Curriculum vitae

IDENTIFICATION

Name: Diana Isabel Oliveira Machado
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Laboratory of Mycobacteriology, Unit of Medical Microbiology
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IDENTIFICATION IN PUBLIC DATABASES

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ResearchGate: https://www.researchgate.net/profile/Diana_Machado
NOVA Research: https://research.unl.pt/en/persons/diana-isabel-oliveira-machado(0135e1e3-a3fe-41fe-b17a-96514eb09537).html
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ACADEMIC FORMATION

2014 – PhD in Biomedical Sciences, specialty Microbiology. Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa, November 2014. Classification: Approved by unanimity (the higher grade awarded by IHMT/NOVA).

2009 – Master of Science in Medical Microbiology. Universidade NOVA de Lisboa, December 2009. Classification: 18/20.

2007 – Graduation in Biology (pre-Bologna). Universidade Lusófona de Humanidades e Tecnologias de Lisboa, June 2007. Classification: 15/20.

CURRENT POSITION

Since 01/01/2020 – Executive responsible of the Laboratory of Mycobacteriology, Biosafety level 3 (BSL3), Unit of Medical Microbiology, GHTM/IHMT/UNL.

Since 01/10/2018 – Laboratory manager, Laboratory of Mycobacteriology, Unit of Medical Microbiology, GHTM/IHMT/UNL.

Since 01/12/2018 – Auxiliary researcher. Laboratory of Mycobacteriology, Unit of Medical Microbiology, GHTM/IHMT/UNL.

PREVIOUS ACTIVITY

01/10/2015 - 30/11/2018 – Post-Doc research fellow (Integrated member), Global Health and Tropical Medicine, Laboratory of Mycobacteriology, Unit of Medical Microbiology, Instituto de Higiene e Medicina Tropical (IHMT/UNL). Grant SFRH/BPD/100688/2014, Fundação para a Ciência e a Tecnologia (FCT, PT).

02/06/2014 – 30/09/2015 - Research grantee (BI) in the FCT funded project "Type-II NADH-menaquinone oxidoreductase (NDH-2) and the respiratory chain of *M. tuberculosis*: new therapeutic targets to fight tuberculosis", Ref. PTDC/BIA-MIC/121859/2010. Laboratory of Mycobacteriology, Unit of Medical Microbiology, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/02/2010 – 19/11/2014 - PhD student - Laboratory of Mycobacteriology, Unit of Medical Microbiology, Instituto de Higiene e Medicina Tropical (IHMT/UNL). Grant SFRH/BD/65060/2009, Fundação para a Ciência e a Tecnologia (FCT, PT).

01/03/2009 – 31/01/2010 - Research grantee (BIC) in the FCT funded project "Mutational and physiological dynamics of drug resistance in *Mycobacterium tuberculosis*: the emergence of multi-drug resistant tuberculosis", Ref. PTDC/BIA-MIC/71280/2006. Laboratory of Mycobacteriology, Unit of Medical Microbiology, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/10/2006 – 31/12/2008 - Specialized technician in molecular diagnosis. Laboratory of Mycobacteriology, Unit of Medical Microbiology, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/06/2006 – 30/09/2006 – Internship - Advanced training in mycobacteriology laboratorial procedures. Laboratory of Mycobacteriology, Unit of Medical Microbiology, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/10/2005 – 31/10/2006 - Undergraduate student. Unit of Medical Microbiology, Instituto Higiene e Medicina Tropical (IHMT/UNL).

RESEARCH INTERESTS

The scientific activity developed extents across the field of medical microbiology being transversal to antimicrobial resistance, epidemiology, and laboratory diagnosis of infectious diseases and aims to study the bacterial mechanisms underlying the emergence and evolution of drug resistance with epidemiological and clinical relevance aiming to use this information to develop medicines and technologies to combat bacterial infections. Primary research relies on the study drug resistance in active and latent tuberculosis, understanding drug resistance mechanisms, exploring new antituberculosis drugs and targets, and new mechanisms for "killing" *M. tuberculosis*. In addition, my research efforts are also focused on ways of combatting resistance mechanisms to existing drugs.

Also involved in the evaluation of molecular systems for the detection of *M. tuberculosis* and screening of mutations that confer resistance to antituberculosis drugs and rapid direct detection of *M. tuberculosis* from clinical samples with the aid of molecular methods. Study of the evolution of *M. tuberculosis* multidrug resistant strains and genomic epidemiology/comparative genomics of clinical isolates circulating in Portugal and Portuguese-speaking countries such as Brazil, Angola, Guinea-Bissau, and Mozambique. Study of resistance mechanisms of nontuberculous mycobacteria, especially, in *Mycobacterium avium* complex, *Mycobacterium abscessus* complex, *Mycobacterium kansasii, M. fortuitum* complex*, M. leprae* and *M. haemophilum*; phenotypic and molecular

identification of nontuberculous mycobacteria. Development of nanodiagnostics for tuberculosis.

Study of antimicrobial resistance mechanisms of the Gram-negative bacterial species *Acinetobacter baumannii, Klebsiella pneumoniae, Escherichia coli*, and *Helicobater pylori*, mainly β-lactams, carbapenems and colistin resistance, efflux pumps and discovery of new drugs/efflux inhibitors to tackle drug resistance and dissemination among these microorganisms.

The most recent projects include the study of the contribution of oxidative stress to persisters formation and survival and the role of ion channel blockers on viral infections, namely TB/HIV and TB/SARS-CoV-2 co-infections, focused on host-pathogen interactions and inhibition of cell energy.

PROFESSIONAL AND TECHNICAL SKILLS

- ✓ Work under Biosafety Level 3 (BSL3) conditions with *Mycobacterium tuberculosis* susceptible, multi and extensively drug resistant strains over the last 15 years at full time technical/research/teaching working level.
- ✓ Specific training on BSL-3 laboratory practices to handle pathogenic agents (Level 3), including multi-, and extensively drug resistant *M. tuberculosis* strains.
- ✓ Work under Biosafety Level 3 (BSL3) conditions with SARS-CoV-2 (since March 2020).
- ✓ Cell culture and macrophage infection (including *M. tuberculosis*).
- ✓ Genetic manipulation of mycobacteria.
- ✓ Mycobacterial molecular typing.
- ✓ Laboratory diagnosis of tuberculosis and other mycobacteriosis.
- ✓ Laboratory diagnosis of SARS-CoV-2
- ✓ Molecular diagnosis of mycobacteria.
- ✓ General microbiology and bacteriology.
- ✓ Clinical microbiology and bacteriology.
- ✓ Molecular biology.
- ✓ Bioinformatic analysis and comparative genomics.

PUBLICATIONS

A) Thesis (n=3)

3. "The dynamics of drug resistance in *Mycobacterium tuberculosis*: exploring the biological basis of multi- and extensively drug resistant tuberculosis (MDR/XDRTB) as a route for alternative therapeutic strategies." Doctoral Thesis in Biomedical Sciences (Microbiology), Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa. June 2014; Public defense, November 2014 (ISBN 978-989-20-4794-2). Approved by unanimity.

2. "Dinâmica fisiológica e mutacional da multirresistência em *Mycobacterium tuberculosis* (Mutational and physiological dynamics of multidrug resistance in *Mycobacterium tuberculosis*)." Master´s in Medical Microbiology, Universidade NOVA de Lisboa. October 2009; Public defense, December 2009 (ISBN 978-989-20-2105-8). Grade: 20/20.

1. "Aplicação de "checkerboard hybridization" para identificação de *Staphylococcus* (Application of checkerboard hybridization for staphylococcal identification)". Graduation thesis. Universidade Lusófona de Humanidades e Tecnologias. September 2006; Public defense, October 2006. Grade: 19/20.

B) Book chapters (n=2)

2. Pedro E.A. da Silva, **Diana Machado**, Daniela Ramos, Isabel Couto, Andrea von Groll, Miguel Viveiros. 2016. "Efflux pumps in mycobacteria: antimicrobial resistance, physiological functions, and role in pathogenicity." In: Efflux-Mediated Antimicrobial Resistance in Bacteria, ed X-Z. Li, C. A. Elkins, H. I. Zgurskaya (Springer International Publishing, Switzerland), pp. 527-559. doi: 10.1007/978-3-319-39658-3_21.

1. Miguel Viveiros, **Diana Machado**, Isabel Couto, Leonard Amaral. 2013. "Improving on the LJ slope – automated liquid culture". *In*: Tuberculosis - Diagnosis and Treatment (Advances in Molecular and Cellular Microbiology Series), ed T.D. McHugh. CABI Publishing, Oxfordshire, UK, pp. 34-45. (ISBN 781-84593-807-9).

C) Publications in international peer-reviewed journals (n=65)

2022

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65. Annelies Van Rie, Timothy Walker, Bouke de Jong, Praharshinie Rupasinghe, Emmanuel Rivière, Véronique Dartois, Lindsay Sonnenkalb, **Diana Machado**, Sébastien Gagneux, Philip Supply, Viola Dreyer, Stefan Niemann, Galo Goigh, Conor Meehan, ElisaTagliani, Daniela Maria Cirillo. 2022. Balancing access to BPaLM regimens and risk of resistance. Lancet Infect. Dis. 22:1411-1412. doi: 10.1016/S1473-3099(22)00543-6.

64. Antimycobacterial Susceptibility Testing Group (Sophia B. Georghiou, Timothy C. Rodwell, Alexei Korobitsyn, Said H. Abbadi, Kanchan Ajbani, Jan-Willem Alffenaar, David Alland, Nataly Alvarez, Sönke Andres, Elisa Ardizzoni, Alexandra Aubry, Rossella Baldan, Marie Ballif, Ivan Barilar, Erik C. Böttger, Soumitesh Chakravorty, Pauline M. Claxton, Daniela M. Cirillo, Iñaki Comas, Chris Coulter, Claudia M. Denkinger, Brigitta Derendinger, Edward P. Desmond, Jurriaan E.M. de Steenwinkel, Keertan Dheda, Andreas H. Diacon, David L. Dolinger, Kelly E. Dooley, Matthias Egger, Soudeh Ehsani, Maha R. Farhat, Lanfranco Fattorini, Iris Finci, Laure Fournier Le Ray, Victoria Furió, Ramona Groenheit, Tawanda Gumbo, Scott K. Heysell, Doris Hillemann, Harald Hoffmann, Po-Ren Hsueh, Yi Hu, Hairong Huang, Alamdar Hussain, Farzana Ismail, Kiyohiko Izumi, Tomasz Jagielski, John L. Johnson, Priti Kambli, Koné Kaniga, G.H.R. Eranga Karunaratne, Meenu Kaushal Sharma, Peter M. Keller, Ellis C. Kelly, Margarita Kholina, Mikashmi Kohli, Katharina Kranzer, Ian F. Laurenson, Jason Limberis, S-Y. Grace Lin, Yongge Liu, Alexandre López-Gavín, Anna Lyander, **Diana Machado**, Elena Martinez, Faisal Masood, Satoshi Mitarai, Nomonde R. Mvelase, Stefan Niemann, Vladyslav Nikolayevskyy, Florian P. Maurer, Matthias Merker, Paolo Miotto, Shaheed V. Omar, Ralf Otto-Knapp, Moisés Palaci, Juan José Palacios Gutiérrez, Sharon J. Peacock, Charles A. Peloquin, Jennifer Perera, Catherine Pierre-Audigier, Suporn Pholwat, James E. Posey, Therdsak Prammananan, Leen Rigouts, Jaime Robledo, Neesha Rockwood, Camilla Rodrigues, Max Salfinger, Marcos C. Schechter, Marva Seifert, Sarah Sengstake, Thomas Shinnick, Natalia Shubladze, Vitali Sintchenko, Frederick Sirgel, Sulochana Somasundaram, Timothy R. Sterling, Andrea Spitaleri, Elizabeth Streicher, Philip Supply, Erik Svensson, Elisa Tagliani, Sabira Tahseen, Akiko Takaki, Grant Theron, Gabriela Torrea, Armand Van Deun, Jakko van Ingen, Annelies Van Rie, Dick van Soolingen, Roger Vargas Jr, Amour Venter, Nicolas Veziris, Cristina Villellas, Miguel Viveiros, Robin Warren, Shu'an Wen, Jim Werngren, Robert J. Wilkinson, Caie Yang, F. Ferda Yılmaz, Tingting Zhang, Danila Zimenkov, Nazir Ismail, Claudio U. Köser, Thomas Schön). 2022. Updating the approaches to define susceptibility and resistance to anti-tuberculosis agents: implications for diagnosis and treatment. Eur. Respir. J. 59:2200166. doi: 10.1183/13993003.00166-2022.

63. Joaquim Marquês, Catarina Frazão De Faria, Marina Reis, **Diana Machado**, Susana Santos, Maria da Soledade Santos, Miguel Viveiros, Filomena Martins, Rodrigo F. M. De Almeida. 2022. In vitro

evaluation of isoniazid derivatives as potential agents against drug-resistant tuberculosis. Frontiers in Pharmacol. 1483. 10.3389/fphar.2022.868545.

62. Anna Bateson, Julio Ortiz Canseco, Timothy D. McHugh, Adam A. Witney, Silke Feuerriegel, Matthias Merker, Thomas A. Kohl, Christian Utpatel, Stefan Niemann, Sönke Andres, Katharina Kranzer, Florian P. Maurer, Arash Ghodousi, Emmanuel Borroni, Daniela Maria Cirillo, Maria Wijkander, Juan C. Toro, Ramona Groenheit, Jim Werngren, **Diana Machado**, Miguel Viveiros, Robin M. Warren, Frederick Sirgel, Anzaan Dippenaar, Claudio U. Köser, Eugene Sun, Juliano Timm. 2022. Ancient and recent differences in the intrinsic susceptibility of *Mycobacterium tuberculosis* complex to pretomanid. J. Antimicrob. Chemother. 77: 1685–1693. doi: 10.1093/jac/dkac070.

2021

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61. Mayreli Ortiz, Miriam Jauset-Rubio, Vasso Skouridou, **Diana Machado**, Miguel Viveiros, Taane G. Clark, Anna Simonova, David Kodr, Michal Hocek, Ciara K. O'Sullivan. 2021. Electrochemical detection of single-nucleotide polymorphism associated with rifampicin resistance in Mycobacterium tuberculosis using solid-phase primer elongation with ferrocene-linked redox-labeled nucleotides. ACS Sens. 6: 4398–4407. doi: 10.1021/acssensors.1c01710.

