

Curriculum Vitae

IDENTIFICATION

Name: Diana Isabel Oliveira Machado

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Place and date of birth: Lisbon, Portugal – 11 December 1977

Address:

Group of Mycobacteriology, Unit of Medical Microbiology

Global Health and Tropical Medicine (GHTM) - TB, HIV and opportunistic diseases and pathogens (THOP)

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IDENTIFICATION IN PUBLIC DATABASES

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Google Scholar: <https://scholar.google.pt/citations?user=zQ0nlmoAAAAJ&hl=en>

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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](https://research.unl.pt/en/persons/diana-isabel-oliveira-machado(0135e1e3-a3fe-41fe-b17a-96514eb09537).html)

Scopus *h*-index: 14

Google scholar *h*-index: 17

ACADEMIC FORMATION

2014 – PhD in Biomedical Sciences, Speciality Microbiology. Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa, November 2014.

2009 – Master of Science in Medical Microbiology. Universidade NOVA de Lisboa, December 2009.

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

CURRENT POSITION

Since **01/12/2018** – Auxiliary researcher. Group of Mycobacteriology, Unit of Medical Microbiology. Global Health and Tropical Medicine, GHTM, Instituto de Higiene e Medicina Tropical, IHMT, Universidade Nova de Lisboa, UNL.

PREVIOUS ACTIVITY

01/10/2015 to 30/11/2018 – Post-Doc Research Fellow (Integrated Member), Global Health and Tropical Medicine, Instituto de Higiene e Medicina Tropical (IHMT/UNL). FCT Grant SFRH/BPD/100688/2014.

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. Unidade de Microbiologia Médica, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/02/2010 – 19/11/2014 - PhD student - Unidade de Microbiologia Médica, Instituto de Higiene e Medicina Tropical (IHMT/UNL). FCT Grant SFRH/BD/65060/2009.

01/03/2009 – 31/01/2010 - Research grantee (PTDC/BIA-MIC/BIC-01/2008) 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. Unidade de Micobactérias, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/10/2006 – 31/12/2008 - Specialized technician in molecular diagnosis. Unidade de Micobactérias, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/06/2006 – 30/09/2006 - Advanced training in Mycobacteriology laboratorial technics, including specimen processing, culture, identification and susceptibility testing. Unidade de Micobactérias, Instituto de Higiene e Medicina Tropical (IHMT/UNL).

01/10/2005 – 31/10/2006 - Undergraduate student. Unidade de Micobactérias, Instituto Higiene e Medicina Tropical (IHMT/UNL).

RESEARCH INTERESTS

The scientific activity developed extends 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. My 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, its 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* and *Mycobacterium kansasii*; molecular identification of nontuberculous mycobacteria. Development of nanodiagnosics for tuberculosis.

Also interested on the study of antimicrobial resistance mechanisms of the Gram-negative bacterial species *Acinetobacter baumannii* and *Escherichia coli*, mainly B-lactams, carbapenems and colistin resistance, efflux pumps and discovery of new drugs/efflux inhibitors to tackle drug resistance and dissemination in these microorganisms.

PROFESSIONAL AND TECHNICAL SKILLS

- Work under Biosafety Level 3 conditions with *Mycobacterium tuberculosis* susceptible, multi- and extensively drug resistant strains over the last 14 years at full time at technical/research/teaching working level. Specific training on Biosafety Level 3 (BSL-3) laboratory practices to handle pathogenic agents (Level 3), namely, multi- and extensively drug resistant *M. tuberculosis* strains.
- Cell culture and macrophage infection.
- Genetic manipulation of mycobacteria.
- Mycobacterial molecular typing.
- Laboratorial diagnosis of tuberculosis and other mycobacteriosis.
- General 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).

2. "Dinâmica fisiológica e mutacional da multirresistência em *Mycobacterium tuberculosis*." Dissertação de Mestrado em Microbiologia Médica, Universidade NOVA de Lisboa. October, 2009, Public defense, December 2009 (ISBN 978-989-20-2105-8).

1. “Aplicação de checkerboard hybridization para identificação de *Staphylococcus*”. Graduation thesis. Universidade Lusófona de Humanidades e Tecnologias. September, 2006; Public defense, October 2006.

B) Book chapters (n=2)

2. Pedro E.A. da Silva, **Diana Machado**, Daniela Ramos, Isabel Couto, Andrea von Groll, and 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=46)

2019

46. 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.

