

Curriculum vitae

Sofia Santos Costa

PERSONAL DATA

Name: Sofia Maria Mourão Marques dos Santos Costa

Position: Post-Doctoral Fellow

Institution: Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa (IHMT, UNL); Global Health and Tropical Medicine (GHTM), IHMT, UNL.

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Institutional phone: +351 213652600 (ext. 409)

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Publishing name: Sofia Santos Costa (SS Costa, S Santos Costa)

Identifiers:

Researcher ID: L-7929-2013

Orcid ID: 0000-0002-4096-2410

Scopus author ID: 7201998885

EDUCATION

Year	Academic Degree	Institution
2013	PhD in Biomedical Sciences, specialization Microbiology	Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa (IHMT, UNL)
2008	MSc in Medical Microbiology	Universidade NOVA de Lisboa (UNL)
2005	Graduation in Applied Chemistry (branch Biotechnology)	Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa (FCT, UNL)

SCIENTIFIC AND PROFESSIONAL ACTIVITY

Current position

September 2014 – present
Post-doctoral fellow with the project "Exploring routes of animal-to-human staphylococci transmission: trying to break the cycle of virulence and antimicrobial resistance dissemination". Fellowship SFRH/BPD/97508/2013 - Fundação para a Ciência e a Tecnologia (FCT)

Institutions: GHTM; Unidade de Microbiologia Médica, IHMT, UNL; Faculdade de Medicina Veterinária, Universidade de Lisboa

Supervisor: Isabel Couto (IHMT, UNL); Co-supervisor: Maria Constança Pomba (FMV, UL)

Previous positions

- February – August 2014 Research grant, 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. IHMT, UNL
- March – August 2013 Research grant, Project “Helper compounds against multidrug resistant bacteria: revealing their mechanism of action”. Ref. PTDC/BIA-MIC/105509/2008. IHMT, UNL
- January 2009 – December 2013 PhD student, Thesis “Efflux pump activity in drug resistance of *Staphylococcus aureus*”. Unit of Medical Microbiology, IHMT, UNL; Centro de Recursos Microbiológicos (CREM), UNL. Scholarship SFRH/BD/44214/2008 – FCT. Supervisor: Isabel Couto
- June 2007 - May 2008 Research technician in project “Mass screening of new microorganisms or biological reactions technologically interesting”. Ref. SIME I&DT Nº 00/22470, funding: IAPMEI. Biotrend – Inovação e Engenharia em Biotecnologia, SA; IHMT, UNL.
- October 2006 – July 2008 MSc student, with the project “Phenotypic and genotypic characterization of a *Staphylococcus aureus* strain adapted to ethidium bromide”. Unit of Medical Microbiology, IHMT, UNL. Supervisor: Isabel Couto; Co-supervisor: Miguel Viveiros
- February – December 2004 Graduation Thesis with the project “Production of recombinant proteins”. Group of Molecular Genetics of Metaloproteins, Instituto de Tecnologia Química e Biológica (ITQB), Universidade NOVA de Lisboa; Faculdade de Ciências e Tecnologia (FCT), Universidade NOVA de Lisboa. Supervisor: Lígia Saraiva; Co-supervisor: Ana Madalena Ludovice

AREAS OF SCIENTIFIC ACTIVITY

Medical Microbiology; bacterial resistance to antibiotics; biocide action and mechanisms of resistance; efflux systems; virulence.

Domain specialization

- Resistance mechanisms to antibiotics and biocides in staphylococci and mycobacteria
- Efflux-mediated antimicrobial resistance
- Phenotypic methodologies for evaluation of efflux inhibitors

Current research interests

- Epidemiology of resistance genes in staphylococci of human and animal origin
- Mobile genetic elements as vehicles of resistance and virulence traits in staphylococci
- Efflux-mediated antimicrobial resistance in staphylococci
- Mechanisms of action of biocides in bacteria
- Study of the relevance of biofilms in resistance to antimicrobials
- Identification of new compounds with antimicrobial modulation activity in clinically relevant bacteria (staphylococci, mycobacteria)

