

## RITA VELEZ

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Current affiliation: Global Health and Tropical Medicine, GHTM, Associate Laboratory in Translation and Innovation Towards Global Health, LA-REAL, Instituto de Higiene e Medicina Tropical, IHMT, Universidade NOVA de Lisboa, UNL, Rua da Junqueira 100, 1349-008 Lisboa, Portugal.

## Education

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2015-2018 – PhD in Pharmaceutical Sciences, Universitat de Barcelona (Spain)

2013-2014 – MSc in Biodiversity and Conservation, University of Leeds (UK)

1999-2005 – Degree in Veterinary Medicine, Universidade de Évora (Portugal)

## Research projects

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Since Jun 2023 – Bloodless XY - Using Bloodless artificial diet as a vehicle for sex manipulation in *Anopheles* mosquitoes. Principal Investigator. Funding: GHTM/FCT. Host institution: IHMT.

Since Apr 2023 – BabRed - A cross-talk between *Babesia ovis* and the host cell: in the path to disease control. Research team. Funding: FCT (PTDC/CVT-CVT/3934/2021). Host institution: IHMT.

Since Sep 2022 – MosqDiet - Rearing *Anopheles* mosquitoes without blood for malaria research and control. Post-doc researcher. Funding: FCT/AGAKHAN (FCT-AGAKHAN/541725581). Host institution: IHMT.

Mar 2019 | Mar 2022 – TickGenoMi - The *Ixodes ricinus* group of ticks in the Western Mediterranean region and North Africa: new insights into their population genetics and microbiome fauna. Post-doc reasercher. Funding: FCT (PTDC/SAU-PAR/28947/2017). Host institution: CEVDI/INSA.

Mar 2019 | Mar 2022 – TickOmic - Exploring the tick-host interactome: on the path to vaccine development. Technical assistance on laboratory rearing of *Rhipicephalus bursa* tick colonies and ixodid experimental infections. Funding: FCT (PTDC/CVT-CVT/29073/2017). Host institution: IHMT.

Jul 2015 | Jun 2018 – EuroLeish.net, project 2.7 – Evaluation of canine leishmaniasis vaccine under field conditions in Spain. Pre-doc researcher. Funding: European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie (grant agreement n° 642609). Host institution: Barcelona Institute for Global Health (ISGlobal).

Jul 2015 | Sep 2018 – EuroLeish.net project 2.6 – Development of new sand fly exposure markers to evaluate vector control tools. Fieldwork assistance on sample collection from canine hosts. Funding: European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie (grant agreement n° 642609). Host institution: Charles University – CUNI (Prague, Czechia)

Dec 2014 | May 2015 – Functional genomics of *Rhipicephalus bursa* and *Babesia ovis* interactions towards disease control. Research trainee. Funding: FCT (PTDC/CVT-EPI/4339/2012). Host institution: CEVDI/INSA.

## Publications

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### Peer-reviewed journals

Velez R., De Meeûs T., Beati L., Younsi H., Zhioua E., Antunes S., Domingos A., Sampaio D.A., Carpinteiro D., Moerbeck L., Estrada-Peña A., Santos-Silva M.M., Santos A.S. 2023. Development and testing of microsatellite loci for the study of population genetics of *Ixodes ricinus* Linnaeus, 1758 and *Ixodes inopinatus* Estrada-Peña, Nava & Petney, 2014 (Acari: Ixodidae) in the western Mediterranean region. *Acarologia* 63(2):356-372. <https://doi.org/10.24349/bvem-4h49>.

Martori C., Velez R., Gállego M., Mesa I., Ferreira R., Alberola J., Rodríguez-Cortés A. 2021. Vitamin D and leishmaniasis: neither seasonal nor risk factor in canine host but potential adjuvant treatment through cbd103 expression. *PLoS Neglected Tropical Diseases* 15(8): e0009681. <https://doi.org/10.1371/journal.pntd.0009681>.

Velez R., Domenech E., Cairó J., Gállego M. 2020. The impact of canine leishmaniosis vaccination with CaniLeish® in *Leishmania infantum* infection seroprevalence studies. *Acta Tropica* 202:105259. <http://doi.org/10.1016/j.actatropica.2019.105259>.

Velez R., Gállego M. 2020. Commercially approved vaccines for canine leishmaniosis: a review of available data on their safety and efficacy. *Tropical Medicine & International Health* 25(5):540-557 <http://doi.org/10.1111/tmi.13382>.