2018

45. **Diana Machado**, Isabel Couto, Miguel Viveiros. 2018. Advances in the molecular diagnosis of tuberculosis: From probes to genomes. Infect Genet Evol. S1567-1348(18)30933-X.

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. [IF(2017): 3.190; Q2]

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. [IF(2017): 4.019; Q1]

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. [IF(2017): 2.112; Q1]

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. [IF(2017): 4.255; Q1]

39. João Perdigão, Carla Silva, Jaciara Diniz, Catarina Pereira, **Diana Machado**, Jorge Ramos, Hugo Silva, Fernanda Abilleira, Clarice Brum, Ana J. Reis, Máira 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. *In press*. [IF(2017): 2.545; Q1]

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. [SJR(2017): 1.063; Q1]

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. [IF(2017): 4.122; Q1]

*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. [IF(2017): 4.556; Q1]

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. [IF(2017): 2.766; Q1]

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. [IF(2017): 4.255; Q1].

*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. [IF(2017):4.816; Q1]

*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. [IF(2017): 6.253; Q1]

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. [IF(2017): 4.019; Q1]

*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. [IF(2016): 2.2; Q1]

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. [IF(2017): 4.122; Q1]

2016

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. [SJR(2017): 0.535; Q3]

27. Jody Phelan*, Denise O'Sullivan*, **Diana Machado***, Jorge Ramos, Alexandra S. Whale, Justin O'Grady, Keertan Dheda, Susana Campino, Ruth Mc Nerney, 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. [IF(2017): 8.898; Q1]

*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. [IF(2017): 1.593; Q1]

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. [IF(2017): 4.253; Q1]

24. **Diana Machado**, David Pires, João Perdigão, Isabel Couto, Isabel Portugal, Marta Martins, Leonard Amaral, Elsa Anes, Miguel Viveiros. 2016. Ion channel blockers as antimicrobial agents, efflux inhibitors, and enhancers of macrophage killing activity against drug resistant *Mycobacterium tuberculosis*. *PloS One.* 11(2):e0149326. [IF(2017): 2.766; Q1]

2015

23. Marco Pieroni*, **Diana Machado***, Elisa Azzali, Sofia S. Costa, Isabel Couto, Gabrielle Costantino, Miguel Viveiros. 2015. Rational design and synthesis of thioridazine analogues as enhancers of the antituberculosis therapy. *J. Med. Chem.* 58:5842-5853. [IF(2017):6.253; Q1]
*Shared first co-authorship

22. **Diana Machado***, Rolando Cannalire*, Sofia Santos Costa, Giuseppe Manfroni, Oriana Tabarrini, Violetta Cecchetti, Isabel Couto, Miguel Viveiros, Stefano Sabatini. 2015. The boosting effect of 2-phenylquinoline efflux inhibitors in combination with macrolides against *Mycobacterium smegmatis* and *Mycobacterium avium*. *ACS Infect. Dis.* 12:593-603. [IF(2017): 4.325; Q1]
*Shared first co-authorship

21. 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. Direct detection by the Xpert MTB/RIF assay and characterization of multi and poly drug-resistant tuberculosis in Guinea-Bissau, West Africa. *PloS One.* 10:e0127536. [IF(2017): 2.766; Q1]

20. Tatiane Coelho*, **Diana Machado***, Isabel Couto, Raquel Maschmann, Daniela Ramos, Andrea von Groll, Maria L. Rossetti, Pedro A. Silva, Miguel Viveiros. 2015. Enhancement of antibiotic activity by efflux inhibitors against multidrug resistant *Mycobacterium tuberculosis* clinical isolates from Brazil. *Front. Microbiol.* 6:330. [IF(2017): 4.019; Q1]
*Shared first co-authorship

19. João Perdigão, Hugo Silva, **Diana Machado**, Rita Macedo, Fernando Maltez, Carla Silva, Luisa Jordão, Isabel Couto, Kim Mallard, Francesc Coll, Grant A. Hill-Cawthorne, Ruth McNerney, Arnab Pain, Taane G. Clark, Miguel Viveiros, Isabel Portugal. 2015. Genomic diversity of drug-resistant *Mycobacterium tuberculosis* isolates in Lisbon, Portugal: towards tuberculosis genomic epidemiology. *Int. J. Mycobacteriol.* 4:27-28. [SJR(2017): 0.535; Q3]

