

## ***Curriculum vitae***



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### **PROFESSIONAL SITUATION**

#### **Current Professional status**

Since 01/09/2018 - Marie-Curie Fellow (H2020-MSCA-IF-2017: iCHEMGENODRUGS\_TB) at the TB, HIV and opportunistic diseases and pathogens group of Global Health and Tropical Medicine, Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa

#### **Previous Activities**

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|-------------------------|---|
| 01/01/2013 - 31/07/2016 | Researcher at Fundación Agencia Aragonesa para la Investigación y Desarrollo (ARAID) and Universidad de Zaragoza, Zaragoza, Spain   |
| 01/11/2011 - 31/12/2012 | Post-Doctoral Researcher, at Universidad de Zaragoza, Spain   |
| 01/05/2011 - 31/07/2011 | Short-term research fellow (supported by European Molecular Biology Society) at Universidad de Zaragoza, Spain.   |
| 01/03/2010 - 31/05/2010 | Short-term research fellow (supported by COST Action BM0701) at Universidad de Zaragoza, Spain.   |
| 17/10/2006 - 30/11/2006 | Short-term fellow (supported by Portuguese Science and Technology Foundation, FCT) at Center for Infectious Diseases and Travel Medicine, University Hospital, Freiburg, Germany. |
| 01/03/2006 - 25/10/2010 | PhD student at Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, Lisboa, Portugal  |

## EDUCATION AND TRAINING

### University education

2010 - PhD in Biomedical Sciences, specialization Microbiology, by Universidade Nova de Lisboa. Thesis title: "The role of the efflux mechanisms in multidrug resistance in *M.tuberculosis*".

2006 - MSc in Medical Microbiology, by Universidade Nova de Lisboa.

2002 - Degree in Microbial Biology and Genetics by Universidade de Lisboa.

### Other Courses

2015 - Laboratory animal course: Category C (persons responsible for directing animal experiments), Universidad de Zaragoza, Spain.

2009 - Leeds Ion Channel Workshop, University of Leeds, U.K.

## PUBLICATIONS

### Book chapters:

1. **Rodrigues L.**, Aínsa JA., Viveiros M. 2020. Measuring efflux and permeability in mycobacteria. In Mycobacteria Protocols. United States:Springer. *Under revision*
2. **Rodrigues L.**, Viveiros M., Aínsa J.A. 2015 Measuring efflux and permeability in mycobacteria. *Methods Mol. Biol.* **1285**: 227-39. [https://link.springer.com/protocol/10.1007%2F978-1-4939-2450-9\\_13](https://link.springer.com/protocol/10.1007%2F978-1-4939-2450-9_13)
3. Amaral L., Martins A., Spengler G., Martins M., **Rodrigues L.**, McCusker M., Ntokou E., Cerca P., Machado L., Viveiros M., Couto I., Fanning S., Kristiansen J., Molnar J. 2012. Structure, genetic regulation, physiology and function of the AcrAB-TolC efflux pump of *Escherichia coli* and *Salmonella*. Chapter 4 (Page no: 44) In Antimicrobial drug discovery: emerging strategies. Tegos, A., Mylonakis, E., Eds. <https://www.cabi.org/cabebooks/ebook/20123306543>
4. Amaral L., Fanning S., Spengler G., **Rodrigues L.**, Iversen C., Martins M., Martins A., Viveiros M., Couto I. 2012. Genetic regulation, physiology, assessment and inhibition of efflux pumps responsible for multi-drug resistant phenotypes of bacterial pathogens. In Bacterial Pathogens: Virulence Mechanisms, Diagnosis and Management. Nova Science Publishers.
5. Amaral L., Viveiros M., Fanning S., Pages J.M., Couto I., Spengler G., **Rodrigues L.**, Martins A. 2011. Genetic regulation, physiology, assessment and inhibition of efflux pumps responsible for multi-drug resistant phenotypes of bacterial pathogens. In Antibiotic Resistance: Causes and Risk Factors, Mechanisms and Alternatives. Nova Science Publishers.
6. Amaral L., Fanning S., McCusker M., Spengler G., **Rodrigues L.**, Iversen C., Martins M., Martins, A., Viveiros M., Couto I., Pages J.-M. 2010. Genetic regulation, physiology, assessment and inhibition of

efflux pumps responsible for multi-drug resistant phenotypes of bacterial pathogens. In Multiple Drug Resistance. Nova Science Publishers.