Relevant training experiences

1 April – 9 May 2017	Scientific visit to The Houston Methodist Research Institute, Houston, Texas, USA, under scientific supervision of Adriana E. Rosato.
26 – 31 March 2017	Gordon Conference “Multi-Drug Efflux Systems”, Galveston, Texas, USA.
11 – 15 January 2016	Short Course “Molecular epidemiology of Infectious and Parasite Diseases” hosted by Celso Cunha and Luzia Gonçalves. IHMT, UNL, Lisbon, Portugal
14 - 18 September 2015	Short Course “Pathogen Genomics and Genetic Epidemiology of Infectious Diseases” hosted by Taane G. Clark. London School of Hygiene and Tropical Medicine, UK.
November - December 2012	Scientific visit to the Workgroup Molecular Microbiology and Antimicrobial Resistance, Institute of Farm Animal Genetics, Friedrich-Loeffler-Institute, Neustadt-Mariensee, Germany, under scientific supervision of Stefan Schwarz.
4 – 10 July 2010	462 nd WE Heraeus Seminar “Transport across membranes: multiple drug resistance, mechanisms and new tools” (40h). Hosted by Mathias Winterhalter. Jacobs University Bremen, Germany.
3 – 11 March 2007	Workshop “Systems approaches to membrane proteins” (40h). Hosted by Peter Henderson. Institute for membranes and systems biology and the Astbury centre, University of Leeds, UK.
July – September 2003	SOCRATES Exchange program at the Laboratory of Molecular Genetics and Biotechnology of Insects, Biology Institute, National Centre of Scientific Research DEMOKRITOS, Athens, Greece, under scientific supervision of Kostas Iatrou.

Additional training experiences

22 – 23 September 2016	Workshop “Modulation and Climate Prediction in Health” (12 h). IHMT, UNL.
20 – 21 November 2014	Seminar “Host-pathogen interaction towards a personalized medicine” (8h). IHMT, UNL.
3 - 4 November 2014	International Seminar “Potable water: global access, quality and microbiology” (8h). IHMT, UNL.
18 June 2014	Workshop “Lisbon workshop on new strategies to fight tuberculosis” (4h). Faculdade de Farmácia, UL.
24-26 April 2013	Workshops “Genomic variation and different sequencing technologies” (2h) and “Transcriptome analysis” (4h). Hosted by Thomas D. Otto, Wellcome Trust Sanger Centre. IHMT, UNL.
20 April 2013	Workshop “Multidrug-resistant tuberculosis” (7h). 2 nd National Congress of Tropical Medicine, IHMT, UNL.
1 – 3 December 2010	Workshop EW09-007 “Multi-disciplinary consortium for the development of effective, but non-toxic drugs against MDR-TB and XDR-TB”, funded by the European Science Foundation (ESF). (11h). IHMT, UNL.
8 April 2009	URIA <i>Mycobacterium</i> Workshop (7h). Faculdade de Farmácia, UL.

PARTICIPATION IN R&D PROJECTS

As a Team member:

Since 2014: Global Health and Tropical Medicine (GHTM), Universidade NOVA de Lisboa, FCT strategic project UID/Multi/04413/2013.

2011-2013: Centro de Recursos Microbiológicos (CREM), Universidade NOVA de Lisboa, FCT strategic Project PEst-OE/BIA/UI0457/2011

2012-2015: "Type-II NADH-menaquinone oxidoreductase (NDH-2) and the respiratory chain of *M. tuberculosis*: new therapeutic targets to fight tuberculosis". FCT Project PTDC/BIA-MIC/121859/2010, PI: Isabel Couto.

2010-2013: "Helper compounds against multidrug resistant bacteria: revealing their mechanism of action". PTDC/BIA-MIC/105509/2008, PI: Prof. Miguel Viveiros

Research assistant in a consultant project in the Biotechnology field with the company Biotrend - Inovação e Engenharia em Biotecnologia SA and involved in the project SI I&DT/QREN "CORALNAT – Natural Food Colourants: From Bacteria to Industry".

