



1. Personal data.....	
Full name / Name in publications .....	
Birth date .....	
Nationality.....	
Institutional address .....	
Telephone .....	
E-mail .....	
Fax .....	2
Identifiers / URL .....	2
2. Degrees / Academic titles.....	2
3. Previous activity and current status.....	3
4. Scientific research .....	3
Member of R&D units .....	3
Area of scientific activity.....	3
Domain of specialization and Present main research interests.....	3
Keywords.....	3
Published work.....	4
Communications in scientific meetings .....	7
Participation in R&D projects.....	7
Participation in national and international networks.....	8
Member of evaluation boards .....	8
5. Supervision .....	8
PhD projects.....	8
MSc projects.....	9
BSc projects.....	9
Others – Post-graduation training and grants .....	10
6. Teaching .....	10
Coordination of academic/pedagogic projects.....	10
Participation in academic/pedagogic projects.....	11
Intervention and participation in educational management bodies.....	11
Teaching activity .....	11
7. Outreach activities.....	11
Papers in non-peer reviewed journals .....	11
Promotion of scientific and technology culture .....	11
Collaboration with Basic Education school.....	11
8. Cooperation activities .....	12

Advanced training of human resources .....	12
Transfer of technology and know-how .....	12
9. Management and institutional activities .....	12
10. Other activities .....	13
Foreign Languages .....	13
Filiation in Scientific and professional societies .....	13
Activities in the community .....	13

## 1. PERSONAL DATA

### FULL NAME / NAME IN PUBLICATIONS

**Ana Paula Martins Reis Arez**

### BIRTH DATE

13-09-1967

### NATIONALITY

Portuguese

### INSTITUTIONAL ADDRESS

Global Health and Tropical Medicine (GHTM)  
 Unit of Medical Parasitology  
 Instituto de Higiene e Medicina Tropical (IHMT)  
 Rua da Junqueira, 100  
 1349-008 Lisboa, Portugal

### TELEPHONE

+351 213652657

### E-MAIL

aparez@ihmt.unl.pt  
 aparez@gmail.com

### FAX

+351 213652699

### IDENTIFIERS / URL

**Researcher ID** <http://www.researcherid.com/rid/I-1729-2012>

**ORCID ID** <https://orcid.org/0000-0002-0497-6532?lang=en>

**Scopus Author ID** 6602650582

<http://ghtm.ihmt.unl.pt/profiles/ana-paula-arez-2/>  
[https://www.researchgate.net/profile/Ana\\_Arez/](https://www.researchgate.net/profile/Ana_Arez/)  
<http://pt.linkedin.com/pub/ana-paula-arez/55/790/4a5>

## 2. DEGREES / ACADEMIC TITLES

**Year:** 2011

**Title:** Agregação

**Institution:** IHMT, Universidade Nova de Lisboa (UNL)

**Scientific area:** Biomedical Sciences, Parasitology

**Year:** 2000

**Degree:** PhD

**Institution:** Faculdade de Ciências Universidade de Lisboa (FCUL)

**Thesis:** Molecular epidemiology of malaria. Transmission dynamics of mixed infections

**Scientific area:** Biology

**Year:** 1992

**Degree:** BSc

**Institution:** FCUL

**Thesis:** Aspects of age, growth and longevity determination in three populations of *Rana perezi* (Seoane, 1885).

**Scientific area:** Biology

### 3. PREVIOUS ACTIVITY AND CURRENT STATUS

#### Period / Post, category or activity / Institution

- September 2013 - present, Principal Investigator, Unit Medical Parasitology, GHTM, IHMT, UNL
- 2007 - 2013, Investigator, Centre of Malaria and other Tropical Diseases (CMDT), IHMT, UNL
- 2001 – 2007, Post-Doc, CMDT, IHMT
- 1996 – 2000, PhD student, CMDT, IHMT
- 1993 – 1995, trainee, CMDT, IHMT
- 1993 – 1994, Teacher at high school, Escola EB 2+3 Luís de Camões, Lisboa
- 1990 – 1993, Monitor, Department of Zoology and Anthropology, FCUL, UL

### 4. SCIENTIFIC RESEARCH

#### MEMBER OF R&D UNITS

**GHTM** – *Vector and borne diseases group*. Effective member

**CMDT** – *Parasitology group, Host-Parasite Interactions - Human Genetics and Parasite Diversity*.  
Effective member

**CIAS** – Research Centre for Anthropology and Health, *Genes, Populations and Disease group*, Faculdade de Ciências e Tecnologia Universidade de Coimbra (FCTUC). Collaborator member

#### AREA OF SCIENTIFIC ACTIVITY

Health Sciences

#### DOMAIN OF SPECIALIZATION AND PRESENT MAIN RESEARCH INTERESTS

Molecular Epidemiology of parasitic diseases (mainly malaria) with a special focus on:

- Parasite and human host genetic diversity
- Host-parasite interactions
- Host susceptibility of the host to disease/infection
- Transmission dynamics

#### KEYWORDS

Malaria, Parasite genetic diversity, Human markers of susceptibility/resistance, Interaction mechanisms between host cell (erythrocyte) and parasite, Transmission, Experimental models, Field work in endemic areas