#### Journal articles:

1. **Rodrigues L.**, Cravo P., Viveiros M. 2020. "Efflux pump inhibitors as a promising adjunct therapy against drug resistant tuberculosis: a new strategy to revisit mycobacterial targets and repurpose old drugs". *Expert Rev. Anti-infect. Ther.* <https://doi.org/10.1080/14787210.2020.1760845>.
2. Salillas S., Alías M., Michel V., Mahía A., Lucía A., **Rodrigues L.**, Bueno J., Galano-Frutos J.J., De Reuse H., Velázquez-Campoy A., Carrodegua J.A., Sostres C., Castillo J., Aínsa J.A., Díaz-de-Villegas M.D., Lanás Á., Touati E., Sancho J. 2019. Design, synthesis, and efficacy testing of nitroethylene- and 7-Nitrobenzoxadiazol-based flavodoxin inhibitors against *Helicobacter pylori* drug-resistant clinical strains and in *Helicobacter pylori*-infected mice. *J. Med. Chem.* **62**(13): 6102-6115. <http://dx.doi.org/10.1021/acs.jmedchem.9b00355>.
3. Sanz-García F., Anoz-Carbonell E., Pérez-Herrán E. Martín C., Lucía A., **Rodrigues L.**, Aínsa J.A. 2019. Mycobacterial aminoglycoside acetyltransferases: a little of drug resistance, and a lot of other roles. *Front. Microbiol.* **10**:46 <http://dx.doi.org/10.3389/fmicb.2019.00046>.
4. Vieira ML, **Rodrigues L.**, Almeida F., Fortes F., de Sousa G., Monteiro S., Silveira S., Viveiros Miguel. 2019. Laboratory services contribution to supporting public health and health services in Portuguese-speaking countries. *Anais do Instituto de Higiene e Medicina Tropical.* <https://doi.org/10.25761/anaisihmt.337>
5. Mori G., Orena B.S., Franch C., Mitchenall L.A., Godbole A.A., **Rodrigues L.**, Aguilar-Pérez C., Zemanová J., Huszár S., Forbak M., Lane T.R., Sabbah M., Deboosere N., Frita R., Vandeputte A., Hoffmann E., Russo R., Connell N., Veilleux C., Jha R.K., Kumar P., Freundlich J.S., Brodin P., Aínsa J.A., Nagaraja V., Maxwell A., Mikušová K., Pasca M.R., Ekins S. 2018 The EU approved antimalarial pyronaridine shows antitubercular activity and synergy with rifampicin, targeting RNA polymerase. *Tuberculosis (Edinb).* **112**:98-109. [https://www.tuberculosisjournal.com/article/S1472-9792\(18\)30008-8/fulltext](https://www.tuberculosisjournal.com/article/S1472-9792(18)30008-8/fulltext)
6. García M.T., Yugueros D.C., Tirado-Vélez J.M., Ferrandiz M.J., **Rodrigues L.**, Gracia B., Ainsa J.A., De La Campa A.G. 2018. Boldine-derived alkaloids inhibit the activity of DNA topoisomerase I and growth of *Mycobacterium tuberculosis*. *Front. Microbiol.* **9**:1659. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6066988/>
7. Aguilar-Pérez C., Gracia B., **Rodrigues L.**, Vitoria A., Cebrián R., Deboosère N., Song O.R., Brodin P., Maqueda M., Aínsa J.A. Synergy between circular bacteriocin AS-48 and ethambutol against *Mycobacterium tuberculosis*. *Antimicrob. Agents Chemother.* 2018 Jul 9. pii: AAC.00359-18. doi: 10.1128/AAC.00359-18. <https://aac.asm.org/content/62/9/e00359-18.long>
8. Glaus F., Dedic D., Tare P., Nagaraja V., **Rodrigues L.**, Ainsa J.A., Kunze J., Schneider G., Hartkoorn R.C., Cole S.T., Altmann K.H. 2018. Total synthesis of ripostatin B and structure-activity relationship studies on ripostatin analogs. *J. Org. Chem.* <https://pubs.acs.org/doi/10.1021/acs.joc.8b00193>

