

Department of Chemistry

Cellular detoxification, *inter alia*

REQUIMTE • Biochemistry and Biophysics

Biofísica Molecular
Molecular Biophysics



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ISI Web of Science metrics

h-index: **19**

Average Citations: **20.29**

x Cited w/o self-citations: **1033**

Objectives

The research is focused on the study of enzymes involved on iron metabolism, cellular detoxification, and other enzymes involved in oxygen activation such as desaturases and oxygenases. The biologic effect of ionizing radiation in macromolecules, particularly metalloenzymes, has been under study. Also, correlation between radiation effects and metabolites resulting from oxidative stress has been under focus.

Methodology

A series of different techniques are applied to achieve the above objectives, namely biochemical techniques, molecular biology and electrochemical methods, and various spectroscopies (in particular UV/visible, EPR and Mössbauer) coupled to fast kinetic techniques (stopped-flow and rapid-freeze quench).

Expected Results

- "NO₂⁻ reductase", P. Tavares, A.S. Pereira, *Encyclopedia of Metalloproteins* (2013).
- "Occupational cosmic radiation exposure in Portuguese airline pilots: Study of a possible correlation with oxidative biological markers", R. Silva, *et al*, *Rad. Environ. Biophys.* (2013), *in press*.
- "Spectroscopic evidence for and characterization of a trinuclear ferroxidase center in bacterial ferritin from *Desulfovibrio vulgaris* Hildenborough" A.S. Pereira, *et al*, *J. Am. Chem. Soc.*, 134: 10822-10832 (2012)
- "Desulfovibrio vulgaris bacterioferritin uses H₂O₂ as co-substrate for iron oxidation and reveals DPS-like DNA protection and binding activities" C.G. Timóteo, *et al*, *Biochemical J.*, ChemBio, 446: 125-133 (2012)

Funding (as PI, over 480 k€): - PTDC/SAU-SAP/111482/2009, PTDC/BIA-PRO/111485/2009, PTDC/QUI/67142/2006, POCTI/QUI/37413/2001.

Funding (as member o research team, over 300 k€): PTDC/QUI/64248/2006, POCI/QUI/57475/2004, POCI/AGR/55651/2004, POCTI/BME/36191/99, NIH GM47295