60. Catarina Frazão de Faria, Tânia Moreira, Pedro Lopes, Henrique Costa, Jessica Krewall, Callie Barton, Susana Constantino, Rosa Santos, Douglas C. Goodwin, Diana Machado, Miguel Viveiros, Miguel Machuqueiro, Filomena Martins. 2021. Designing new antitubercular isoniazid derivatives with improved reactivity and membrane trafficking abilities. 144: 112362. doi: 10.1016/j.biopha.2021.112362. doi: 10.1021/acssensors.1c01710.

59. Thomas Schön, Jim Werngren, **Diana Machado**, Emanuele Borroni, Maria Wijkander, Gerard Lina, Johan Mouton, Erika Matuschek, Gunnar Kahlmeter, Christian Giske, Miguel Santin, Daniela Maria Cirillo, Miguel Viveiros, Emmanuelle Cambau. 2021. Multicentre testing of the EUCAST broth microdilution reference method for MIC determination of *Mycobacterium tuberculosis* by laboratories of the antimycobacterial susceptibility testing EUCAST subcommittee (AMST). Clin. Microbiol. Infect. 27: 288.e1-288.e4. doi: 10.1016/j.cmi.2020.10.019.

2020

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58. Thomas Schön, Jim Werngren, **Diana Machado**, Emanuele Borroni, Maria Wijkander, Gerard Lina, Johan Mouton, Erika Matuschek, Gunnar Kahlmeter, Christian Giske, Miguel Santin, Daniela Maria Cirillo, Miguel Viveiros, Emmanuelle Cambau. 2020. Antimicrobial susceptibility testing of *Mycobacterium tuberculosis* complex isolates – The EUCAST broth microdilution reference method for MIC determination. Clin. Microbiol. Infect. 26:1488-1492. doi: 10.1016/j.cmi.2020.07.036.

57. João Perdigão, Carla Silva, Fernando Maltez, **Diana Machado**, Anabela Miranda, Isabel Couto, Paulo Rabna, Paola Florez de Sessions, Jody Phelan, Arnab Pain, Ruth McNerney, Martin Hibberd, Igor Mokrousov, Taane G. Clark, Miguel Viveiros, Isabel Portugal. 2020. Emergence of multidrug resistant *Mycobacterium tuberculosis* of the Beijing lineage in Portugal and Guinea-Bissau: a snapshot of moving clones by whole genome sequencing. Emerg. Microbes Infect. 9:1342-1353. doi: 10.1080/22221751.2020.1774425.

56. Silvana de Miranda, Isabela de Almeida, Maria Mansur, Lida Figueredo, Wânia Carvalho, João Hadaad, Jaciara Diniz, Andrea von Groll, Pedro A. da Silva, Maria Lopes, Marcelo dos Santos, Alexandra Brito, Fernanda Mello, Thiago Malaquias, Julio Croda, Juliana Pinhata, Rosângela de Oliveira, Erica Chimara, Maria Rossetti, Maria Halon, Maria Lourenço, Reginalda Medeiros, Fátima Montes, **Diana Machado**, Miguel Viveiros, Afrânio Kritski. 2020. Detection of drug resistant *Mycobacterium tuberculosis* strains using Kit SIRE Nitratase: a multicenter study. Braz. Arch. Biol. Technol. 63:

e20190179. doi: 10.1590/1678-4324-2020190179.

55. Ana Borsoi, Josiane Paz, Bruno Abbadi, Fernanda Macchi, Nathalia Sperotto, Kenia Pissinate, Raoní Rambo, Alessandro Ramos, **Diana Machado**, Miguel Viveiros, Cristiano Bizarro, Luiz Basso, Pablo Machado. 2020. Design, synthesis, and evaluation of new 2- (quinoline-4-yloxy)acetamide-based antituberculosis agents. Eur. J. Med. Chem. 192:112179. doi: 10.1016/j.ejmech.2020.112179.

54. João Perdigão, Pedro Gomes, Anabela Miranda, Fernando Maltez, **Diana Machado**, Carla Silva, Jody Phelan, Laura Brum, Susana Campino, Isabel Couto, Miguel Viveiros, Taane Clark, Isabel Portugal. 2020. Using genomics to understand the origin and dispersion of multidrug and extensively drug resistant tuberculosis in Portugal. Sci Rep. 10:2600. doi: 10.1038/s41598-020-59558-3.

2019

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53. Baltazar Cá, Kaori Fonseca, Jeremy Sousa, Ana Maceiras, **Diana Machado**, Lilica Sanca, Paulo Rabna, Pedro Rodrigues, Miguel Viveiros, Margarida Saraiva. 2019. Experimental evidence for limited *in vivo* virulence of *Mycobacterium africanum*. Front. Microbiol. 10:2102. doi: 10.3389/fmicb.2019.02102.

52. Eduarda Pena, **Diana Machado**, Miguel Viveiros, Sofia Jordão. 2019. A case report of disseminated *Mycobacterium colombiense* infection in an HIV patient. Int. J. Mycobacteriol. 8:295. doi: 10.4103/ijmy.ijmy_100_19.

51. Júlia Vianna*, **Diana Machado***, Ivy Ramis, Fábia Silva, Dienefer Bierhals, Michael Andrés Abril, Andrea von Groll, Daniela Ramos, Maria Cristina Lourenço, Miguel Viveiros, Pedro E Almeida da Silva. 2019. The contribution of efflux pumps in *Mycobacterium abscessus* complex resistance to clarithromycin. Antibiotics. 8(3):153. *Shared first co-authorship.

50. Jody Phelan, Denise O'Sullivan, **Diana Machado**, Jorge Ramos, Yaa Oppong, Susana Campino, Justin O'Grady, Ruth McNerney, Martin Hibberd, Miguel Viveiros, Jim Huggett, Taane G Clark. 2019. Integrating informatics tools and portable sequencing technology for rapid detection of resistance to anti-tuberculous drugs. Genome Med. 11(1):41.

49. Yaa Oppong, Jody Phelan, João Perdigão, **Diana Machado**, Anabela Miranda, Isabel Portugal, Miguel Viveiros, Taane G Clark, Martin Hibberd. 2019. Genome-wide analysis of *Mycobacterium tuberculosis* polymorphisms reveals lineage-specific associations with drug resistance. BMC Genomics. 20(1):252.

48. Irene Rossi, Francesca Buttini, Fabio Sonvico, Filippo Affaticati, Francesco Martinelli, Giannamaria Annunziato, **Diana Machado**, Miguel Viveiros, Marco Pieroni, Ruggero Bettini. 2019. Sodium hyaluronate nanocomposite respirable microparticles to tackle antibiotic resistance with potential application in treatment of mycobacterial pulmonary infections. Pharmaceutics. 11(5):203.

47. R Bouceiro-Mendes, A Ortins-Pina, A Fraga, T Marques, M Viveiros, **D Machado**, L Soares- de-Almeida, JP Freitas, P Filipe. 2019. *Mycobacterium marinum* lymphocutaneous infection. Dermatology Online Journal. 24(2):10.

46. Tommaso Felicetti*, **Diana Machado***, Rolando Cannalire, Andrea Astolfi, Serena Massari, Oriana Tabarrini, Giuseppe Manfroni, Maria Letizia Barreca, Violetta Cecchetti, Miguel Viveiros, Stefano Sabatini. 2019. Modifications on C6 and C7 positions of 3-phenylquinolone efflux pump inhibitors led to potent and safe antimycobacterial treatment adjuvants. ACS Infec. Dis. 5(6):982-1000. *Shared first co-authorship.

45. Diana Machado, Isabel Couto, Miguel Viveiros. 2019. Advances in the molecular diagnosis of tuberculosis: From probes to genomes. Infect. Genet. Evol. 72:93-112.

2018

44. Diana Machado, Emmanuel Lecorche, Faiza Mougari, Emmanuelle Cambau, Miguel Viveiros. 2018. Insights on *Mycobacterium leprae* efflux pumps and their implications in drug resistance and virulence. Front. Microbiol. 9:3072.

43. Diana Machado, Elisa Azzali, Isabel Couto, Gabriele Costantino, Marco Pieroni, Miguel Viveiros. 2018. Adjuvant therapies against tuberculosis: discovery of a 2-aminothiazole targeting *Mycobacterium tuberculosis* energetics. Fut. Microbiol. 13:1383-1402.

42. Diana Machado, Miriam Girardini, Miguel Viveiros, Marco Pieroni. 2018. Challenging the drug-likeness dogma for new drug discovery in tuberculosis. Front. Microbiol. 9:1367.

41. Diana Machado, Jéssica Antunes, Ana Simões, João Perdigão, Isabel Couto, Matthew P. McCusker, Marta Martins, Isabel Portugal, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2018. Contribution of efflux to colistin heteroresistance in a multidrug resistant *Acinetobacter baumannii* clinical isolate. J. Med. Microbiol. 67:740-749.

40. Deanna D. Lucas, Bethany Crane, Amy Wright, Mei-Ling Han, Jennifer Moffatt, Dieter Bulach, Simon L Gladman, David Powell, Jesus Aranda, Torsten Seemann, **Diana Machado**, Teresa Pacheco, Teresa Marques, Miguel Viveiros, Roger Nation, Jian Li, Marina Harper, John D. Boyce. 2018. Emergence of high-level colistin resistance in an *Acinetobacter baumannii* clinical isolate mediated by inactivation of the global regulator H-NS. Antimicrob. Agents Chemother. AAC.02442-17.

39. João Perdigão, Carla Silva, Jaciara Diniz, Catarina Pereira, **Diana Machado**, Jorge Ramos, Hugo Silva, Fernanda Abilleira, Clarice Brum, Ana J. Reis, Maíra Macedo, João L. Scaini, Ana B. Silva, Leonardo Esteves, Rita Macedo, Fernando Maltez, Sofia Clemente, Elizabeth Coelho, Sofia Viegas, Paulo Rabna, Amabélia Rodrigues, Nuno Taveira, Luísa Jordão, Afrânio Kritski, José Lapa e Silva, Igor Mokrousov, David Couvin, Nalin Rastogi, Isabel Couto, Arnab Pain, Ruth McNerney, Taane G. Clark, Andrea von Groll, Elis R. Dalla-Costa, Maria Lúcia Rossetti, Pedro E. A. da Silva, Miguel Viveiros, Isabel Portugal. 2018. CPLP-TB: a novel framework and surveillance tool for tracing *Mycobacterium tuberculosis* strains across Lusophone countries. Infect. Genet. Evol. 72:44-58.

38. Diana Machado, João Perdigão, Isabel Portugal, Marco Pieroni, Pedro A. Silva, Isabel Couto, Miguel Viveiros. 2018. Efflux Activity differentially modulates the levels of isoniazid and rifampicin resistance among multidrug resistant and monoresistant *Mycobacterium tuberculosis* strains. Antibiotics. 7:18.

37. Jody Phelan, Paola de Sessions*, Leopold Tientcheu*, Joao Perdigão*, **Diana Machado***, Rumina Hasan, Zahra Hasan, Indra Bergval, Richard Anthony, Ruth McNerney, Martin Antonio, Isabel Portugal, Miguel Viveiros, Susana Campino, Martin Hibberd, and Taane Clark. 2018. Methylation in *Mycobacterium tuberculosis* is lineage specific with associated mutations present globally. Sci. Rep. 8:160. *Shared second co-authorship.

2017

36. Diogo Vila-Viçosa, Bruno Victor, Jorge Ramos, **Diana Machado**, Miguel Viveiros, Jacek Switala, Peter Lowen, Ruben Leitão, Filomena Martins, Miguel Machuqueiro. 2017. Insights on the mechanism of action of INH-C10 as an antitubercular prodrug. Mol. Pharmaceutics. 14:4597-4605.

35. Ana Tavares, Inês Fronteira, Isabel Couto, **Diana Machado**, Miguel Viveiros, Ana Abecasis, Sónia Dias. HIV and tuberculosis co-infection among migrants in Europe: a systematic review on the prevalence, incidence, and mortality. PloS One. 12: e0185526.

34. Yoshio Nakatani*, Helen K. Opel-Reading*, Matthias Merker*, **Diana Machado***, Sönke Andres*, S. Siva Kumar, Danesh Moradigaravand, Francesc Coll, João Perdigão, Isabel Portugal, Thomas Schön, Dina Nair, K. R. Uma Devi, Thomas A. Kohl, Patrick Beckert, Taane G. Clark, Gugu Maphalala, Derrick

Khumalo, Roland Diel, Kadri Klaos, Htin Lin Aung, Gregory M. Cook, Julian Parkhill, Sharon J. Peacock, Soumya Swaminathan, Miguel Viveiros, Stefan Niemann, Kurt L. Krause, Claudio U. Köser. 2017**.** Role of alanine racemase mutations in *Mycobacterium tuberculosis* D-cycloserine resistance. Antimicrob. Agents Chemother. 61: e01575-17. *Shared first co-authorship.

33. Rolando Cannalire*, **Diana Machado***, Tommaso Felicetti; Sofia Costa, Serena Massari, Giuseppe Manfroni, Maria Letizia Barreca, Oriana Tabarrini, Isabel Couto, Miguel Viveiros, Stefano Sabatini, Violetta Cecchetti. 2017. Natural isoflavone biochanin A as a template for the design of new and potent 3-phenylquinolone efflux inhibitors against *Mycobacterium avium*. Eur. J. Med. Chem. 140:321-330. *Shared first co-authorship.

32. Elisa Azzali, **Diana Machado**, Amit Kaushik, Federica Vacondio, Sara Flisi, Clotilde Silvia Cabassi, Gyanu Lamichhane, Miguel Viveiros, Gabriele Costantino, Marco Pieroni. 2017. Substituted N-phenyl-5-(2-(phenylamino)thiazol-4-yl)isoxazole-3-carboxamides are valuable antitubercular candidates that evade innate efflux machinery. J. Med. Chem. 60:7108-7122.

31. Diana Machado*, Tatiane Coelho*, João Perdigão, Catarina Pereira, Isabel Couto, Isabel Portugal, Raquel Maschmann, Daniela Ramos, Andrea von Groll, Maria L. Rossetti, Pedro A. Silva, Miguel Viveiros. 2017. Interplay between mutations and efflux in drug resistant *Mycobacterium tuberculosis* clinical isolates. Front. Microbiol. 8:711. *Shared first co-authorship.