9. **Rodrigues L.**, Parish T., Balganesch M., Ainsa J.A. 2017. Antituberculosis drugs: reducing efflux=increasing activity. *Drug Discov. Today.* **22**(3):592-599. <https://www.sciencedirect.com/science/article/pii/S1359644617300107?via%3Dihub>
10. Singh V., Dhar N., Pató J., Kolly G.S., Korduláková J., Forbak M., Evans J.C., Székely R., Rybníček J., Palčeková Z., Zemanová J., Santi I., Signorino-Gelo F., **Rodrigues L.**, Vocat A., Covarrubias A.S., Rengifo M.G., Johnsson K., Mowbray S., Buechler J., Delorme V., Brodin P., Knott G.W., Ainsa J.A, Warner D.F., Kéri G., Mikušová K., McKinney J.D., Cole S.T., Mizrahi V., Hartkoorn R.C. 2017. Identification of Aminopyrimidine. Sulfonamides as Potent Modulators of Wag31-mediated Cell Elongation in Mycobacteria. *Mol. Microbiol.* **103**(1): 13-25. <http://onlinelibrary.wiley.com/doi/10.1111/mmi.13535/abstract;jsessionid=E61EFB90E42F59A3972DEC3714677546.f04t04>
11. **Rodrigues L.**, Villellas C., Bailo R., Viveiros M., Ainsa J.A. 2013. Role of the Mmr efflux pump in drug resistance in *M. tuberculosis*. *Antimicrob. Agents Chemother.* **57**(2): 751-757. <http://aac.asm.org/content/57/2/751.long>
12. **Rodrigues L.**, Machado D., Couto I., Amaral L., Viveiros M. 2012. Contribution of efflux activity to isoniazid resistance in the *Mycobacterium tuberculosis* complex. *Infect. Genet. Evol.* **12**(4): 695-700. <https://www.sciencedirect.com/science/article/pii/S1567134811002887?via%3Dihub>
13. Machado D., Couto I., Perdigão J., **Rodrigues L.**, Portugal I., Baptista P., Veigas B., Amaral L., Viveiros M. 2012. Contribution of efflux to the emergence of isoniazid and multidrug resistance in *Mycobacterium tuberculosis*. *PLOS ONE.* **7**(4):e34538. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0034538>
14. Spengler G., **Rodrigues L.**, Martins A., Martins M., McCusker M., Cerca P., Machado L., Costa S.S., Ntokou E., Couto I., Viveiros M., Fanning S., Molnar J., Amaral L. 2012. Genetic response of *Salmonella enterica* serotype Enteritidis to thioridazine rendering the organism resistant to the agent. *Int. J. Antimicrob. Agents* **39**(1): 16-21. [http://www.ijaaonline.com/article/S0924-8579\(11\)00358-X/fulltext](http://www.ijaaonline.com/article/S0924-8579(11)00358-X/fulltext)
15. Viveiros M., Martins M., **Rodrigues L.**, et al. 2012. Inhibitors of Mycobacterial Efflux Pumps as Potential Boosters for Antitubercular Drugs. *Exp. Rev. Anti Infect. Ther.* **10**(9): 983-98. <http://www.tandfonline.com/doi/abs/10.1586/eri.12.89?journalCode=ierz20>
16. **Rodrigues L.**, Ramos J., Couto I., Amaral L., Viveiros M. 2011. Ethidium bromide transport across *Mycobacterium smegmatis* cell-wall: correlation with antibiotic resistance. *BMC Microbiol.* **11**:35. <https://bmcmicrobiol.biomedcentral.com/articles/10.1186/1471-2180-11-35>
17. **Rodrigues L.** Ainsa J.A., Amaral L., Viveiros M. 2011. Inhibition of Drug Efflux in Mycobacteria with Phenothiazines and Other Putative Efflux Inhibitors. *Recent Pat Antiinfect Drug Discov.* **6**(2): 118-127. <http://www.eurekaselect.com/88270/article>
18. Martins A., Spengler G., Martins M., **Rodrigues L.**, Viveiros M., Davin-Regli A., Chevalier J., Couto I., Pagès J.M., Amaral L. 2010. Physiological characterization of the efflux pump system of antibiotic-susceptible and multidrug-resistant *Enterobacter aerogenes*. *Int J Antimicrob Agents* **36**(4): 313-318.

