M.M.C.A.

Enseignant chercheur_Consultant Scientifique
Agroalimentaire-Pharmaceutique

PROFESSIONAL EXPERIENCE

2011– Present
MCF - Biochemistry, Microbiology and Physiology
Institut des Sciences Moléculaires de Marseille (ISM2), BiosCiences, CNRS UMR 7313, Marseille, France.

2006-2010
MCF - Biochemistry, Neurobiology
Centre de Recherche en Neurobiologie et Neurophysiologie de Marseille (CRN2M), CNRS UMR 6231, Marseille, France.

2004-2006
MCF - Biochemistry, Nutrition
EA Nutrition, Université Montpellier 2, Montpellier, France.

2003-2004
Postdoctoral position, Microbiology.
Brendan KENNY's lab, Bristol medical school, Bristol, UK.

1999-2003
PhD
"Modélisation de l'épithélium intestinal humain. Etude des effets entéropathogènes de toxines bactériennes, virales et fongiques" (directeur J.FANTINI).
Institut de Recherche en Nutrition de Marseille (IRNM), Marseille, France.

TEACHING EXPERIENCE

- **MS level:** Toxicology, Microbiology, Biochemistry at Aix-Marseille Université;
- **BSc level:** Biochemistry at Aix-Marseille Université.

EDUCATION

- Ph.D., Biochemistry, Aix Marseille Université, Marseille, France, 2003

MAIN DOMAIN OF RESEARCH

- I am assistant professor in the research team "Intéractions Moléculaires Microbiote Muqueuse Intestinale (IM3I)" in the Institute of Molecular Sciences of Marseille (ISM2, UMR-CNRS 7313). Research performed in this multidisciplinary institute aims at combining different techniques (nuclear magnetic resonance, mass spectrometry, chromatography, chemometrics, peptide synthesis) to understand biologic mechanisms (eukaryotic and prokaryotic systems).

- I have been working for years on in vitro eukaryotic cell models to study toxicity of molecules, including human intestine epithelium and brain cell models. Part of my research was conducted on food-contaminants and their toxicity, including pesticides and mycotoxins (meanly ochratoxin, patulin, deoxynivalenol).

- My present work focuses on antimicrobial molecules including antimicrobial peptides (AMP) from various origins (venom, bacteria, plants, synthetic) and the characterization of their action (pore-forming) and inocuity to animal and human cells.

MENTORING/SUPERVISION OF STUDENTS/RESEARCHERS

- **Postdocs:** 2 researchers;
- **PhD students:** 2 PhD student;
- **Undergraduates** (Bachelor, Master 2 students, Summer internship and Erasmus research projects): 8 students.

CURRENT and PAST GRANTS/PROJECTS

- **ANR Nanolia** in collaboration with Université de Montpellier (Prof Eliane Dumay) (2006-2009).
- **ANR Rumba** (Antimicrobial peptide from Ruminococcus gnavus E1) (2016-2020).
- **ANR ErmergingMycotoxin** (Emerging Mycotoxins from Fusarium) (2019-2022)
- **CNRS Biomimetism** (2019)

PATENT

- **Patent FR1756390** called « Matériau solide organique antibactérien » (6 juillet 2017).
- **Patent FR 19 01896** called « Utilisation de peptides cycliques fongiques comme agents antibactériens actifs contre Clostridium perfringens » (29 Mars 2019).

OTHER ACTIVITIES

- In addition to my academic research, **I work for the industry doing consulting and sub-contracting.**
- I worked or currently work for big companies such as Adisséo (France), Entérome (France), Vertex Pharmaceuticals (US), Oncozyme Pharma Inc (Canada), Ablynx (Belgium), Technico Flor (France), Latoxan (France).