30. Diana Machado, Laura Fernandes, Sofia S. Costa, Rolando Cannalire, Giuseppe Manfroni, Oriana Tabarrini, Isabel Couto, Stefano Sabatini, and Miguel Viveiros. 2017. Mode of action of the 2-phenylquinoline efflux inhibitor PQQ4R against *Escherichia coli*. PeerJ. 5: e3168.

29. João Perdigão, Sofia Clemente, Jorge Ramos, Pedro Masakidi, **Diana Machado**, Carla Silva, Isabel Couto, Miguel Viveiros, Nuno Taveira, Isabel Portugal. 2017. Genetic diversity, transmission dynamics and drug resistance of *Mycobacterium tuberculosis* in Angola. Sci. Rep. 7:42814.

2016

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28. João Perdigão, Sofia Clemente, Jorge Ramos, Pedro Masakidi, **Diana Machado**, Carla Silva, Isabel Couto, Miguel Viveiros, Nuno Taveira, Isabel Portugal. 2016. Genetic diversity, transmission dynamics, and drug resistance of *Mycobacterium tuberculosis* in Luanda, Angola. Int. J. Mycobacteriol. 5: S38-S39.

27. Jody Phelan*, Denise O'Sullivan*, **Diana Machado***, Jorge Ramos, Alexandra S. Whale, Justin O'Grady, Keertan Dheda, Susana Campino, Ruth McNerney, Miguel Viveiros, Jim F. Hugget, Taane G. Clark. 2016. The variability and reproducibility of whole genome sequencing technology for detecting resistance to anti-tuberculous drugs. Genome Med. 8(1):132. *Shared first co-authorship.

26. Sofia S. Costa, Elizeth Lopes, Eliza Azzali, **Diana Machado**, Tatiane Coelho, Pedro A. Silva, Miguel Viveiros, Marco Pieroni, Isabel Couto. 2016. An experimental model for the rapid screening of compounds with potential use against mycobacteria. Assay Drug Dev. Technol. 14(9):524-534.

25. João Perdigão, Fernando Maltez, **Diana Machado**, Hugo Silva, Catarina Pereira, Carla Silva, Isabel Couto, Miguel Viveiros, Isabel Portugal. 2016. Beyond extensively drug-resistant tuberculosis in Lisbon, Portugal: a case of linezolid resistance acquisition presenting as an iliopsoas abscess. Int. J. Antimicrob. Agents. 48(5):569-570.

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D) Publications in national peer-reviewed journals (n=3)

3. João Perdigão, Carla Silva, Jaciara Diniz, Catarina Pereira, **Diana Machado**, Jorge Ramos, Hugo Silva, Fernanda Abilleira, Clarice Brum, Ana J. Reis, Maíra Macedo, João L. Scaini, Ana B. Silva, Leonardo Esteves, Rita Macedo, Fernando Maltez, Sofia Clemente, Elizabeth Coelho, Sofia Viegas, Paulo Rabna, Amabélia Rodrigues, Nuno Taveira, Luísa Jordão, Afrânio Kritski, José Lapa e Silva, Igor Mokrousov, David Couvin, Nalin Rastogi, Isabel Couto, Arnab Pain, Ruth McNerney, Taane G. Clark, Andrea von Groll, Elis R. Dalla-Costa, Maria Lúcia Rossetti, Pedro E. A. da Silva, Miguel Viveiros, Isabel Portugal. 2019. CPLP-TB: a new tuberculosis transnational surveillance tool for the lusophone community. Anais do Instituto de Higiene e Medicina Tropical. pp. 87-90.

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E) Communications in congresses and other scientific meetings

Oral communications (n=40)

40. Diana Machado, João Perdigão, Isabel Portugal, Taane G. Clark, Miguel Viveiros. 2022. Efflux-mediated pretomanid high-level resistance in *Mycobacterium tuberculosis*. 42nd Annual Congress of the European Society of Mycobacteriology. Bologna, Italy, 26-29 June 2022.

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38. Diana Machado, Sarah Gothe, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. Colistin heteroresistance in carbapenemase-producing *Acinetobacter baumannii*. 2020. 30th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Paris, France. 18-21 April 2020. Accepted for oral communication but not presented due to COVID-19 pandemics (congress cancelled). Abstract published in the 30th ECCMID Book of Abstracts (online only).

37. Diana Machado, Marco Pieroni, Miguel Viveiros. Development of lipophilic efflux inhibitors as adjuvants of *Mycobacterium tuberculosis* chemotherapy. II Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal. Faculdade de Farmácia, Universidade de Lisboa. 31 January 2020.

36. Sarah Gothe, **Diana Machado**, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2019. Insights on *Acinetobacter baumannii* heteroresistance to colistin: what is the

fate? Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

35. Diana Machado. Colistin heteroresistance in *Acinetobacter baumannii*: an unexpected cause of treatment failure". GHTM special session "Third GHTM Antimicrobial Resistance Awareness Day". Instituto de Higiene e Medicina Tropical. 21 November 2019.

34. Diana Machado. 2019. Instituto de Higiene e Medicina Tropical: a avaliação de risco na nossa instituição. 1º Seminário Lab-PTBioNet. Rede Laboratorial Portuguesa de Biossegurança. Lisbon, Portugal. 30 September 2019.

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31. Diana Machado, Elisa Azzali, Isabel Couto, Gabriele Costantino, Marco Pieroni, Miguel Viveiros. Targeting *Mycobacterium tuberculosis* with lipophilic efflux inhibitors exploring their dual activity: dissipation of the proton motive force and efflux inhibition. 40th Annual Congress of the European Society of Mycobacteriology. Valencia, Spain, 30 June - 3 July 2019.

30. Diana Machado, João Perdigão, Jorge Ramos, Ana Maria Tavares, Ana Abecasis, Sónia Dias, Taane G. Clark, Isabel Portugal, Isabel Couto, Miguel Viveiros. 2019. Exploring the phenotypic and genetic basis of drug-resistant *Mycobacterium tuberculosis* strains in Lisbon, Portugal. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 13-16 April 2019.

29. Jessica Antunes, **Diana Machado**, Marta Martins, Isabel Couto, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2019. Contribution of β-lactamases, porins and efflux pumps to carbapenem resistance *in Acinetobacter baumannii*. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 13-16 April 2019.

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25. Denise O'Sullivan, Jody Phelan, **Diana Machado**, Miguel Viveiros, Taane G. Clark, Justin O'Grady, Jim F. Huggett. 2018. Evaluation of the performance of MinION sequencing to identify multi- and extensively drug resistant tuberculosis. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Madrid, Spain. 21-24 April 2018.

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21. João Perdigão, Carla Silva, Jaciara Diniz, Catarina Pereira, **Diana Machado**, Jorge Ramos, Fernanda da Silva, Clarice Brum, Ana J. Reis, Maíra Macedo, João L. Scaini, Ana B. Silva, Leonardo Esteves, Rita Macedo, Sofia Clemente, Elizabeth Coelho, Sofia Viegas, Paulo Rabna, Amabélia Rodrigues, Nuno Taveira, Luisa Jordão, Isabel Couto, Arnab Pain, Ruth McNerney, Taane G. Clark, Andrea von Groll, Elis R. Dalla-Costa, Maria Lúcia Rossetti, Pedro A. da Silva, Miguel Viveiros, Isabel Portugal. Genetic diversity and mapping of *M. tuberculosis* strains in Portuguese Speaking Countries. VI National Workshop – REDE TB. 2017. Rio de Janeiro, Brazil.

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17. Elizeth Lopes, Sofia S. Costa, **Diana Machado**, Marco Pieroni, Elisa Azzali, Gabriele Costantino, Miguel Viveiros, Isabel Couto. 2015. *Mycobacterium smegmatis* model for the rapid screening of new compounds with efflux inhibitory and antimycobacterial activity. MicroBiotec15. Évora, Portugal, 10-12 December 2015.

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8 December 2013.

14. Diana Machado, David Pires, João Perdigão, Jorge Ramos, Isabel Couto, Isabel Portugal, Elsa Anes, Miguel Viveiros. 2013. Actividade antimicobacteriana de compostos inibidores de efluxo contra *Mycobacterium tuberculosis* resistente aos antibacilares. Jornadas Científicas do Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa. 13 December 2013.

13. Miguel Viveiros, **Diana Machado**, Jorge Ramos, Isabel Couto. Estética y MNT. Un problema emergente en Portugal. XVII Taller Internacional sobre Tuberculosis. Barcelona, Spain, 4-5 November 2013.

12. Diana Machado, Isabel Couto, Jorge Ramos, Miguel Viveiros. Anti-tuberculosis activity of efflux inhibitors against drug resistant *Mycobacterium tuberculosis*. 34th Annual Congress of the European Society of Mycobacteriology. Florence, Italy, 30 June - 3 July 2013.

11. Diana Machado, Isabel Couto, Jorge Ramos, Miguel Viveiros. 2013. Inibidores de efluxo como adjuvantes no tratamento da tuberculose resistente aos antibacilares. 2º Congresso Nacional de Medicina Tropical. Lisbon, Portugal. 20-23 April 2013.

10. Paulo Rabna, Jorge Ramos, Gema Ponce, Fina Bamba, **Diana Machado**, Ana Armada, Lilica Sanca, Etelvina Biossé, Antónia Araújo, Victor Gomes, Marcelina Nanque, Morto Nane, Forma M´Back, Elisabete Martins, Rafaella Colombati, Fábio Ricardi, Isabel Couto, Christian Wejse, Jorge Atouguia, Amabélia Rodrigues, Miguel Viveiros. 2013. Detecção directa da TB-MR através do teste Xpert MTB/RIF na Guiné-Bissau. 2º Congresso Nacional de Medicina Tropical: Workshop "Multidrug-resistant tuberculosis". Lisbon, Portugal. 20-23 April 2013.

9. Pedro Pedrosa, Bruno Veigas, **Diana Machado**, João Perdigão, Isabel Portugal, Isabel Couto, Miguel Viveiros, Pedro V. Baptista. 2013. Detecção de MDRTB por *gold-nanoprobes* – uma nova abordagem tecnológica desenvolvida em Portugal. 2º Congresso Nacional de Medicina Tropical: Workshop "Multidrug-resistant tuberculosis". Lisbon, Portugal. 20-23 April 2013.

8. Diana Machado, Miguel Viveiros, Samuel Francisco, Jorge Ramos, Carlos Serra, Teresa Pacheco, Teresa Marques, Luis Marques Lito, José Melo-Cristino, Isabel Couto. Detecção directa de MDRTB em Portugal: métodos e aplicações comerciais. A experiência do IHMT. 2º Congresso Nacional de Medicina Tropical: Workshop "Multidrug-resistant tuberculosis". Lisbon, Portugal. 20-23 April 2013.

7. Miguel Viveiros, Liliana Rodrigues, **Diana Machado**, Marta Martins, Isabel Couto, Leonard Amaral. 2013. Significance of efflux in multidrug resistance in *Mycobacterium tuberculosis*. GRConference: multi-drug efflux systems shared molecular mechanisms but diverging roles in physiology and medicine. GRG session: significance of efflux pumps in etiology of drug resistance. Ventura, California, USA, March 26th 2013.

6. Diana Machado, João Perdigão, Jorge Ramos, Isabel Couto, Isabel Portugal, Claudia Ritter, Eric C. Boettger, Miguel Viveiros. 2012. Resistência de alto nível à isoniazida e etionamida em estirpes de *Mycobacterium tuberculosis* multirresistentes está associada a mutações duplas no gene *inhA*. Jornadas Científicas do Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa. 12 December 2012.

5. Miguel Viveiros, **Diana Machado**, Isabel Couto, João Perdigão, Isabel Portugal, Emmanuelle Cambau, Erik C. Boettger. O teste de susceptibilidade semi-quantitativo de 1ª e 2ª linha para *Mycobacterium tuberculosis* usando o sistema BD EpiCenter™ TB-eXiST: um importante contributo para a Luta Contra a Tuberculose Resistente aos antibióticos. XXI Congresso Latino Americano de Microbiologia (XXI ALAM) and XIV Simpósio Brasileiro de Micobactérias. Santos, São Paulo, Brasil. 28 October-1st November 2012.

4. Diana Machado, João Perdigão, Jorge Ramos, Isabel Couto, Isabel Portugal, Claudia Ritter, Erik C. Boettger, Miguel Viveiros. 2012. High level resistance to isoniazid and ethionamide among multidrug resistant *Mycobacterium tuberculosis* strains from Lisbon, Portugal, is associated with double mutations in *inhA* gene. Workshop "*Mycobacterium tuberculosis*". IHMT, Lisbon, Portugal, 17 July

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3. Diana Machado, Isabel Couto, Liliana Rodrigues, Leonard Amaral, Miguel Viveiros. 2010. Mutational and physiological dynamic of drug resistance in *Mycobacterium tuberculosis*. 31st Annual Congress of the European Society of Mycobacteriology. Bled, Slovenia, 4-7 July 2010.

2. Sofia S. Costa, Celeste Falcão, Miguel Viveiros, **Diana Machado**, Miguel Martins, José Melo- Cristino, Leonard Amaral, Isabel Couto. 2010. Importance of efflux systems on the resistance to fluoroquinolones in *Staphylococcus aureus*. COST ACTION BM0701 MEETING. Bremen, Germany. 4-10 July 2010.

1. Liliana Rodrigues, Daniela Sampaio, Isabel Couto, **Diana Machado,** Winfried Kern, Leonard Amaral, Miguel Viveiros. 2009. Contribution of efflux pump activity for macrolide resistance in *M. avium* complex. 30th Annual Congress of the European Society of Mycobacteriology. Porto, Portugal, 5-8 July 2009.

Poster communications (n=106)

106. Diana Machado, João Perdigão, Isabel Portugal, Taane G. Clark, Miguel Viveiros. 2021. Efflux-mediated pretomanid high-level resistance in a naive Mycobacterium tuberculosis pretomanid-resistant clinical strain. 32nd European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Lisbon, Portugal. 23-26 April 2022.

105. Rita Lopes, Miguel Viveiros, **Diana Machado**. 2022. Efflux-mediated temocillin resistance: should we ignore the colonies within the inhibition zone? 31st European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Lisbon, Portugal. 23-26 April 2022.

104. Diana Machado, Marco Pieroni, Miguel Viveiros. 2021. Lipophilic efflux inhibitors as adjuvants of tuberculosis treatment: an approach to prevent efflux-mediated resistance and boost therapy in active and latent tuberculosis. HIPS - Helmholtz Institute for Pharmaceutical Research Saarland Symposium on pharmaceutical sciences devoted to infection research. Saarbrücken, Alemanha. 20 May 2021 (online).

