

BIOGRAPHICAL SKETCH

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NAME: **Gamboa Vilela, Dionicia**

eRA COMMONS USER NAME (credential, e.g., agency login): **DGAMBOA**

POSITION TITLE: **Professor**

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Universidad Peruana Cayetano Heredia (Lima-Perú)	B. Sc.	1994	Biology
Universidad Peruana Cayetano Heredia (Lima-Perú)	Lic.	1998	Biology
Universidad Peruana Cayetano Heredia (Lima-Perú)	M.Sc.	1999	Biochemistry
University of Maastricht, The Netherlands and Institute of Tropical Medicine in Antwerp, Belgium	PhD	2008	Molecular Biology of Parasites

A. Personal Statement

I have expertise in molecular and cellular biology acquired during my PhD working with *Leishmania* parasites at the Institute of Tropical Medicine in Antwerp, Belgium and since 2003 my research is focused on Malaria. We conduct multidisciplinary malaria projects, which span from basic microscopy to specialized laboratory techniques (i.e., genotyping by microsatellites and SNPs, next generation sequencing, among others) including field work in rural remote areas in the Peruvian Amazon region. Currently, I am the Project co-leader of the Peruvian epidemiology component (Project 1) of the U19 Amazonian International Center of Excellence in Malaria Research (Amazonia-ICEMR) focused on getting scientific evidence with a multidisciplinary approach contributing with the Peruvian Minister of Health in the goal to control and eliminate malaria. I am also active as mentor of undergraduate / postgraduate students and junior faculty / early career researchers, and I was also a Co-Director of a Fogarty International Center/NIH Global Infectious Diseases Training program (PI: JM Vinetz) and Coordinator of a PhD program in Life Sciences financed by the Peruvian National Council of Science. Recent and ongoing relevant projects:

U19 AI 089681 (PI: JM Vinetz, Role: Co-PI in Peru); 04/01/2017 – 03/31/2024 (competitively renewed 2017)
Peruvian/Brazilian Amazon Center of Excellence in Malaria (Amazonian-ICEMR)

FA5 DGD-ITM-08, Belgian Directorate General for Development Cooperation (DGD) (PI: Theresa Ochoa, Co-PI: Jorge Arévalo, Role: associated investigator); 01/01/2022 – 12/31/2026 (competitively renewed 2021)
Better policies and less infectious diseases in Peru and Latin America

FWO G0A4222N, Fonds Wetenschappelijk Onderzoek (FWO) (PI: JP Van geertruyden, Co-PI: C Delgado Ratto, Role: Co-PI in Peru); 01/01/2022 - 31/12/2025
Unraveling the contribution of *Plasmodium vivax* metapopulation on the persistence of malaria transmission in residual areas.

78584 PROCENCIA, Peruvian National Council of Science (CONCYTEC), (PI: SM Chenet Carrasco, Role: Co-Investigator); 2022-2024.

Vigilancia genómica de *Plasmodium* y su impacto en el control de la malaria en comunidades nativas de la región Condorcanqui, Amazonas.

B. Positions, Scientific Appointments, and Honors

Positions, Scientific Appointments and Employment

2022-	Full Professor, Department of Cellular and Molecular Sciences, Faculty of Science and Philosophy, Universidad Peruana Cayetano Heredia (UPCH).
2020 - 2022	Chief of Academic Department of Cellular and Molecular Sciences, Faculty of Science and Philosophy, UPCH.
2018 -	Member of the Institute of Tropical Medicine “Alexander von Humboldt” (IMTAvH) board, UPCH
2018 -	Coordinator of the PhD program in Life Sciences, Post-grade school at UPCH.
2018 - 2021	Representative of Institute of Tropical Medicine “Alexander von Humboldt” (IMTAvH) to the Board of Directors of the Institutes at UPCH.
2018 – 2021	Chief of the Research Office, Institute of Tropical Medicine “Alexander von Humboldt” (IMTAvH), UPCH
2015 - 2018	Coordinator of the MSc and PhD Program in Biochemistry, Molecular Biology, Department of Cellular and Molecular Sciences, UPCH.
2016 - 2018	Coordinator of the Biochemistry, Molecular Biology and Pharmacology Unit, Department of Cellular and Molecular Sciences, UPCH.
2016 -	Associate Professor, Department of Cellular and Molecular Sciences, Faculty of Science and Philosophy, and Board member of the IMTAvH, UPCH.
2012 - 2015	Assistant Professor, Department of Cellular and Molecular Sciences, Faculty of Science and Philosophy, UPCH.
2009 - 2013	Postdoctoral Fellow from the Re-entry Grant Program at Institute of Tropical Medicine Antwerp, Belgium and IMTAvH, UPCH.
2003 -	Coordinator of the Malaria Laboratory, IMTAvH - UPCH.
2003 - 2006	Contract teacher for Medical Technology School at Faculty of Medicine, UPCH.
2003, 2005, 2008	Laboratory instructor for the Gorgas Course in Clinical Tropical Medicine, IMTAvH - UPCH and University of Alabama, Birmingham.
1999-2002	Associate Researcher; Laboratory of Molecular and Cell Biology of Trypanosomatids; IMTAvH, UPCH.

