CV

Name: Filipe Manuel Coreta Gomes

Tlm +351 935 036 195
Email: filipe.coreta@gmail.com/ filipecoreta@ua.pt
Skype: f.m.c.gomes
LinkedIn https://www.linkedin.com/in/FilipeCoretaGomes
Research gate https://www.researchgate.net/profile/Filipe_Gomes4

Key words:

Biotechnology, Food Chemistry and Biochemistry, Functional Food, Lipids, Coffee, Cholesterol Homeostasis, Metabolism, Drug Delivery, Bioavailability, Bioaccessibility, Business Development, Entrepreneurship.

Research interests:

Outline, coordinate, manage and implement R&D innovation projects focusing on **food chemistry and biochemistry**, namely on the development of **food ingredients** with **functional properties**. The focus is primarily on **hypocholesterolemic** properties of hydrophilic **bioactive compounds** present in food matrices. It is intended to determine the mechanisms of action and to understand how the synergies between different compounds can affect **cholesterol homeostasis** or other **bioactive properties (**such as **antioxidant activity)** and its **intestinal absorption**.

Academic time line

2017 - **MBA,** Porto Business School, Porto, Portugal – "Study of economic viability of a **hypocholesterolemic coffee**, final project, FightSterol: Coffee that reduces cholesterol", Porto Business School.

2014 - **PhD, Biological Chemistry,** Coimbra University**,** Coimbra, Portugal – "Quantification of **Cholesterol** Solubilization by Bile Salt Micelles: Implications in its **Intestinal Absorption** by Passive Processes", FCTUC.

2007 - **MD, Chemistry: Quality Control,** UC, Coimbra, Portugal – "Kinetic and thermodynamic study of the association of fluorescent phospholipid derivatives with a **lipid** bilayer in the disordered liquid phase", FCTUC.

2005 - **Degree, Biological Chemistry,** UC, Coimbra Portugal – "Study of an electrochemistry **biosensor** for **lactate**", FCTUC.

Professional time line

2018 – Present – Teaching activity as **Invited Assistant Professor** on Leiria Polytechnic Institute, Superior Health School: Bromatology and Innovation and entrepreneurship chairs to students from Dietetics and Nutrition course.

2017 – Present – Postdoc Researcher, Chemistry Department, UA. Main activities: **food chemistry and biochemistry. Business development** - Startup functional food (http://www.fightsterol.com/)

2013 – 2016 – Researcher at Biological Chemistry Group, Chemistry Department, FCT, UC. Main activities: Hypocholesterolemic **functional food R&D.** Filling **patent** submission. **Entrepreneurship** programs (e.g. COHiTEC, Elevator "Pitch"). **Partnerships with food industry** players. **Management of projects** and **Human Resources**.

2013 – Researcher, BIFI, Zaragoza University, Spain, short term project funded by European Molecular Biology Organization entitled "Behaviour of **bile salts** and drugs as **membrane modulators**: relevance for **passive cholesterol absorption**"

2010 – 2013 – PhD researcher, Chemistry Department, Faculty of Science and Technology, University of Coimbra. Research on **cholesterol homeostasis**, **food chemistry**, **nutraceuticals field** and biophysics.

2010 – Researcher, Kemicentrum, Lund University, Sweden, short term project funded by European Molecular Biology Organization entitled "Are lipids with one saturated and one cis-unsaturated acyl chain chaophilic/chaophobic amphiphiles in the membrane plane?", with relevance in **biophysics.**

2008 – 2010 – PhD researcher on a Biological Chemistry fellowship funded by FTC-MCES, entitled "Quantification of **Cholesterol** Solubilization by **Bile Salt Micelles**: Implications in its **Intestinal Absorption** by Passive Processes" with application **in food chemistry and pharmaceutics.**

2008 – **Stipendiary Researcher** financed project at Chemistry Department, FCT, UC, in a project entitled "Quantitative Modelling of Passive Transcytotic Diffusion of Amphiphilic Molecules Across the **Blood Brain Barrier**", with application **in pharmaceutics.**

2007 – **MD researcher**, Chemistry Department, FCT, UC, in a project entitled "Kinetics and Thermodynamics of the Association of a Fluorescent Amphiphile with Lipidic Bilayers in the Liquid Disordered Phase", with relevance for **pharmokinetics.**

2005 – 2007 – Junior Professor, Chemistry Department, FCT, UC. Teaching assistant giving practical classes of analytical chemistry to students from pharmacy and biology degrees.

2005 – 2006 – Researcher, Chemistry Department, FCT, UC in a project regarding metabolic diseases in humans (Diabetes), with relevance in metabolism.

Projects Participation

PTDC/QUI-OUT/29373/2017, "FightSterol: food that reduces cholesterol", start at 27/07/2018 to 27/07/2021, as coordinator and PI, with total funding of **212.732,83 €, beginning at** 26-07-2018, end at 25/07/2021.

No. 007630 UID / QUI / 00313/2013, "Financing of the Strategic Plan for R & D Units - 2013/2015 - OE" - 01/01/2015 to 31/12/2000 - FCT & Compete2020, as an integrated researcher in the scientific team.