18. Emmanuelle Cambau, Miguel Viveiros, **Diana Machado**, Laurent Raskine, Claudia Ritter, Enrico Tortoli, Maryse Fauville-Dufaux, Sven Hoffner, Elvira Richter, Maria Perez del Molino, Daniella Cirillo, Dick van Soolingen, and Erik Boettger. 2015. Revisiting susceptibility testing in multidrug resistant tuberculosis by a standardized quantitative phenotypic assessment in a European multicenter study. *J. Antimicrob. Chemother.* 70:686-696. [IF(2017): 5.217; Q1]

2014

17. João Perdigão, Hugo Silva, **Diana Machado**, Rita Macedo, Fernando Maltez, Carla Silva, Luisa Jordão, Isabel Couto, Kim Mallard, Francesc Coll, Grant A. Hill-Cawthorne, Ruth McNerney, Arnab Pain, Taane G. Clark, Miguel Viveiros, Isabel Portugal. 2014. Unraveling *Mycobacterium tuberculosis* genomic diversity and evolution in Lisbon, Portugal, a highly drug resistant setting. *BMC Genomics.* 15:991. [IF(2016): 3.729; Q1]

16. Célia Leão, Ana Canto, **Diana Machado**, Ilda Sanches, Isabel Couto, Miguel Viveiros, João Inácio, Ana Botelho. 2014. Relatedness of *Mycobacterium avium* subspecies *hominissuis* clinical isolates of human and porcine origins assessed by MLVA. *Vet. Microbiol.* 173:92-100. [IF(2017): 2.524; Q1]

15. Pedro Costa, Ana Ferreira, Ana Amaro, **Diana Machado**, Teresa Albuquerque, Isabel Couto, Ana Botelho, Miguel Viveiros, João Inácio. 2014. Rapid identification of veterinary-relevant *Mycobacterium tuberculosis* complex species using 16S rDNA, IS6110 and regions of difference-targeted dual-labelled hydrolysis probes. *J. Microbiol. Method.* 107:13-22. [IF(2017): 1.701; Q2]

14. Pedro Pedrosa, Bruno Veigas, **Diana Machado**, Isabel Couto, Miguel Viveiros, Pedro V. Baptista. 2014. Gold nanoprobe for multi loci assessment of multi-drug resistant tuberculosis. *Tuberculosis.* 94:332-337. [IF(2017): 2.727; Q2]

13. **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. *BioMed Res. Int.* 398108:1-6. [IF(2017): 2.583; Q1]

2013

12. João Perdigão, Rita Macedo, **Diana Machado**, Carla Silva, Luísa Jordão, Isabel Couto, Miguel Viveiros, Isabel Portugal. 2013. GidB mutation as a phylogenetic marker for Q1 cluster *Mycobacterium tuberculosis* isolates and intermediate-level streptomycin resistance determinant in Lisbon, Portugal. *Clin. Microbiol. Infect.* 20:O278-O284. [IF(2017): 5.394; Q1]

11. Ana Armada, Tatiana Alexandru, **Diana Machado**, Balazs Danko, Attila Hunyadi, Andra Dinache, Viorel Nastasa, Mihai Boni, Jorge Ramos, Miguel Viveiros, Joseph Molnar, Mihail L. Pascu, Leonard Amaral. 2013. The *in vitro* activity of products formed from exposure of chlorpromazine to a 266nm laser beam against species of mycobacteria of human interest. *In vivo.* 27:605-610. [IF(2017):1.116; Q2]

10. Diana Machado, João Perdigão, Jorge Ramos, Isabel Couto, Isabel Portugal, Claudia Ritter, Erik C. Boettger, Miguel Viveiros. 2013. High-level resistance to isoniazid and ethionamide in multidrug resistant *Mycobacterium tuberculosis* of the Lisboa family is associated with *inhA* double mutations. J. Antimicrob. Chemother. 68:1728-1732. [IF(2017): 5.217; Q1]

2012

9. Miguel Viveiros, Marta Martins, Liliana Rodrigues, **Diana Machado**, Isabel Couto, José Ainsa, Leonard Amaral. 2012. Inhibitors of mycobacterial efflux pumps as potential boosters for anti-tubercular drugs. Expert Rev. Anti Infect. Ther. 10:983-998. [IF(2017): 3.141; Q2]