Other experience and Professional memberships

2020 -	Member of the General council at Institute of Tropical Medicine Antwerp, Belgium
2008 -	Member, American Society of Tropical Medicine and Hygiene

Honors

2021 - 2024	Elected Peruvian National Academy of Science board member
2017 - 2021	Member of the Expert Committee to support Malaria Zero program, Peruvian Minister of Health.
2016	Orden Cayetano Heredia medal, in the Lady's degree
2015	National UNESCO-L'OREAL Prize for Women in Science (CONCYTEC-Peru)
2013	Member of the Peruvian National Academy of Science
2013	Elsevier Award, Early Career Woman in Science (TWAS, OWSD)
2009-2013	Re-entry Grant, Belgian Directorate General for Developing Cooperation (DGDC)
2009-2010	“Our Common Future Fellowship” (Volkswagen Foundation)
2009	Research Professor, Faculty of Science and Philosophy
2008	Travel Award, American Society of Tropical Medicine and Hygiene
2004	“Women of the year” in Health Area (Magazine Glamour en Español)
2003	UNESCO-L'OREAL Fellowship for Young Women in Science
2001-2004	TDR/WHO award to pursue PhD studies
1999-2000	Scholarship from the Belgian Directorate General for Development Cooperation (DGD)

C. Contributions to Science

1. Experimental mosquito infections to measure the transmissibility of clinical and subclinical *P. vivax* malaria parasite carriers using direct membrane mosquito feeding assays

- a. Moreno, M.; Torres K.; García Castillo, SS.; Carrasco-Escobar, G.; Guedez, G.; Torres, L.; Herrera-Varela, M.; Guerra, L.; Guzman, M, Wong, D.; Ramirez, R.; Llanos-Cuentas, A.; Conn, JE.; **Gamboa, D.**; Vinetz, JM. Insights into *Plasmodium vivax* asymptomatic malaria infections and direct skin feeding assays to assess onward malaria transmission in the Amazon. Am J Trop Med Hyg. 2022, *in press*.
- b. Moreno, M.; Tong-Rios, C.; Orjuela-Sanchez, P.; Carrasco-Escobar, G.; Campo, B.; **Gamboa, D.**; Winzeler, E. A.; Vinetz, J. M. Continuous supply of *Plasmodium vivax* sporozoites from colonized *Anopheles darlingi* in the Peruvian Amazon. ACS Infect Dis 2018, 4, 541-548. PMID: PMC5902790.
- c. Moreno M, Tong C, Guzmán M, Chuquiyauri R, Llanos-Cuentas A, Rodriguez H, **Gamboa D**, Meister S, Winzeler EA, Maguina P, Conn JE, Vinetz JM. Infection of laboratory-colonized *Anopheles darlingi* mosquitoes by *Plasmodium vivax*. Am J Trop Med Hyg. 2014 Apr;90(4):612-6. PMID: PMC3973502.

2. A better understanding of malaria transmission is also required to design new and better strategies to control and, eventually, to eliminate this disease. I have participated and lead several projects outside and within the Amazonian-ICEMR identifying and validating new serological markers used to describe the transmission patterns across time and space.

