



Laboratory Name	GB2 - Group of Biomarkers and Biosensors	
Main Goals	1) Large scale protein profiling to study the biological response of microbial organisms to stress conditions. 2) Development of point of care tests (POCT) based on electrochemical biosensing devices	

Lab Head	Gabriela Almeida, PhD
Group	Tiago Monteiro (PhD student) Joana Sousa (PhD student) Miguel Moreira (BI Fellowship) Vânia Moreira (MSc student)
Senior Researchers	-----
PhD Students	Tiago Monteiro Joana Sousa

Research Projects (from 2015)	<p>2014-2015 POINT OF CARE TESTING OF CARDIOVASCULAR DISEASES MARKERS – DETECTION OF HOMOCYSTEINETHIOLACTONE; Funding: Fund. Ciência e Tecnologia (EXPL/DTP-PIC/1758/2013).</p> <p>2013-2016 NEW INSIGHTS INTO THE MECHANISM OF VASCULAR CALCIFICATION IN CHRONIC KIDNEY DISEASE (CKD): THE ROLE OF GRP; Funding: Fund. Ciência e Tecnologia (PTDC/BIM-MEC/1168/2012);</p>
--	--



2016 NANOBE – INNOVATIVE GOLD NANOSTRUCTURED INTERFACES FOR ELECTROCHEMICAL BIOSENSING;
Funding: REQUIMTE (Lab. Associado);

2019-2020 NO_x SENSING: MEASURING NITRIC OXIDES METABOLITES IN PHYSIOLOGICAL SAMPLES: Funding: Egas Moniz, Coop. Ensino Superior

2020-2010 QUICoVIDE – QUICK DETECTION OF SARS-CoV-2;
Funding: Fund. Ciência e Tecnologia (RESEARCH4COVID 19, Project nr. 662).

Publications (10 most relevant, last 5 years)

T. Monteiro, P.R. Rodrigues, A.L. Gonçalves, J.J.G. Moura, L. Añorga, E. Jubete, B. Píknova, A.N. Schechter, C.M. Silveira, M.G. Almeida (2015) "Construction of effective disposable biosensors for point-of-care testing of nitrite" *Talanta*, **142**, 246–251. DOI: 10.1016/j.talanta.2015.04.057

L. Santos, C. Silveira, E. Elamurugu, J.P. Neto, D. Nunes, L. Pereira, R. Martins, J. Viegas, J.J.G. Moura, S. Todorovic, M.G. Almeida, E. Fortunato (2016) "Synthesis of WO₃ Nanoparticles for Biosensing Applications", *Sensors Actuators B*, **223**, 186-194. DOI:10.1016/j.snb.2015.09.046

T. Monteiro, F. Oliveira, A. Fins, C.G. Dias, C.M. Silveira, S.A. Pereira, M.G. Almeida (2016) "Assessment of human paraoxonase activity by electrochemistry: a simple and novel approach", *Anal. Methods*, **8**, 8141-8146. DOI: 10.1039/C6AY01944G

P. Branco, V. Kemsawasd, L. Santos, M. Diniz, J. Caldeira, M.G. Almeida, N. Arneborg, H. Albergaria, (2017) "*Saccharomyces cerevisiae* accumulates GAPDH-derived peptides on its cell surface that induce death of non-*Saccharomyces* yeasts by cell-to-cell contact", *FEMS Microbiology Ecology*, **93(5)**, 1-10. DOI: 10.1093/femsec/fix055

J.R. Sousa, C.M. Silveira, P. Fontes, C. Roma-Rodrigues, A.R. Fernandes, G. van Driessche, B. Devreese, I. Moura, J.J. Moura, M.G. Almeida (2017) "Understanding the response of *Desulfovibrio desulfuricans* ATCC 27774 to the electron acceptors nitrate and sulfate - biosynthetic costs modulate substrate selection", *BBA – Proteins and Proteomics*, 1865 (11), 1455-1469. 14:1-23



T. Monteiro, M.G. Almeida “Electrochemical enzyme biosensors revisited: old solutions for new problems” (2019) *Crit Rev Anal Chem.*, 14:1-23. DOI:10.1080/10408347.2018.1461552