103. Bruna Pereira, Miguel Viveiros, **Diana Machado**. 2021. Measuring efflux activity in *Escherichia coli* using Hoechst 33258, a bis-benzimidazole derivative. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec21). Webconference. Lisboa, Portugal, 23-26 November 2021.

102. Carla Silva, Jessica Antunes, Debora Serra, Cristina Toscano, Miguel Viveiros, **Diana Machado**. 2021. Detection of β-lactamases and the simultaneous presence of increased efflux activity in *Enterobacteriaceae* using a 96-well microplate method. Nacional de Microbiologia e Biotecnologia (MicroBiotec21). Webconference. Lisboa, Portugal, 23-26 November 2021.

101. Edson Tereso Mambuque, Shilzia Munguambe, Patricia Manjate, Miguel Viveiros, Belén Saavedra, Alberto Garcia-Basterio, **Diana Machado**. 2021. Assessment of MICs for *Mycobacterium tuberculosis* complex clinical strains using the EUCAST reference method. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec21). Webconference. Lisboa, Portugal, 23-26 November 2021.

100. Inês Maia, Miguel Viveiros, **Diana Machado**. 2021. Evaluation of competition between efflux pumps substrates in clinical isolates of *Escherichia coli* using Nile Red. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec21). Webconference. Lisboa, Portugal, 23-26 November 2021.

99. Jessica Antunes, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros, **Diana Machado**. 2021. Using genomics to uncover the role of SMR efflux pumps to *Acinetobacter baumannii* drug resistance. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec21). Webconference. Lisboa, Portugal, 23-26 November 2021.

98. Jessica Antunes, **Diana Machado**, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2021. Using genomics to track the contribution of efflux pumps and carbapenemases

to carbapenem resistance in *Acinetobacter baumannii*. 31st European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Online, 9-12 July 2021.

97. Diana Machado, Sarah Gothe, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2021. Emergence of high-level colistin resistance during treatment against heteroresistant Acinetobacter baumannii: a silent cause of treatment failure. 31st European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Online, 9-12 July 2021.

96. Diana Machado, Marco Pieroni, Miguel Viveiros. 2020. Targeting *Mycobacterium tuberculosis* membrane energetics with lipophilic efflux inhibitors as adjuvants of tuberculosis treatment. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

95. Iolanda Neves, **Diana Machado**, Miguel Viveiros. 2020. Active efflux systems as a survival mechanism in persister cells of *Escherichia coli* clinical strains. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

94. Jessica Antunes, **Diana Machado**, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2020. Using genomics to track the contribution of efflux pumps and carbapenemases to carbapenem resistance in *Acinetobacter baumannii*. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

93. Isabel Roseiro, **Diana Machado**, Miguel Viveiros. 2020. Tackling β-lactam resistance in *Escherichia coli* – the role of efflux pumps in β-lactamase producing strains. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

92. Inês Maia, **Diana Machado**, Miguel Viveiros. 2020. Optimization of a Red Nile-based real-time fluorometric assay for the study of competition between efflux pump substrates. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

91. Bruna Pereira, **Diana Machado**, Miguel Viveiros. 2020. Real-time efflux activity in clinical isolates of *Escherichia coli* can be evaluated using Hoechst 33258, a bis-benzimidazole derivative. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

90. Carla Silva, **Diana Machado**, Miguel Viveiros. 2020. Optimization of a cost-effective method for the simultaneous detection of β-lactamases and efflux activity in *Escherichia coli*. III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (online conference).

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88. Rushiil Ravichandran, **Diana Machado**, Carsten Kroger, Miguel Viveiros, Marta Martins. 2020. Tackling resistance to carbapenem and colistin in clinical isolates of *Acinetobacter baumannii*. 30th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Paris, France. 18-21 April 2020. Accepted for poster communication but not presented due to COVID-19 pandemics (congress cancelled). Abstract published in the 30th ECCMID Book of Abstracts (online only).

87. Bruna Pereira, **Diana Machado**, Miguel Viveiros. 2019. Exploring the contribution of efflux on the resistance to antibiotics, biocides, and dyes in clinical isolates of *Escherichia coli*. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

86. Débora Serra, **Diana Machado**, Miguel Viveiros. 2019. Detection and inhibition of β-lactamase activity in clinical isolates of *Escherichia coli* combining β-lactamase and efflux inhibitors using an MTT-based method: phenotypic and genotypic validation. Congresso Nacional de Microbiologia e

Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

85. Diana Machado, Iolanda Neves, Miguel Viveiros. 2019. Tackling bacterial infections by eliminating persister cells with efflux inhibitors. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

84. Diana Machado, Pedro Pedrosa, João Piedade, Pedro V. Baptista, Miguel Viveiros. 2019. Application of superparamagnetic nanoparticles for the early diagnosis of tuberculosis and HIV co-infection directly from respiratory samples. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

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82. Isabel Roseiro, **Diana Machado**, Miguel Viveiros. 2019. The dark-side of drug resistance in *Escherichia coli*: efflux pumps and β-lactamase producing strains. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

81. Tiago Ôchoa-Pires, Hugo Froufe, Cristina Barroso, **Diana Machado**, Marguerita Rosa, João Laranjeira, Rafaela Seabra, Miguel Viveiros, Conceição Egas, Ricardo. S. Vieira-Pires. 2019. Exploring Japanese quail immune repertoires for antibody discovery. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

80. José Ribeiro, **Diana Machado**, Miguel Viveiros. 2019. A bioinformatic approach to understand antibiotic resistance due to small multidrug resistant (SMR)-type efflux pumps in *Acinetobacter baumannii* through whole genome analysis. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

79. Sarah Gothe, **Diana Machado**, Marta Martins, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2019. Insights on *Acinetobacter baumannii* heteroresistance to colistin: what is the fate? Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec19). Coimbra, Portugal, 5-7 December 2019.

78. Diana Machado, Elisa Azzali, Isabel Couto, Gabriele Costantino, Marco Pieroni, Miguel Viveiros. 2019. Adjuvant therapies against tuberculosis: discovery of a 2-aminothiazole targeting *Mycobacterium tuberculosis* energetics. Multi-drug efflux systems: Gordon Research Conferences. 28 April - 3 May 2019. Lucca, Italy.

77. Diana Machado, Pedro Pedrosa, João Piedade, Pedro V. Baptista, Miguel Viveiros. 2019. Application of superparamagnetic nanoparticles for fast, simultaneous and non-invasive diagnosis of tuberculosis and HIV infection. 40th Annual Congress of the European Society of Mycobacteriology. Valencia, Spain, 30 June - 3 July 2019.

76. Diana Machado, Emmanuel Lecorche, Faiza Mougari, Emmanuelle Cambau, Miguel Viveiros. 2018. Insights on *Mycobacterium leprae* efflux pumps and their implications in drug resistance and virulence. 40th Annual Congress of the European Society of Mycobacteriology. Valencia, Spain, 30 June - 3 July 2019.

75. Diana Machado, Raquel Costa, Iolanda Neves, Jéssica Antunes, Isabel Couto, Miguel Viveiros. Contribution of efflux to the emergence of antibiotic resistance in persister cells. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 13-16 April 2019.

74. João Perdigão, Carla Silva, Jaciara Diniz, Catarina Pereira, **Diana Machado**, Jorge Ramos, Hugo Silva, Fernanda Abilleira, Clarice Brum, Ana J. Reis, Maíra Macedo, João L. Scaini, Ana B. Silva, Leonardo

Esteves, Rita Macedo, Fernando Maltez, Sofia Clemente, Elizabeth Coelho, Sofia Viegas, Paulo Rabna, Amabélia Rodrigues, Nuno Taveira, Luísa Jordao, Afrânio Kritski, José Lapa e Silva, Igor Mokrousov, David Couvin, Nalin Rastogi, Isabel Couto, Arnab Pain, Ruth McNerney, Taane G Clark, Andrea von Groll, Elis R. Dalla-Costa, Maria Lúcia Rossetti, Pedro E. A. da Silva, Miguel Viveiros, Isabel Portugal. *Mycobacterium tuberculosis* genetic diversity and drug resistance across Portuguese-speaking countries and CPLP-TB: a novel framework and surveillance tool for the Lusophone community. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 13-16 April 2019.

73. Jorge Ramos, **Diana Machado**, Isabel Couto, Miguel Viveiros. Diagnóstico laboratorial de micobactérias no Instituto de Higiene e Medicina Tropical: retrospetiva dos últimos 5 anos. 4º Congresso Nacional de Medicina Tropical. Lisbon, Portugal. 10-12 April 2019.

72. Maria Theron, **Diana Machado**, Isabel Couto, Miguel Viveiros. Determination of efflux activity of Hoechst 33258 in *Escherichia coli* using a 96-well plate fluorescence assay. NOVAsaude IV Genetics Workshop. Lisboa, Portugal. 21 March 2019.

71. Fátima Rodrigues, **Diana Machado**, Jéssica Antunes, Isabel Couto, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. Colistin resistance in *Acinetobacter baumannii*: correlation between mutations in target genes and active efflux. NOVAsaude IV Genetics Workshop. Lisboa, Portugal. 21 March 2019.

70. José Ribeiro, **Diana Machado**, Jéssica Antunes, Fátima Rodrigues, Isabel Couto, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. Prevalence of genes encoding small multidrug resistant (SMR)-type efflux pumps in *Acinetobacter baumannii* resistant to carbapenems isolated in hospital environment. NOVAsaude IV Genetics Workshop. Lisboa, Portugal. 21 March 2019.

69. Iolanda Neves, **Diana Machado**, Raquel Costa, Jéssica Antunes, Ângela Mendes, Rita Castro, Isabel Couto, Miguel Viveiros. Persister cells survive antibiotic treatment mounting an active response via activation of efflux pumps. NOVAsaude IV Genetics Workshop. Lisboa, Portugal. 21 March 2019.

68. Diana Machado, João Perdigão, Jorge Ramos, Ana Maria Tavares, Ana Abecasis, Sónia Dias, Taane G. Clark, Isabel Portugal, Isabel Couto, Miguel Viveiros. Molecular epidemiology of antibiotic resistance genes in multi- and extensively drug-resistant *Mycobacterium tuberculosis* in Lisbon and its correlation with drug resistance levels. NOVAsaude IV Genetics Workshop. Lisboa, Portugal. 21 March 2019.

67. Diana Machado, Elisa Azzali, Isabel Couto, Gabriele Costantino, Marco Pieroni, Miguel Viveiros. 2018. Adjuvant therapies against tuberculosis: discovery of a 2-aminothiazole targeting *Mycobacterium tuberculosis* energetics. 1º Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal, Coimbra, Portugal. 18 June 2018.

66. Diana Machado, João Perdigão, Jorge Ramos, Isabel Portugal, Isabel Couto, Miguel Viveiros. 2018. Exploring the phenotypic and genetic basis of drug-resistant *Mycobacterium tuberculosis* strains in Lisbon, Portugal. 1º Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal, Coimbra, Portugal. 18 June 2018.

65. João Perdigão, Carla Silva, Jaciara Diniz, Catarina Pereira, **Diana Machado**, Jorge Ramos, Hugo Silva, Fernanda Abilleira, Clarice Brum, Ana J. Reis, Maíra Macedo, João L. Scaini, Ana B. Silva, Leonardo Esteves, Rita Macedo, Fernando Maltez, Sofia Clemente, Elizabeth Coelho, Sofia Viegas, Paulo Rabna, Amabélia Rodrigues, Nuno Taveira, Luísa Jordão, Afrânio Kritski, José Lapa e Silva, Igor Mokrousov, David Couvin, Nalin Rastogi, Isabel Couto, Arnab Pain, Ruth McNerney, Taane G. Clark, Andrea von Groll, Elis R. Dalla-Costa, Maria Lúcia Rossetti, Pedro E. A. da Silva, Miguel Viveiros, Isabel Portugal. 2018. CPLP-TB: a novel framework and surveillance tool for tracing *Mycobacterium tuberculosis* strains across Lusophone countries. 1º Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal, Coimbra, Portugal. 18 June 2018.

64. Sofia S. Costa, Elizeth Lopes, Marco Pieroni, **Diana Machado**, Gabriele Costantino, Miguel Viveiros, Isabel Couto. 2018. *Mycobacterium smegmatis* model for the rapid screening of new compounds with efflux inhibitory and antimycobacterial activity. 1º Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal, Coimbra, Portugal. 18 June 2018.

63. **Diana Machado**, João Perdigão, Isabel Couto, Isabel Portugal, Pedro A. Silva, Miguel Viveiros. 2017. Efflux activity differentially modulates the levels of isoniazid and rifampicin resistance among multidrug resistant and monoresistant *Mycobacterium tuberculosis strains*. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec17). Porto, Portugal, 7-9 December 2017.

62. Ângela Brandão, **Diana Machado**, Juliana Pinhata, Rosangela Oliveira, Lucilaine Ferrazoli, Erica Chimara, Miguel Viveiros. 2017. Reliability of a multiplex allele-specific polymerase chain reaction (MAS-PCR) for the detection of multidrug-resistant *Mycobacterium tuberculosis* clinical isolates from Brazil. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec17). Porto, Portugal, 7-9 December 2017.

61. Jéssica Antunes, **Diana Machado**, Isabel Couto, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2017. Correlation between carbapenem resistance, β-lactamases, porins and efflux pumps in *Acinetobacter baumannii* clinical isolates. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec17). Porto, Portugal, 7-9 December 2017.

60. Mariana Silva, **Diana Machado**, Jorge Ramos, Isabel Couto, Miguel Viveiros. 2017. The contribution of efflux to β-lactams resistance in non-ESBL-producing *Escherichia coli* clinical isolates. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec17). Porto, Portugal, 7-9 December 2017.

59. João Laranjeira, Marguerita Rosa, **Diana Machado**, Rafael Francisco, Miguel Viveiros, Ricardo Vieira-Pires. 2017. Fighting bacterial infections with avian IgY antibodies. Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec17). Porto, Portugal, 7-9 December 2017.

58. Mariana Silva, **Diana Machado**, Jorge Ramos, Isabel Couto, Miguel Viveiros. 2017. The interplay between efflux and β-lactamase activity in β-lactams resistance in non-ESBL-producing *Escherichia coli* clinical isolates. NOVAsaude III Genetics Workshop. Lisboa, Portugal. 2 Outubro 2017.

