OMB No. 0925-0001 and 0925-0002 (Rev. 09/22 Approved Through 03/31/2024)

BIOGRAPHICAL SKETCH

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NAME: Gamboa Dionicia

eRA COMMONS USER NAME (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.)*

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

A. Personal Statement

Dr. Gamboa has expertise in molecular and cellular biology acquired during her PhD working with *Leishmania* parasites at the Institute of Tropical Medicine in Antwerp, Belgium and since 2003 her research is focused on Malaria. Her group conducts 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. She was 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. She is also active as mentor of undergraduate / postgraduate students and junior faculty / early career researchers, and she 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:

FA5 DGD-ITM-08, Belgian Directorate General for Development Cooperation (DGD) (PI: Coralith García, 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.

Abbott Pandemic Defense Coalition (APDC) (PI: JM Vinetz, K Torres, D Gamboa); 01/03/2023 – 30/03/2025.
Protecting public health through virus surveillance and Discovery

78584 PROCIENCIA, 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 and Honors

Positions 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 - 2022	Coordinator of the PhD program in Life Sciences, Post-grade school at UPCH.
2018 -	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 - 2022	Associate Professor, Department of Cellular and Molecular Sciences, Faculty of Science and Philosophy, and Board member of the IMTAvH, UPCH.
2012 - 2016	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
2022	Member of the Young Investigator Award Committee from the American Society of Tropical Medicine and Hygiene
2008 -	Member, American Society of Tropical Medicine and Hygiene

Honors

2023	Elected Fellow of The World Academy of Sciences (TWAS)
2021 - 2024	Elected board member of the Peruvian National Academy of Science
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 Carrier 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. Contribution to Science

1. Our group was the first one to report *P. falciparum* parasites lacking pfhrp2 gene in the Peruvian Amazon region, an important diagnostic marker used by most of the Rapid Diagnostic tests. Currently this issue became a serious problem in endemic countries in Africa that relies mainly in RDTs as diagnostic method.

1. Bendezu J, Torres K, Villasis E, Incardona S, Bell D, Vinetz J, **Gamboa D**. Geographical distribution and genetic characterization of pfhrp2 negative *Plasmodium falciparum* parasites in the Peruvian Amazon. PLoS One. 2022 Nov 22;17(11):e0273872. doi: 10.1371/journal.pone.0273872. PMID: 36413547; PMCID: PMC9681099.
2. Akinyi S, Hayden T, **Gamboa D**, Torres K, Bendezu J, Abdallah JF, Griffing SM, Quezada WM, Arrospide N, De Oliveira AM, Lucas C, Magill AJ, Bacon DJ, Barnwell JW, Udhayakumar V. 2013. Multiple genetic origins of histidine-rich protein 2 gene deletion in *Plasmodium falciparum* parasites from Peru. Sci Rep. Sep 30;3:2797. doi: 10.1038/srep02797.
3. **Gamboa D**, Ho MF, Bendezu J, Torres K, Chiodini PL, Barnwell JW, Incardona S, Perkins M, Bell D, McCarthy J, Cheng Q. A large proportion of *P. falciparum* isolates in the Amazon region of Peru lack pfhrp2 and pfhrp3: implications for malaria rapid diagnostic tests. PLoS One. 2010 Jan 25;5(1):e8091. PMCID: PMC2810332.

2. 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. Garcia Castillo SS, Abanto Alvarez C, Rosas-Aguirre Á, Acosta C, Corder RM, Gómez J, Guzmán M, Speybroeck N, Llanos-Cuentas A, Castro MC, Rosanas-Urgell A, Ferreira MU, Vinetz JM, **Gamboa D**, Torres K. Recurrence patterns and evolution of submicroscopic and asymptomatic Plasmodium vivax infections in malaria-endemic areas of the Peruvian Amazon. PLoS Negl Trop Dis. 2024 Oct 31;18(10):e0012566. doi: 10.1371/journal.pntd.0012566. PMID: 39480785; PMCID: PMC11527163.
2. Nolasco O, Montoya J, Rosales Rosas AL, Barrientos S, Rosanas-Urgell A, **Gamboa 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.
3. 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, **Gamboa 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.
4. Nolasco O, Infante B, Contreras-Mancilla J, Incardona S, Ding XC, **Gamboa 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.
5. 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, **Gamboa 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.