PUBLICATIONS

BIBLIOMETRICS:

Scopus analysis:

Total Articles in Publication List: 21

Sum of the Times Cited: 313

h-index: 9

URL : <https://www.scopus.com/authid/detail.uri?authorId=7201998885>

ISI - Web of Knowledge analysis:

Total Articles in Publication List: 21; Articles With Citation Data: 17;

Sum of the Times Cited: 203; Average Citations per Article: 11.94

h-index: 8

URL: <http://www.researcherid.com/rid/L-7929-2013>

Google Scholar webpage:

Total citations: 425

Citations since 2013: 345

h-index: 11

i10 index: 11

3. **Costa SS**. Efflux pump activity in drug resistance of *Staphylococcus aureus*. PhD Thesis in Biomedical Sciences. Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa, November 2013.
2. **Costa SS**. Phenotypic and genotypic characterization of a *Staphylococcus aureus* strains adapted to ethidium bromide. MSc Thesis in Medical Microbiology. Universidade NOVA de Lisboa, July 2008. [In Portuguese]
1. **Costa SS**. Production of recombinant proteins. Graduation Thesis in Applied Chemistry. Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa, December 2004. [In Portuguese]

22. Francisco M, **Costa SS**, Belas A, Ramos J, Couto I, Pomba C, Viveiros M. First report of antimicrobial resistance and molecular characterization of *Salmonella enterica* serotype Typhi isolated in Luanda, Angola. *J Global Antimicrob Resist*. *In press* doi: 10.1016/j.jgar.2018.02.001; Q3; JIF: 1.276
21. **Costa SS**, Viveiros M, Pomba C, Couto I. Active antimicrobial efflux in *Staphylococcus epidermidis*: building up of resistance in a major opportunistic pathogen. *J Antimicrob Chemother* 2018;73:320-4. doi: 10.1093/jac/dkx400; Q1; JIF: 5.071
20. Cannalire R, Machado D, Felicetti T, **Costa SS**, Massari S, Manfroni G, Barreca ML, Tabarrini O, Couto I, Viveiros M, Sabatini S, Cecchetti V. 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* 2017; 140:321-30. doi: 10.1016/j.ejmech.2017.09.014; Q1; JIF: 4.519
19. Khemiri M, Alhusain AA, Abbassi MS, El Ghaieb H, **Costa SS**, Belas A, Pomba C, Hammami S. Clonal spread of methicillin-resistant *Staphylococcus aureus*-t6065-CC5-SCCmecV-agrII in a Libyan hospital. *J Global Antimicrob Resist* 2017; 10:101-5. doi: 10.1016/j.jgar.2017.04.014; Q3; JIF: 1.276; Times cited: 1
18. Machado D, Fernandes L, **Costa SS**, Cannalire R, Manfronf G, Tabarrin O, Couto I, Sabatini S, Viveiros M. Mode of action of the 2-phenylquinoline efflux inhibitor PQQ4R against *Escherichia coli*. *PeerJ*. 2017;5:e3168. doi: 10.7717/peerj.3168; Q1; JIF:N/A; Times cited: 1
17. Silva Jr L, Carrion L, Machado K, Von Groll A, **Costa SS**, Junqueira E, Ramos D, Cantos J, Seus V, Couto I, Fernandes L, Bonacorso H, Martins MA, Zanatta N, Viveiros M, da Silva PA. *In vitro* and *in silico* analysis of the efficiency of tetrahydropyridines as drug efflux inhibitors in *Escherichia coli*. *Int J Antimicrob Agents*. 2017; 49:308-14. doi: 10.1016/j.ijantimicag.2016.11.024; Q1; JIF = 4.097
16. **Costa SS**, Palma C, Kadlec K, Fessler AT, Viveiros M, Melo-Cristino J, Schwarz S, Couto I. Plasmid-borne antimicrobial resistance of *Staphylococcus aureus* isolated in a Hospital in Lisbon, Portugal. *Microb Drug Resist*. 2016; 22:617-26. doi:10.1089/mdr.2015.0352; Q2; JIF = 2.53
15. **Costa SS**[#], Lopes E[#], Azzali E, Machado D, Coelho T, Silva PEA, Viveiros M, Pieroni M, Couto I. An experimental model for the rapid screening of compounds against mycobacteria. *Assay Drug Develop Technol*. 2016;15:524-534. doi: 10.1089/adt.2016.752; Q2; JIF = 1.655
14. **Costa SS**, Viveiros M, Rosato AE, Melo-Cristino J, Couto I. Impact of efflux in the development of multidrug resistance phenotypes in *Staphylococcus aureus*. *BMC Microbiol*. 2015;15:232. doi:10.1186/s12866-015-0572-8; Q2; JIF = 2.73; Times cited: 6
13. Pieroni M, Machado D, Azzali E, **Costa SS**, Couto I, Constantino G, Viveiros M. Rational design and synthesis of thioridazine analogues as enhancers of the antituberculosis therapy. *J. Med. Chem*. 2015;58:5842-53. doi: 10.1021/acs.jmedchem.5b00428; Q1; JIF = 5.447; Times cited: 15