8. João Perdigão, Rita Macedo, Carla Silva, **Diana Machado**, Isabel Couto, Miguel Viveiros, Luisa Jordão, Isabel Portugal. 2012. From multidrug-resistant to extensively drug-resistant tuberculosis in Lisbon, Portugal: the stepwise mode of resistance acquisition. J. Antimicrob. Chemother. 68:27-33. [IF(2017): 5.217; Q1]

7. Diana Machado, Isabel Couto, João Perdigão, Liliana Rodrigues, Isabel Portugal, Pedro V. Baptista, Bruno Veigas, Leonard Amaral, Miguel Viveiros. 2012. Contribution of efflux to the emergence of isoniazid and multidrug resistance in *Mycobacterium tuberculosis*. PLoS One. 7:e34538. [IF(2017): 2.766; Q1]

6. Liliana Rodrigues, **Diana Machado**, Isabel Couto, Leonard Amaral, Miguel Viveiros. 2012. Contribution of efflux activity to isoniazid resistance in the *Mycobacterium tuberculosis* complex. Infect. Genet. Evol. 12:695-700. [IF(2017): 2.545; Q1]

2011

5. Sofia S. Costa, Celeste Falcão, Miguel Viveiros, **Diana Machado**, Marta Martins, José Melo-Cristino, Leonard Amaral, Isabel Couto. 2011. Exploring the contribution of efflux on the resistance to fluoroquinolones in clinical isolates of *Staphylococcus aureus*. BMC Microbiol 11:241. [IF(2017): 2.829; Q2]

2010

4. Bruno Veigas, **Diana Machado**, João Perdigão, Isabel Portugal, Isabel Couto, Miguel Viveiros, Pedro V. Baptista. 2010. Au-nanoprobes for detection of SNPs associated with antibiotic resistance in *Mycobacterium tuberculosis*. Nanotechnology. 21:415101. [IF(2017): 3.404; Q1]

3. Miguel Viveiros, Marta Martins, Isabel Couto, Liliana Rodrigues, **Diana Machado**, Isabel Portugal, Leonard Amaral. 2010. Molecular tools for rapid identification and novel effective therapy against MDRTB/XDRTB infections. Expert. Rev. Anti Infect. Ther. 8:465-480. [IF(2017): 3.141; Q2]

2. Isabel Couto, **Diana Machado**, Miguel Viveiros, Liliana Rodrigues, Leonard Amaral. 2010. Identification of nontuberculous mycobacteria in clinical samples using molecular methods: a three-year study. Clin. Microbiol. Infect. 16:1161-1164. [IF(2017): 5.394; Q1]

2009

1. Liliana Rodrigues, Daniela Sampaio, Isabel Couto, **Diana Machado**, Winfried V. Kern, Leonard Amaral, Miguel Viveiros. 2009. The role played by efflux pumps in intrinsic drug resistance of *Mycobacterium avium* complex to macrolides. Int. J. Antimicrob. Agents. 34:529-533. [IF(2017): 4.253; Q1]

D) Publications in national peer-reviewed journals (n=1)

Sandra A. Morais, Virginia Moneti, Joana Silva, Karen Pereira, Marta Manso, Teresa Vilaça Santos, Vera Falcão, Ana Cláudia Miranda, Isabel Antunes, **Diana Machado**, Miguel Viveiros, João Rijo, Judite Batista, Kamal Mansinho. 2017. Tuberculose extensivamente resistente: uma realidade presente. Revisão da literatura a propósito de um caso clínico. Revista Portuguesa de Doenças Infecciosas. 13:24-34.

E) Communications in congresses and other scientific meetings

Oral communications (n=30)

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. Jéssica 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.

28. Thomas Schön, Miguel Viveiros, Jim Werngren, Daniella Cirrillo, Emanuele Borroni, Maria Wijkander, **Diana Machado**, Gerard Lina, Johan Mouton, Emmanuelle Cambau. 2019. Towards a new reference drug susceptibility testing method for *Mycobacterium tuberculosis*. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Amsterdam, Netherlands. 13-16 April 2019.

27. **Diana Machado**, João Perdigão, Jorge Ramos, Ana Tavares, Ana Abecasis, Sónia Dias, Taane Clark, Isabel Portugal, Isabel Couto, Miguel Viveiros. 2019. Epidemiologia molecular da resistência em *Mycobacterium tuberculosis* multirresistente em Lisboa. 4^o Congresso Nacional de Medicina Tropical. Lisbon, Portugal. 10-12 April 2019.