## PUBLISHED WORK

### International peer-reviewed journals

1. Guerra M., Neres R., Salgueiro P., Mendes C., Ndong-Mabale N., Berzosa P., de Sousa B., **Arez A.P.** 2017. *Plasmodium falciparum* Genetic Diversity in Continental Equatorial Guinea before and after Introduction of Artemisinin-Based Combination Therapy. *Antimicrobial Agents and Chemotherapy*, **61**: e02556-15. doi: 10.1128/AAC.02556-15
2. Salgueiro P., Lopes A.S., Mendes C., Charlwood J.D., **Arez A.P.**, Pinto J., Silveira H. 2016. Molecular evolution and population genetics of a Gram-negative binding protein gene in the malaria vector *Anopheles gambiae*. *Parasites & Vectors*, **9**: 515. doi: 10.1186/s13071-016-1800-2
3. Guerra M., Machado P., Manco L., Fernandes N., Miranda J., **Arez A.P.** 2015. Triosephosphate isomerase gene promoter variation: -5G/A and -8G/A polymorphisms in clinical malaria groups in two African populations, *Infection, Genetics and Evolution*, **32**: 271–279. doi: 10.1016/j.meegid.2015.03.020 doi: <http://dx.doi.org/10.1016/j.meegid.2015.03.020>
4. Escobar C., Pateira S., Lobo E., Lobo L., Teodosio R., Monteiro F., Fernandes N., **Arez A.P.**, Varandas L., Nogueira F. 2015. Polymorphisms in K13-propeller in Angola and Mozambique after the introduction of the ACTs. *PLoS ONE*, **10**: e0119215. doi:10.1371/journal.pone.0119215
5. Mendes C., Salgueiro P., Gonzalez V., Berzosa P., Benito A., do Rosário V.E., Sousa B., Cano J., **Arez A.P.** 2013. Genetic diversity and signatures of selection of drug resistance in *Plasmodium* populations from both human and mosquito hosts in continental Equatorial Guinea. *Malaria Journal*, **12**: 114. doi: 10.1186/1475-2875-12-114
6. Machado P., Manco L., Gomes C., Mendes C., Fernandes N., Salomé G., Sitoe L., Chibute S., Langa J., Ribeiro L., Miranda J., Cano J., Pinto J., Amorim A., do Rosário V.E., **Arez A.P.** 2012. Pyruvate kinase deficiency in sub-Saharan Africa: identification of a highly frequent missense mutation (G829A;Glu277Lys) and association with malaria. *PLoS ONE*, **7**: e47071. doi:10.1371/journal.pone.0047071
7. Albuquerque D., Manco L., Loua K.M., **Arez A.P.**, Trovoada M.J., Relvas L., Millimono T.S., Rath S.L., Lopes D., Nogueira F., Varandas L., Alvarez M., Ribeiro M.L. 2011. SLC40A1 Q248H allele frequencies and associated SLC40A1 haplotypes in three West African population samples. *Annals of Human Biology*, **38**: 378-381. (Epub ahead of print Jan 14). doi: 10.3109/03014460.2010.541496
8. Culleton R., Coban C., Zeyrek F.Y., Cravo P., Kaneko A., Randrianarivelojosia M., Andrianaranjaka V., Kano S., Farnert A., **Arez A.P.**, Sharp P.M., Carter R., Tanabe K. 2011. The Origins of African *Plasmodium vivax*; Insights from Mitochondrial Genome Sequencing. *PLoS ONE*, **6**: e29137. doi:10.1371/journal.pone.0029137
9. Mendes C., Dias F., Figueiredo J., Gonzalez V.M., Cano J., de Sousa B., do Rosário V.E., Benito A., Berzosa P., **Arez A.P.** 2011. Duffy negative antigen is no longer a barrier to *Plasmodium vivax* – molecular evidences from the African West Coast (Angola and Equatorial Guinea). *PLoS Neglected Tropical Diseases*, **5**: e1192. doi:10.1371/journal.pntd.0001192
10. Alves J., Machado P., Silva J., Gonçalves N., Ribeiro L., Faustino P., do Rosário V.E., Manco L., Gusmão L., Amorim A., **Arez A.P.** 2010. Analysis of malaria associated genetic traits in Cabo Verde, a melting pot of European and sub Saharan settlers. *Blood Cells, Molecules and Diseases*, **44**: 62-68. (Epub ahead of print 16 Oct 2009). doi:10.1016/j.bcmd.2009.09.008
11. Alves J., Gomes B., Rodrigues R., Silva J., **Arez A.P.**, Pinto J., Sousa C. 2010. Mosquito fauna in Cape Verde islands (West Africa): an update on species distribution and a new finding. *Journal of Vector Ecology*, **35**: 307-312. doi: 10.1111/j.1948-7134.2010.00087.x
12. de Almeida A., do Rosário V.E., Henriques G., **Arez A.P.**, Cravo P. 2010. *Plasmodium vivax* in the Democratic Republic of East Timor: parasite prevalence and antifolate resistance-associated mutations. *Acta Tropica*, **115**: 288–292
13. de Almeida A., do Rosário V.E., **Arez A.P.**, Cravo P. 2010. Malaria epidemiology in the Democratic Republic of East Timor. *Asian Pacific Journal of Tropical Medicine*, **3**: 283-287.
14. Machado P., Pereira R., Rocha A.M., Manco L., Fernandes N., Miranda J., Ribeiro L., do Rosário V.E., Amorim A., Gusmão L., **Arez A.P.** 2010. Malaria: looking for selection signatures in the human PKLR