RECI / QEQ-QFI / 0168/2012, "UC-NMR: the voyage from chemical space to biological function" - 01/01/2013 to 31/12/2015- RECI, as integrated researcher in the scientific team.

ASTF 147-2013, "Behaviour of bile salts and drugs as membrane modulators: relevance for passive cholesterol absorption", 01/01/2007 to 31/12/2010, EMBO, as a short-term fellow at BIFI, University of Zaragoza, Spain.

Integrated action Luso-Spanish E-07/12, "Bioavailability of amphiphilic ligands - drugs and metabolites" - 01/01/2012 to 31/12/2013- FCT, as an integrated researcher in the scientific team.

ASTF 3-2010, "Are lipids with one saturated and one cis-unsaturated acyl chain chaophilic / chaophobic amphiphiles in the membrane plane?" 01/05/2010 to 31/07/2010, EMBO, as a short-term fellow at the Kemicentrum, Lund University, Sweden.

PTDC / QUI / 68242/2006, "Two-dimensional micelles and emulsions in lipid bilayers resulting from caophilic / caophobic amphiphilicity of some phospholipids. Biological consequences ", 01/01/2007 to 31/12/2011, FCT, as an integrated researcher in the scientific team.

PTTC / SAU-FCF / 69072/2006, "Quantitative modeling of Passive Trancytotic Diffusion of Amphiphilic Molecules Across the Blood-Brain Barrier", 01/01/2007 to 31/12/2010, FCT, as a researcher fellow in one of the project tasks.

Articles published:

Coreta-Gomes, F.M., Vaz, W.L.C. & Moreno, M.J., Effect of Acyl Chain Length on the Rate of Phospholipid Flip-Flop and Intermembrane Transfer, J Membrane Biol, p. 1-12, 2017.

Coreta-Gomes, Filipe M., W.L. Vaz, E. Wasielewski, C.F. Geraldes, M.J. Moreno, Quantification of Cholesterol Solubilized in Dietary Micelles: Dependence on Human Bile Salt Variability and the Presence of Dietary Food Ingredients, Langumir, 32, 4564-4574, 2016.

Coreta-Gomes, Filipe M., Patrícia T. Martins , Adrián Velazquez-Campoy , Winchil L. C. Vaz , Carlos F. G. Geraldes, Maria João Moreno, Interaction of bile salts with model membranes mimicking the gastrointestinal epithelium: a study by isothermal calorimetry, Langumir, 31, 9097-104, 2015.

Coreta-Gomes, Filipe M., Quantification of Cholesterol Solubilization by Bile Salt Micelles: Implications in Its Intestinal Absorption by Passive Processes, FCTUC, PhD thesis, 2014.

Filipe, Hugo A. L.; Coreta-Gomes, Filipe M.; Velazquez-Campoy, Adrian; Almeida, Ana R.; Peixoto, Andreia F.; Pereira, Mariette M.; Vaz, Winchil L. C.; Moreno, Maria J., Synthesis and Characterization of a Lipidic Alpha Amino Acid: Solubility and Interaction with Serum Albumin and Lipid Bilayers, The Journal of Physical Chemistry B, v. 117, n. 13, p. 3439-3448, 2013.

T.M. Ferreira, F. Coreta-Gomes, O.H. Ollila, M.J. Moreno, W.L. Vaz, D. Topgaard, Cholesterol and POPC segmental order parameters in lipid membranes: solid state 1H-13C NMR and MD simulation studies, Phys Chem Chem Phys 21, 2012.

Coreta-Gomes, Filipe M., W.L. Vaz, E. Wasielewski, C.F. Geraldes, M.J. Moreno, Quantification of cholesterol solubilized in bile salt micellar aqueous solutions using 13C nuclear magnetic resonance, Anal Biochem 427, 41-48, 2012.

R.M.S. Cardoso, P.A.T. Martins, F. Gomes, S. Doktorovova, W.L.C. Vaz, M.J. Moreno, Chain-Length Dependence of Insertion, Desorption, and Translocation of a Homologous Series of 7-Nitrobenz-2oxa-1,3-diazol-4-yl-Labeled Aliphatic Amines in Membranes, Journal of Physical Chemistry B 115, 2011.

C. Barosa, M. Almeida, M.M. Caldeira, F. Gomes, J.G. Jones, Contribution of proteolytic and metabolic sources to hepatic glutamine by H-2 NMR analysis of urinary phenylacetylglutamine H-2-enrichment from (H2O)-H-2, Metabolic Engineering 12, 53-61, 2010.

R.M.S. Cardoso, H.A.L. Filipe, F. Gomes, N.D. Moreira, W.L.C. Vaz, M.J. Moreno, Chain Length Effect on the Binding of Amphiphiles to Serum Albumin and to POPC Bilayers, Journal of Physical Chemistry B 114, 2010.

P.A.T. Martins, F. Gomes, W.L.C. Vaz, M.J. Moreno, Binding of phospholipids to beta-Lactoglobulin and their transfer to lipid bilayers, Biochimica Et Biophysica Acta-Biomembranes 1778, 2008.