12. Machado D, Cannalire R, **Costa SS**, Manfroni G, Tabarrini O, Cecchetti V, Couto I, Viveiros M, Sabatini S. Boosting effect of 2-phenylquinoline efflux inhibitors in combination with macrolides against *Mycobacterium smegmatis* and *Mycobacterium avium*. *ACS Infect. Dis.* 2015;1:593-603. doi: 10.1021/acsinfecdis.5b00052; JIF = N/A; Times cited: 5
11. Cabral V, Luo X, Junqueira E, **Costa SS**, Mulhovo S, Duarte A, Couto I, Viveiros M, Ferreira M-JU. Enhancing activity of antibiotics against *Staphylococcus aureus*: *Zanthoxylum capense* constituents and derivatives. *Phytomedicine.* 2015;22:469-76. doi:10.1016/j.phymed.2015.02.003; Q2; JIF = 3.126; Times cited: 8
10. de Carvalho CC, **Costa SS**, Fernandes P, Couto I, Viveiros M. Membrane transport systems and the biodegradation potential and pathogenicity of genus *Rhodococcus*. *Front. Physiol.* 2014;5:133. doi: 10.3389/fphys.2014.00133; Q2; JIF = 3.5; Times cited: 16
9. **Costa SS**, Junqueira E, Palma C, Viveiros M, Melo-Cristino J, Amaral L, Couto I. Resistance to antimicrobials mediated by efflux pumps in *Staphylococcus aureus*. *Antibiotics.* 2013;2:83-99. doi:10.3390/antibiotics2010083; JIF = N/A; Times cited: 7
8. **Costa SS**, Viveiros M, Amaral L, Couto I. Multidrug Efflux Pumps in *Staphylococcus aureus*: an update. *Open Microbiol J.* 2013;7:59-71. doi: 10.2174/1874285801307010059; Q3; JIF = N/A; Times cited: 71
7. **Costa SS**, Mourato C, Viveiros M, Melo-Cristino J, Amaral L, Couto I. Description of plasmid pSM52, harboring the gene for Smr efflux pump, and its involvement in resistance to biocides in an MRSA strain. *Int. J. Antimicrob. Agents.* 2013;41:490-2. doi: 10.1016/j.ijantimicag.2013.01.003; Q1; JIF = 4.296; Times cited: 7
6. Spengler G, Rodrigues L, Martins A, Martins M, McCusker M, Cerca P, Machado L, **Costa SS**, Ntokou E, Couto I, Viveiros M, Fanning S, Molnár J, Amaral L. Genetic response of *Salmonella enterica* serotype Enteritidis to thioridazine rendering the organism resistant to the agent. *Int. J. Antimicrob. Agents.* 2012;39:16-21. doi: 10.1016/j.ijantimicag.2011.08.013; Q1; JIF = 4.296; Times cited: 17
5. **Costa SS**, Falcão C, Viveiros M, Machado D, Martins M, Melo-Cristino J, Amaral L, Couto I. Exploring the contribution of efflux on the resistance to fluoroquinolones in clinical isolates of *Staphylococcus aureus*. *BMC Microbiol.* 2011;11:241. doi: 10.1186/1471-2180-11-241; Q1; JIF = 2.73; Times cited: 49
4. Martins M, Viveiros M, Couto I, **Costa SS**, Pacheco T, Fanning S, Pagès J-M, Amaral L. Identification of efflux pump-mediated multidrug-resistant bacteria by the ethidium bromide-agar cartwheel method. *In Vivo* 2011; 25:171-8. <http://iv.iijournals.org/content/25/2/171.long>; Q2; JIF = 1.148; Times cited: 22
3. **Costa SS**, Ntokou E, Martins A, Viveiros M, Pournaras S, Couto I, Amaral L. Identification of the plasmid encoded *qacA* efflux pump gene in the methicillin-resistant *Staphylococcus aureus* (MRSA) strain HPV107, a representative of the MRSA Iberian clone. *Int. J. Antimicrob. Agents.* 2010;36:557-61. doi: 10.1016/j.ijantimicag.2010.08.006; Q1; JIF = 4.296; Times cited: 13
2. Spengler G, Martins A, Schelz Z, Rodrigues L, Aagaard L, Martins M, **Costa SS**, Couto I, Viveiros M, Kristiansen JE, Fanning S, Molnar J, Amaral L. Characterization of intrinsic efflux activity of *Enterococcus faecalis* ATCC29212 by a semi-automated ethidium bromide method. *In Vivo.* 2009;23:81-7. <http://iv.iijournals.org/content/23/1/81.long>; Q2; JIF = 1.148; Times cited: 11
1. Couto I, **Costa SS**, Viveiros M, Martins M, Amaral L. Efflux-mediated response of *Staphylococcus aureus* exposed to ethidium bromide. *J. Antimicrob. Chemother.* 2008;62:504-13. doi: 10.1093/jac/dkn217; Q1; JIF= 5.313; Times cited: 63