PUBLICATIONS LIST

- **1- Hammache D, Yahi N, Maresca M, Pieroni G, Fantini J.**
  Human erythrocyte glycosphingolipids as alternative cofactors for human immunodeficiency virus type 1 (HIV-1) entry: evidence for CD4-induced interactions between HIV-1 gp120 and reconstituted membrane microdomains of glycosphingolipids (Gb3 and GM3).
  J Virol, 1999; 73(6): 5244-5248. (IF = 5.1)
- **2- Hammache D , Pieroni G, Maresca M, Ivaldi S, Yahi N, Fantini J.**
  Reconstitution of sphingolipid-cholesterol plasma membrane microdomains for studies of virus-glycolipid interactions.
  Methods Enzymol, 2000; 312: 495-506. (IF = 1.9)
- **3- Fantini J, Maresca M, Hammache D, Yahi N, Delezay O.**
  Glycosphingolipid (GSL) microdomains as attachment platforms for host pathogens and their toxins on intestinal epithelial cells: activation of signal transduction pathways and perturbations of intestinal absorption and secretion.
  Glycoconj J, 2000; 17(3 -4): 173-179. (IF = 2.7)
- **4- Maresca M, Mahfoud R, Pfohl-Leszkowicz A, Fantini J.**
  The mycotoxin ochratoxin A alters intestinal barrier and absorption functions but has no effect on chloride secretion.
  Toxicol Appl Pharmacol. 2001; 176(1): 54-63. (IF = 4.2)
- **5- Mahfoud R, Maresca M, Santelli M, Pfohl-Leszkowicz A, Puigserver A, Fantini J.**
  pH-dependent interaction of fumonisin B1 with cholesterol: physicochemical and molecular modeling studies at the air-water interface.
  J Agric Food Chem. 2002; 50(2): 327-331. (IF = 2.8)
- **6- Mahfoud R, Garmy N, Maresca M, Yahi N, Puigserver A, Fantini J.**
  Identification of a common sphingolipid-binding domain in Alzheimer, prion, and HIV-1 proteins.
  J Biol Chem. 2002; 277(13): 11292-11296. (IF = 5.3)
- **7- Mahfoud R, Maresca M, Garmy N, Fantini J.**
  The mycotoxin patulin alters the barrier function of the intestinal epithelium: mechanism of action of the toxin and protective effects of glutathione.
  Toxicol Appl Pharmacol, 2002; 181(3): 209-218. (IF = 4.2)
- **8- Maresca M, Mahfoud R, Garmy N, Fantini J.**
  The mycotoxin deoxynivalenol affects nutrient absorption in human intestinal epithelialcells.
  J Nutr, 2002; 132(9): 2723-2731. (IF = 3.7)
- **9- Maresca M, Mahfoud R, Garmy N, Kotler DP, Fantini J, Clayton F.**
  The Virotoxin Model of HIV-1 Enteropathy: Involvement of GPR15/Bob and Galactosylceramide in the Cytopathic Effects Induced by HIV-1 gp120 in the HT-29-D4IntestinalCellLine.
  J Biomed Sci, 2003; 10(1): 156-166. (IF = 1.9)
- **10- Brunet JL, Maresca M, Fantini J, Belzunces LP.**
  Human intestinal absorption of imidacloprid with Caco-2 cells as enterocyte model. Toxicol. Appl. Pharmacol, 2004, 194: 1-9. (IF = 4.2)
- **11- Dean P, Maresca M, Kenny B.**
  EPEC's weapons of mass subversion.
  Curr Opin Microbiol, 2005, 8(1): 28-34. (IF = 8.2)
- **12- Maresca M, Miller D, Quitard S, Dean P, Kenny B.**
  Enteropathogenic Escherichia coli (EPEC) effector-mediated suppression of antimicrobial nitric oxide production in a small intestinal epithelial model system.
  Cell Microbiol, 2005, 7(12): 1749-1762. (IF = 5.6)
- **13- Dean P, Maresca M, Schuller S, Phillips AD, Kenny B.**
  Potent diarrheagenic mechanism mediated by the cooperative action of three enteropathogenic Escherichia coli-injected effector proteins.
  Proc Natl Acad Sci U S A, 2006, 103(6): 1876-1881. (IF = 9.7)
- **14- Quitard S, Dean P, Maresca M, Kenny B.**
  The enteropathogenic Escherichia coli EspF effector molecule inhibits PI-3 kinase-mediated uptake independently of mitochondrial targeting.
  Cell Microbiol, 2006, 8(6): 972-981. (IF = 5.6)
- **15- Ruchaud-Sparagano MH, Maresca M, Kenny B.**
  Enteropathogenic Escherichia coli (EPEC) inactivate innate immune responses prior to compromising epithelial barrier function.
  Cell Microbiol, 2007, 9(8): 1909-1921. (IF = 5.6)
- **16- Maresca M, Dumay E, Fantini J, Caporiccio B.**

Selective transport of staphylococcal enterotoxin A through in vitro generated human M cells.
Microbes and Infection, 2007, 9: 1507-1510. (IF = 2.8)