- gene region. *British Journal of Haematology*, **149**: 775-784. (Epub ahead of print 06 Apr 2010). doi: 10.1111/j.1365-2141.2010.08165.x
15. Machado P., Mendes C., do Rosário V.E., **Arez A.P.** 2010. A contribuição dos polimorfismos humanos do eritrócito na proteção contra a malaria. *Revista Pan-Amazônica de Saúde*. **1**: 85-96.
16. Sutherland C.J., Tanomsing N., Nolder D., Oguke M., Jennison C., Pukrittayakamee S., Dolecek C., Hien T.T., do Rosario V.E., **Arez A.P.**, Pinto J., Michon P., Escalante A.A., Nosten F., Burke M., Lee R., Blaze M., Otto T.D., Barnwell J.W., Pain A., Williams J., White N.J., Day N.P., Snounou G., Lockhart P.J., Chiodini P.L., Imwong M., Polley S.D. 2010. The human malaria parasite *Plasmodium ovale* occurs globally as two non-recombining sympatric species. *Journal of Infectious Diseases*, **201**: 1544-1550. (Epub ahead of print 14 Apr 2010). doi: 10.1086/652240
17. de Almeida A., **Arez A.P.**, Cravo P.V., do Rosário V.E. 2009. Analysis of genetic mutations associated with anti-malarial drug resistance in *Plasmodium falciparum* from the Democratic Republic of East Timor. *Malaria Journal*, **8**: 59.
18. Manco L., Machado P., Lopes D., Nogueira F., do Rosário V.E., Alonso P., Varandas L., Bento C., Trovoada M.J., Amorim A., **Arez A.P.** 2009. Analysis of TPI gene promoter variation in 3 sub-Saharan Africa population samples. *American Journal of Human Biology*, **21**: 118-120.
19. **Arez A.P.**, do Rosário V.E. 2008. The relevance of molecular markers in the analysis of malaria parasite populations. *Transboundary and Emerging Diseases*, **55**: 226–232. doi 10.1111/j.1865-1682.2008.01025.x
20. Hassan D.A., **Arez A.P.**, Mohamed H.S., Elhussein A.M., Ibrahim M.E., Abdulhadi N.H. 2008. The reduced sequestration of *P. falciparum* infected erythrocytes among sickle cell trait malaria patients: an *in vivo* evidence among a West African tribe in Sudan. *Annals of Tropical Medicine and Parasitology*, **102**: 743-748. doi 10.1179/136485908X355238
21. Oliveira E., Salgueiro P., Pålsson K., Vicente J.L., **Arez A.P.**, Jaenson T.G., Caccone A., Pinto J. 2008. High Levels of hybridization between molecular forms of *Anopheles gambiae* from Guinea Bissau. *Journal of Medical Entomology*, **45**: 1057-1063.
22. Tanomsing N., Imwong M., Pukrittayakamee S., Chotivanich K., Looareesuwan S., Mayxay M., Dolecek C., Hien T.T., do Rosário V.E., **Arez A.P.**, Michon P., Snounou G., White N.J., Day N.P.J. 2007. Genetic analysis of the dihydrofolate reductase-thymidylate synthase gene from diverse geographic isolates of *Plasmodium malariae*. *Antimicrobial Agents and Chemotherapy*, **51**: 3523-3530. doi 10.1128/AAC.00234-07
23. Alves J., Roque A.L., Cravo P., Valdez T., Jelinek T., do Rosário V.E., **Arez A.P.** 2006. Epidemiological characterization of *Plasmodium falciparum* in the Republic of Cabo Verde: implications for potential large-scale re-emergence of malaria. *Malaria Journal*, **5**: e32.
24. Marques P.X., Saúte F., Pinto V.V., Cardoso S., Pinto J., Alonso P.L., do Rosário V.E., **Arez A.P.** 2005. *Plasmodium* species mixed infections in two ecologically different areas of Manhiça District, Mozambique. *International Journal of Biological Sciences*, **1**: 96-102.
25. **Arez A.P.**, Pinto J., Pålsson K., Snounou G., Jaenson T.G.T., do Rosário V.E. 2003. Transmission of mixed *Plasmodium* species and *Plasmodium falciparum* genotypes. *American Journal of Tropical Medicine and Hygiene*, **68**: 161-168.
26. Drakeley C., Schellenberg D., Kihonda J., Sousa C.A., **Arez A.P.**, Lopes D., Lines J., Mshinda H., Lengeler C., Armstrong Schellenberg J., Tanner M., Alonso P. 2003. An estimation of the entomological inoculation rate for Ifakara: a semi-urban area in a region of intense malaria transmission in Tanzania. *Tropical Medicine & International Health*, **8**: 767-774.
27. Gil J.P., Nogueira F., Strömberg-Nörklit J., Carrolo M., Casimiro C., Lopes D., **Arez, A.P.**, Cravo P.V., do Rosário V.E. 2003. Detection of atovaquone and MalaroneTM resistance conferring mutations in *Plasmodium falciparum* cytochrome b gene (cytb). *Molecular and Cellular Probes*, **17**: 85-89. doi 10.1016/S0890-8508(03)00006-9
28. Meyer C.G., May J., **Arez A.P.**, Gil J.P., do Rosário V. 2002. Genetic diversity of *Plasmodium falciparum*: asexual stages. *Tropical Medicine and International Health*, **7**: 1-14.
29. Färnert A., **Arez A.P.**, Babiker H.A., Beck H.-P., Benito A., Björkman A., Bruce M.C., Conway D.J., Day K.P., Henning L., Mercereau-Puijalon O., Ranford-Cartwright L.C., Rubio J.M., Snounou G., Walliker D., Zwetyenga J., do Rosário V.E. 2001. Genotyping of *Plasmodium falciparum* infections by PCR: a