- a. Jason Rosado, Gabriel Carrasco-Escobar, Oscar Nolasco, Katherine Garro, Hugo Rodriguez-Ferruci, Mitchel Guzman-Guzman, Alejandro Llanos-Cuentas, Joseph M. Vinetz, Narimane Nekkab, Michael T. White, Ivo Mueller, **Dionicia Gamboa**. Malaria transmission structure in the Peruvian Amazon through antibody signatures to *Plasmodium vivax*. PLoS Negl Trop Dis. 2022 May 9;16(5):e0010415. doi: 10.1371/journal.pntd.0010415. PMID: 35533146; PMID: PMC9119515.
- b. Villasis E, Garro K, Rosas-Aguirre A, Rodriguez P, Rosado J, Gave A, Guzman-Guzman M, Manrique P, White M, Speybroeck N, Vinetz JM, Torres K, **Gamboa D**. PvMSP8 as a Novel *Plasmodium vivax* Malaria Sero-Marker for the Peruvian Amazon. Pathogens. 2021 Mar 2;10(3):282. doi: 10.3390/pathogens10030282. PMID: 33801386; PMID: PMC7999794.
- c. Rosado J, White MT, Longley RJ, Lacerda M, Monteiro W, Brewster J, Sattabongkot J, Guzman-Guzman M, Llanos-Cuentas A, Vinetz JM, **Gamboa D**, Mueller I. 2021. Heterogeneity in response to serological exposure markers of recent *Plasmodium vivax* infections in contrasting epidemiological contexts. PLoS Negl Trop Dis. 2021 Feb 16;15(2):e0009165. doi: 10.1371/journal.pntd.0009165. PMID: 33591976; PMID: PMC7909627.
- d. Rosas-Aguirre A, Patra KP, Calderón M, Torres K, **Gamboa D**, Arocutipá E, Málaga E, Garro K, Fernández C, Trompeter G, Alnasser Y, Llanos-Cuentas A, Gilman RH, Vinetz JM. Anti-MSP-10 IgG indicates recent exposure to *Plasmodium vivax* infection in the Peruvian Amazon. JCI Insight. 2020 Jan 16;5(1):e130769. doi: 10.1172/jci.insight.130769. PMID: 31770108; PMID: PMC7030819.
- e. Bendezu J, Villasis E, Morales Ruiz S, Garro K, Infante B, Gutierrez-Loli R, Rodríguez P, Fernández-Díaz M, **Gamboa D**, Torres K. Evaluation of *Plasmodium falciparum* MSP10 and its development as a serological tool for the Peruvian Amazon region. Malar J. 2019 Sep 23;18(1):327. doi: 10.1186/s12936-019-2959-8. PMID: 31547821; PMID: PMC6757379.

3. Malaria field/epidemiology studies in the Amazon integrating parasitological, entomological and environmental observations for a better understanding of malaria transmission in different riverine basins.

- a. Rosas-Aguirre A, Moreno M, Moreno-Gutierrez D, Llanos-Cuentas A, Saavedra M, Contreras-Mancilla J, Barboza J, Alava F, Aguirre K, Carrasco G, Prussing C, Vinetz J, Conn JE, Speybroeck N, **Gamboa D**. Integrating Parasitological and Entomological Observations to Understand Malaria Transmission in Riverine Villages in the Peruvian Amazon. J Infect Dis. 2021 Apr 27;223(12 Suppl 2):S99-S110. doi: 10.1093/infdis/jiaa496. PMID: 33906225; PMID: PMC8079135.
- b. Carrasco-Escobar, G.; **Gamboa, D.**; Castro, M. C.; Bangdiwala, S. I.; Rodriguez, H.; Contreras-Mancilla, J.; Alava, F.; Speybroeck, N.; Lescano, A. G.; Vinetz, J. M.; Rosas-Aguirre, A.; LlanosCuentas, A. Micro-epidemiology and spatial heterogeneity of *P. vivax* parasitaemia in riverine communities of the Peruvian Amazon: A multilevel analysis. Sci Rep 2017, 7 (1), 8082. DOI: 10.1038/s41598-017-07818-0. PMID: PMC 5556029.

4. Most of our work in malaria was focused to identify submicroscopic and asymptomatic infected people using molecular biology techniques. However, these techniques are difficult to implement at point of care. Much of my research has been focused on the development of a better and a faster way to detect Malaria parasites.