- **17- Maresca M, Yahi N, Younès-Sakr L, Boyron M, Caporiccio B, Fantini J.**
  Both direct and indirect effects account for the pro-inflammatory activity of enteropathogenic mycotoxins on the human intestinal epithelium: stimulation of interleukin-8 secretion, potentiation of interleukin-1 β effect and increase in the transepithelial passage of commensal bacteria.
  Toxicol Appl Pharmacol, 2008, 228(1): 84-92. (IF = 4.2)
- **18- Brunet JL, Maresca M, Fantini J, Belzunces LP.**
  Intestinal absorption of the acetamiprid neonicotinoid by Caco-2 cells: Transepithelial transport, cellular uptake and efflux.
  J Environ Sci Health B, 2008, 43(3): 261-270. (IF = 1.1)

- **19- Maresca M, Derghal A, Carravagna C, Dudin S, Fantini J.**
  Controlled aggregation of adenine by sugars: physicochemical studies, molecular modelling simulations of sugar-aromatic CH-pi stacking interactions, and biological significance.
  Phys Chem Chem Phys, 2008, 10(19): 2792-2800. (IF = 3.5)
- **20- Salmi C, Loncle C, Vidal N, Letourneux Y, Fantini J, Maresca M, Taïeb N, Pagès JM, Brunel JM.**
  Squalamine: an appropriate strategy against the emergence of multidrug resistant gram-negative bacteria?
  PLoS ONE. 2008, 3(7): e2765. (IF = 4.4)
- **21- Taïeb N, Maresca M, Guo XJ, Garmy N, Fantini J, Yahi N.**
  The first extracellular domain of the tumour stem cell marker CD133 contains an antigenic ganglioside-binding motif.
  Cancer letters. 2009, 278(2):164-173. (IF = 4.8)
- **22- Di Pasquale E, Salmi C, Brunel JM, Sanchez P, Fantini J, Maresca M.**
  Biophysical studies of the interaction of squalamine and other cationic amphiphilic molecules with bacterial and eukaryotic membranes. Importance of the distribution coefficient in membrane selectivity.
  Chem Phys Lipids. 2010, 163(2):131-140. (IF = 2.5)
- **23- Di Pasquale E, Fantini J, Chahinian H, Maresca M, Taïeb N, Yahi N.**
  Altered ion channel formation by the Parkinson's linked E46K mutant of alpha-synuclein is corrected by GM3 but not by GM1 gangliosides.
  J Mol Biol, 2010, 397(1):202-218. (IF = 4.0)
- **24- Maresca M, Fantini J.**
  Some food-associated mycotoxins as potential risk factors in humans predisposed to chronic intestinal inflammatory diseases.
  Toxicon, 2010, 56(3):282-294. (IF = 2.7)
- **25- Razafimanjato H, Garmy N, Guo XJ, Varini K, Di Scala C, Di Pasquale E, Taïeb N, Maresca M.**
  The food-associated fungal toxin ochratoxin A inhibits the absorption of glutamate by astrocytes through a decrease in cell surface expression of the excitatory amino acid transporters GLAST and GLT-1.
  Neurotoxicology, 2010, 31(5):475-484. (IF = 3.0)
- **26- Razafimanjato H, Benzaria A, Taïeb N, Guo XJ, Vidal N, Di Scala C, Varini K, Maresca M.**
  The ribotoxin deoxynivalenol affects the viability and functions of glial cells.
  Glia, 2011, 59(11):1672-1683. (IF = 5.1)
- **27- Varini K, Benzaria A, Taieb N, Di Scala C, Azmi A, Graoudi S, Maresca M.**
  Mislocalization of the Exitatory Amino-Acid Transporters (EAATs) in human astrocytoma and non-astrocytoma cancer cells: effect of the cell confluence.
  J Biomed Sci, 2012, 19(1):10. (IF = 2.46)
- **28- Benzaria A, Maresca M, Taieb N, Dumay E.**
  Interaction of curcumin with phosphocasein micelles processed or not by dynamic high-pressure.
  Food Chem. 2013, 138(4):2327-37. (IF = 4.2)
- **29- Maresca M.**
  From the gut to the brain: journey and pathophysiological effects of the food-associated trichothecene mycotoxin deoxynivalenol.
  Toxins (Basel). 2013, 5(4):784-820. (IF = 2.3)
- **30- Pinton P, Graziani F, Pujol A, Nicoletti C, Paris O, Ernouf P, Di Pasquale E, Perrier J, Oswald IP, Maresca M.**
  Deoxynivalenol inhibits the expression by goblet cells of intestinal mucins through a PKR and MAP kinase dependent repression of the resistin-like molecule β.
  Mol Nutr Food Res. 2015; 59(6):1076-87. (IF = 4.5)
- **31- Graziani F, Pujol A, Nicoletti C, Pinton P, Armand L, Di Pasquale E, Oswald IP, Perrier J, Maresca M.**
  The Food-Associated Ribotoxin Deoxynivalenol Modulates Inducible NO Synthase in Human Intestinal Cell Model.