[http://www.ijaaonline.com/article/S0924-8579\(10\)00294-3/fulltext](http://www.ijaaonline.com/article/S0924-8579(10)00294-3/fulltext)

19. Viveiros M., Martins M., Couto I., **Rodrigues L.**, Machado D., Portugal I., Amaral L. 2010. Molecular tools for rapid identification and novel effective therapy against MDRTB/XDRTB infections. *Exp. Rev. Anti Infect. Ther.* **8**(4): 465-480.  
<http://www.tandfonline.com/doi/abs/10.1586/eri.10.20?journalCode=ierz20>
20. Amaral L., Martins A., Molnar J., Kristiansen J.E., Martins M., Viveiros M., **Rodrigues L.**, Spengler G., Couto I., Ramos J., Dastidar S., Fanning S., McCusker M., Pages J.M. 2010. Phenothiazines, bacterial efflux pumps and targeting the macrophage for enhanced killing of intracellular XDRTB. *In Vivo* **24**(4): 409-424. <http://iv.iarjournals.org/content/24/4/409.long>
21. Viveiros M., **Rodrigues L.**, Martins M., Couto I., Spengler G., Martins A., Amaral L. 2010. Evaluation of efflux activity of bacteria by a semi-automated fluorometric system. *Methods Mol Biol.* **642**: 159-172.  
[https://link.springer.com/protocol/10.1007%2F978-1-60327-279-7\\_12](https://link.springer.com/protocol/10.1007%2F978-1-60327-279-7_12)
22. Martins A., Iversen C., **Rodrigues L.**, Spengler G., Ramos J., Kern W.V., Couto I., Viveiros M., Fanning S., Pages J.M., Amaral L. 2009. An AcrAB-mediated multidrug-resistant phenotype is maintained following restoration of wild-type activities by efflux pump genes and their regulators. *Int. J. Antimicrob. Agents* **34**(6): 602-604.  
[http://www.ijaaonline.com/article/S0924-8579\(09\)00354-9/fulltext](http://www.ijaaonline.com/article/S0924-8579(09)00354-9/fulltext)
23. Spengler G., Martins A., Schelz Z., **Rodrigues L.**, Aagaard L., Martins M., Costa S.S., Couto I., Viveiros M., Fanning S., Kristiansen J.E., Molnar J., Amaral L. 2009. Characterization of intrinsic efflux activity of *Enterococcus faecalis* ATCC29212 by a semi-automated ethidium bromide method. *In Vivo* **23**(1): 81-87. <http://iv.iarjournals.org/content/23/1/81.long>
24. Spengler G., Viveiros M., Martins M., **Rodrigues L.**, Martins A., Molnar J., Couto I., Amaral L. 2009. Demonstration of the activity of the P-glycoprotein by a semi-automated fluorometric method. *Anticancer Res.* **29**(6): 2173-2177. <http://ar.iarjournals.org/content/29/6/2173.long>
25. Paixão L., **Rodrigues L.**, Couto I., Martins M., Fernandes P., de Carvalho C.C., Monteiro G.A., Sansonetty F., Amaral L., Viveiros M. 2009. Fluorometric determination of ethidium bromide efflux kinetics in *Escherichia coli*. *J. Biol. Eng.* **3**: 18.  
<https://jbioleng.biomedcentral.com/articles/10.1186/1754-1611-3-18>
26. Couto I., Machado D., Viveiros M., **Rodrigues L.**, Amaral L. 2009. Identification of Nontuberculous Mycobacteria in Clinical Samples Using Molecular Methods: a Three-Year Study. *Clin. Microb. Infect.* **16**(8): 1161-1164.  
[http://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(14\)64211-7/fulltext](http://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(14)64211-7/fulltext)
27. Martins A., Spengler G., **Rodrigues L.**, Viveiros M., Ramos J., Martins M., Couto I., Fanning S., Pagès J.M., Bolla J.M., Molnar J., Amaral L. 2009. pH Modulation of efflux pump activity of multi-drug resistant *Escherichia coli*: protection during its passage and eventual colonization of the colon. *PLOS ONE* **4**(8): e6656. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0006656>
28. **Rodrigues L.**, Sampaio D., Couto I., Machado D., Kern W.V., Amaral L., Viveiros M. 2009. The role of

