MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2024

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

Instituto de Higiene e Medicina Tropical – NOVA University

RESEARCH GROUP AND URL

Vector borne diseases and pathogens, GHTM;
https://ghtm.ihmt.unl.pt/research/research-groups/vector-borne-diseases-pathogens-vbd/

SUPERVISOR (NAME AND E-MAIL)

Isabel L. Maurício, isabel.mauricio@ihmt.unl.pt

SHORT CV OF THE SUPERVISOR

Employment: Assistant Professor in Medical Parasitology, Institute of Hygiene and Tropical Medicine, NOVA University Lisbon (IHMT/UNL), since 2010. Research Fellow and then Lecturer, London School of Hygiene and Tropical Medicine (LSHTM), University of London, UK, 2001-2010.
Academic Qualifications: BSc in Biology; PhD in Infectious and Tropical Diseases by the London School of Hygiene and Tropical Medicine (LSHTM), University of London, UK.
Supervision/Co-supervision: 3 PhD (plus 3 ongoing), 13 MSc (6 plus ongoing)
Other: Coordinator of the PhD in Human Genetics and Infectious Diseases at IHMT/UNL since 2015. Section Editor “Gene”, Elsevier. Coordinator “Network of Portuguese-speaking women scientists in African countries”
Research: Molecular epidemiology, genotyping, phylogenetics, genetic diversity, molecular diagnostics, recombination; IHMT - Medical Helminthology, mainly nematodes and trematodes, isothermal amplification methods for diagnostics, environmental DNA; LSHTM - leishmaniasis, development of MLST for phylogenetics and population genetics.
Publications: 43 peer-reviewed articles; 3 book chapters. **H-index:** 29.
https://www.scopus.com/authid/detail.uri?authorId=6603039567

5 SELECTED PUBLICATIONS

- Bispo MT, Calado M, Maurício IL, Ferreira PM, Belo S. Zoonotic Threats: The (Re)emergence of Cercarial Dermatitis, Its Dynamics, and Impact in Europe. Pathogens. 2024 Mar 26;13(4):282. doi: 10.3390/pathogens13040282
- João ED, Munlela B, Chissaque A, Chilaúle J, Langa J, Augusto O, Boene SS, Anapakala E, Sambo J, Guimarães E, Bero D, Cassocera M, Cossa-Moiane I, Mwenda JM, Maurício I & O'Neill HG, de Deus N. (2020) Molecular Epidemiology of Rotavirus A Strains Pre- and Post-Vaccine (Rotarix®) Introduction in Mozambique, 2012-2019: Emergence of Genotypes G3P[4] and G3P[8]. Pathogens. 9(9):E671. doi: 10.3390/pathogens9090671
- Franssen SU, Durrant C, Stark O, Moser B, Downing T, Imamura H, Dujardin JC, Sanders MJ, Mauricio I, Miles MA, Schnur LF, Jaffe CL, Nasereddin A, Schallig H, Yeo M, Bhattacharyya T, Alam MZ, Berriman M, Wirth T, Schönian G & Cotton JA. (2020) Global genome diversity of the Leishmania donovani complex. Elife. 9: e51243. DOI: 10.7554/eLife.51243
- Brilhante, A. F., de Albuquerque, A. L., Rocha, A., Ayres, C., Paiva, M., de Ávila, M. M., Cardoso, C. O., Mauricio, I. L., & Galati, E. (2020). First report of an Onchocercidae worm infecting Psychodopygus carrerai carrerai sandfly, a putative vector of Leishmania braziliensis in the Amazon. Scientific reports, 10(1), 15246. doi.org/10.1038/s41598-020-72065-9
- Kuhls K, Mauricio I. (2019) Phylogenetic Studies. Methods Mol Biol. 1971:9-68. doi: 10.1007/978-1-4939-9210-2_2.

PROJECT TITLE AND SHORT DESCRIPTION

Innovative sustainable environmental DNA capture and characterization tools of parasite and intermediate host snails for fascioliasis risk mapping.
Fasciola hepatica is the etiological agent of fascioliasis, an anthropozoonotic disease of ruminants with economic importance in Europe, as well as human health. Drug resistance hinders control, meaning that pasture management, supported by risk mapping of the disease, is crucial.
We are currently exploring and developing passive environmental DNA samplers (PEDS) for more effective capture of parasite and intermediate host DNA in water, particularly in turbid water, and that can be used to monitor their presence without the need for laborious field surveys often in areas that are difficult to reach. Simultaneously, we propose to characterize parasite and host eDNA with metabarcoding using PCR enrichment with optimized primers, and/or to develop isothermal Cas12a-based sensitive detection of eDNA, which may be adapted for other trematodes, such as the human pathogen genus *Schistosoma* or other trematodes with veterinary importance.
We are also mapping the presence and relative abundance of the known intermediate host species *Galba truncatula*, as well as the cryptic species *Galba schirazensis*, and species of the *Radix* group, which have previously been found infected. However, it is not clear if these species act as intermediate hosts in Portugal. So, a complementary component of the project would contribute to the clarification of the role of these snail species as intermediate hosts of *F. hepatica*.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Life Sciences (LIF)

***Scientific Area where the project fits best** – Please select/indicate the scientific area according to the panel evaluation areas: Chemistry (CHE) • Social Sciences and Humanities (SOC) • Economic Sciences (ECO) • Information Science and Engineering (ENG) • Environment and Geosciences (ENV) • Life Sciences (LIF) • Mathematics (MAT) • Physics (PHY)