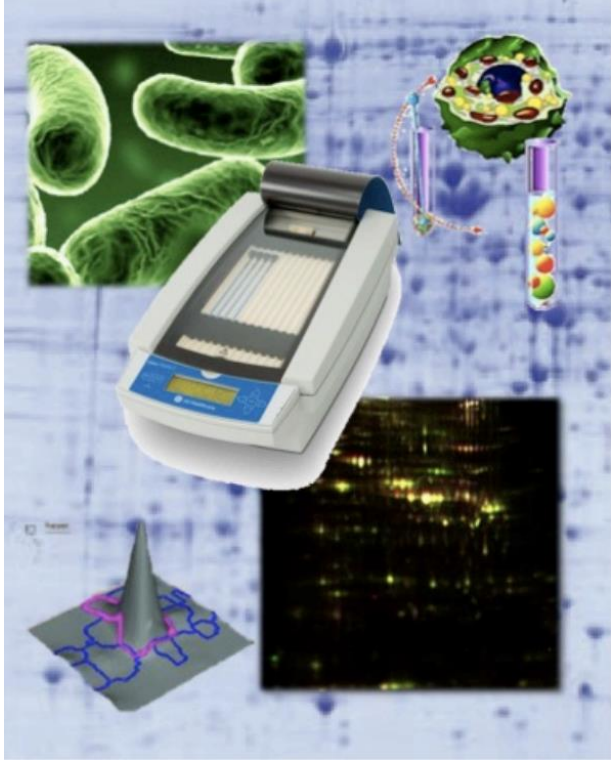

T. Monteiro, S. Gomes, E. Jubete, L. Añorga, C.M. Silveira, M.G. Almeida (2019) ”A quasi-reagentless point-of-care test for nitrite and unaffected by oxygen and cyanide”, *Scientific Reports*, **9**, 2622. DOI: 10.1038/s41598-019-39209-y

C.M. Silveira, R. Zumpano, M. Moreira, M.P. Almeida, M.J. Oliveira, M. Bento, C. Montez, I. Paixão, R. Franco, E. Pereira, **M.G. Almeida** (2019) “Star- Shaped Gold Nanoparticles as Friendly Interfaces for Protein Electrochemistry: the Case Study of Cytochrome *c*”, *ChemElectroChem*, **6(17)**, 4696-4703. DOI: 10.1002/celec.201901393

T. Monteiro, R. Zumpano, C.M. Silveira, and **M.G. Almeida**. “Selective enzymes at the core of advanced electroanalytical tools: the bloom of biosensors”, *in* Enzymes for Solving Humankind's Problems - Natural and Artificial Systems in Health, Agriculture, Environment and Energy. J.J.G. Moura, I. Moura, L.B. Maia (ed.s), Springer Nature, *in press*

V.M. Costa, J.P. Capela, J.R. Sousa, R.P. Eleutério, P.R.S. Rodrigues, J.L. Dorés-Sousa, R.A. Carvalho, M. L. Bastos, J.A. Duarte, F. Remião, **M.G. Almeida**, K.J. Varner, F. Carvalho (2020) “Mitoxantrone impairs proteasome activity and prompts early energetic and proteomic changes in HL-1 cardiomyocytes at clinically relevant concentrations”, *Archives of Toxicology*, *in press*, DOI: 10.1007/s00204-020-02874-4



Equipment/Techniques	2D electrophoresis system (GE Healthcare) Potentiostat/galvanostat Autolab 12 (Eco-Chemie)
Announcements	We are permanently providing topics for research projects within the BA. and M.Sc. programs in Biochemistry, Chemistry, Biotechnology, Pharmaceutical Sciences, Forensics, among others. You are invited to inquire and apply to our group at any time
Some Pictures	<p>Microbial proteomics</p>  <p>Electrochemical Biosensors</p> 
Location	Lab. 305



CENTRO
DE INVESTIGAÇÃO
INTERDISCIPLINAR
EGAS MONIZ

Links

<http://ciem.egasmoniz.edu.pt/pt-pt/research/research-labs.aspx>

<https://gb29.webnode.pt/>