Toxicol Sci. 2015;145(2):372-82. (IF = 3.9)

- **32- Graziani F, Pujol A, Nicoletti C, Dou S, Maresca M, Giardina T, Fons M, Perrier J.**
  Ruminococcus gnavus E1 modulates mucin expression and intestinal glycosylation.
  J Appl Microbiol. 2016, 120(5):1403-17. (IF = 2.1)
- **33- Khemiri H, Maresca M, Gestreau C.** Carbamylated erythropoietin enhances mice ventilatory responses to changes in O2 but not CO2 levels.
  Respir Physiol Neurobiol. 2016, S1569-9048(16)30100-8. (IF = 1.8)
- **34- Ajandouz EH, Berdah S, Moutardier V, Bege T, Birnbaum DJ, Perrier J, Di Pasquale E, Maresca M.**
  Hydrolytic Fate of 3/15-Acetyldeoxynivalenol in Humans: Specific Deacetylation by the Small Intestine and Liver Revealed Using in Vitro and ex Vivo Approaches.
  Toxins 2016, *8*, 232. (IF = 3.6)
- **35- Haudecoeur R, Carotti M, Gouron A, Maresca M, Buitrago E, Hardré R, Bergantino E, Jamet H, Belle C, Réglier M, Bubacco L, Boumendje A.**
  2-Hydroxypyridine-N-oxide-Embedded Aurones as Potent Human Tyrosinase Inhibitors.
  ACS Medicinal Chemistry Letters. 2016, 8, 55-60. (IF = 3.35)
- **36- Oyama LB, Girdwood SE, Cookson A, Fernandez-Fuentes N, Privé F, Vallin HE, Wilkinson T, Golyshin P, Golyshina O, Mikut R, Hilpert K, Wooton M, Edwards JE, Maresca M, Perrier J, Lundy FT, Luo Y, Zhou M, Hess M, Mantovani HC, Creevey C, Huws SA.**
  The rumen microbiome: an underexplored resource for novel antimicrobial discovery. Nature Biofilms and Microbiomes. 2017, 3, 33. (IF = 4.128)
- **37- Tardy A, Honoré JC, Tran J, Siri D, Favaloro B, Delplace V, Bataille I, Letourneur D, Perrier J, Nicoletti C, Maresca M, Lefay C, Gigmes D, Nicolas J, Guillaneuf Y.**
  Radical Copolymerization of Vinyl Ethers and Cyclic Ketene Acetals as a Versatile Platform to Design Functional Polyesters. Angew. Chem. Int. Ed. 2017, 56, 16515-16520. (IF = 11.26)
- **38- Borie C, Mondal S, Arif T, Briand M, Lingua H, Dumur F, Gigmes D, Stocker P, Barbarat B, Robert V, Nicoletti C, Olive D, Maresca M*, Nechab M*.**
  Enediynes bearing polyfluoroaryl sulfoxide as new antiproliferative agents with dual targeting of microtubules and DNA. Eur J Med Chem. 2018, 148:306-313. (IF = 4.5) * co-corresponding author
- **39- Ouertani A, Chaabouni I, Mosbah A, Long J, Barakat M, Mansuelle P, Mghirbi O, Najjari A, Ouzari HI, Masmoudi AS, Maresca M, Ortet P, Gigmes D, Mabrouk K, Cherif A.**
  Two New Secreted Proteases Generate a Casein-Derived Antimicrobial Peptide in Bacillus cereus Food Born Isolate Leading to Bacterial Competition in Milk. Front Microbiol. 2018, 9:1148. (IF = 4.076)
- **40- Benkhaled BT, Hadiouch S, Olleik H, Perrier J, Ysacco C, Guillaneuf Y, Gigmes D, Maresca M* and Lefay C*.**
  Elaboration of antimicrobial polymeric materials by dispersion of well-defined amphiphilic methacrylic SG1-based copolymers. **Polym. Chem.**, 2018, **9**:3127-3141. (IF = 4.927) * co-corresponding author
- **41- Maresca M, Pinton P, Ajandouz EH, Menard S, Ferrier L, Oswald IP.**
  Overview and Comparison of Intestinal Organotypic Models, Intestinal Cells, and Intestinal Explants Used for Toxicity Studies. Curr Top Microbiol Immunol. 2018 doi: 10.1007/82_2018_142. (IF=5.8)
- **42- Terciolo C, Maresca M, Pinton P, Oswald IP.**
  Review article: Role of satiety hormones in anorexia induction by Trichothecene mycotoxins. Food Chem Toxicol. 2018, 121:701-714. doi: 10.1016/j.fct.2018.09.034. (IF = 3.97)
- **43- Olleik H, Yahiaoui S, Roulier B, Courvoisier-Dezord E, Perrier J, Pérès B, Hijazi A, Baydoun E, Raymond J, Boumendjel A, Maresca M*,, Haudecoeur R*.**
  Aurone derivatives as promising antibacterial agents against resistant Gram-positive pathogens. Eur J Med Chem, 2019, 165: 133-141 (IF = 4.8) * co-corresponding author
- **44- Graziani F, Pinton P, Olleik H, Pujol A, Nicoletti C, Sicre M, Quinson N, Ajandouz EH, Perrier J, Pasquale ED, Oswald IP, Maresca M.**
  Deoxynivalenol inhibits the expression of trefoil factors (TFF) by intestinal human and porcine goblet cells. Arch Toxicol. 2019 Mar 11. doi: 10.1007/s00204-019-02425-6. (IF = 5.7).
- **45- Rhayat L, Maresca M, Nicoletti N, Perrier J, Sidelmann Brinch K, Christian S, Devillard E, Eckhardt E.**
  Effect of Bacillus subtilis strains on intestinal barrier function and inflammatory response. Front Immunol, 2019, 10:564. doi: 10.3389/fimmu.2019.00564. eCollection 2019. (IF = 5.5).
- **46- Tachon S, Fournier E, Decroos C, Mansuelle P, Etienne E, Maresca M, Martinho M, Belle V, Tron T, Simaan AJ.**
  Chemical Modification of 1-Aminocyclopropane Carboxylic Acid (ACC) Oxidase: Cysteine Mutational Analysis, Characterization, and Bioconjugation with a Nitroxide Spin Label. Mol Biotechnol. 2019, In press, doi: 10.1007/s12033-019-00191-5. (IF = 2.2).
- **47- Laville E, Perrier J, Bejar N, Maresca M, Esque J, Tauzin AS, Bouhajja E, Leclerc M, Drula E, Henrissat B, Berdah S, Di Pasquale E, Robe P, Potocki-Veronese G.**