Velez R., Domenech E., Rodríguez-Cortés A., Barrios D., Tebar S., Fernández-Arévalo A., Aguilar R., Dobaño C., Alberola J., Cairó J., Gállego M. 2020. Evaluation of canine leishmaniosis vaccine CaniLeish® under field conditions in native dog populations from an endemic Mediterranean area – A randomized controlled trial. *Acta Tropica* 205:105387. <http://doi.org/10.1016/j.actatropica.2020.105387>.

Willen L., Lestinova T., Kalousková B., Sumova P., Spitzova T., Velez R., Domenech E., Vaněk O., Gállego M., Mertens P., Volf P. 2019. Field study of the improved rapid sand fly exposure test in areas endemic for canine leishmaniasis. *PLOS Neglected Tropical Diseases* 13(11):e0007832. <http://doi.org/10.1371/journal.pntd.0007832>.

Velez R., Ballart C., Domenech E., Abras A., Fernández-Arévalo A., Gómez S.A., Tebar S., Muñoz C., Cairó J., Gállego M. 2019. Seroprevalence of canine *Leishmania infantum* infection in the Mediterranean region and identification of risk factors: the example of North-Eastern and Pyrenean areas of Spain. *Preventive Veterinary Medicine* 162, 67-75. <https://doi.org/10.1016/j.prevetmed.2018.10.015>.

Velez R., Spitzova T., Domenech E., Willen L., Cairó J., Volf P., Gállego M. 2018. Seasonal dynamics of canine antibody response to *Phlebotomus perniciosus* saliva in an endemic area of *Leishmania infantum*. *Parasites & Vectors* 11:545. <https://doi.org/10.1186/s13071-018-3123-y>.

Ferrolho J., Antunes S., Santos A.S., Velez R., Padre L., Cabezas-Cruz A., Santos-Silva M.M., Domingos A. 2016. Detection and phylogenetic characterization of *Theileria* spp. and *Anaplasma marginale* in *Rhipicephalus bursa* in Portugal. *Ticks and Tick-borne Diseases* 7, 443-448. <http://dx.doi.org/10.1016/j.ttbdis.2016.01.004>.

## Thesis

Velez, R. 2018. *Epidemiology and control of canine leishmaniosis: characterization of a previously undescribed endemic area in Catalonia and CaniLeish® vaccine field trial*. PhD thesis in Pharmaceutical Sciences – Medicine research, development and control. Presented at the Faculty of Pharmacy and Food Sciences of Universitat de Barcelona; 30<sup>th</sup> November 2018. Final grade: Excellent “Cum Laude”. Available at: <https://www.tdx.cat/handle/10803/664654#page=1>.

Velez, R. 2014. *Phylogenetic study of nematodes of Galapagos giant tortoises*. MSc thesis in Biodiversity and Conservation. Presented in the Faculty of Biological Sciences of the University of Leeds; 11<sup>th</sup> September 2014. Final grade: 74 (0-100).

Velez, R. 2005. *Clínica e manejo de animais silvestres e exóticos mantidos em cativeiro*, which included the research monography *Pesquisa parasitológica em aves silvestres*. Licenciatura thesis in Veterinary Medicine. Presented at the Faculty of Veterinary Medicine of Universidade de Évora; 2<sup>nd</sup> November 2005. Final grade: 19 (0-20).

## Book chapters

Santos-Silva, M.M., Santos, A.S., Velez, R. 2019. "Carraças". In *Doenças associadas a artrópodes vetores e roedores*, Sofia Núncio & Maria João Alves (eds.), 33-39. Instituto Nacional de Saúde Doutor Ricardo Jorge, Lisboa, Portugal. Available at:

[http://www.insa.min-saude.pt/wp-content/uploads/2019/09/Doencas\\_artropodes\\_vetores\\_roedores.pdf](http://www.insa.min-saude.pt/wp-content/uploads/2019/09/Doencas_artropodes_vetores_roedores.pdf)

Santos-Silva, M.M., Velez, R. 2019. "Piolhos". In *Doenças associadas a artrópodes vetores e roedores*, Sofia Núncio & Maria João Alves (eds.), 41-43. Instituto Nacional de Saúde Doutor Ricardo Jorge, Lisboa, Portugal. Available at: see previous entry.