ARTICLES IN NATIONAL SCIENTIFIC JOURNALS (1)

Lobo ML, **Costa SS**, Pinto Jr VL, Salgueiro P, Tavanez JP, Campino L. Visão global do 3º Congresso Nacional de Medicina Tropical e 1º Congresso Lusófono de Doenças Transmitidas por Vetores. *An. Inst. Hig. Med. Trop.* 2015;14:47-56. ISSN:0303-7762

ORAL COMMUNICATIONS (12)

12. **Costa SS**, Rosa M, Rodrigues AC, Holtreman F, Viveiros M, Pomba C, Couto I. Emergence of non-wild-type populations towards biocides and antibiotic resistance in *Staphylococcus epidermidis* colonizing veterinary staff and students. Accepted as ePoster Mini-Oral Session at the 28th ECCMID, 21-24 April 2018. Madrid, Spain.
11. **Costa SS**, Rosa M, Rodrigues AC, Holtreman F, Viveiros M, Pomba C, Couto I. Antibiotic and biocide resistance in *Staphylococcus epidermidis* colonizing humans in close contact with animals. First GHM Antimicrobial Resistance Awareness Day. 15 November 2017. Lisbon, Portugal.
10. **Couto I**, **Costa SS**, Machado D, Viveiros M. Microbial multiresistance in the era of global challenges – an urgent need for new approaches and technologies. Ciência 2017. 5 July 2017, Lisbon, Portugal.
9. **Rodrigues AC**, **Costa SS**, Belas A, Marques C, Couto I, Pomba C. Emergent public health risk of antimicrobial resistance transfer from companion animals: Methicillin-resistant *Staphylococcus epidermidis* and *Staphylococcus haemolyticus*. 2nd International Caparica Conference in Antimicrobial Resistance (IC2AR). 12-15 June 2017, Caparica, Portugal.
8. **Machado D**, Azzali E, **Costa SS**, Constantino G, Couto I, Pieroni M, Viveiros M. Antimycobacterial and efflux inhibitory activity of 2-aminothiazole lead compound against *Mycobacterium tuberculosis*. 26th ECCMID. 9 - 12 April 2016, Amsterdam, The Netherlands.
7. **Lopes E**, **Costa SS**, Machado D, Pieroni M, Azzali E, Costantino G, Viveiros M, Couto I. *Mycobacterium smegmatis* model for the rapid screening of new compounds with efflux inhibitory and antimycobacterial activity. MicroBiotec15. 11 December 2015, Évora, Portugal.
6. **Costa SS**, Junqueira E, Palma C, Viveiros M, Melo-Cristino J, Amaral L, Couto I. Clinical relevance of efflux systems to antimicrobial resistance in *Staphylococcus aureus*. 2nd National Congress of Tropical Medicine. 20 - 23 April 2013, Lisbon, Portugal.
5. **Costa SS**. Clinical relevance of efflux systems to antimicrobial resistance in *Staphylococcus aureus*. 2nd Scientific Meeting of the Instituto de Higiene e Medicina Tropical. 12 December 2011, Lisbon, Portugal.
4. **Costa SS**. Exploring the contribution of efflux on the resistance to fluoroquinolones in clinical isolates of *Staphylococcus aureus*. Management committee meeting and working groups meeting of the COST ACTION BM0701 – Antibiotic transport and efflux: new strategies to combat bacterial resistance. 6 December 2011, Brussels, Belgium.
3. **Costa SS**, Falcão C, Viveiros M, Machado D, Martins M, Melo-Cristino J, Amaral L, Couto I. Importance of efflux systems on the resistance to fluoroquinolones in *Staphylococcus aureus*. Management committee meeting and working groups meeting of the COST ACTION BM0701 – Antibiotic transport and efflux: new strategies to combat bacterial resistance. 7 July 2010, Bremen, Germany.
2. **Amaral L**, Spengler G, Rodrigues L, Martins A, Martins M, **Costa SS**, Couto I, Viveiros M. Efflux pumps of bacteria and cancer cells: structure, genetic regulation in response to an agent; physiochemical mechanisms and clinical relevance. Working group meeting of the COST ACTION BM0701. April 2010, Budapest, Hungary.
1. **Costa SS**. Phenotypic and genotypic characterization of a *Staphylococcus aureus* strain adapted to ethidium bromide. Journal Club CMDT-LA, IHMT. 17 July 2008, Lisbon, Portugal.