- efflux pumps in macrolide resistance in *Mycobacterium avium* complex. *Int. J. Antimicrob. Agents* **34**(6): 529-33 [http://www.ijaaonline.com/article/S0924-8579\(09\)00365-3/fulltext](http://www.ijaaonline.com/article/S0924-8579(09)00365-3/fulltext)
29. Viveiros M., Martins A., Paixão L., **L. Rodrigues L.**, Martins M., Couto I., Fähnrich E., Kern W.V., Amaral L. 2008. Demonstration of intrinsic efflux activity of *E. coli* K-12 AG100 by an automated ethidium bromide method. *Int. J. Antimicrob. Agents* **31**(5): 458-462. [http://www.ijaaonline.com/article/S0924-8579\(08\)00032-0/fulltext](http://www.ijaaonline.com/article/S0924-8579(08)00032-0/fulltext)
30. Viveiros M., Martins M., Couto I., **Rodrigues L.**, Martins A., Kristiansen J.E., Molnar J., Amaral L. 2008. New methods for the identification of efflux mediated MDR bacteria, genetic assessment of regulators and efflux pump constituents, characterization of efflux systems and screening for inhibitors of efflux pumps. *Curr. Drug Target.* **9**(9):760-778. <http://www.eurekaselect.com/67594/article>
31. **Rodrigues L.**, Wagner D, Viveiros M., Sampaio D., Couto I., Vavra M., Kern W.V., Amaral L. 2008. Thioridazine and chlorpromazine inhibition of ethidium bromide efflux in *Mycobacterium avium* and *Mycobacterium smegmatis*. *J. Antimicrob. Chemother.* **61**(5):1076-1082. <https://academic.oup.com/jac/article/61/5/1076/848043>
32. Viveiros M., Dupont M., **Rodrigues L.**, Couto I., Davin-Regli A., Martins M., Pagès J.M., Amaral L. 2007. Antibiotic stress, genetic response and altered permeability of *E. coli*. *PLOS ONE* **2**(4):e365. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0000365>
33. Viveiros M., Leandro C., **Rodrigues L.**, Almeida J., Bettencourt R., Couto I., Carrilho L., Diogo J., Fonseca A., Lito L., Lopes J., Pacheco T., Pessanha M., Quirim J., Sancho L., Salfinger M., Amaral L. 2005. Direct application of the INNO-LiPA Rif.TB assay for the rapid identification of *Mycobacterium tuberculosis* complex strains and detection of rifampin resistance in 360 smear positive respiratory specimens from an area of high incidence of multi-drug resistant tuberculosis. *J. Clin. Microb.* **43**(9):4880-4884. <http://jcm.asm.org/content/43/9/4880.long>