- comparative multicentre study. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **95**: 225-232.
30. Fernandes N.E.P., Silveira H., Franco A.S., **Arez A.P.**, Forte J.M., do Rosário V.E. 2001. Detection of malaria parasites in paraffin-embedded spleen and placental tissues by nested PCR. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **95**: 293-294.
31. **Arez A.P.**, Lopes D., Pinto J., Franco A.S., Snounou G., do Rosário V.E. 2000. *Plasmodium* sp.: Optimal protocols for PCR amplification from mosquito (*Anopheles* sp.) samples. *Experimental Parasitology*, **94**: 269-272.
32. **Arez A.P.**, Snounou G., Pinto J., Sousa C., Alves J., Ribeiro, H., Franco A.S., Modiano D., do Rosário V.E. 1999. A Clonal *Plasmodium falciparum* population in an isolated outbreak of malaria in the Republic of Cabo Verde. *Parasitology*, **118**: 347-355.
33. Färnert A., **Arez A.P.**, Correia A.T., Björkman A., Snounou G., do Rosário V.E. 1999. Sampling and storage of blood and the detection of malaria parasites by polymerase chain reaction. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **93**: 50-53.
34. Pinto J., Sousa C.A., **Arez A.P.**, Alves J., Modiano D., Petrarca V., Charlwood J.D., do Rosário V.E. 1999. Assessment of malaria transmission in an area with very low mosquito density. *Research and Reviews in Parasitology*, **59**: 23-26.
35. **Arez A.P.**, Pålsson K., Pinto J., Franco A.S., Dinis J., Jaenson T.G.T., Snounou G., do Rosário V.E. 1997. Transmission of mixed malaria species and strains by mosquitoes, as detected by PCR, in a study area in Guinea-Bissau. *Parassitologia*, **39**: 65-70.
36. Pinto J., **Arez A.P.**, Franco S., do Rosário V.E., Palsson K., Jaenson T.G.T., Snounou G. 1997. Simplified methodology for PCR investigation of midguts from mosquitoes of the *Anopheles gambiae* complex, in which the vector and *Plasmodium* species can both be identified. *Annals of Tropical Medicine and Parasitology*, **91**: 217-219.

#### National peer-reviewed journals

1. **Arez A.P.**, Laing C.G., Brito J.C., do Rosário V.E., Theakston R.D.G. 1993. Preliminary studies on the characterization of venom from *Vipera latastei latastei* (Boscá, 1878) (Reptilia, Viperidae) collected in NW Portugal. *Portugaliae Zoologica*, **2**: 37-42.

#### Publication of peer-reviewed abstracts or proceedings

1. Machado P., Vaz T.R., Nogueira F., Rodrigues J., Manco L., Ribeiro L., Bergstrom E., Ashford D., Vitorino R., Thomas-Oates J., Thomas J., **Arez A.P.** 2014. Quantitative proteomics for the analysis of *Plasmodium falciparum* and its red blood cell host - a preliminary study. *Malaria Journal*, **13**: 74.
2. Alves J., Machado P., Gonçalves N., Silva J., Gusmão L., Alves C., Manco L., do Rosário V.E., Amorim A., **Arez A.P.** 2007. Molecular epidemiology: some host genetics factors related to malaria in Santiago – Cabo Verde Islands. *Tropical Medicine and International Health*, **12**(Suppl 1): 167.
3. Lopes L.F., Zamora F., Rocha L., Marques P.X., Mendes C., Martinez-Barnetche J., Leandro M.J., Arevalo M., Herrera S., do Rosario V.E., **Arez A.P.**, Silveira H. 2007. *Anopheles albimanus* immune response to single and mixed infections with *Plasmodium falciparum* and *Plasmodium vivax*. *Tropical Medicine and International Health*, **12**(Suppl 1): 201-202.
4. Mendes C., Dias F., do Rosário V.E., Varandas L., **Arez A.P.** 2007. Prevalence of *Plasmodium* sp. infection in children in the Kuanza Sul province, Angola. *Proceedings of the 5th European Congress on Tropical Medicine and International Health*, 181-184.
5. Mendes C., Dias F., do Rosário V.E., Varandas L., **Arez A.P.** 2007. Prevalence of *Plasmodium* sp. infection in children in the Kuanza Sul province, Angola. *Tropical Medicine and International Health*, **12**(Suppl 1): 166-167.
6. Miranda J., Gonçalves N., Picanço I., do Rosário V.E., Faustino P., **Arez A.P.** 2007. Sickle-cell trait and red cell glucose-6-phosphate dehydrogenase status and malaria morbidity in Angola. *Proceedings of the 5th European Congress on Tropical Medicine and International Health*, 65-68.
7. Miranda J., Gonçalves N., Picanço I., do Rosário V.E., Faustino P., **Arez A.P.** 2007. Sickle-cell trait and red cell glucose-6-phosphate dehydrogenase status and malaria morbidity in Angola. *Tropical Medicine and International Health*, **12**(Suppl 1): 238.

8. Tanomsing N., Imwong M., Pukrittayakamee S., Chotivanich K., Looareesuwan S., Mayxay M., Dolecek C., Hien T.T., do Rosario V.E., **Arez A.P.**, Michon P., Snounou G., White N.J., Day N.P.J. 2007. Genetic analysis of the dihydrofolate reductase-thymidylate synthase gene from geographically diverse isolates of *Plasmodium malariae*. *American Journal of Tropical Medicine and Hygiene*, **79**: 188.
9. Vicente J.L., Salgueiro P., **Arez A.P.**, Cravo P.V.L., Ferreira C., Rosário V.E., Pinto J. 2007. Genetic characterisation of *Plasmodium falciparum* populations in São Tomé and Príncipe islands, West Africa. *Tropical Medicine and International Health*, **12**(Suppl 1): 78.

#### **Books or book chapters**

- Arez A.P.**, Nogueira F. 2014. *Interação hospedeiro-Patogéneo. Rumando a uma medicina personalizada* in Anais do Instituto de Higiene e Medicina Tropical, Saúde Global e Doenças Tropicais. Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, **13**: 95-96.
- Arez A.P.**, Silveira H., Nogueira F. 2014. *Mais de meio século da investigação de malária no IHMT* in Anais do Instituto de Higiene e Medicina Tropical, Saúde Global e Doenças Tropicais. Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, **13**: 07-17.
- Arez A.P.**, Nogueira F. 2012. *Malária - deficiência em glucose-6-fosfato-desidrogenase e a terapêutica com primaquina* in Anais do Instituto de Higiene e Medicina Tropical, Edição Comemorativa. Ferrinho P. (ed.), Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, **11**: 55-56.

#### **Thesis**

- Arez A.P. 2000. Molecular epidemiology of malaria. *Transmission dynamics of mixed infections*. Dissertation presented to FCUL to obtain the PhD degree in Biology. 246pp.
- Arez A.P. 1992. *Aspects of determination of age, growth and longevity in three populations of Rana perezi (Seoane, 1885)*. Dissertation presented to FCUL to obtain the BSc degree in Biology. 131pp.