International meetings (21); National meetings (23)

44. Francisco M, **Costa SS**, Belas A, Ramos J, Couto I, Pomba C, Viveiros M. Antimicrobial resistance and molecular characterization of *Salmonella enterica* serotype Typhi isolated in Luanda, Angola, in human specimens during 2013-2014. 8^{as} Jornadas Científicas do IHMT, 12 December 2017, Lisbon, Portugal.
43. **Costa SS**, Rosa M, Rodrigues AC, Santos CM, Holtreman F, Viveiros M, Pomba C, Couto I. Characterization of antimicrobial resistance in *Staphylococcus epidermidis* colonizing veterinary staff and students. P-272. MicroBiotec17, 7-9 December 2017, Porto, Portugal.
42. Holtreman F, **Costa SS**, Rosa M, Viveiros M, Pomba C, Couto I. Characterization of plasmid encoded efflux determinants from *Staphylococcus epidermidis*. P-273. MicroBiotec17, 7-9 December 2017, Porto, Portugal.
41. Santos CM, **Costa SS**, Viveiros M, Pomba C, Couto I. Prevalence of biofilm production in *Staphylococcus epidermidis* colonizing veterinary staff and students. P-274. MicroBiotec17, 7-9 December 2017, Porto, Portugal.
40. Francisco M, Costa SS, Belas A, Ramos J, Couto I, Pomba C, Viveiros M. Antimicrobial resistance and molecular characterization of *Salmonella enterica* serotype Typhi isolated in Luanda, Angola, in human specimens during 2013-2014. Ciência 2017. 3-5 July 2017, Lisbon, Portugal.
39. **Costa SS**, Viveiros M, Pomba C, Couto I. NorA mediated efflux in *Staphylococcus epidermidis*. 4th National Congress of Tropical Medicine (CNMT), 19-21 April, 2017, Lisbon, Portugal.
38. Rosa M, **Costa SS**, Viveiros M, Pomba C, Couto I. Contribuição do efluxo para a resistência a compostos antimicrobianos em *Staphylococcus epidermidis*. 4th National Congress of Tropical Medicine (CNMT), 19-21 April, 2017, Lisbon, Portugal.
37. Holtreman F, **Costa SS**, Rosa M, Viveiros M, Pomba C, Couto I. Influência do efluxo na resistência a antibióticos e suscetibilidade reduzida aos biocidas em *Staphylococcus epidermidis*. 4th National Congress of Tropical Medicine (CNMT), 19-21 April, 2017, Lisbon, Portugal.
36. Santos CM, **Costa SS**, Viveiros M, Pomba C, Couto I. Correlação da produção de biofilme com a actividade de efluxo e resistência a antimicrobianos em *Staphylococcus epidermidis*. 4th National Congress of Tropical Medicine (CNMT), 19-21 April, 2017, Lisbon, Portugal.
35. Mattos KPH, **Costa SS**, Couto I, Levy CE, Marques CF, Moriel P, Pomba C, Viveiros M. Epidemiologia molecular e caracterização genética de estirpes de *Klebsiella pneumoniae* multirresistentes provenientes de um Hospital Universitário no Brasil. 4th National Congress of Tropical Medicine (CNMT), 19-21 April 2017, Lisbon, Portugal.
34. **Costa SS**, Viveiros M, Pomba C, Couto I. The role of efflux systems on antimicrobial resistance development in *Staphylococcus epidermidis*. Gordon Conference “Multi-Drug Efflux Systems”, 26-31 March 2017, Galveston, Texas, USA.
33. **Costa SS**, Belas A, Couto N, Rodrigues C, Viveiros M, Pomba C, Couto I. Biocide susceptibility profiles of staphylococci colonizing humans in close contact with pets: correlation with efflux activity. PS4:253. MicroBiotec15, 10 - 12 December 2015, Évora, Portugal.
32. Cabral V, Luo X, Junqueira E, **Costa S**, Mulhovo S, Duarte A, Couto I, Viveiros M, Ferreira MJU. *Zanthoxylum capense* constituents and derivatives: Effects on the activity of antibiotics against *Staphylococcus aureus* strains. 62nd International Congress and Annual Meeting of the Society of Medicinal Plant and Natural Product Research. 21 August – 4 September 2014, Guimarães, Portugal.
31. **Costa SS**, Viveiros M, Melo-Cristino J, Couto I. The role of efflux in the development of multidrug resistance phenotypes in *Staphylococcus aureus*. P56. 16th ISSSI. 26 - 29 August 2014, Chicago, USA.
30. **Costa SS**, Viveiros M, Melo-Cristino J, Couto I. Impact of active efflux in the development of MDR phenotypes in *Staphylococcus aureus*. P1559. 24th ECCMID. 10 - 13 May 2014, Barcelona, Spain.