## PRESENTATIONS IN CONGRESSES

### Oral presentations

1. **Rodrigues L.**, Cravo P., Viveiros M. *In silico* repurposing of approved drugs against tuberculosis: targeting membrane transporters and energy metabolism. MycoPorto2019, Porto, Portugal.
2. **Rodrigues L.**, Cravo P., Viveiros M. Chemogenomics and *in silico* repurposing as an innovative approach for rapid drug discovery in tuberculosis. Encontro Ciência 2019, Lisboa, Portugal.
3. Couto I. & **Rodrigues L.** New strategies to fight MDR-TB: from early detection to innovative drug discovery MiniSymposium: Looking for new ways to fight tuberculosis. 2017. ITQB, Oeiras, Portugal.
4. **Rodrigues L.** Efflux studies integrated in a tuberculosis drug discovery program. 2017. GHTM sessions IHMT, Lisboa, Portugal.
5. **Rodrigues L.** Targeting multidrug efflux pumps in *Mycobacterium tuberculosis*. MycoSpain 2013 - Bilbo TB. Bilbao, Spain.
6. **Rodrigues L.** Testing new compounds against *M. tuberculosis*. MycoSpain 2012. Madrid, Spain.

7. Begoña G., **Rodrigues L.**; *et al.* Novel compounds active against *Mycobacterium tuberculosis*: testing competitive inhibitors of type II dehydroquinase. V International Conference BIFI 2012. Zaragoza, Spain.
8. **Rodrigues L.** Contribution of the Mmr efflux pump to antimicrobial resistance in *M. tuberculosis*: construction of a *mmr* knockout mutant by allelic exchange. Cost Action BM0701 meeting. Bremen, Germany, 2010.
9. **Rodrigues L.** Characterization of efflux pumps of mycobacteria by real-time RT-PCR and a semi-automated fluorometric method. Cost action BM0701. Dublin, Ireland, 2009.
10. **Rodrigues L.**, *et al.* Contribution of efflux pump activity for macrolide resistance in *M. avium* complex. 30th Annual Congress of the European Society of Mycobacteriology. Porto, Portugal, 2009.
11. **Rodrigues L.** Efflux pumps in *Escherichia coli* and *Mycobacterium* sp.: Methods to assess their importance in multidrug resistance. URIA Mycobacterium Workshop. Lisboa, Portugal, 2009.