Coreta-Gomes, Filipe M., Kinetic and thermodynamic study of the association of fluorescent phospholipidic derivatives with lipid bilayers in liquid disordered phase, FCTUC, Master thesis, 2007.

A.C. Mendes, M.M. Caldeira, C. Silva, S.C. Burgess, M.E. Merritt, F. Gomes, C. Barosa, T.C. Delgado, F. Franco, P.Monteiro, L. Providencia, J.G. Jones, Hepatic UDP-glucose C-13

isotopomers from U-C-13 glucose: A simple analysis by C-13 NMR of urinary menthol glucuronide, Magnetic Resonance in Medicine 56, 1121-1125, 2006.

J.G. Jones, C. Barosa, F. Gomes, A.C. Mendes, T.C. Delgado, L. Diogo, P. Garcia, M. Bastos, L. Barros, A. Fagulha, C. Baptista, M. Carvalheiro, M.M. Caldeira, NMR derivatives for quantification of H-2 and C-13- enrichment of human glucuronide from metabolic tracers, Journal of Carbohydrate Chemistry 25, 203217, 2006.

Articles being prepared to submission:

Coreta-Gomes, F. M. et all, "Quantification of Cholesterol Solubilized in Dietary Micelles: Effect of Coffee Extracts and their Mechanisms", Food &Function, 2018.

Coreta-Gomes, F. M. et all, "Cholesterol homeostasis and hypocholesterolemic strategies: a review", Food Chemistry, 2018.

Loura, L.M.S., Coreta-Gomes, F. M. et all, "Effect of fluorescent probe Hoechst 33342 ionization state in water and in their interaction with POPC: an experimental and molecular dynamics study", … , 2018.

Loura, L.M.S., Coreta-Gomes, F. M. et all, "Interaction of bile salts with lipid bilayers: a combined atomistic and coarse-grained molecular dynamics study",…, 2018.

Poster presentations:

"Hypocholesterolemic properties of chemical compounds present in coffee extracts", Filipe Coreta-Gomes, Guido R. Lopes, Cláudia Passos, Maria João Moreno, Laura Nyström, Manuel A. Coimbra, Glupor Meeting, Aveiro, Portugal 11 - 13 September, 2017.

"Quantification of cholesterol solubilized in bile salt micellar aqueous solutions using ^{13}C NMR", Gomes, F., Geraldes, C., Winchil, WLC, Moreno, MJ, IV Ibero-American NMR Meeting, Aveiro, Portugal 25-28 September, 2012.

"Emulsification of Cholesterol in Bile Salt Micelles: Relevance for Cholesterol Absorption", Gomes, F., Geraldes, C., Winchil, WLC, Moreno, MJ, Biophysical Society 53rd Annual Meeting, San Francisco, February 20-24, 2010

"Chain Length Effect on the Association of Fluorescent amphiphiles with lipid bilayer membranes" Gomes F., Vaz WLC, Moreno MJ, Biophysical Society 53rd Annual Meeting, Boston, February 28- March 4, 2009.

"Chain Length Effect on the Association of Fluorescent Phospholipid Derivatives with Lipid Bilayer Membranes", 1º Portuguese-Spanish-British joint Biophysics Congress Gomes F., Vaz WLC, Moreno MJ, Lisboa, July 10-13, 2008.

"Interaction of diC10PE-NBDwith Albumin and Lipid Bilayers", II-Iberian Meeting of Colloids and Interfaces, Gomes F., Vaz WLC, Moreno MJ, Coimbra, 11 July, 2007.

"[U-d7] glucose disposal into hepatic glycogen in healthy humans" Medicinal Chemistry Meeting in the 21st Century, Faculdade de Farmácia - Universidade de Lisboa, Sociedade Portuguesa de Química, from 13 to 14 of October, 2006.

"Quantification of Glucose Positional 2H Enrichment by 2H NMR" at 6th Internacional Meeting of the Portuguese Carbohydrate Group 3rd Iberian Carbohydrate Meeting, Coimbra, from 11 to 12 of September, 2005.

Awards:

Best Poster award "Hypocholesterolemic properties of chemical compounds present in coffee extracts" at Glupor meeting, Aveiro University, September 2017.

Short term fellowship funded by the EMBO (European Molecular Biology Organization), for three months stay at Zaragoza University, Spain May, 1st – July, 31st 2013.

Short term fellowship funded by the EMBO (European Molecular Biology Organization), for three months stay at Lund University Sweden, June, 1st – August, 31st 2010.

Travel Award from Calouste Gulbenkian Foundation to present, "Emulsification of Cholesterol in Bile Salt Micelles: Relevance for Cholesterol Absorption" at Biophysical Society 54rd Annual Meeting, San Francisco, February, 20 – 24, 2010.

International Travel Award from Biophysical Society to present, "Chain Length Effect on the Association of Fluorescent Amphiphiles with Lipid Bilayer Membranes," at Biophysical Society 53rd Annual Meeting, in Boston, Massachusetts, February., 28 – March 4, 2009.