Santos-Silva, M.M., Santos, A.S.; Velez, R. 2019. "Pulgas". In *Doenças associadas a artrópodes vetores e roedores*, Sofia Núncio & Maria João Alves (eds.), 45-47. Instituto Nacional de Saúde Doutor Ricardo Jorge, Lisboa, Portugal. Available at: see previous entry.

## Oral communications

Marques J., Hien D.F.S., Mossi F., Sitoe S., Sare I., Velez R., Dogan O., Diabaté A., Abilio A.P., Tarimo B., Bilgo E., Silveira H. 2023. *Anopheles* mosquitoes bred without blood for malaria research and control. 9<sup>th</sup> PAMCA Annual Conference & Exhibition, September 17-21, Addis Ababa, Ethiopia.

Velez R. 2023. Using Bloodless artificial diet as a vehicle for sex manipulation in *Anopheles* mosquitoes. GHTM Session, IHMT-NOVA, May 24<sup>th</sup>, Lisbon, Portugal.

Velez R. 2022. BLOODless - A blood-free alternative for mosquito colony feeding. Invited speaker at the 7º Simpósio Nacional de Órgãos Responsáveis pelo Bem-Estar Animal (RedeORBEA), December 5, Lisbon, Portugal.

Rodríguez-Cortés A., Martori C., Velez R., Gállego M., Alberola J. 2019. Vitamin D leve lis not a risk factor but regulates *Leishmania infantum* infection in dogs. XXI Congreso SOCEPA (Sociedad Española de Parasitología), July 3-5, Vigo, Spain.

Velez R., Domenech E., Cairó J., Ballart, C., Tebar, S., Portús, M., Gállego M. 2017. An ongoing field trial to evaluate the influence of canine leishmaniasis vaccination (CaniLeish®) in the study of the disease seroprevalence in Spain. 10<sup>th</sup> European Congress on Tropical Medicine and International Health (ECTMIH), October 16-20, Antwerp, Belgium.

Velez R., Ballart C., Domenech E., Abras A., Fernández-Arévalo A., Tebar S., Muñoz C., Portús M., Cairó J., Gállego M. 2017. Seroprevalence study of canine leishmaniasis in Northern and Pyrenean areas of Spain. Identification of risk factors. 6<sup>th</sup> World Congress on Leishmaniasis (Worldleish), May 16-20, Toledo, Spain.

Velez R., Santos A.S., Melo P., Antunes S., Ferrolho J., Domingos A., Santos-Silva M.M. 2015. O papel dos vertebrados silvestres na manutenção de ixodídeos (Acari: Ixodida) e agentes a estes associados. 3º Congresso Nacional de Medicina Tropical. 1º Congresso Lusófono de Doenças Transmitidas por Vectores, IHMT, April 20-21, Lisbon, Portugal.

### Poster presentations

Velez R., Younsi H., Zhioua E., Antunes S., Domingos A., Moerbeck L., Estrada-Peña A., de Meeûs T.

Beati L., Santos-Silva M.M., Santos A.S. 2022. Update on the interbreeding experiments between European and north-African populations of *Ixodes ricinus* (Acari: Ixodidae). 10<sup>th</sup> Tick and Tick-Borne Pathogen Conference, August 29-September 2, Murighiol, Danube Delta, Romania.

Velez R., Younsi H., Zhioua E., Antunes S., Domingos A., Moerbeck L., Estrada-Peña A., de Meeûs T.

Beati L., Santos-Silva M.M., Santos A.S. 2022. Development and testing of microsatellite loci for *Ixodes ricinus* population genetics studies. 10<sup>th</sup> Tick and Tick-Borne Pathogen Conference, August 29-September 2, Murighiol, Danube Delta, Romania.

Moreira L., Velez R., Seixas G., Santos A.S., Domingos A., Antunes S. 2021. Prevalence of tick-borne pathogens and bacteriome composition in wild *Ixodes ricinus* populations from mainland Portugal". XII Jornadas Científicas do IHMT, December 10, online event.