### Posters (selection of the most relevant)

1. **Rodrigues L.**, Cravo P., Viveiros M. Targeting membrane transporters and energy metabolism in *Mycobacterium tuberculosis* through *in silico* drug repurposing. ECCMID, Paris, France, 2020 (cancelled due to COVID-19 crisis; accepted abstracts are available in Congress Abstract Book).
2. **Rodrigues L.**, Cravo P., Viveiros M. Targeting membrane transporters and energy metabolism in *Mycobacterium tuberculosis* through *in silico* drug repurposing. Simpósio de Investigação em Tuberculose e Micobactérias Não Tuberculosas em Portuga. Universidade de Lisboa Faculdade de Farmácia, Portugal, 2020.
3. **Rodrigues L.**, Cravo P., Viveiros M. Chemogenomics and *in silico* repurposing as an innovative approach for rapid drug discovery in tuberculosis. Gordon Research Conference on Multi-Drug Efflux Systems. Lucca, Italy, 2019
4. Fuentes D., Villellas C., Vitoria MA, Samper S., Aínsa JA, **Rodrigues L.** A simple method based on a reliable genetic marker for identification of *Mycobacterium tuberculosis* Beijing genotype. 24<sup>th</sup> European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Barcelona, Spain, 10-13 May 2014.
5. **Rodrigues L.**, *et al.* Contribución de la bomba de eflujo Mmr a la resistencia a fármacos en *M. tuberculosis*. IX Reunión del Grupo de Microbiología Molecular. Palma de Mallorca, Spain, 14/11/2012.
6. **Rodrigues L.**, *et al.* Is the Mmr Efflux Pump of *M. tuberculosis* Involved in Isoniazid Resistance? Tuberculosis 2012: Biology, pathogenesis, intervention, strategies. París, France, 11/09/2012.
7. Machado D., **Rodrigues L.**, *et al.* The emergence of clarithromycin resistance in *Mycobacterium avium* complex. 22<sup>nd</sup> European Congress of Clinical Microbiology and Infectious Diseases. London, United Kingdom, 31/03/2012.
8. Machado D., Couto I., **Rodrigues L.**, *et al.* Efflux activity in *Mycobacterium tuberculosis* as an intrinsic mechanism of resistance to isoniazid. 32<sup>th</sup> Annual Congress of the European Society of Mycobacteriology. Lübeck, Germany, 26/06/2011.
9. **Rodrigues L.**, *et al.* Ethidium bromide transport across *Mycobacterium smegmatis* cell-wall: correlation with antibiotic resistance. Gordon Research Conference on Multi-Drug Efflux Systems: From Molecular Mechanisms to Pharmacological Modulation. Les Diablerets, Switzerland, 12/06/2011.
10. Machado D., Couto I., **Rodrigues L.**, *et al.* Phenotypic adaptation to isoniazid in *Mycobacterium tuberculosis*: The contribution for the emergence of multidrug resistant tuberculosis. 21<sup>th</sup> European



Congress of Clinical Microbiology and Infectious Diseases and 27<sup>th</sup> International Congress of Chemotherapy (ICC). Milan, Italy, 07/05/2011.

11. **Rodrigues L., et al.** Contribution of efflux activity to isoniazid resistance in *Mycobacterium tuberculosis* complex. 21<sup>th</sup> European Congress of Clinical Microbiology and Infectious Diseases (ECCMID) and 27<sup>th</sup> International Congress of Chemotherapy (ICC). Milan, Italy, 07/05/2011.
12. **Rodrigues L., et al.** Contribution of efflux activity to isoniazid resistance in *Mycobacterium tuberculosis* complex. 462<sup>th</sup> WE Heraeus Seminar: Transport across membranes: multiple drug resistance, mechanism and new tools, Jacobs University of Bremen. Bremen, Germany, 04/07/2010.
13. Ramos J., **Rodrigues L.**, Couto I., Amaral L., Viveiros M. The effect of efflux pumps inhibitors on the transport of ethidium bromide and antimicrobials across *Mycobacterium smegmatis* cell wall. Microbiotec09. Vilamoura, Portugal, 28/11/2009.
14. **Rodrigues L., et al.** The role played by efflux pumps in macrolide resistance in *Mycobacterium avium* complex. Microbiotec09. Vilamoura, Portugal, 28/11/2009.
15. Ramos J., **Rodrigues L., et al.** Methods for assessment of ethidium bromide transport across *Mycobacterium smegmatis* cell wall. 30<sup>th</sup> Annual Congress of the European Society of Mycobacteriology. Porto, Portugal, 07/07/2009.
16. **Rodrigues L., et al.** Intrinsic drug resistance of *M. avium-M. intracellulare* complex: the role played by efflux pumps. 18<sup>th</sup> European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). Barcelona, Spain, 19/04/2008
17. **Rodrigues L., et al.** Antibiotic Stress, Genetic Response and Altered Permeability of *E. coli*. Summer School, Jacobs University of Bremen, Bremen, Germany, 08/07/2007.

## PARTICIPATION IN R&D&I PROJECTS

### As Head Researcher

2018 - Marie Sklodowska-Curie Individual Fellowship: Chemogenomics and *in silico* repurposing as an innovative approach for rapid drug discovery in tuberculosis (iCHEMGENODRUGS\_TB; H2020-MSCA-IF-2017). Funded by the European Commission.