57. Raquel Costa, **Diana Machado**, Isabel Couto, Miguel Viveiros. 2017. Contribution of efflux to the emergence of antibiotic resistance in persister cells. NOVAsaúde III Genetics Workshop. Lisboa, Portugal. 2 Outubro 2017.

56. Carla Marrinhas, Marta Santos, Sónia Miranda, Laura Fernandes, Catarina Rodrigues, **Diana Machado**, Miguel Viveiros, Constança Pomba, Ricardo Marcos. 2017. Cytological and molecular diagnosis of infection by *Mycobacterium avium*: report of a clinical case. VETERINARY Anatomic Pathology & Clinical Pathology Sessions. XXII Meeting of the Portuguese Society of Animal Pathology. Porto, Portugal. 19-20 May 2017.

55. Diana Machado, Tatiane Coelho, João Perdigão, Catarina Pereira, Isabel Couto, Isabel Portugal, Raquel Maschmann, Daniela Ramos, Andrea von Groll, Maria Lúcia Rossetti, Pedro A. Silva, Miguel Viveiros. 2017. Correlação entre a presença de mutações e a actividade de efluxo em isolados clínicos de *Mycobacterium tuberculosis* resistente aos antibióticos. 3º Congresso Nacional de Medicina Tropical. Lisbon, Portugal. 19-21 April 2017.

54. Mariana Silva, **Diana Machado**, Isabel Couto, Miguel Viveiros. 2017. A contribuição do efluxo na resistência aos β-lactâmicos em *Escherichia coli*. 3º Congresso Nacional de Medicina Tropical. Lisbon, Portugal. 19-21 April 2017.

53. Jéssica Antunes, **Diana Machado**, Isabel Couto, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2017. Caracterização fenotípica e relação clonal entre isolados clínicos de *Acinetobacter baumannii* resistentes aos carbapenemos. 3º Congresso Nacional de Medicina Tropical.

Lisbon, Portugal. 19-21 April 2017.

52. Raquel Costa, **Diana Machado**, Isabel Couto, Miguel Viveiros. 2017. Estudo do efeito de fontes de carbono e inibidores de efluxo na susceptibilidade aos antibióticos em *Escherichia coli*. 3º Congresso Nacional de Medicina Tropical. Lisbon, Portugal. 19-21 April 2017.

51. João Laranjeira, **Diana Machado**, Rafael Francisco, Marguerita Rosa, Miguel Viveiros, Ricardo Vieira-Pires. 2017. An avian antibody platform to fight bacterial infections. 3rd Biologics and Biosimilars Congress. Berlin, Germany. 6-7 March 2017.

50. Carla Marrinhas, Marta Santos, Ricardo Marcos, Sónia Miranda, Laura Fernandes, Catarina Rodrigues, **Diana Machado**, Miguel Viveiros, Constança Pomba. 2016. Infecção por *Mycobacterium avium* num gato em Portugal. 7º Encontro de Formação da Ordem dos Médicos Veterinários. Lisboa, Portugal. 26-27 Novembro 2016.

49. Tommaso Felicetti, Rolando Cannalire, Giuseppe Manfroni, Oriana Tabarrini, **Diana Machado**, Isabel Couto, Sofia S. Costa, Miguel Viveiros, Stefano Sabatini, Violetta Cecchetti. 2016. Natural isoflavone biochanin-A as a template for the design of new and potent 3-phenylquinolone inhibitors of the nontuberculous mycobacteria efflux pumps. XXIV National Meeting in Medicinal Chemistry and 10th Young Medicinal Chemists´ Symposium. Perugia, Italy. 11-14 September 2016.

48. João Perdigão, Fernando Maltez, **Diana Machado**, Hugo Silva, Carla Silva, Isabel Couto, Miguel Viveiros, Isabel Portugal. 2016. Extensively drug resistant tuberculosis plus linezolid resistance: the first report of linezolid resistance development in Lisbon, Portugal. 26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 8-12 April 2016.

47. João Perdigão, Sofia Clemente, Jorge Ramos, Pedro Masakidi, **Diana Machado**, Carla Silva, Isabel Couto, Miguel Viveiros, Nuno Taveira, Isabel Portugal. 2016. First insights on the drug resistance and genetic diversity of *Mycobacterium tuberculosis* in Luanda, Angola. 26th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 8-12 April 2016.

46. Diana Machado, João Perdigão, Jorge Ramos, Isabel Portugal, Isabel Couto, Miguel Viveiros. 2015. Exploring the phenotypic and genetic basis of drug-resistant *Mycobacterium tuberculosis* strains in Lisbon, Portugal. MicroBiotec15. Évora, Portugal, 10-12 December 2015.

45. Diana Machado, Isabel Couto, Miguel Viveiros. Drug susceptibility testing for *Mycobacterium avium* complex strains using the MGIT960 system and the TB-eXIST software. MicroBiotec15. Évora, Portugal, 10-12 December 2015.

44. Diana Machado, Carlos Serra, Miguel Viveiros, Isabel Couto. 2015. Characterization of the mechanism of action of efflux inhibitors on the mycobacterial respiratory chain. MicroBiotec15. Évora, Portugal, 10-12 December 2015.

43. Elisa Azzali, Marco Pieroni, **Diana Machado**, Sofia Santos Costa, Isabel Couto, Miguel Viveiros, Gabriele Costantino. Rational design and synthesis of thioridazine analogues as enhancers of the antituberculosis therapy. SIMCC2015 - Spanish-Italian Medicinal Chemistry Congress. Barcelona, Spain, 12-15 July 2015.

42. João Perdigão, Sofia Clemente, Jorge Ramos, Pedro Masakidi, **Diana Machado**, Carla Silva, Isabel Couto, Miguel Viveiros, Nuno Taveira, Isabel Portugal. 2015. Drug resistance and genetic diversity of *Mycobacterium tuberculosis* in Luanda, Angola: a molecular epidemiological perspective. 36th Annual Congress of the European Society of Mycobacteriology. Riga, Latvia, 28 June - 1 July 2015.

41. Paulo Rabna, Jorge Ramos, Gema Ponce, Lilica Sanca, Morto Mane, Ana Armada, **Diana Machado**, Fina Vieira, Victor F. Gomes, Elisabete Martins, Raffaella Colombatti, Fabio Riccardi, João Perdigão, Joana Sotero, Isabel Portugal, Isabel Couto, Jorge Atouguia, Amabélia Rodrigues, Miguel Viveiros. 2015.

Laboratory fast direct detection and characterization of multi and poly drug-resistant tuberculosis in Guinea-Bissau. 3º Congresso Nacional de Medicina Tropical. Instituto de Higiene e Medicina Tropical. Lisbon, Portugal. 20-21 April 2015.

40. Tatiane Coelho, **Diana Machado**, Raquel Machmann, Andrea von Groll, Maria Lucia Rossetti, Pedro Almeida da Silva, Miguel Viveiros. Efluxo como mecanismo envolvido na resistência antimicrobiana em isolados clínicos de *Mycobacterium tuberculosis*. VII meeting of the Latino-American Society of Tuberculosis and other Mycobacteriosis (SLAMTB). Canela, RS, Brazil, 14-17 September 2014.

39. Diana Machado, Jorge Ramos, Isabel Couto, Nureisha Cadir, Inácio Narciso, Elizabeth Coelho, Sofia Viegas, Miguel Viveiros. 2014. Assessment of the BD MGIT TBc identification test for the detection of *Mycobacterium tuberculosis* complex in a network of mycobacteriology laboratories. 35th Annual Congress of the European Society of Mycobacteriology. Vienna, Austria, 29 June - 2 July 2014.

38. Diana Machado, Vânia Silva, Isabel Couto, Jorge Ramos, Miguel Viveiros. 2014. The interplay between mutations and efflux in acquired resistance to clarithromycin in *Mycobacterium avium* complex. 24th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Barcelona, Spain. 10-13 May 2014.

37. Diana Machado, João Perdigão, Jorge Ramos, Isabel Couto, Isabel Portugal, Miguel Viveiros. 2013. Correlation between phenotypic and genetic resistance to first and second line antituberculosis drugs in a high tuberculosis endemic area. MicroBiotec13. Aveiro, Portugal, 6-8 December 2013.

36. Diana Machado, David Pires, João Perdigão, Jorge Ramos, Isabel Couto, Isabel Portugal, Elsa Anes, Miguel Viveiros. 2013. Efflux inhibitors against drug resistant *Mycobacterium tuberculosis*: antimicrobial agents and enhancers of macrophage killing activity. MicroBiotec13. Aveiro, Portugal, 6-8 December 2013.

35. Vânia Silva, **Diana Machado**, Jorge Ramos, Isabel Couto, Miguel Viveiros. 2013. Contribution of efflux systems to clarithromycin resistance in *Mycobacterium avium* complex. MicroBiotec13. Aveiro, Portugal, 6-8 December 2013.

34. Carlos Serra, Ana Fernandes, **Diana Machado**, Miguel Viveiros, Carlos Salgueiro, Isabel Couto. 2013. The role of type-II NADH-menaquinone oxidoreductase (NDH-2) on *Mycobacterium tuberculosis* resistance to drugs. MicroBiotec13. Aveiro, Portugal, 6-8 December 2013.

33. João Perdigão, Rita Macedo, **Diana Machado**, Carla Silva, Luísa Jordão, Isabel Couto, Miguel Viveiros, Isabel Portugal. 2013. Polymorphism in *gidB* gene as a genetic marker for the *Mycobacterium tuberculosis* Q1 cluster and implications for the streptomycin resistance level. MicroBiotec13. Aveiro, Portugal, 6-8 December 2013.

32. João Perdigão, Hugo Silva, **Diana Machado**, Rita Macedo, Fernando Maltez, Carla Silva, Luísa Jordão, Isabel Couto, Kim Mallard, Francesc Coll, Grant A. Hill-Cawthorne, Ruth McNerney, Arnab Pain, Taane G. Clark, Miguel Viveiros, Isabel Portugal. 2013. Genomic diversity of drug-resistant *Mycobacterium tuberculosis* isolates in Lisbon Portugal: towards tuberculosis genomic epidemiology. MicroBiotec13. Aveiro, Portugal, 6-8 December 2013.

31. João Perdigão, Rita Macedo, **Diana Machado**, Carla Silva, Luísa Jordão, Isabel Couto, Miguel Viveiros, Isabel Portugal. 2013. Correlation between streptomycin intermediate level resistance and *gidB* mutation in an endemic multidrug-resistant tuberculosis cluster. 34th Annual Congress of the European Society of Mycobacteriology. Florence, Italy, 30 June - 3 July 2013.

30. Diana Machado, Isabel Couto, Jorge Ramos, Miguel Viveiros. 2013. Contribution of efflux pumps to overall antibiotic resistance *in Mycobacterium tuberculosis* and the usefulness of efflux inhibitors as "helper compounds" in drug therapy. 23rd European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Berlin, Germany. 27-30 April 2013.

29. Pedro Pedrosa, Bruno Veigas, **Diana Machado**, João Perdigão, Isabel Portugal, Isabel Couto, Miguel Viveiros, Pedro V. Baptista. 2013. Gold nanoprobes methodology for diagnosis of multi-drug resistant tuberculosis. NanoPT. Porto, Portugal. 11-13 February 2013.

28. Diana Machado, Isabel Couto, Jorge Ramos, Miguel Viveiros. 2012. Efflux inhibitors as adjuvants in drug resistant tuberculosis therapy. EMBO Conference: Tuberculosis 2012: Biology, pathogenesis, intervention strategies. Institute Pasteur, Paris, France. 11-15 September 2012.

27. João Perdigão, Diogo Silva, Vânia Pereira, Carla Silva, **Diana Machado**, Isabel Couto, Miguel Viveiros, Luísa Jordão, Isabel Portugal. 2012. Dynamics and development of extensively drug-resistant tuberculosis, Portugal. EMBO Conference: Tuberculosis 2012: Biology, pathogenesis, intervention strategies. Institute Pasteur, Paris, France. 11-15 September 2012.

26. Barbara Gröblacher, Ana Armada, **Diana Machado**, Miguel Viveiros, Franz Bucar. 2012. Mycobacterial efflux inhibitors from *Aframomum melegueta*. II International Conference on Antimicrobial Research (ICAR). Lisbon, Portugal. 21-23 November 2012.

25. Diana Machado, Liliana Rodrigues, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2012. The emergence of clarithromycin resistance in *Mycobacterium avium* complex. 22nd European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). London, United Kingdom. 31 March-3 April 2012.

24. Diana Machado, Isabel Couto, Liliana Rodrigues, João Perdigão, Isabel Portugal, Leonard Amaral, Miguel Viveiros. 2011. Phenotypic adaptation to isoniazid in *Mycobacterium tuberculosis*: a pathway to multidrug resistant tuberculosis. 21st European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Milan, Italy. 7-11 May 2011.

23. Liliana Rodrigues, **Diana Machado**, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2011. Contribution of efflux activity to isoniazid resistance in *Mycobacterium tuberculosis* complex. 21st European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Milan, Italy. 7-11 May 2011.

22. Diana Machado, Isabel Couto, Liliana Rodrigues, Leonard Amaral, Miguel Viveiros. 2011. Efflux activity in *Mycobacterium tuberculosis* as an intrinsic mechanism of resistance to isoniazid. 32nd Annual Congress of the European Society of Mycobacteriology. Lübeck, Germany. 26-29 June 2011.

21. Diana Machado, Isabel Couto, Leonard Amaral, Isabel Portugal, Pedro V. Baptista, Miguel Viveiros. 2011. Selection for mutator phenotypes in *Mycobacterium tuberculosis*. 32nd Annual Congress of the European Society of Mycobacteriology. Lübeck, Germany. 26-29 June 2011.

20. Samuel Francisco, **Diana Machado,** Miguel Viveiros, Jorge Ramos, Teresa Pacheco, José Melo-Cristino, Luis M. Lito, Isabel Portugal, Leonard Amaral, Isabel Couto. 2011. Application of molecular methods for the direct detection of MDR-TB. 32nd Annual Congress of the European Society of Mycobacteriology. Lübeck, Germany. 26-29 June 2011.

19. Pedro Cerca, **Diana Machado**, Miguel Viveiros, Leonard Amaral, Isabel Couto. 2011. Identification of nontuberculous mycobacteria: comparison of three in-house molecular protocols. 51st Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). Chicago, USA, 17-20 September 2011.