29. Branquinho R, Moço S, **Costa SS**, Couto I, Viveiros M, Martins R, Fortunato E. Low cost paper-based materials functionalized with nanoparticles for antibacterial applications. Nanoscience and Nanotechnology International Conference. 12-14 February 2014, Porto, Portugal.
28. **Costa SS**, Viveiros M, Melo-Cristino J, Couto I. Characterization of a multiresistance plasmid from a methicillin-resistant *Staphylococcus aureus* clinical strain. PS4:253. MicroBiotec13, 6 - 8 December 2013, Aveiro, Portugal.
27. **Costa SS**, Viveiros M, Melo-Cristino J, Couto I. Efflux as a first-line response to fluoroquinolones and other antimicrobials in *Staphylococcus aureus*. PS4:257. MicroBiotec13, 6 - 8 December 2013, Aveiro, Portugal.
26. Palma C, **Costa SS**, Viveiros M, Melo-Cristino J, Couto I. The role of plasmid determinants in the resistance of *Staphylococcus aureus* to antimicrobial agents. PS4:271. MicroBiotec13, 6 - 8 December 2013, Aveiro, Portugal.
25. **Costa SS**, Viveiros M, Couto I. Relevância clínica de sistemas de efluxo na resistência a compostos antimicrobianos em *Staphylococcus aureus*. Jornadas Científicas do IHMT. 12 December 2012, Lisbon, Portugal.
24. **Costa SS**, Viveiros M, Amaral L, Melo-Cristino J, Couto I. Efflux-mediated resistance to quaternary ammonium compounds in methicillin resistant *Staphylococcus aureus* (MRSA) clinical isolates. P 14-227. Pp.112. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
23. **Costa SS**, Viveiros M, Amaral L, Butaye P, Couto I. Susceptibility profiles of antibiotics, biocides and dyes in *Staphylococcus aureus* from pigs: correlation with efflux activity. P12-173. Pp.97. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
22. Mourato C, **Costa SS**, Viveiros M, Amaral L, Melo-Cristino J, Couto I. Co-resistance to biocides and beta-lactams in a MRSA clinical isolate. P14-230. Pp.113. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
21. Couto N, Belas A, Feßler AT, **Costa SS**, Tilley P, Couto I, Kadlec K, Schwarz S, Pomba C. Antimicrobial resistance among equine methicillin-resistant staphylococci. P12-163. pp.94. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
20. Couto N, Belas A, Feßler AT, **Costa SS**, Tilley P, Couto I, Kadlec K, Schwarz S, Pomba C. Minimum bactericidal concentrations of four biocides and the presence of *qac* genes. P14-232. pp.113. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
19. Couto N, Belas A, Feßler AT, **Costa SS**, Tilley P, Couto I, Kadlec K, Schwarz S, Pomba C. Loss of the *mecA* gene during storage of a methicillin-resistant *Staphylococcus cohnii* subsp. *cohnii* strain. P14-233. pp.114. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
18. Couto N, Belas A, **Costa SS**, Couto I, Pomba C. Comparative analysis of antimicrobial biocide susceptibility data of methicillin-resistant e-susceptible *S. pseudintermedius*. P15-273. pp.125. 15th ISSSI. 26 - 30 August 2012, Lyon, France.
17. **Costa SS**, Viveiros M, Amaral L, Couto I. The role of NorA in the adaptive response of *Staphylococcus aureus* to stress stimuli. P1280. 22nd ECCMID. 31 March - 3 April 2012, London, United Kingdom.
16. **Costa SS**, Mourato C, Viveiros M, Melo-Cristino J, Amaral L, Couto I. Resistance to biocides conveyed by efflux pumps in clinical isolates of MRSA. P1281. 22nd ECCMID. 31 March - 3 April 2012, London, United Kingdom.
15. Spengler G, Rodrigues L, Martins M, McCusker M, **Costa SS**, Ntokou E, Szabo AM, Horváth A, Varga ZG, Fanning S, Molnár J, Amaral L. Stress response and resistance of *Salmonella enterica* serotype Enteritidis to the efflux pump inhibitor neuroleptic drug thioridazine. P1224. 22nd ECCMID. 31 March - 3 April 2012, London, United Kingdom.
14. **Costa SS**, Mourato C, Viveiros M, Melo Cristino J, Amaral L, Couto I. Description of a novel staphylococcal pC194-family plasmid carrying the *smr* efflux pump gene, PS6:75, pp.264. MicroBiotec11. 1 - 3 December 2011, Braga, Portugal.