1. Nolasco O, Montoya J, Rosales Rosas AL, Barrientos S, Rosanas-Urgell A, **Gamboia D**. 2021. Multicopy targets for *Plasmodium vivax* and *Plasmodium falciparum* detection by colorimetric LAMP. *Malar J*. 2021 May 19;20(1):225. doi: 10.1186/s12936-021-03753-8. PMID: 34011373; PMCID: PMC8135177.
 2. Jang IK, Tyler A, Lyman C, Rek JC, Arinaitwe E, Adrama H, Murphy M, Imwong M, Proux S, Haohankhunnatham W, Barney R, Rashid A, Kalnoky M, Kahn M, Golden A, Nosten F, Greenhouse B, **Gamboia D**, Domingo GJ. 2020. Multiplex Human Malaria Array: Quantifying Antigens for Malaria Rapid Diagnostics. *Am J Trop Med Hyg*.102(6):1366-1369. doi:10.4269/ajtmh.19-0763.
 3. Nolasco O, Infante B, Contreras-Mancilla J, Incardona S, Ding XC, **Gamboia D**, Torres K. 2020. Diagnosis of *Plasmodium vivax* by Loop-Mediated Isothermal Amplification in Febrile Patient Samples from Loreto, Perú. *Am J Trop Med Hyg*. 2020 Oct;103(4):1549-1552. doi: 10.4269/ajtmh.20-0212. PMID: 32748776; PMCID: PMC7543827.
 4. Serra-Casas E, Manrique P, Ding XC, Carrasco-Escobar G, Alava F, Gave A, Rodriguez H, Contreras-Mancilla J, Rosas-Aguirre A, Speybroeck N, González IJ, Rosanas-Urgell A, **Gamboia D**. 2017. Loop-mediated isothermal DNA amplification for asymptomatic malaria detection in challenging field settings: Technical performance and pilot implementation in the Peruvian Amazon. *PLoS One*. Oct 5;12(10):e0185742. doi: 10.1371/journal.pone.0185742. eCollection 2017. PMID: 28982155.
5. Recent publications from the Amazonian-ICEMR:
1. Villasis E, Garcia Castillo SS, Guzman M, Torres J, Gomez J, Garro K, Cordova AM, Reategui C, Abanto C, Vinetz J, **Gamboia D**, Torres K. Epidemiological characteristics of *P. vivax* asymptomatic infections in the Peruvian Amazon. *Front Cell Infect Microbiol*. 2022 Aug 31;12:901423. doi: 10.3389/fcimb.2022.901423. PMID: 36118037; PMCID: PMC9471197.
 2. Ferreira MU, **Gamboia D**, Torres K, Rodriguez-Ferrucci H, Soto-Calle VE, Pardo K, Fontoura PS, Tomko SS, Gazzinelli RT, Conn JE, Castro MC, Llanos-Cuentas A, Vinetz JM. Evidence-Based Malaria Control and Elimination in the Amazon: Input from the International Center of Excellence in Malaria Research Network in Peru and Brazil. *Am J Trop Med Hyg*. 2022 Oct 11;107(4_Suppl):160-167. doi: 10.4269/ajtmh.21-1272. PMID: 36228907.
 3. Torres K, Ferreira MU, Castro MC, Escalante AA, Conn JE, Villasis E, da Silva Araujo M, Almeida G, Rodrigues PT, Corder RM, Fernandes ARJ, Calil PR, Ladeia WA, Garcia-Castillo SS, Gomez J, do Valle Antonelli LR, Gazzinelli RT, Golenbock DT, Llanos-Cuentas A, **Gamboia D**, Vinetz JM. Malaria Resilience in South America: Epidemiology, Vector Biology, and Immunology Insights from the Amazonian International Center of Excellence in Malaria Research Network in Peru and Brazil. *Am J Trop Med Hyg*. 2022 Oct 11;107(4_Suppl):168-181. doi: 10.4269/ajtmh.22-0127. PMID: 36228921.

Complete List of Published Work in MyBibliography:

https://www.ncbi.nlm.nih.gov/myncbi/1JAgLbZTAf_5E/bibliography/public/