18. Antónia Pinto, **Diana Machado**, Sofia S. Costa, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2011. Multidrug resistance mediated by active efflux in *Escherichia coli*: new therapeutic strategies using antibiotics and inhibitors of active efflux. MicroBiotec11. Braga, Portugal, 1-3 December 2011.

17. Samuel Francisco, **Diana Machado**, Miguel Viveiros, Jorge Ramos, Teresa Pacheco, José Melo-Cristino, Luís Marques Lito, Isabel Portugal, Leonard Amaral, Isabel Couto. 2011. Application of

molecular methods for the direct detection of MDR-TB. MicroBiotec11. Braga, Portugal, 1-3 December 2011.

16. Bruno Veigas, **Diana Machado**, João Perdigão, Isabel Portugal, Isabel Couto, Miguel Viveiros, Pedro V. Baptista. 2010. A PCR-Au-nanoprobes combined approach for detection of mutations associated with antibiotic resistance in *Mycobacterium tuberculosis*. 11th Trends in Nanotechnology International Conference (TNT2010), Braga, Portugal, 6th September 2010.

15. Liliana Rodrigues, **Diana Machado**, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2010. Contribution of efflux activity to isoniazid resistance in *Mycobacterium tuberculosis* complex. COST ACTION BM0701 MEETING. Bremen, Germany. 4 - 10 July 2010.

14. Jorge Ramos, **Diana Machado**, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2010. Evaluation of the BD MGIT™ TBc identification test for the rapid detection of *Mycobacterium tuberculosis* complex from cultures. 31th Annual Congress of the European Society of Mycobacteriology. Bled, Slovenia, 4 - 10 July 2010.

13. Diana Machado, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2009. Mutational adaptation in *Mycobacterium tuberculosis*: the emergence of multidrug resistance. MicroBiotec09. Vilamoura, Portugal, 28-30 November 2009.

12. Pedro Cerca, **Diana Machado,** Miguel Viveiros, Leonard Amaral, Isabel Couto. 2009. Identification of non-tuberculous mycobacteria by molecular methods: comparison of three in-house protocols. MicroBiotec09. Vilamoura, Portugal, 28-30 November 2009.

11. Liliana Rodrigues, Daniela Sampaio, Isabel Couto, **Diana Machado**, Winfried V. Kern, Leonard Amaral, Miguel Viveiros. 2009. The role played by efflux pump in macrolide resistance in *Mycobacterium avium* complex. MicroBiotec09. Vilamoura, Portugal, 28-30 November 2009.

10. Celeste Falcão, Sofia S. Costa, Miguel Viveiros, **Diana Machado**, Marta Martins, José Melo-Cristino, Leonard Amaral, Isabel Couto. 2009. Importance of efflux systems on the resistance to fluoroquinolones by *Staphylococcus aureus*. MicroBiotec09. Vilamoura, Portugal, 28-30 November 2009.

9. Isabel Couto, **Diana Machado,** Miguel Viveiros, Liliana Rodrigues, Leonard Amaral. 2009. Identification of nontuberculous mycobacteria in clinical samples using molecular methods: a three-year study. 30th Annual Congress of the European Society of Mycobacteriology. Porto, Portugal, 5-8 July 2009.

8. Diana Machado, Miguel Viveiros, Liliana Rodrigues, Isabel Couto, Leonard Amaral. 2009. Early detection of MDRTB by molecular tools in the control of drug resistant tuberculosis in Portugal: a case of success. 30th Annual Congress of the European Society of Mycobacteriology. Porto, Portugal, 5-8 July 2009.

7. Isabel Couto, Miguel Viveiros, **Diana Machado**, Liliana Rodrigues, Leonard Amaral. 2008. Identificação de micobactérias atípicas em amostras clínicas utilizando métodos moleculares. IX Congresso Nacional de Doenças Infecciosas e Microbiologia Clínica, Sida e Parasitologia, Vilamoura, Portugal, 8-11 October 2008.

6. Liliana Rodrigues, Miguel Viveiros, Daniela Sampaio, Isabel Couto, **Diana Machado**, Martina Vavra, Dirk Wagner, Winfried V. Kern, Leonard Amaral. 2008. O Papel das bombas de efluxo na resistência aos antibióticos em micobactérias do complexo *M. avium*. IX Congresso Nacional de Doenças Infecciosas e Microbiologia Clínica, Sida e Parasitologia, Vilamoura, Portugal, 8-11 October 2008.

5. Isabel Couto, **Diana Machado**, Miguel Viveiros, Liliana Rodrigues, Leonard Amaral. 2007. Molecular identification of non-tuberculosis mycobacteria from Lisbon hospitals: a two-year study. MICRO'07

BIOTEC'07-XXXIII JPG, Lisboa, 30 November- 2 December 2007.

4. Isabel Couto, Miguel Viveiros, **Diana Machado**, Liliana Rodrigues, Marta Martins, Leonard Amaral. 2007. Identification of non-tuberculosis mycobacteria in clinical samples using molecular methods: a two-year study. 47th International Congress on Antimicrobial Agents and Chemotherapy, Chicago, USA, 17-20 September 2007.

3. Diana Machado, Marta Costa, Hermínia de Lencastre, Isabel Couto. 2006. Evaluation of reverse checkerboard hybridization for staphylococcal identification and screening of antibiotic resistance genes. 8th European Congress of Chemotherapy and Infection, Budapest, Hungary, 25-28 October 2006.

2. Marta Costa, **Diana Machado**, Hermínia de Lencastre, Isabel Couto. 2006. Evaluation of checkerboard hybridization for the differentiation of clinically relevant staphylococci. 12th International Symposium on Staphylococci & Staphylococcal Infections, Maastricht, The Netherlands, 3-6 September 2006.

1. Marta Costa, **Diana Machado**, Hermínia de Lencastre, Isabel Couto. 2006. Differentiation of staphylococci by checkerboard hybridization. 12th International Congress on Infectious Diseases, Lisbon, Portugal, 15-18 July 2006.

RESEARCH PROJECTS

A) As Principal Investigator

12. "Cutting-edge strategy for anti-TB drug discovery: inhibiting *Mycobacterium tuberculosis* induced-granuloma formation and proinflammatory tissue destruction targeting tissue matrix metalloproteinases." PI: Diana Machado.

11. "Portals of entry and exit: inhibiting HIV nuclear transport pathways as successful integrated therapy against HIV/TB co-infection. PI: Diana Machado.

10. "Deciphering the role of efflux pumps in *Mycobacterium abscessus* complex drug resistance, host adaptation and persistence". PI: Diana Machado | co-PI: Miguel Viveiros.

9. "Genomic characterization of *Mycobacterium chimaera* isolates from cardiologic patients with postsurgical infections, pulmonary infections and heater-cooler units". PI: Diana Machado | co-PI: Miguel Viveiros.

8. "Comparative genomics and drug-induced transcriptome response analysis in multi- and extensively drug-resistant *Mycobacterium tuberculosis*". PI: Diana Machado | co-PI: Miguel Viveiros.

7. "Drug resistance and virulence in *Mycobacterium avium* complex: identification of molecular pathways and new drugs as potential adjuvants for chemotherapy" - PI: Diana Machado | co-PI: Miguel Viveiros.

6. "Molecular underpinnings of adaptive evolution in *Mycobacterium tuberculosis* – the role of mutator genes" - PI: Diana Machado.

5. "Exploring the activity of efflux inhibitors against multidrug resistant *Acinetobacter baumannii* resistant to carbapenems and colistin". PI: Diana Machado | co-PI: Miguel Viveiros.

4. "The role of ion channel blockers on *Mycobacterium tuberculosis*-infected human macrophages". PI: Diana Machado | co-PI: Miguel Viveiros.

3. "Deciphering genomic diversity vs disease diversity crosstalk in multi- and extensively drug resistant *Mycobacterium tuberculosis* strains". PI: Diana Machado.

2. "Understanding the biological processes that shape metabolic compensation of fitness cost in

Mycobacterium tuberculosis overexpressing efflux pumps". PI: Diana Machado.

1. "Targeting latent tuberculosis: inhibition of efflux in *Mycobacterium tuberculosis* persister cells during dormancy as a new strategy for anti-TB drug discovery" – Fundação para a Ciência e a Tecnologia CEECIND/02562/2017; PI: Diana Machado 2018-2024.

B) As Co-Principal Investigator

2. "MtbEPIs: Targeting efflux pumps in drug resistant *Mycobacterium tuberculosis*: an approach to prevent efflux-mediated resistance and boost therapy in active and latent tuberculosis". Fundação para a Ciência e a Tecnologia - PTDC/BIA-MIC/30692/2017. PI: Miguel Viveiros | co-PI: Diana Machado. 2018-2022.

1. "MagNanoP-TB/HIV: Aplicação de nanopartículas superparamagnéticas no diagnóstico rápido, simultâneo e não invasivo da infeção pelo VIH e da tuberculose." Programa Gilead GÉNESE Refª - PGG/012/2017. PI: Miguel Viveiros | co-PI: Diana Machado. 2018-2020.

C) As team member

12. "BYDRUG: Immunotargeting efflux systems for therapeutic modulation of multidrug resistant bacteria." Fundação para a Ciência e a Tecnologia - PTDC/BTMSAL/30550/2017. PI: Ricardo Vieira-Pires | co-PI: Miguel Viveiros. 2018-2022.

11. "IonPharma4TB**:** Active pharmaceutical ionic liquids as new platform for effective treatment of tuberculosis (TB-ILs)." Fundação para a Ciência e a Tecnologia - PTDC/QUIQOR/32406/2017. PI: Luís Branco | co-PI: Miguel Viveiros. 2018-2022.

10. "TARGTUB - Targeting multi-resistant tuberculosis with new potent isoniazid derivatives: an integrated medicinal chemistry approach." Fundação para a Ciência e a Tecnologia - PTDC/MEDQUI/29036/2017. PI: Filomena Leitão | co-PI: Miguel Machuqueiro. 2018-2022.

9. "Characterization of drug-resistant TB and HIV and associated socio-behavioral factors among migrants in Lisbon, Portugal". Global Health and Tropical Medicine internal project 2017 (IHMT/UNL). Co-PIs Isabel Couto, Inês Fronteira, Marta Pingarilho. 2017-2018. UID/Multi/04413/2013.

8. "BIOSAFE - Preventing antimicrobial resistance in the community - the safe use of biocides." - Fundação para a Ciência e Tecnologia – 02/SAICT/2017: C493201324-00089525. PI: Isabel Couto | co-PI: Sofia Costa. 2018-2022.

7. "Type-II NADH-menaquinone oxidoreductase (NDH-2) and the respiratory chain of *M. tuberculosis*: new therapeutic targets to fight tuberculosis." Fundação para a Ciência e Tecnologia - PTDC/BIA-MIC/121859/2010. PI: Isabel Couto. 2012-2015.

6. "zoonTB - Improved NAT-based approaches to detect and discriminate animal-associated *Mycobacterium tuberculosis* complex members and evaluation of the zoonotic potential of these species in Portugal." Fundação para a Ciência e Tecnologia - PTDC/CVT/111634/2009. PI: João Inácio.

5. "Helper compounds against multidrug resistant bacteria: revealing their mechanism of action." Fundação para a Ciência e Tecnologia - PTDC/BIA-MIC/105509/2008. PI: Miguel Viveiros.

4. "Enhancing the killing of intracellular multi-drug resistant tuberculosis (MDRTB) by human macrophages: a new chemotherapeutic strategy to fight MDRTB." Fundação para a Ciência e Tecnologia - PTDC/SAU-FCF/102807/2008. PI: Miguel Viveiros.

3. "Diagnóstico e epidemiologia molecular de M/XDR-TB na Grande Lisboa: a detecção precoce na prevenção da emergência e disseminação de estirpes de *M. tuberculosis* extensivamente resistentes." Fundação Calouste Gulbenkian – Refª. SDH49, P-99934. PI: Isabel Couto.

2. "Mutational and physiological dynamics of drug resistance in *Mycobacterium tuberculosis*: the emergence of multi-drug resistant tuberculosis.*"* Fundação para a Ciência e Tecnologia - PTDC/BIA-MIC/71280/2006. PI: Miguel Viveiros.

1. "Desenvolvimento de sondas moleculares para o rastreio de *Staphylococcus* em amostras clínicas." Fundação Calouste Gulbenkian – Proc. 61056. PI: Isabel Couto.

PROTOCOLS AND MULTICENTRIC STUDIES

2021 – current - Calibration of antimicrobial susceptibility testing methods and breakpoints against EUCAST reference standards for bedaquiline, clofazimine, levofloxacin, and linezolid for EUCAST-AMST and the Clinical and Laboratory Standards Institute (CLSI). Johnson & Johnson Global Public Health; Becton, Dickinson, and Company; Thermo Fisher. On site PI: Diana Machado| Study coordinator: Miguel Viveiros.

2018 – 2021 - Minimum inhibitory concentration (MIC) testing using the BACTEC MGIT 960 and the EUCAST reference method for Tecnimede project PROMYCO II. Tecnimede Sociedade Técnico-Medicinal, SA. On site PI: Diana Machado| Study coordinator: Miguel Viveiros.

2017 – 2018 - Development of a reference method for MIC testing of *M. tuberculosis* as a basis for evidence based clinical breakpoints – ESGMYC and the EUCAST subcommittee for antimycobacterial AST. European Society of Clinical Microbiology and Infectious Diseases. ESCMID_SGRF_11850. On site PI: Miguel Viveiros | co-PI: Diana Machado.

2017 – 2018 - Development of a protocol for the determination of the minimum inhibitory concentration of pretomanid against *M. tuberculosis* using the BACTEC MGIT 960 instrument - TB Alliance for drug development. Ref. Pretomanid_NCLN_Micro_002. On site PI: Diana Machado |Study coordinator: Miguel Viveiros.

2015 – 2017 - Multicentric evaluation of the Kit SIRE Nitratase assay - Brazilian TB lab-network and the company PlastLabor. National Council for Scientific and Technological Development (CNPQ) grants 310174/2014-7 and 446796/2014-0. On site PI: Miguel Viveiros | co-PI: Diana Machado.

2010 – 2014 - Development of a protocol for semiquantitative drug susceptibility testing of *M. tuberculosis* using the MGIT 960 / TB eXiST – ESGMYC and BD TB eXIST - quantitative drug susceptibility testing (qDST) European validation study. Ref. TB eXIST_EU- QDST_2010. On site PI: Miguel Viveiros | co-PI: Diana Machado.