2014 - 2015 "Study of the activity of efflux pumps of *Mycobacterium tuberculosis* in an *Escherichia coli* model" Universidad de Zaragoza. Funded by Universidad de Zaragoza (Spain).

### As a team member

2014 - 2016 "Biomedical applications of AS-48: a protein with broad spectrum antimicrobial activity" Universidad de Zaragoza. P.I. José Aínsa. Funded by Ministry of Economy and Competitivity (Spain).

2011 - 2016 "MM4TB/More medicines for tuberculosis." Universidad de Zaragoza, P.I. José Aínsa. Funded by European Union.

2012 - 2015 "Type-II NADH-menaquinone oxidoreductase (NDH-2) and the respiratory chain of *M. tuberculosis*: new therapeutic targets to fight tuberculosis". IHMT/UNL. P.I. Isabel Couto. Funded by FCT, Portugal.



- 2010 - 2013 “Enhancing the killing of intracellular multi-drug resistant tuberculosis (MDRTB) by human macrophages: a new chemotherapeutic strategy to fight MDRTB”. IHMT/UNL. P.I. Leonard Amaral. Funded by FCT, Portugal.  
 “Helper compounds against multidrug resistant bacteria: revealing their mechanism of action”. IHMT/UNL. P.I. Miguel Viveiros. Funded by FCT, Portugal.
- 2008 - 2011 “Mutational and physiological dynamics of drug resistance in *M. tuberculosis*: the emergence of Multi-Drug Resistant Tuberculosis”. IHMT/UNL. P.I. Miguel Viveiros. Funded by FCT, Portugal.
- 2007 - 2010 “Efflux pumps in drug resistance of *M. tuberculosis*: Molecular characterization of the efflux mechanism and use of efflux inhibitors as new anti-tubercular compounds”. IHMT/UNL. P.I. Miguel Viveiros. Funded by FCT, Portugal.

### **PARTICIPATION IN R&D&I CONTRACTS WITH COMPANIES**

#### **As Head Researcher**

- 2014 - 2015 “Characterization of compounds active against mycobacteria” at Universidad de Zaragoza. Funded by SOCIEDADE TECNICO-MEDICINAL, S.A. (TECNIMEDE), Portugal.

### **PRIZES AND AWARDS**

2018 - Marie Sklodowska-Curie Individual Fellowship Grantee: Chemogenomics and *in silico* repurposing as an innovative approach for rapid drug discovery in tuberculosis (iCHEMGENODRUGS\_TB; H2020-MSCA-IF-2017).

2012 - Meeting Attendance Grant awarded by Federation of European Microbiology Societies (FEMS) to attend the conference Tuberculosis 2012 at Institute Pasteur in Paris, France.

2011- Short-term fellowship awarded by the European Molecular Biology Society to visit the Universidad de Zaragoza, Zaragoza, Spain.

2011 - Meeting Attendance Grant awarded by FEMS to attend ECCMID 2011 at Milan, Italy.

2010 - Short-term scientific mission (STSM) support grant from COST Action BM0701 (Antibiotic Transport and Efflux: New Strategies to combat bacterial resistance) to visit the Universidad de Zaragoza, Zaragoza, Spain.

### **SUPERVISING AND MENTORING ACTIVITIES**

- 2014 - 2015 Co-supervised one undergraduate student (4<sup>th</sup> year Biotechnology) from Universidad de Zaragoza.

2013 - 2014 Co-supervised one MSc student (MSc in Cellular and Molecular Biology) and one undergraduate student (4<sup>th</sup> year Biotechnology) from Universidad de Zaragoza.

#### **OTHER ACADEMIC ACTIVITIES**

2016 Member of the jury of one MSc thesis (Universidade Nova de Lisboa, Portugal).  
2015 Member of the jury of one PhD thesis (Universidad de Zaragoza).  
2013 Member of the jury of one MSc thesis (Universidade Nova de Lisboa, Portugal) and one PhD thesis (Universidad de Zaragoza).

May 2020