- 26. 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. 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Madrid, Spain. 21-24 April 2018.
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- 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

As Principal Investigator

1. "Targeting latent tuberculosis: inhibition of efflux in *Mycobacterium tuberculosis* persister cells during dormancy as a new strategy for anti-TB drug discovery" – DM04-DRH/201 - PI: Diana Machado | co-PI: Miguel Viveiros 2018-2024.

2. “Understanding the biological processes that shape metabolic compensation of fitness cost in *Mycobacterium tuberculosis* overexpressing efflux pumps”. PI: Diana Machado | co-PI: Miguel Viveiros 2019-2021.

3. “Deciphering genomic diversity vs disease diversity crosstalk in multi- and extensively drug resistant *Mycobacterium tuberculosis* strains”. PI: Diana Machado | co-PI: Miguel Viveiros 2019-2021.

As Co-Principal Investigator:

3. “Determination of the minimum inhibitory concentration of pretomanid against *M. tuberculosis* using the BACTEC MGIT 960 instrument - TB Alliance Pretomanid_NCLN_Micro_002 Study”. Global Alliance for Tuberculosis Drug Development. PI: Miguel Viveiros | co-PI: Diana Machado. 2017-2018.

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. 2018-2021.

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. 2018-2019.

As team member:

11. “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. 2018-2021.

10. “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. 2018-2021.

9. “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. 2018-2021.

8. “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.

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.

PARTICIPATION IN PROTOCOLS AND MULTICENTRIC STUDIES

- 2010 - 2014 - Development of a protocol for semiquantitative drug susceptibility testing of *M. tuberculosis* using MGIT 960 / TB eXiST – ESGMYC and BD TBxIST - quantitative drug susceptibility testing (qDST) EU validation study.
- 2015 - 2017 - Evaluation of the Kit SIRE Nitratase assay - Brazilian TB lab-network and the company PlastLabor.
- 2017 – Ongoing - 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.
- 2018 – Ongoing - Determination of the minimum inhibitory concentration of pretomanid against *M. tuberculosis* using the BACTEC MGIT 960 instrument - TB Alliance for drug development.

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 April 2014 - 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, and 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. Vídeo-conference. 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 Príncipe. 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 applied to 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 Micobacterioses (since 2007).
- Master in Medical Microbiology (UNL) - Curricular Unit of Tuberculosis and other Micobacterioses (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) (since 2019) - Curricular Unit “Challenges and perspectives in biology of microorganisms”

C) Mentorship/Supervision

Co-supervisor of PhD Students

2. 2017- Ongoing - Mariana Tatara - 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- Ongoing - 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 of Master Students

3. 2018-2019 – Iolanda Neves – MSc Thesis in Medical Microbiology (UNL) – “O papel dos mutantes *hip* na resistência aos antibióticos mediada por efluxo em bactérias persistentes” - Supervisor: Diana Machado | co-supervisor: Miguel Viveiros. Ongoing.

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. Ongoing.

Co-supervisor of Master Students

6. 2018-2019 – José Ribeiro – MSc Thesis in Medical Microbiology (UNL) – “Prevalência de genes que codificam bombas de efluxo SMR em *Acinetobacter baumannii* resistente aos carbapenemos isolados em ambiente hospitalar” - Supervisor: Miguel Viveiros | co-supervisor: Diana Machado. Ongoing.

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 - Jéssica 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.

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 *E. 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.

GRANTS AND AWARDS

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 diagnóstico 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: Jéssica 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

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

11. Encontro Ciência ´17. Centro de Congressos de Lisboa 3-5 July 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. 2^{as} Jornadas de Atualização 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

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 of IHMT/UNL; early detection of M/XDR-TB in clinical samples by molecular systems - since 2006 to the present.

AD-HOC REVIEWING – JOURNALS

Associate Editor – BMC Infectious Diseases
Reviewer – publons.com/a/1176897/

PROFESSIONAL/SCIENTIFIC ASSOCIATION MEMBERSHIP

- ASM, American Society of Microbiology
- ESCMID, European Society of Clinical Microbiology and Infectious Diseases
- ESGMYC, ESCMID Study Group for Mycobacterial Infections
- TBnet, NTM-NET and ptbnet
- SPM, Sociedade Portuguesa de Microbiologia (Portuguese Society of Microbiology)

LANGUAGES

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