SCIENTIFIC SUPERVISION

A) Teaching manuals

2. Manual de segurança biológica (2014). Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, Lisboa, Portugal.

1. Programa de treino em Micobacteriologia (2011). Manual teórico-prático. Grupo de Micobactérias, Unidade de Microbiologia Medica. Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, Lisboa, Portugal.

B) Teaching experience

Advanced training programs in Mycobacteriology

Since June 2019 - Advanced training on the laboratory diagnosis of tuberculosis of clinical pathologists from the Laboratório de Microbiologia do Serviço de Patologia Clínica, Hospital Nossa Senhora do Rosário, Centro Hospitalar Barreiro/Montijo. Coordination: Miguel Viveiros| Diana Machado.

April 2014 to December 2019 - Advanced training on the laboratory diagnosis of tuberculosis of clinical pathologists from the Laboratório de Microbiologia do Serviço de Patologia Clínica, IPO Lisboa Francisco Gentil. Coordination: Miguel Viveiros.

Since April 2014 - Advanced training on the laboratory diagnosis of tuberculosis of clinical pathologists from the Laboratório de Microbiologia Clínica e Biologia Molecular do Serviço de Patologia Clínica, Hospital de Egas Moniz, Centro Hospitalar de Lisboa Ocidental. Coordination: Miguel Viveiros.

July 2011 - Training program in Mycobacteriology. Videoconference. Lisboa – Luanda. "Tuberculose: prevenção e tratamento". Universidade Aberta/IHMT/Fundação Calouste Gulbenkian. Coordination: Miguel Viveiros | Jorge Atouguia.

Since April 2008 - Strategic plan for the control of tuberculosis in Mozambique, Angola, Guiné- Bissau and S. Tomé e Principe. Training program in Mycobacteriology. Coordination: Miguel Viveiros. Instituto de Higiene e Medicina Tropical. Supported by Fundação Calouste Gulbenkian until 2012.

December 2006/February 2007 - Advanced training in molecular biology for the diagnosis of tuberculosis - Laboratory technicians from Laboratório de Micobactérias, Hospital Pulido Valente, Lisboa. Coordination: Miguel Viveiros.

Masters Courses

Master in Biomedical Sciences (IHMT/UNL) - Curricular Unit of Tuberculosis and other Mycobacterioses (since 2007).

Master in Medical Microbiology (UNL) - Curricular Unit of Tuberculosis and other Mycobacterioses (since 2010).

Master in Medical Microbiology (UNL) - Curricular Unit of Medical Bacteriology (since 2010).

Master in Medical Microbiology (UNL) – Curricular Unit of Molecular Methods of Diagnosis in Bacteriology and Mycology (2010-2012).

Master in Molecular Genetics and Biomedicine (FCT/UNL) - Curricular Unit of Clinical Microbiology (2009-2012).

PhD Programs

PhD in Biomedical Sciences (IHMT/UNL) (since 2017) - Curricular Unit "Tuberculosis".

PhD in Biomedical Sciences (IHMT/UNL) (since 2017) - Curricular Unit "Medical Bacteriology".

PhD in Biomedical Sciences (IHMT/UNL) (since 2017) - Curricular Unit "Molecular Epidemiology of Infectious and Parasitic Diseases".

PhD in Biomedical Sciences (IHMT/UNL) (2019) - Curricular Unit "Challenges and Perspectives in Biology of Microorganisms"

PhD in Biomedical Sciences (IHMT/UNL) (since 2021) - Curricular Unit "Applications in Medical Microbiology"

PhD in Tropical Diseases and Global Health (IHMT/UNL) (since 2020) - Curricular Unit "Impact of the Disease and its Determinants"

PhD in Tropical Diseases and Global Health (IHMT/UNL) (since 2020) - Curricular Units Rotation Theme I" and "Rotation Theme II"

C) Mentorship/Supervision

Supervisor - PhD students

3. 2022 – Hermenegildo Chitumba – PhD Thesis in Tropical Diseases and Global Health (IHMT/UNL). "Identificação do complexo *Mycobacterium tuberculosis* e diferenciação de espécies pelo método genotype MTBc (Hain Lifescience) em Angola" – Supervisor: Diana Machado (IHMT/UNL) | co-supervisor: António Bartolomeu Alicerces (Faculdade de Medicina, Universidade José Eduardo dos Santos, Huambo, Angola). Ongoing.

2. 2022 – Nádia Correia – PhD Thesis in Biomedical Sciences (IHMT/UNL). "The role of efflux on drug resistance and virulence in *Klebsiella pneumoniae*" – Supervisor: Diana Machado | co-supervisor: Miguel Viveiros (IHMT/UNL). Ongoing.

1. 2020 – Jessica Beirão Antunes – PhD Thesis in Biomedical Sciences (IHMT/UNL). "Deciphering the aetiology and epidemiology of *Acinetobacter baumannii* through genomics to track global antimicrobial resistance" – Supervisor: Diana Machado | co-supervisor: Miguel Viveiros (IHMT/UNL). Ongoing.

Co-supervisor - PhD students

3. 2019 – Guilherme Bugalho Gomes – PhD Thesis in Biomedical Sciences (FMUAN - IHMT/UNL) - "Lepra em Angola: caracterização socio-epidemiológica e genotipagem de *Mycobacterium leprae*" – Supervisor: Ema Fernandes (FMUAN) | Diana Machado (IHMT/UNL) and Victor Kajibanga (FCSUAN). Ongoing.

2. 2017-2019 – Mariana Tatara – Estágio de Doutorado – Programa de Pós-Graduação em Ciências da Saúde – Programa PVE – "Caracterização molecular e sequenciamento de isolados de *Mycobacterium tuberculosis* na fronteira de Roraima, Brasil." Brasil - Supervisor: Julio Croda, Universidade Federal da Grande Dourados, Faculdade de Ciências da Saúde; Portugal - Supervisor Miguel Viveiros e co-supervisor Diana Machado, Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa; Supervisor Isabel Portugal e João Perdigão, iMed.ULisboa, Instituto de Investigação do Medicamento, Faculdade de Farmácia da Universidade de Lisboa.

1. 2017-2019 – Ângela Brandão – Estágio de Doutorado CAPES – Programa PVE – "Aplicação de uma técnica de MAS-PCR para a detecção de tuberculose multi- e extensivamente resistente no Núcleo de Tuberculose e Micobacterioses do Instituto Adolfo Lutz, Laboratório de Referência de São Paulo para a Tuberculose (São Paulo, Brasil): validação fenotípica e molecular". Supervisor Brasil: Lucilaine Ferrazoli, Instituto Adolfo Lutz, São Paulo; Portugal: Supervisor Miguel Viveiros e co-supervisor Diana Machado, Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa.

Supervisor - Master students

10. 2022-2023 – Filipa Vila Boa – MSc Thesis in Medical Microbiology (UNL) – "Drug resistance and virulence factors in *Mycobacterium avium*: identification of molecular pathways and new drugs as adjuvants of chemotherapy". Supervisor: Diana Machado | co-supervisor: Miguel Viveiros. Ongoing.

9. 2022-2023 – Maria Almeida – MSc Thesis in Medical Microbiology (UNL) – "Avaliação do efeito sinérgico de inibidores de efluxo na susceptibilidade do complexo Mycobacterium abscessus aos antibacilares". Supervisor: Diana Machado | co-supervisor: Miguel Viveiros. Ongoing.

8. 2021-2023 – Bruna Pereira – MSc Thesis in Medical Microbiology (UNL) – "Patogénese da infecção urinária por *Escherichia coli*: caracterização molecular e fenotípica dos mecanismos de resistência e

virulência". Supervisor: Diana Machado | co-supervisor: Miguel Viveiros. Ongoing.

7. 2021-2022 – Artemisa Lopes – MSc Thesis in Biomedical Sciences (IHMT/UNL) – "Avaliação do meio de cultura selectivo CHROMagar COL-APSE para a detecção de resistência à colistina em *Escherichia coli*: correlação com as concentrações mínimas inibitórias e presença do gene *mcr*". Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

6. 2021-2022 – Sarah Gothe – MSc Thesis in Medical Microbiology (UNL) – "Insights on the mechanisms underlying the development of heteroresistance to colistin in *Acinetobacter baumannii*". Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

5. 2020-2022 – Marta Lourenço – MSc Thesis in Microbiology (Universidade Aveiro) – "Epidemiologia molecular de isolados clínicos multirresistentes de *Acinetobacter baumannii* circulantes em Lisboa". Supervisor IHMT: Diana Machado | Supervisor UA: Sónia Mendo.

4. 2020-2022 – Inês Maia - MSc Thesis in Biomedical Sciences (IHMT/UNL) – "Estudo de competição entre substratos de bombas de efluxo em isolados clínicos de Escherichia coli por fluorimetria em tempo real usando Vermelho do Nilo." Supervisor: Diana Machado | co- supervisor: Miguel Viveiros.

3. 2019-2020 – Débora Serra – MSc Thesis in Medical Microbiology (UNL) – "Detecção e inibição da actividade de β-lactamases em isolados clinicos de *Escherichia coli* combinando inibidores de β-lactamases e inibidores de efluxo usando o método MTT: validação fenotípica e genotípica." Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

2. 2017-2018 – Maria João Theron - MSc Thesis in Biomedical Sciences (IHMT/UNL) – "Caracterização da actividade de efluxo de Hoechst 33258 em *Escherichia coli*." Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

1. 2017-2018 – Fátima Rodrigues - MSc Thesis in Biomedical Sciences (IHMT/UNL) – "Caracterização dos mecanismos de resistência à colistina em isolados clínicos de *Acinetobacter baumannii* resistentes aos carbapenemos." Supervisor: Diana Machado | co- supervisor: Miguel Viveiros.

<u>Co-supervisor - Master students</u>

8. 2020-2021 – Edson Mambuque – MSc Thesis in Medical Microbiology (UNL) – "Avaliação da performance do Xpert MTB/RIF Ultra numa coorte de doentes com tuberculose durante o primeiro mês de tratamento: validação fenotípica e genotípica." - Supervisor: Alberto Garcia- Basteiro | co-supervisor: Diana Machado.

7. 2019-2022 – Jessica Soares – MSc Public Health and Development – "GeneXpert MTB/RIF no diagnóstico da tuberculose em São Tomé e Príncipe: avaliação da implementação." - Supervisor: Isabel Craveiro | co- supervisor: Diana Machado.

6. 2018-2019 – José Ribeiro – MSc Thesis in Medical Microbiology (UNL) – "Uma abordagem bioinformática para o estudo da contribuição das bombas de efluxo Small Multidrug Resistance na resistência aos antibióticos em *Acinetobacter baumannii* através de análise de genoma completo." - Supervisor: Miguel Viveiros | co-supervisor: Diana Machado.

5. 2016-2017 – Mariana Silva – MSc Thesis in Medical Microbiology (UNL) – "A contribuição do efluxo na resistência aos β-lactâmicos em isolados clínicos de *Escherichia coli.*" Supervisor: Miguel Viveiros | co-supervisor: Diana Machado.

4. 2016-2017 – Jessica Antunes – MSc Thesis in Medical Microbiology (UNL) – "Estudo da contribuição de bombas de efluxo, porinas e β-lactamases na resistência aos carbapenemos em isolados clínicos de *Acinetobacter baumannii*." Supervisor: Miguel Viveiros | co- supervisor: Diana Machado.

3. 2016-2017 – Raquel Costa – MSc Thesis in Biomedical Sciences (IHMT/UNL) – "Contribuição do efluxo para a emergência da resistência em bactérias persistentes." Supervisor: Miguel Viveiros | co-

supervisor: Diana Machado.

2. 2016-2017 – Samuel Antunes – MSc Thesis in Biomedical Sciences (IHMT/UNL) – "Aplicação de um método fluorométrico em placa de 96 poços para a detecção de actividade de efluxo em bactérias". Supervisor: Miguel Viveiros | co-supervisor: Diana Machado.

1. 2014-2016 – Ana Sofia Simões – MSc Thesis in Medical Microbiology (UNL) – "Contribuição do efluxo para a aquisição de resistência aos antibióticos em isolados clínicos de *Acinetobacter baumannii*." IHMT/UNL. Supervisor: Miguel Viveiros | co-supervisor: Diana Machado.

Supervisor of graduation students

5. March - July 2022 – Martim Peredo – "Determinação do perfil de susceptibilidade aos β-lactâmicos e colistina de estirpes clínicas de *Klebsiella pneumoniae*: análise retrospectiva". Universidade Lusófona de Humanidade e Tecnologias. Supervisor: Ana Cruz (ULHT); Diana Machado (IHMT/UNL).

4. March - July 2022 – Beatriz Gonzaga – "Detecção de mutações associadas à resistência à isoniazida em isolados clínicos de *Mycobacterium tuberculosis*: análise retrospectiva". Universidade Lusófona de Humanidade e Tecnologias. Supervisor: Ana Cruz (ULHT); Diana Machado (IHMT/UNL).

3. March - June 2021 - Diogo Coelho – "Avaliação comparativa do kit "UMIC Colistine" para a determinação da susceptibilidade à colistina em *Escherichia coli*". Universidade Lusófona de Humanidade e Tecnologias. Supervisor: Ana Cruz (ULHT); Diana Machado (IHMT/UNL).

2. February - June 2020 – Sarah Gothe – "Heterorresistência à colistina em estirpes de *Acinetobacter baumannii* produtoras de carbapenemases: o papel das bombas de efluxo." Universidade Lusófona de Humanidade e Tecnologias. Supervisor: Ana Cruz (ULHT); Diana Machado (IHMT/UNL) | co-supervisor: Miguel Viveiros (IHMT/UNL).

1. February - June 2020 – Isabel Roseiro. "Impacto da actividade de efluxo na resistência aos β-lactâmicos em estirpes clínicas de *Escherichia coli* produtoras e não produtoras de β- lactamases." Universidade Lusófona de Humanidade e Tecnologias. Supervisor: Ana Cruz (ULHT); Diana Machado (IHMT/UNL) | co-supervisor: Miguel Viveiros (IHMT/UNL).

Supervisor of research internships

6. April – May 2021. Rita Lopes (Faculdade Medicina, Universidade de Coimbra) – "Caracterização dos mecanismos de resistência intrínseca à temocilina". Supervisor: Diana Machado (IHMT/UNL).