#### **COMMUNICATIONS IN SCIENTIFIC MEETINGS**

3 session chair, 15 oral communications by invitation, 22 oral and 34 poster presentations in congress.

#### **PARTICIPATION IN R&D PROJECTS**

##### **As principal investigator**

- 2011-2015, Disorders on the Glycolytic and Pentose Phosphate Pathways of the Red Blood Cell - how do they affect *Plasmodium* infection? FCT/MCTES, PTDC/SAU-MET/110323/2009
- 2011-2014, Factors affecting dynamics of *Plasmodium* concomitant infections in a malaria endemic area: analysis through a new modelling approach, FCT/MCTES, PTDC/SAU-EPI/113326/2009
- 2005-2009, Evaluation of malaria epidemiology in the Republic of Cabo Verde, FCT/MCES, POCTI/SAU-ESP/55110/2004
- 2001-2004, Mixed infections in malaria: studies of transmission and interaction, FCT, POCTI/1999/ESP/35789/99

##### **As team member**

- 2012-2013, *Defining the role and extent of protein glycosylation in the malaria causing parasite Plasmodium falciparum*, CMDT/IHMT, GLYCOPAR
- *Improvement of current and development of new vaccines for theileriosis and babesiosis of small ruminants (PiroVac)*. FP7-KBBE-2009-3. FP7 Programme - Collaborative Project for Specific Cooperation Actions Dedicated to International Cooperation (SICA). Coordination Research Centre Borstel, Germany
- 2008-2010, *Evaluación, seguimiento y control de la malaria, en la Provincia de Misiones (Argentina). Capacitación del personal sanitario en el manejo de brotes de malaria*, Spanish Agency of International Cooperation and Development, A/012190/07
- 2005-2009, *Population structure and genetic efflux of malaria parasites in islands* (POCTI/SAU-ESP/56903/2004, FCT/MCES)

- 2005-2008, *Genetic variability of recognition-protein expressing genes (PRM) involved in mosquito immune response against Plasmodium* (POCTI/SAU-IMI/59489/2004, FCT/MCES)
- 2004-2005, *Scientific and technical follow-up of a pilot intervention of malaria control in the islands of São Tomé e Príncipe (STP), using molecular and genetic approaches.* [US Navy/CMDT/CNE-STP; Programa de Acção Portugal/São Tomé e Príncipe 2003-2004. Instituto Português de Apoio ao Desenvolvimento (IPAD)/Ministério dos Negócios Estrangeiros, Portugal]
- 2003-2006, *Effect of chloroquine in the modulation of mosquito vector response to the infection by Plasmodium* (FCT, POCTI/MGI/344905/2002)
- 1993-1994, *Enzyme Linked Immunosorbent Assay (ELISA) for the quantification of envenoming by Viper in Portugal and evaluation of treatment efficacy*, JNICT, PBIC/SAU/1624/92, CMDT/IHMT/UNL

#### PARTICIPATION IN NATIONAL AND INTERNATIONAL NETWORKS

- Iberian Platform of Malaria
- RIDES Malaria - Network of Research and Development in Health/Malaria from CPLP
- *Malaria molecular epidemiology network*, Praxis/2/2.2/1415/95. CMDT/IHMT/UNL.
- *Network for field research on afrotropical malaria vectors*, TS3-CT93-0236. CMDT/IHMT/UNL.

#### MEMBER OF EVALUATION BOARDS

##### Evaluation of research projects and programmes in national and international calls

- June-September 2015, member of evaluation panel of Experimental Biology and Biochemistry – post-doc grants, Fundação para a Ciência e Tecnologia do Ministério da Educação e Ciência, Portugal.
- July 2012–present, Expert-Reviewer, *The Executive Agency for Higher Education, Research, Development and Innovation Funding*, Romania.
- March 2014–present, Expert-Reviewer, Research Foundation Flanders (FWO), Belgium.
- Occasional, peer review of training fellowships, Wellcome Trust.

#### Reviewer for the following journals

Acta Tropica (Sweden), Annals of Tropical Medicine and Parasitology, Biomédica (Colombia), BMC Infectious Diseases (UK), Infection and Immunity (USA), PLoS ONE (USA), Transactions of the Royal Society of Tropical Medicine and Hygiene (UK), Trends in Parasitology (UK), Tropical Medicine and International Health (Belgium, Germany, Netherlands, UK, Switzerland).

Academic Editor of PLoS ONE (USA).

## 5. SUPERVISION

#### PHD PROJECTS

**On-going – Tiago Vaz – Erythrocyte enzymopathies – effects on malaria infection.** 3<sup>rd</sup> cycle Human Genetics and Infectious Diseases, IHMT, UNL. PhD grant SFRH/BD/85675/2012 (FCT/MEC).

**2014 – Cristina Mendes - Population diversity and transmission dynamics of Plasmodium sp.** 3<sup>rd</sup> cycle Biomedical Sciences, IHMT, UNL. PhD grant SFRH/BD/41473/2007 (FCT/MEC).

**2013 – Patrícia Machado – Pyruvate kinase and glucose-6-phosphate dehydrogenase deficiencies and their association with malaria – population genetics and proteomic studies.** 3<sup>rd</sup> cycle Biomedical Sciences, PhD grant SFRH/BD/28236/2006 (FCT/MEC).

**2011 - Joana Alves – Malaria epidemiology at Santiago, Cabo Verde.** 3<sup>rd</sup> cycle Biomedical Sciences, IHMT, UNL. PhD grant SFRH/BD/153451/2005 (FCT/MEC)

**2012 – Fernanda Dias – The effect of human host and parasite factors in the susceptibility to malaria and disease severity.** Co-supervision. 3<sup>rd</sup> cycle Tropical Medicine, IHMT, UNL.