Moerbeck L., Santos A.S., Velez R., Seixas G., Domingos A., Antunes S. 2021. Tracking tick-borne rickettsiae in a national park in Portugal. Microbiotec 2021, November 23-26, online event: <https://www.microbiotec21.organideia.pt>

Santos A.S., Velez R., Norte A.C., Amaro F., Alves M.J., Melo P., Santos N., Silva L.P., Cunha M.V., Botelho A. 2021. The role of wild animals and associated ticks in *Coxiella burnetii* natural cycle. Microbiotec 2021, November 23-26, online event: <https://www.microbiotec21.organideia.pt>

Velez R., Santos N., Santos-Silva M.M., Santos A.S. 2021. Ticks and tick-borne agentes in European rabbits, Portugal. 14<sup>th</sup> International Symposium on Ticks and Tick-Borne Diseases (ISTTBD-XIV), organized by the German Society for Parasitology, March 24-26, online event: <https://www.ittbd-symposium.com/>

Velez R., Younsi H., Zhioua E., Antunes S., Domingos A., Moerbeck L., Estrada-Peña A., de Meeûs T., Beati L., Santos-Silva M.M., Santos A.S. 2021. Interbreeding experiments between European and north-African populations of *Ixodes ricinus* (Acari: Ixodidae). 14<sup>th</sup> International Symposium on Ticks and Tick-Borne Diseases (ISTTBD-XIV), organized by the German Society for Parasitology, March 24-26, online event: <https://www.ittbd-symposium.com/>

Moreira L., Velez R., Santos A.S., Domingos A., Antunes S. 2020. *Rhipicephalus bursa* microbiota in the midgut and salivary glands of *Babesia ovis* infected and uninfected female ticks. XI Jornadas Científicas do IHMT, December 10, Instituto de Higiene e Medicina Tropical, Lisbon, Portugal.

Carvalho A.R., Santos A.S., Velez R., Alves C., Fonseca I.P., Santos-Silva M.M. 2020. Identificação morfológica e molecular de ixodídeos e o seu potencial zoonótico no âmbito da Saúde Pública. XVI Congresso Internacional Veterinário Montenegro, February 20-22, Santa Maria da Feira, Portugal.

Velez R., Domenech E., Cairó J., Ballart C., Tebar S., Portús M., Gállego M. 2017. Evaluation of a canine leishmaniasis vaccine under field conditions in Spain: an ongoing field trial. 6<sup>th</sup> World Congress on Leishmaniasis (Worldleish), May 16-20, Toledo, Spain.

Velez R., Ballart C., Domenech E., Cairó J., Portús M., Gállego M. 2016. *Epidemiologic survey of phlebotomine vectors in a canine leishmaniasis endemic area in Spain*. IX International Symposium on Phlebotomine Sandflies (ISOPS), June 28 - July 1, Reims, France.

Ferrolho J., Antunes S.; Velez R.; Santos A.S.; Santos-Silva M.M.; Domingos A. 2015. *Anaplasma marginale*, *Theileria equi* and *Theileria annulata* pathogens identified in the two-host tick *Rhipicephalus bursa*, in Portugal. 3º Congresso Nacional de Medicina Tropical. 1º Congresso Lusófono de Doenças Transmitidas por Vectores, IHMT, April 20-21, Lisbon, Portugal.

Velez R.; Santos A.S.; Antunes S.; Ferrolho J.; Bacellar D.; Padre L.; Domingos A.; Santos-Silva M.M. 2015. Ixodídeos (Acari:Ixodida) em animais de produção no distrito de Portalegre: deteção molecular de agentes zoonóticos. 3º Congresso Nacional de Medicina Tropical. 1º Congresso Lusófono de Doenças Transmitidas por Vectores, IHMT, April 20-21, Lisbon, Portugal.

Santos A.S., Velez R., Duarte L.R., Ferrolho J., Antunes S., Melo P., Fonseca C., Alfaro L., Domingos A., Santos-Silva M.M. 2015. *Coxiella burnetii* and *Anaplasma phagocytophilum* in ticks collected from wild animals, Portugal. ESCCAR International Congress on Rickettsia and Other Intracellular Bacteria. June 13-16, Lausanne, Switzerland.

## Research internships

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Nov-Dec 2017 – Charles University, Parasitology Lab – CUNI (Prague, Czechia), under the supervision of Petr Volf, professor at the Department of Parasitology.

Jul 2017 – University of Warwick, School of Life Sciences (Coventry, UK), under the supervision of Orin Courtenay, associate professor.

Dec 2014 – May 2015 – Centro de Estudos de Vectores e Doenças Infecciosas (CEVDI) – Instituto Nacional de Saúde Dr. Ricardo Jorge (INSA), under the supervision of Maria Margarida Santos-Silva, entomologist and researcher.

Jun-Sep 2014 – Genetics Lab of the University of Leeds (UK), under the supervision of Simon Goodman, professor of Conservation Genetics.