Investigating Host Microbiota Relationships Through Functional Metagenomics. Front Microbiol. 2019, 10:1286. doi: 10.3389/fmicb.2019.01286 (IF = 4.25).

- **48- Chiumento S, Roblin C, Kieffer-Jaquinod S, Tachon S, Leprètre C, Basset C, Aditiyarini D, Olleik H, Nicoletti C, Bornet O, Iranzo O, Maresca M, Hardré R, Fons M, Giardina T, Devillard E, Guerlesquin F, Coute Y, Atta M, Perrier J, Lafond M, Duarte V.**
  Ruminococcin C, a promising antibiotic produced by a human gut symbiont. Sciences Advances (In press). (IF = 12.8).
- **49- Bruno R, Maresca M, Canaan S, Cavalier JF, Mabrouk K, Boidin-Wichlacz C, Olleik H, Zeppilli D, Brodin P, Massol F, Jollivet D, Jung S, Tasiemski A.**
  Worms' Antimicrobial Peptides. Mar Drugs. 2019, 17. doi: 10.3390/md17090512 (IF = 3.77).
- **50- Olleik H, Nicoletti C, Lafond M, Courvoisier-Dezord E, Xue P, Hijazi A, Baydoun E, Perrier J, Maresca M.**
  Comparative Structure-Activity Analysis of the Antimicrobial Activity, Cytotoxicity, and Mechanism of Action of the Fungal Cyclohexadepsipeptides Enniatins and Beauvericin. Toxins, 2019 Sep 3;11(9) (IF = 3.89).