**2009 – Afonso de Almeida – Epidemiological studies and antimalarial resistance in East-Timor.** Co-supervision. 3<sup>rd</sup> cycle Biomedical Sciences, IHMT, UNL.

**MSC PROJECTS**

- On-going** – Mónica Ferreira – Development of portable platform for early detection and characterization of a malaria infection. MSc Biomedical Sciences, IHMT.
- 2015-2016** – Maria de Lurdes Francisco – Erythrocyte deficiency of pyruvate kinase by supplementation with sodium fluoride (NaF), subsequent increase of 2,3-diphosphoglycerate (2,3-DPG) and association with malaria. MSc Medical Parasitology, IHMT. Final classification 14/20.
- 2012-2013** – Sara Pateira – *Genotyping of G829A mutation in the gene of pyruvate kinase in individuals from Guinea-Bissau and its association to malaria.* MSc Human Biology and Environment, FCUL. Final classification 17/20.
- 2011-2012** - Mónica Guerra - *Search for selection signatures of malaria in the human gene tpi (triosephosphate isomerase).* MSc Medical Parasitology, IHMT. Final classification 19/20.
- 2010-2011** – Ana Margarida Rosa - *Pyruvate kinase deficiency protection against malaria: in vitro evaluation of 2,3-diphosphoglycerate toxicity and Plasmodium falciparum susceptibility.* MSc Human Biology and Environment, FCUL. Final classification 17/20.
- 2006-2007** – Cristina Mendes - *Association between parasite populations of Plasmodium sp. and erythrocytic polymorphisms – sickle cell anaemia and glucose-6-phosphate dehydrogenase deficiency – in Angola.* MSc Biotechnology, Faculty of Sciences and Technology (FCT), UNL. Final classification 19/20.
- 2006-2007** - Juliana Miranda – *Association of erythrocyte polymorphisms - sickle-cell and Glucose-6-phosphate dehydrogenase (G6PD) deficiency - and clinical malaria status.* MSc Medical Parasitology, IHMT. Final classification Very Good.
- 2003-2004** - Joana Alves – *Evaluation of residual foci of Plasmodium falciparum in Santiago, Cabo Verde.* MSc Medical Parasitology, IHMT, UNL. Co-supervision. Final classification Very Good.
- 2003-2004** - Patrícia Marques – *Study of single and mixed infections by Plasmodium sp. in the human population in two areas of Manhiça, Mozambique.* MSc Medical Parasitology, IHMT, UNL. Co-supervision. Final classification Very Good.

**BSC PROJECTS**

- 2006-2007** – João Silva - *Resistance against malaria - prevalence of glucose-6-phosphate-dehydrogenase (G6PD) in the population of Santiago Island, Republic of Cabo Verde.* BSc Biochemistry, FCTUC. Classification 19/20.
- 2005-2006** – Nilza Gonçalves - *Prevalence of sickle-cell trait in the population of Santiago island, Republic of Cabo Verde.* BSc Biology, FCTUC. Classification 17/20.
- 2004-2005** - Cristina Mendes - *Contribution to the study of the mixed infection between P. falciparum and P. vivax effect in the sporogonic cycle in Anopheles albimanus mosquitoes.* BSc Applied Chemistry and Biotechnology, FCT, UNL. Classification 19/20.
- 2003-2004** - Ana Luísa Roque – *Transmission of human malaria: study of transmissible stages (gametocytes) of the different Plasmodium species in the peripheral blood.* BSc Biochemistry, FCUL, Classification 19/20.
- 2002-2003** - Sónia Cardoso – *Analysis of single and mixed infections of Plasmodium sp. in Anopheles mosquitoes in Ilha Josina (dry season), Manhiça, Mozambique.* BSc Applied Chemistry, FCT, UNL. Classification 19/20.
- 2003-2004** - José Luís Vicente - *Genetic characterization of Plasmodium falciparum populations in São Tomé e Príncipe, West Africa.* BSc Biotechnology Engineering, Universidade Lusófona de Humanidades e Tecnologias (ULHT); Co-supervision. Classification 19/20.
- 1997-1998** – Dinora Lopes – *Evaluation of the inhibition level of Polymerase Chain Reaction for the detection of Plasmodium in the mosquito vector Anopheles.* BSc Biotechnology Engineering, ULHT; Co-supervision. Classification 19/20.
- 1997-1998** - Ana Teresa Correia – *Optimization of the storage conditions for the detection of Plasmodium sp. by PCR in blood samples.* BSC Applied Plant Biology, FCUL. Co-supervision.

**OTHERS – POST-GRADUATION TRAINING AND GRANTS****Post-graduation training**

**2017** – Andreia Cunha Barreto – *Identification of the Plasmodium species present in 8 isolates from Angola (clinical cases during the epidemics of 2016 in Luanda)". 1<sup>st</sup> cycle of studies on Biomedical Sciences, University of Algarve. Classification 16/20.*

**2016** – Ana Carolina Francisco – *Effect of calpain on the erythrocyte cytoskeleton and parasite development in in vitro cultures of Plasmodium falciparum. 1<sup>st</sup> cycle of studies on Biochemistry, Faculty of Sciences and Technology, NOVA University (FCT/UNL). Classification 18/20.*

**2005-2006** – Cristina Mendes – *Optimization of a Real-time PCR protocol for the semiquantification of schizogonic stages of the four species of Plasmodium that infect man in blood samples. Training, Discipline of "Estágio II", BSc Applied Chemistry, FCT, UNL. Classification 18/20.*

**2002-2003** - Tiago Vieira – in the scope of the project *Mixed infections in malaria: studies of transmission and interaction* (FCT, POCTI/1999/ESP/35789/99). Training, Discipline of "Project de Investigação", BSc Chemistry Sciences and Environment, Instituto Piaget. Classification 18/20.