5. August 2019 - October 2021. Bruna Pereira (Universidade Lusófona de Humanidade e Tecnologias) - "Exploring the contribution of efflux on the resistance to antibiotics, biocides and dyes in clinical isolates of *Escherichia coli*" - Supervisor: Diana Machado (IHMT/UNL) | co-supervisor: Miguel Viveiros (IHMT/UNL).

4. August - October 2019. Inês Maia (Universidade Lusófona de Humanidade e Tecnologias) - "Evaluation of competition between substrates of the efflux pump system AcrAB-TolC of *Escherichia coli* using Red Nile" - Supervisor: Diana Machado (IHMT/UNL) | co-supervisor: Miguel Viveiros (IHMT/UNL).

3. August 2019 – January 2020. Sarah Göthe (Universidade Lusófona de Humanidade e Tecnologias) - "Efluxo de brometo de etídio em *Acinetobacter baumannii* resistente à colistina e sua correlação com a presença de mutações associadas a resistência."- Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

2. August 2019 – January 2020. Isabel Roseiro (Universidade Lusófona de Humanidade e Tecnologias)

- “Impacto da sobrexpressão de bombas de efluxo de estirpes clínicas de *Escherichia coli* produtoras e não produtoras de β-lactamases de largo espectro.” Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

1. October 2018 - October 2020 – Iolanda Neves (Universidade Nova de Lisboa) – “O papel dos mutantes *hip* na resistência aos antibióticos mediada por efluxo em bactérias persistentes.” - Supervisor: Diana Machado | co-supervisor: Miguel Viveiros.

Unofficial co-supervisor of PhD students

1. 2013-2014 - Tatiane Silveira. PhD thesis in Cellular and Molecular Biology. “Relação entre o mecanismo de efluxo e a resistência aos antimicobacterianos em isolados clínicos de *Mycobacterium tuberculosis*. Universidade Federal do Rio Grande do Sul – UFRGS. Supervisors: Pedro A. Silva (Brazil); Supervisor: Miguel Viveiros | co-supervisor: Diana Machado (Portugal).

Unofficial co-supervisor of Master students

5. 2012-2013 - Vânia Silva. MSc Thesis in Biomedical Sciences (IHMT/UNL). “Contribuição dos sistemas de efluxo na resistência à claritromicina no complexo *Mycobacterium avium*”. Supervisor: Miguel Viveiros | co-supervisor: Isabel Couto. (Diana Machado: laboratory supervision and assistance in the preparation of the Thesis).

4. 2012-2013 - Carlos Serra. MSc Thesis in Medical Microbiology (UNL). “Novas estratégias no combate à tuberculose: a NADH-menaquinona desidrogenase do tipo II de *Mycobacterium tuberculosis*”. Supervisor: Isabel Couto | co-supervisor: Carlos Salgueiro. (Diana Machado: laboratory supervision and assistance in the preparation of the Thesis).

3. 2010-2011 - Antónia Pinto. MSc Thesis in Biomedical Sciences (IHMT/UNL). “Resistência mediada por efluxo em *Escherichia coli*: desenvolvimento de novas estratégias terapêuticas”. IHMT/UNL. Supervisor: Miguel Viveiros | co-supervisor: Isabel Couto. (Diana Machado: laboratory supervision and assistance in the preparation of the Thesis).

2. 2009-2010 - Samuel Francisco. MSc Thesis in Biomedical Sciences (IHMT/UNL). “Aplicação de métodos moleculares na identificação rápida de M/XDR-TB”. Supervisor: Isabel Couto. (Diana Machado: laboratory supervision and assistance in the preparation of the Thesis).

1. 2008-2009 - Pedro Cerca. MSc Thesis in Biomedical Sciences (IHMT/UNL). “Identificação molecular de micobactérias”. Supervisor: Isabel Couto. (Diana Machado: laboratory supervision and assistance in the preparation of the Thesis).

Unofficial co-supervisor of research grantees

2014-2015 - Laura Fernandes. Research grantee in the FCT funded project “Type-II NADH-menaquinone oxidoreductase (NDH-2) and the respiratory chain of *M. tuberculosis*. Supervisor: Isabel Couto | co-supervisor: Diana Machado.

JURY OF MASTER THESIS

I) Main interrogator

1. Pedro Gomes Soares. MSc Thesis in Microbiology. Instituto Superior Técnico, Universidade de Lisboa. “A genome-wide perspective on local and global genetic determinants of drug resistant tuberculosis.” Instituto Superior Técnico, 29 November 2019.

II) Supervisor

7. Inês Maia. MSc Thesis in Biomedical Sciences. Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa. "Estudo de competição entre substratos de bombas de efluxo em isolados clínicos de Escherichia coli por fluorimetria em tempo real usando Vermelho do Nilo." Instituto de Higiene e Medicina Tropical, 17 May 2022.

6. Diogo Coelho. Graduation in Biology: project "Avaliação comparativa do kit "UMIC Colistine" para a determinação da susceptibilidade à colistina em *Escherichia coli*." Universidade Lusófona de Humanidade e Tecnologias, 21 July 2021.

5. Sarah Gothe. Graduation in Biology: project "Heterorresistência à colistina em estirpes de *Acinetobacter baumannii* produtoras de carbapenemases: o papel das bombas de efluxo." Universidade Lusófona de Humanidade e Tecnologias, 22 July 2020.

4. Isabel Roseiro. Graduation in Biology: project "Impacto da actividade de efluxo na resistência aos β-lactâmicos em estirpes clínicas de *Escherichia coli* produtoras e não produtoras de β-lactamases." Universidade Lusófona de Humanidade e Tecnologias, 22 July 2020.

3. Débora Serra. MSc Thesis in Medical Microbiology. Universidade NOVA de Lisboa. "Detecção e inibição da actividade de β-lactamases em isolados clínicos de *Escherichia coli* combinando inibidores de β-lactamases e inibidores de efluxo usando o método MTT: validação fenotípica e genotípica. Faculdade de Ciências Médicas, 9 March 2020.

2. Fátima Rodrigues. MSc Thesis in Biomedical Sciences. Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa. "Caracterização dos mecanismos de resistência à colistina em isolados clínicos de *Acinetobacter baumannii* resistentes aos carbapenemos." Instituto de Higiene e Medicina Tropical, 10 Julho 2019.

1. Maria João Theron. MSc Thesis in Biomedical Sciences. Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa. "Caracterização da actividade de efluxo de Hoechst 33258 em *Escherichia coli*." Instituto de Higiene e Medicina Tropical, 5 February 2019.

GRANTS AND AWARDS

2020. Pfizer award - Best Poster Communication at the III International Conference NOVAhealth Chronic Disease and Infection: Infection, Cancer and Global Health. Lisboa, Portugal. 9 October 2020 (Online conference). Authors: Diana Machado, Marco Pieroni, Miguel Viveiros. 2020. Targeting *Mycobacterium tuberculosis* membrane energetics with lipophilic efflux inhibitors as adjuvants of tuberculosis treatment.

2018. Stimulus of Scientific Employment, Individual Support 2017 Call - Fundação para a Ciência e Tecnologia, Portugal (Ref. CEECIND/02562/2017).

2018. Prize Gilead Sciences - Project title: "Aplicação de nanopartículas superparamagnéticas no diagnostico rápido, simultâneo e não invasivo da infeção pelo VIH e da tuberculose". Diana Machado, Miguel Viveiros, João Piedade (IHMT); Pedro V. Baptista (FCT).

2017. Best Panel Communication on the Section "Health Microbiology and Biotechnology". Authors: Jessica Antunes, Diana Machado, Isabel Couto, Teresa Pacheco, Judite Batista, Cristina Toscano, Miguel Viveiros. 2017. "Correlação entre resistência aos carbapenemos, β- lactamases, porinas e bombas de efluxo em isolados clínicos de *Acinetobacter baumannii.*" Congresso Nacional de Microbiologia e Biotecnologia (MicroBiotec17). Porto, Portugal, 7-9 December 2017.

2015. Prize "Professor Doutor Manuel Pinto" – Best PhD student in Biomedical Sciences, speciality Microbiology, graduated in 2014, Instituto de Higiene e Medicina Tropical.

2014. Post-Doctoral grant from Fundação para a Ciência e Tecnologia, Portugal (Ref. SFRH/BPD/100688/2014).

2013. ESM travel grant and free registration for participation on the 34th Annual Congress of the European Society of Mycobacteriology. European Society of Mycobacteriology.

2011. Free registration on the 21st European Congress of Clinical Microbiology and Infectious Diseases. European Society of Clinical Microbiology and Infectious Diseases (ESCMID).

2010. PhD grant from Fundação para a Ciência e Tecnologia, Portugal (Ref. SFRH/BD/65060/2009).

PARTICIPATION WORKSHOPS AND SCIENTIFIC MEETINGS

29. TBnet Annual Meeting (online). 2022. The Institute for Health Science Research Germans Trias i Pujol (IGTP), Badalona, Spain. September 2, 2022.

28. 39th Annual Meeting of the European Culture Collections' Organisation. ECCO XXXIX Virtual Meeting, 22-24 September 2021.

27. Encontro Ciência ´22. Centro de Congressos de Lisboa 16-18 May 2022.

26. Working Group on New Drugs Virtual Annual Meeting. 14 October2021

25. 41st Annual Congress of the European Society of Mycobacteriology, 28-29 June (Virtual Meeting).

24. EUCAST Antimicrobial Susceptibility Testing Workshop. Malmö, Sweden. 4 February 2020.

23. II Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal. Faculdade de Farmácia, Universidade de Lisboa. 31 January 2020.

23. 12as Jornadas de Actualização em Doenças Infecciosas do Hospital de Curry Cabral. Culturgest. Auditório da Caixa Geral de Depósitos, Lisboa. 23-24 January 2020.

22. GHTM special session: "Third GHTM Antimicrobial Resistance Awareness Day". Instituto de Higiene e Medicina Tropical. 21 November 2019.

21. VIII Workshop Biossegurança: "Cenários em situações de emergência de origem biológica". Instituto Nacional de Saúde Doutor Ricardo Jorge. 13 November 2019.

20. I Simpósio Dia Mundial da Tuberculose. Faculdade de Farmácia, Universidade de Lisboa. 25 March 2019.

19. NOVAsaúde IV Genetics Workshop. Universidade NOVA de Lisboa Rectorate. Lisboa, Portugal. 21 March 2019.

18. Encontro Ciência ´19. Centro de Congressos de Lisboa 8 - 10 July 2019.

17. I International Conference NOVAhealth on Chronic Disease and Infection. Resistance to antibiotics: from prevention to control of infection in "One Health". Universidade NOVA de Lisboa Rectorate. 3 December 2018.

16. GHTM special session "Second GHTM Antimicrobial Resistance Awareness Day". Instituto de Higiene e Medicina Tropical. 13 November 2018.

15. Encontro Ciência ´18. Centro de Congressos de Lisboa 2-4 July 2018.

14. I Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portugal. Coimbra, Portugal. 18 Junho 2018.

14. GHTM special session "First GHTM Antimicrobial Resistance Awareness Day". Instituto de Higiene

e Medicina Tropical. 15 November 2017.

13. NOVAsaúde III Genetics Workshop. Universidade NOVA de Lisboa Rectorate. Lisboa, Portugal. 2 Outubro 2017.

12. Encontro Ciência ´17. Centro de Congressos de Lisboa 3-5 July 2017.

11. Simpósio "Tuberculose: a história e o património". Instituto de Higiene e Medicina Tropical. 24 March 2017.

10. Encontro Ciência ´16. Centro de Congressos de Lisboa 4-6 July 2016.

9. Host-pathogen interaction, towards a personalized medicine. Cycle of conferences. Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa 20-21 November 2014.

8. Lisbon workshop on new strategies to fight tuberculosis. Faculdade de Farmácia, Universidade de Lisboa. 18 June 2014.

7. Genomics workshop – Lectured by Thomas Otto, Sanger Centre. Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa. 24 and 26 April 2013.

6. Phage and mycobacterial molecular biology workshop. Faculdade de Farmácia, Universidade de Lisboa. 21 June 2011.

5. ESF EMRC Exploratory Workshop EW09-007: "Multidisciplinary consortium for the development of effective, but non-toxic drugs against MDR-TB and XDR-TB", Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa. 1-3 December 2010.

4. URIA Mycobacterium Workshop, Faculdade de Farmácia, Universidade de Lisboa. 8 April 2009.

3. Real Time PCR seminary: new tools for gene expression. Sponsored by Bio-Rad Laboratories Lda. ITQB II - Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa. 14 May 2008.

2. 2as Jornadas de Actualização de PCR em Tempo Real. Sponsored by Quilaban, Lda. Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa. 18 March 2008.

1. Reunião de actualização em Tuberculose. Sponsored by Quilaban Lda and Becton Dickinson, Lda. Pousada de Santa Cristina, Condeixa-A-Nova. 28 June 2006.

SERVICES TO THE COMMUNITY

Since 2006. Reception and processing of clinical samples for the detection of mycobacteria (*M. tuberculosis* and non-tuberculous mycobacteria), including ZN staining, culture preparation, molecular identification and first- and second line and quantitative drug susceptibility testing at the Mycobacteriology Laboratory (BSL3), IHMT/UNL; early detection of M/XDR-TB in clinical samples by molecular systems.

Since 2020. Molecular detection of SARS-CoV-2. Reception and processing of clinical samples. Mycobacteriology Laboratory (BSL3), IHMT/UNL. Collection of samples for testing (nasopharyngeal and oropharyngeal swabs; saliva). Rapid testing: IgM/IgG serology and antigen detection.

AD-HOC REVIEWING – JOURNALS

Editorial Board Member – BMC Infectious Diseases

Editorial Board Member – Annals of Clinical Microbiology and Antimicrobials
Editorial Board Member – Journal of Global Antimicrobial Resistance
Editorial Board Member – Frontiers in Microbiology

Reviewer – publons.com/a/1176897/

PROFESSIONAL/SCIENTIFIC ASSOCIATION MEMBERSHIP

- ESM, European Society of Mycobacteriology
- ESGMYC, ESCMID Study Group for Mycobacterial Infections
- ASM, American Society of Microbiology
- ESCMID, European Society of Clinical Microbiology and Infectious Diseases
- TBnet, NTM-NET and ptbnet
- SPM, Sociedade Portuguesa de Microbiologia (Portuguese Society of Microbiology)
- Lab-PTBioNet, Rede Nacional Portuguesa de Biossegurança (Portuguese Biosecurity National Network – as member, IHMT representative)
- ISO Global Directory

LANGUAGES

Portuguese – Native speaker.
English - Fluent reading, writing and conversation skills.