



Ana Isabel Amaro Gonçalves Domingos

Coordinator Investigator

Publication's name: Ana Domingos or Ana Gonçalves Domingos

Research ID: I-8409-2012

ORCID: 0000-0002-4570-2060

Scopus Author ID: 7003637537

Domingos, Ana G.

[Universidade Nova de Lisboa, Lisbon, Portugal](#) [7003637537](#) <https://orcid.org/0000-0002-4570-2060>

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Ana Gonçalves Domingos is a GHTM member being a coordinator investigator at the Medical Parasitology Unit, at the Institute of Hygiene and Tropical Medicine, NOVA University of Lisboa (IHMT/UNL).

She has a PhD in Biology by University of Lisbon (1997) and obtained the Habilitation degree in Biomedical Sciences – Parasitology, at UNL (2011).

Last 10 years she developed 12 funded projects (6, as Principal investigator) and published 30 peer-reviewed scientific papers. Currently she belongs to the editorial board of four journals such as the “Scientific Journals” and “Frontiers” and was recently the national representant of two Cyted networkings being from the scientific committee of the Cyted InCoCarr. She is also participating in two COST Actions.

To date, she published 93 scientific papers, holds a h-index of 22 and 1695 citations.

She was invited professor at the University of Lurio, Mozambique (2014-2017).

Ana Domingos teaches in the Medical Parasitology and Biomedical Sciences Master courses being the coordinator of two curricular Units, at IHMT/UNL and in other Master Courses in countries such as Mozambique and Angola.

In parallel, she is also participating or participated in several in PhD Courses namely Biomedical Sciences, Genetic of Human Diseases, Tropical Knowledge and

Management at UNL and GABBA-PhD Course at the University of Oporto. She takes part, as organizer and teacher, in short courses held in Portuguese speaking countries as Mozambique and Cape Verde.

Last 5 years, Ana Domingos supervised several Post-Doc Fellows, PhD students, and MSc students and many Grant holders.

She is member of the Scientific Commission of the “In Vivo Arthropod Security Facility (VIASEF)”, IHMT/UNL, since 2021.

She took part of the International Scientific Committee of the congress on “Tick and Tick-borne Pathogens – TTP11” that was held in August, 2024

Since 2022, she member of the General Council of the University Nova of Lisbon.

Research:

Ana Domingos main research activities are focused on Vectors and Vector Borne Diseases. Current Research Interests include:

- Infectious diseases
- Ticks and tick-borne diseases
- Molecular biology of host-vector-pathogen interactions
- Tick microbome

Aligned with the research priorities of the GHTM – group “Vector borne-diseases and pathogens”, the research studies of the team which she is the leader, looks for a deeper insight into vector and parasite relationship to obtain fundamental information on key elements of parasite development and host-parasite interactions towards vector and disease control. Such studies have been developed under funded projects, using of methodologies such as proteomics, transcriptomics and functional genomics. Recently, the group used these strategies to reveal differences in protein content versus vector competence. These methodologies are being further used for the identification of molecules showing to act as potential vaccine candidates and drug targets selected from both parasites and vectors of diseases having a great human health and animal production impact such as malaria, babesiosis and theileriosis ad more recently Crimean-Congo hemorrhagic fever (CCHF).

The immunoinformatics have been as well used as a tool to infer about vaccine candidates immunogenicity. To date, different vector transcriptomes and proteomes were explored, genes/antigens evaluated for their role on vector biology and pathogen infection and were further tested in pilot vaccination trials.

The Tick’s Group at the GHTM-IHMT have establish in vivo and in vitro models for both Babesia parasites and CCFH virus (through Hazara virus non-pathogenic to humans) studies.

The study of the tick microbiome and virome that has emerged as a critical area of research is being developed for both models aiming at uncovers the microbial and viral communities within ticks, offering potential for identifying novel pathogens and understanding their roles in pathogen transmission dynamics.

The integration of omics technologies with microbiome and virome research in ticks not only enhances pathogen detection but also supports the development of targeted strategies for controlling tick-borne diseases.

TOP 5 publications:

Szczotko M, Antunes S, Domingos A, Kubiak K, Dmitryjuk M. Tick-Borne pathogens and defensin genes expression: A closer look at *Ixodes ricinus* and *Dermacentor reticulatus*. *Dev Comp Immunol*. 2024 Nov;160:105231. doi: 10.1016/j.dci.2024.105231. Epub 2024 Jul 21. PMID: 39043336.

Rodríguez-Mallon A, Encinosa Guzmán PE, Bello Y, Domingos A, Antunes S, Kopacek P, Santos AS, Velez R, Perner J, Ledesma Bravo FL, Frantova H, Erhart J, Rodríguez R, Fuentes A, Diago D, Joglar M, Méndez L, Estrada MP. Efficacy of the Vaccine Candidate Based on the P0 Peptide against *Dermacentor nitens* and *Ixodes ricinus* Ticks. *Pathogens*. 2023 Nov 17;12(11):1365. doi: 10.3390/pathogens12111365. PMID: 38003829; PMCID: PMC10675505.

Agustín Estrada-Peña; Alina Rodríguez Mallón; Sergio Bermúdez; José de la Fuente; Ana Domingos; Mario Pablo Estrada García; Marcelo B. Labruna; Octavio Merino; Juan Mosqueda; Santiago Nava et al. 2022. One Health Approach to Identify Research Needs on *Rhipicephalus microplus* Ticks in the Americas. *Pathogens*: 11(10), 1180. DOI: 10.3390/pathogens11101180.

Paulino, P.G.; Peckle, M.; Mendonça, L.P.; Massard, C.L.; Antunes, S.; Couto, J.; Domingos, A.; Guedes Junior, D.d.S.; Cabezas-Cruz, A.; Santos, H.A. 2022. Differential Expression of Immune Genes in the *Rhipicephalus microplus* Gut in Response to *Theileria equi* Infection. *Pathogens* , 11, 1478. <https://doi.org/10.3390/pathogens11121478>.

Couto J, Villar M, Mateos-Hernández L, et al. (2020). Quantitative Proteomics Identifies Metabolic Pathways Affected by *Babesia* Infection and Blood Feeding in the Sialoproteome of the Vector *Rhipicephalus bursa*. *Vaccines* (Basel). 8(1):91. <https://doi.org/10.3390/vaccines8010091>