**Voluntary training**

**2009-2010** – Joana Figueiredo trainee, BSc student of Biology, FCUL, UL, in the scope of research line Population diversity and transmission dynamics of *Plasmodium* sp. and *Plasmodium falciparum* in Equatorial Guinea.

**2007-2008** – Marta Remédios trainee, BSc student of Microbiology, Faculdade de Medicina (FML), UL, in the scope of the project Evaluation of malaria epidemiology in the Republic of Cabo Verde (FCT, POCI/SAU-ESP/55110/2004)

**Grants**

**On-going** – **Post-doc** – Ana Tavares, *Implementation of a biobank in GHTM-IHMT (UID/Multi/04413/2013GHTM).*

**2014-2015** – **BI** - Rita Neres, *Disorders on the Glycolytic and Pentose Phosphate Pathways of the Red Blood Cell - how do they affect Plasmodium infection?* (PTDC/SAU-MET/110323/2009).

**2012-2015** - **BI** – Mónica Guerra, *Factors affecting dynamics of Plasmodium concomitant infections in a malaria endemic area: analysis through a new modelling approach* (PTDC/SAU-EPI/113326/2009).

**2011-2013** - **BI** – Patrícia Machado, *Disorders on the Glycolytic and Pentose Phosphate Pathways of the Red Blood Cell - how do they affect Plasmodium infection?* (PTDC/SAU-MET/110323/2009).

**2008-2009** – **BII** - Cláudia Gomes, *Erythrocyte deficiency and protection against malaria.*

**2005-2007** – **BIC** - Patrícia Machado, *Evaluation of malaria epidemiology in the Republic of Cabo Verde* (FCT, POCI/SAU-ESP/55110/2004).

**2001-2004** - **2 BIC** - Patrícia Marques, Vera Valadão Pinto, *Mixed infections in malaria: studies of transmission and interaction* (FCT, POCTI/1999/ESP/35789/99)

**6. TEACHING****COORDINATION OF ACADEMIC/PEDAGOGIC PROJECTS**

- **Workshop on Review and evaluation of scientific projects** – co-organizer, IHMT and National Institute of Health (INS), Maputo, Mozambique, June 2017.
- **Malaria genomics and public health** – co-organizer, Centre for Research in Medical Entomology (ICMR), Madurai, India, January/February 2017.
- **Workshop on Precision Medicine** – member of organizing committee, NOVAHealth, April 2016.
- **3<sup>rd</sup> cycle of studies Human Genetics and Infectious Diseases**, IHMT and FCM, UNL - **member of “organizing committee”** since January 2011.
- Elaboration / submission of the studies plan to the Agência de Avaliação e Acreditação do Ensino Superior (A3ES), credited, October 2011;
- **Advanced course Molecular Protozoology**. 15 ECTS, IHMT

- **Population genetics in malaria: parasites, vectors and humans**, workshop, Iberian Platform of Malaria, CMDT, IHMT, UNL, October 2008.

#### PARTICIPATION IN ACADEMIC/PEDAGOGIC PROJECTS

- **Workshop on proposal writing** – tutor, IHMT and TDR/WHO, May 2016.
- **Workshop on courses on vectors of diseases** – reporter. IHMT and TDR/WHO, February 2016.
- **Scientific Writing Workshop** – tutor. IHMT and TDR/WHO, December 2015.
- **International PhD Programme on Tropical Diseases & Global Health**, CMDT/IHMT, Instituto de Investigação Científica e Tropical (IICT/MNE) and Fundação Oswaldo Cruz (FIOCRUZ), submitted to A3ES, February 2013.
- **Course of Medicine from ULHT** - teaching commitment agreement with Cooperativa de Formação e Animação Cultural (COFAC, CRL), signed in 1<sup>st</sup> July 2012.

#### INTERVENTION AND PARTICIPATION IN EDUCATIONAL MANAGEMENT BODIES

- May 2015-present - **3<sup>rd</sup> cycle of studies Human Genetics and Infectious Diseases**, IHMT and FCM, UNL - member of Scientific Committee;
- 2011 – 2015 - **3<sup>rd</sup> cycle of studies Biomedical Sciences**, IHMT, UNL - member of Scientific Committee.

#### TEACHING ACTIVITY

- Teaching activity in Curricular Units of both Phd (3<sup>rd</sup> cycle of studies) and MSc (2<sup>nd</sup> cycle of studies) programmes at IHMT;
- Coordination of Unit of Malaria of MSC Medical Parasitology;
- Activity in other institutions: Parasitology at Graduated Programme in Basic and Applied Biology, GABBA, University Porto (2000-2009), Gulbenkian PhD programme, Instituto Gulbenkian de Ciência (IGC) (2004), MSc (integrado) Medicine, FML (2009-2012), MSc Emerging Infectious Diseases, FML (2003-2006), MSc Clinical Microbiology, FML (2003);
- Teaching in Advanced post-graduation courses at IHMT and other institutions

## 7. OUTREACH ACTIVITIES

#### PAPERS IN NON-PEER REVIEWED JOURNALS

**Arez A.P., Sónia C.L., do Rosário V.E.** 2003. Novas doenças em Portugal? *Ambiente* 21, (11): 60-61.

#### PROMOTION OF SCIENTIFIC AND TECHNOLOGY CULTURE

- Organization of the Conference Cycle *Host – pathogen interaction: Towards a personalized medicine*. IHMT. November 2014

#### COLLABORATION WITH BASIC EDUCATION SCHOOL

- IHMT Open Day, 2012-present
- 2012-2014 – Visit guide to 1<sup>st</sup> cycle of Basic Education (3<sup>rd</sup> and 4<sup>th</sup> years from EB1 Raul Lino)
- 2015 – Chair of a videoconference/Debate about health life styles in multicultural environment with students from the 9<sup>th</sup> year of Basic Education (3<sup>rd</sup> cycle) of a Portuguese (EB2,3 Francisco de Arruda) and Capeverdian schools.
- Programme *Ciência Viva*, Ministry of Education and Science  
**Programme Escolher Ciência – From school to university** – Project Compadres, comadres e afins... uma potencial ameaça biológica!, PEC109. Starting date March 2013.
- **Programme A Saúde no Século XXI: uma Visão dos Jovens Europeus**. Participation in the debate Future challenges to Health Sciences: Facts and Fiction, Hannover, German, October 2000

**Programme Geminão Escolas-Instituições Científicas** (High school Henriques Nogueira, Torres Vedras – CMDT/IHMT/UNL). Aspects of the study and research in malaria, February 2000.

