Thematic Area	Environmental Health
Main Goals	The specific objectives defined for the research developed in this thematic area are the following: (i) to study the role of environmental factors (physical, chemical and biological) in the etiology of diseases with relevant mortality and morbidity, and (ii) to evaluate the direct and indirect impact of the various environmental factors on population health at local and regional level, using the existing research infrastructure (WDXRFLab and Anatomy-Morphology Lab) and allocated highly qualified personnel (faculty/research members).

Head	José Brito, PhD
Group	Alexandra Bernardo, PhD Ana Lousinha, PhD Carlos Zagalo, PhD Eduardo Antunes, PhD Luísa Gonçalves, PhD Pedro Oliveira, PhD Gonçalo Pereira (PhD student) Luísa Zagalo (PhD student)

Ongoing Research Projects	**"Investigation of element concentration profiles determined by WDXRF in biological samples"** - assessment of bone composition using an animal model for low-frequency noise (LFN) exposure and glucose intolerance. **"Metabolic and structural effects of chronic exposure to LFN"** - assessment of the impact of LFN and pancreatic function and diabetes progression. **"Atmospheric pollution mortality and morbidity in Portugal: quantitative assessment of the environmental burden of disease"** - mathematical modelling of the relationships between exposure to air pollution and mortality from main causes (using Time Series analysis, Linear Mixed Models, and the AirQ+ model developed by WHO).

National Partnerships	**Internal** - Morphology laboratory **External** - Biomedical Research Multidisciplinary Unit – UMIB, University of Porto – UP, Porto, Portugal - Laboratory of Acoustics, Faculty of Engineering (FEUP), University of Porto, Porto, Portugal - Instituto de Ciências Biomédicas Abel Salazar, University of Porto, Porto, Portugal - Instituto Português do Mar e Atmosfera (IPMA), Lisbon, Portugal - Administração Regional de Saúde Lisboa e Vale do Tejo (ARSLVT), Lisbon, Portugal
International Partnerships	**School of Interdisciplinary Science, McMaster University, Hamilton, Ontario, Canada**

Advisers	
Publications (10 most relevant, last 5 years)	1. José Brito, Alexandra Bernardo, Luísa Lima Gonçalves, Atmospheric pollution and mortality in Portugal: Quantitative assessment of the environmental burden of disease using the AirQ+ model, Science of The Total Environment, 2022, 152964, ISSN 0048-9697, https://doi.org/10.1016/j.scitotenv.2022.152964. 2. Pereira, Gonçalo; Brito, José; Oliveira, Maria João; Oliveira, Pedro. (2021). Urban Noise Exposure and Cardiometabolic Diseases: An Exploratory Cross-Sectional Study in Lisbon. Portuguese Journal of Public Health. 39. 1-8. 10.1159/000520263. 3. José Brito; Carlos Zagalo; Alexandra Bernardo; Luísa Gonçalves, Quantitative analysis of air pollution and mortality in Portugal: current trends and links following proposed biological pathways, Science of the Total Environment, Volume 755, Part 1, 10 February 2021. https://doi.org/10.1016/j.scitotenv.2020.142473. 4. Pereira, G.M., Santos, M., Pereira, S.S. et al. High-intensity infrasound effects on glucose metabolism in rats. Sci Rep 11, 17273 (2021). https://doi.org/10.1038/s41598-021-96796-5 5. Luísa Zagalo, Gonçalo Pereira, Pedro Oliveira, Maria João Oliveira, Luísa Gonçalves, Carlos Zagalo & José Brito (2021) Discrimination by X-ray fluorescence analysis of elemental concentrations in healthy and diseased rat tissues, Annals of Medicine, 53:sup1, S19-S20, DOI: 10.1080/07853890.2021.1896894 6. Luísa Zagalo, Pedro Oliveira, Maria João Oliveira, Luísa Gonçalves, Carlos Zagalo & José Brito (2021) Profiles of elemental concentrations in human: contribution of X-ray fluorescence to discrimination between healthy and diseased tissues and prediction of alterations in tongue carcinoma, Annals of Medicine, 53:sup1, S26-S27, DOI: 10.1080/07853890.2021.1896905 7. Ana Lousinha, Maria João R. Oliveira, Gonçalo Borrecho, José Brito, Pedro Oliveira, Gonçalo Pereira, António Oliveira de Carvalho, Diamantino Freitas, Artur P. Águas & Eduardo

	Antunes (2021) Infrasound exposure promotes development of atrial fibrosis in rats, Annals of Medicine, 53:sup1, S90, DOI: 10.1080/07853890.2021.1897455 8. Pereira, Gonçalo; Pereira, Sofia; Santos, Madalena; Brito, José; Freitas, Diamantino; Carvalho, António; Águas, Artur; Oliveira, Maria; Oliveira, Pedro. (2020), Effects of high-intensity infrasound on liver lipid content of rats. Heliyon. 6. e04383. 10.1016/j.heliyon.2020.e04383. 9. Ana Lousinha, Gonçalo Pereira, Gonçalo Borrecho, José Brito, António Oliveira de Carvalho, Diamantino Freitas, Pedro Oliveira, Maria João R. Oliveira, Eduardo Antunes (2020), Atrial fibrosis and decreased connexin 43 in rat hearts after exposure to high-intensity infrasound, Experimental and Molecular Pathology, 2020, 104409, ISSN 0014-4800, https://doi.org/10.1016/j.yexmp.2020.104409. 10. Ana Lousinha, Maria João R. Oliveira, Gonçalo Borrecho, José Brito, Pedro Oliveira, António Oliveira de Carvalho, Diamantino Freitas, Artur P. Águas, Eduardo Antunes (2018), Infrasound induces coronary perivascular fibrosis in rats, Cardiovascular Pathology, doi: 10.1016/j.carpath.2018.10.004

Equipment/Techniques	S4 Pioneer WDXRF spectrometer (Bruker AXS): trace element determination in environmental samples (soils, vegetation, and water); Analysis of long time series of air pollution and mortality data; Linear Mixed Model analysis.
Announcements	
Some Pictures	
Location	Campus Universitário, Quinta da Granja, 2829 - 511 Monte de Caparica, Almada
Links	**http://ciiem.egasmoniz.edu.pt/pt-pt/research/research-labs.aspx**