Biomedico
6. Tutor of PhD Student, OPBG-Università di Foggia
7. Tutor e Relatore Esterno Tesi di Laurea, Sapienza, Chimica, 2016
8. Tutor e Relatore Esterno Tesi di Laurea, Tor Vergata, Chimica, 2017
9. Tutor e Relatore Esterno Tesi di Laurea, Sapienza, Chimica, 2018
10. Tutor e Relatore Esterno Tesi di Laurea, OPBG-Sapienza, Medicina Sperimentale, Sessione di Ottobre 2019
11. Corsi ECM per Infermieri, Medici, Personale Tecnico e Pediatri.
12. Seminars' Cycles University Roma III, Rome
13. Seminars' Cycles University Sapienza, Roma
14. Seminars' Cycles University Campus Biomedico, Rome.
15. **Professor of Microbiologia e Microbiologia Clinica (MED/07), Academic Years 2020-2023, Dottorato di Ricerca Dottorato di "Network Oncology and Precision Medicine", Università Sapienza, Roma, Italia**
16. **Professor of Parasitology (VET/06), Academic year 2021-2022, Corso di Laurea in Medicina e Chirurgia, Università Saint Camillus International University of Health Sciences, Roma, Italia**
17. **Professor of Parasitology (VET/06), Anno Accademico 2021-2022, Corso di Laurea in Tecnico di Laboratorio Biomedico, Università Saint Camillus International University of Health Sciences, Roma, Italia**

CITATION RATES: GOOGLE SCHOLAR: H INDEX=39, CITATIONS 6505, LAVORI SCIENTIFICI 540; SCOPUS: H INDEX=33, CITATIONS 4124, LAVORI SCIENTIFICI 139

Bioinformatics courses

1. **Mitochondriomics.** Bioinformatics Organization, BI221A Course, (November 5-9th 2007), *On line Conference* (http://wiki.bioinformatics.org/BI221A_Mitochondriomics).
2. **3rd APIDB Workshop.** Apicomplexan parasite database resource: *Cryptosporidium*, *Plasmodium*, *Toxoplasma*, (June 3-6th, 2007), University of Georgia, Athens, Georgia, USA.
3. **Training in Organellar Proteomics Technologies**, (26th February-13th March 2005), Departments of Pre-Clinical Veterinary Science & Veterinary Pathology, University of Liverpool (Liverpool, UK).
4. **37th Wellcome Trust Advanced Course in Functional Genomics** (18th-27th June 2003), Sanger Institute, Hinxton College, Hinxton, Cambridge, UK:
5. **Computers and Molecular Biology**, Istituto Internazionale di Genetica e Biofisica-CN 1994, Naples, Italy.

CryptoDB: *Cryptosporidium* genomics resource, <http://cryptodb.org/cryptodb/>

30-05-May, 2021

SIGNATURE

Lorenza Putignani