## 8. COOPERATION ACTIVITIES

### ADVANCED TRAINING OF HUMAN RESOURCES

#### PhD projects

Cabo Verde - Joana Alves, Ministry of Health Cabo Verde (supervising, 2011, Biomedical Sciences, Parasitology, IHMT/UNL).

Angola - Fernanda Dias, Faculty of Medicine University Agostinho Neto (co-supervising, 2012, Tropical Medicine, Pathology and Clinic of Tropical Diseases, IHMT/UNL).

Timor-Leste - Afonso de Almeida (co-supervising, 2009, Biomedical Sciences, Parasitology, IHMT/UNL).

#### MSc projects

Angola - Juliana Miranda, Paediatric Hospital David Bernardino, Luanda (supervising, 2007, Medical Parasitology, IHMT/UNL)

Cabo Verde - Joana Alves, Ministry of Health Cabo Verde (supervising, 2004, Medical Parasitology, IHMT/UNL).

#### Others

Angola - training action of Lic Feliz Sungui Zage, technician from the Centro de Investigação em Saúde de Angola (CISA) e Instituto Gulbenkian de Ciência (IGC). Janeiro 2018.

Cabo Verde – coordination of the training action of MSc Silvânia Leal at Unit of Medical Parasitology / Malaria, IHMT. Ministry of Health Cabo Verde, Global Fund – Committee of Cooperation and Coordination to fight against SIDA (SE-CCS-SIDA). 15 - 30 October 2012.

Programme Fordilab TB\_HIV, CPLP and FCG, training of Laboratory technicians (Advance training level I). 2012, 2013.

### TRANSFER OF TECHNOLOGY AND KNOW-HOW

- *Disorders on the Glycolytic and Pentose Phosphate Pathways of the Red Blood Cell - how do they affect Plasmodium infection?*, FCT/MCTES, PTDC/SAU-MET/110323/2009 - Maputo, Mozambique, Faculty of Medicine, University Eduardo Mondlane, Prof. Doutora Natércia Fernandes. Activities: 1) activity measurement of erythrocyte enzymes, 2) typing of human genotype of HBB gene to evaluate the presence of sickle cell trait, HbS and 3) detection of plasmodia in the peripheral blood of blood donors at Blood Bank through high sensitivity techniques.
- *Integrated Project to Malaria Control Program in Chókwè Region (Gaza, Mozambique)*, EC, SANTE-HEALTH/2006/105-398. Chokwé, Mozambique, Activities: 1) Training of health technicians to participate in the 1<sup>st</sup> KAP (knowledge, attitudes and practices) survey – questionnaire and blood sampling; 2) organization of material and 3) stock management.
- *Evaluation of malaria epidemiology in the Republic of Cabo Verde*, FCT/MCES, POCTI/SAU-ESP/55110/2004 – Santiago island, Cabo Verde, Ministry of Health from Cabo Verde. Activities: Entomological survey

## 9. MANAGEMENT AND INSTITUTIONAL ACTIVITIES

- January 2015 – present: elected member of IHMT Scientific Council.
- January 2015: assigned as 3<sup>rd</sup> “Vogal” of the Election Commission, election of IHMT Scientific Council.
- July 2014: assigned as 2<sup>nd</sup> “Vogal” of the Election Commission, election of the representatives of teachers and researchers in the IHMT Council.
- March 2013 – member of the Election Commission for the election of the representatives of teachers and researchers in the UNL General Council.
- March-September 2012: assigned as instructor of disciplinary proceedings against an operational assistant, IHMT.

- January 2011 – Present: Member of IHMT Library Advisory Council.
- October 2009 – 2012: elected member of IHMT Scientific Council.
- October 2010 – December 2010: Member of Scientific Committee of *Jornadas Científicas do IHMT* (13<sup>th</sup> December 2010)
- 2001 – 2009: Member of IHMT Scientific Council (Plenary).
- 2000 – 2014: Member CMDT Scientific Council (Plenary).

## 10. OTHER ACTIVITIES

### FOREIGN LANGUAGES

Language	Reading	Writing	Conversation
<b>English</b>	Very good	Very good	Good
<b>French</b>	Very good	Good	Good
<b>Spanish</b>	Good	Basic	Good

### FILIATION IN SCIENTIFIC AND PROFESSIONAL SOCIETIES

**OB** - Order of biologist (effective member n. 841)

**SPP** – Portuguese society of parasitology

**SEMTSI** – Spanish society of tropical medicine and international health

**SPH** – Portuguese society of herpetology (effective member n. 6, founding member)

**ANICT** – National association of researchers in science and technology

**ABIC** – Association of scientific research grant holders (member n. 58)

### ACTIVITIES IN THE COMMUNITY

- Member of section of tennis table of *Boa Hora Futebol Clube* (Lisboa), since May 2014
- President of the Directors Board of the Association of Parents from the *Escola EB1 Raul Lino com J.I. (Lisbon)*, since February 2013.
- Coordinator of the Organizing Committee of the Association of Parents from the *Escola EB1 Raul Lino com J.I. (Lisbon)*, April 2012 – January 2013.
- Member of the General Council of *Agrupamento de Escolas Francisco de Arruda* (Lisboa), 2012-2014.