3. We have worked in malaria molecular surveillance studies in the Peruvian Amazon, providing insights on the transmission dynamics of *P. vivax* and drug resistance markers of *P. falciparum*.

a. Cabrera-Sosa L, Nolasco O, Kattenberg JH, Fernandez-Miñope C, Valdivia HO, Barazorda K, Arévalo de Los Rios S, Rodriguez-Ferrucci H, Vinetz JM, Rosanas-Urgell A, Van Geertruyden JP, **Gamboa D**, Delgado-Ratto C. Genomic surveillance of malaria parasites in an indigenous community in the Peruvian Amazon. Sci Rep. 2024 Jul 15;14(1):16291. doi: 10.1038/s41598-024-66925-x. PMID: 39009685; PMCID: PMC11250820.
b. Kattenberg JH, Cabrera-Sosa L, Figueroa-Ildefonso E, Mutsaers M, Monsieurs P, Guetens P, Infante B, Delgado-Ratto C, **Gamboa D**, Rosanas-Urgell A. Plasmodium vivax genomic surveillance in the Peruvian Amazon with Pv AmpliSeq assay. PLoS Negl Trop Dis. 2024 Jul 11;18(7):e0011879. doi: 10.1371/journal.pntd.0011879. PMID: 38991038; PMCID: PMC11265702.
c. Cabrera-Sosa L, Nolasco O, Kattenberg JH, Fernandez-Miñope C, Valdivia HO, Barazorda K, Arévalo de Los Rios S, Rodriguez-Ferrucci H, Vinetz JM, Rosanas-Urgell A, Van Geertruyden JP, **Gamboa D**, Delgado-Ratto C. Genomic surveillance of malaria parasites in an indigenous community in the Peruvian

Amazon. Sci Rep. 2024 Jul 15;14(1):16291. doi: 10.1038/s41598-024-66925-x. PMID: 39009685; PMCID: PMC11250820.

d. Kattenberg JH, Monsieurs P, De Meyer J, De Meulenaere K, Sauve E, de Oliveira TC, Ferreira MU, **Gamboa D**, Rosanas-Urgell A. Population genomic evidence of structured and connected Plasmodium vivax populations under host selection in Latin America. Ecol Evol. 2024 Mar 24;14(3):e11103. doi: 10.1002/ece3.11103. PMID: 38529021; PMCID: PMC10961478.

e. Kattenberg JH, Fernandez-Miñope C, van Dijk NJ, Llacsahuanga Allcca L, Guetens P, Valdivia HO, Van Geertruyden JP, Rovira-Vallbona E, Monsieurs P, Delgado-Ratto C, **Gamboa D**, Rosanas-Urgell A. Malaria Molecular Surveillance in the Peruvian Amazon with a Novel Highly Multiplexed Plasmodium falciparum AmpliSeq Assay. Microbiol Spectr. 2023 Feb 22;11(2):e0096022. doi: 10.1128/spectrum.00960-22. Epub ahead of print. PMID: 36840586; PMCID: PMC10101074.

f. Villena FE, Sanchez JF, Nolasco O, Braga G, Ricopa L, Barazorda K, Salas CJ, Lucas C, Lizewski SE, Joya CA, **Gamboa D**, Delgado-Ratto C, Valdivia HO. Drug resistance and population structure of *Plasmodium falciparum* and *Plasmodium vivax* in the Peruvian Amazon. Sci Rep. 2022 Oct 1;12(1):16474. doi: 10.1038/s41598-022-21028-3. PMID: 36182962; PMCID: PMC9526214.

4. 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; PMCID: 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. PMCID: PMC 5556029.

A complete set of publications listed on Pubmed can be found at the following link:

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