13. **Costa SS**, Viveiros M, Amaral L, Couto I. The role of NorA in the adaptative response of *Staphylococcus aureus* to stress stimuli. PS6:71, pp. 262. MicroBiotec11. 1 - 3 December 2011, Braga, Portugal.
12. **Mourato C**, **Costa SS**, Viveiros M, Falcão C, Melo-Cristino J, Amaral L, Couto I. Multidrug resistance in a methicillin-resistant *Staphylococcus aureus* (MRSA) clinical isolate mediated by efflux pump QacA, PS6:62, pp. 258. MicroBiotec11. 1 - 3 December 2011, Braga, Portugal.
11. **Pinto A**, Machado D, **Costa SS**, Couto I, Amaral L, Viveiros M. Multidrug resistance mediated by active efflux in *Escherichia coli*: new therapeutic strategies using antibiotics and inhibitors of active efflux, PS6:8, pp.232. MicroBiotec11. 1 - 3 December 2011, Braga, Portugal.
10. **Costa SS**, Mourato C, Viveiros M, Melo-Cristino J, Amaral L, Couto I. Description of a novel pC194-family plasmid carrying the *smr* efflux pump gene, P C1-617. 51st ICAAC. 17 - 20 September 2011, Chicago, USA.
9. **Costa SS**, Falcão C, Viveiros M, Machado D, Martins M, Melo-Cristino J, Amaral L, Couto I. Importance of efflux systems on the resistance to fluoroquinolones by *Staphylococcus aureus*. Poster presentation at the 462nd WE Heraeus Seminar "Transport across membranes: multiple drug resistance, mechanisms and new tools". 4 - 10 July 2010, Jacobs University Bremen, Bremen, Germany.
8. **Costa SS**, Viveiros M, Falcão C, Melo-Cristino J, Amaral L, Couto I. Genetic diversity of the *Staphylococcus aureus* efflux pump gene *norA*. Poster presentation at the 462nd WE Heraeus Seminar "Transport across membranes: multiple drug resistance, mechanisms and new tools". 4 - 10 July 2010, Jacobs University Bremen, Bremen, Germany.
7. **Costa SS**, Falcão C, Viveiros M, Melo-Cristino J, Amaral L, Couto I. Importance of efflux systems on the resistance to fluoroquinolones in *Staphylococcus aureus*. P955. 20th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID). 10 - 13 April 2010, Vienna, Austria.
6. **Couto I**, **Costa SS**, Viveiros M, Martins M, Amaral L. Efflux-mediated response of *Staphylococcus aureus* exposed to ethidium bromide. P2044. 18th ECCMID. 19 - 22 April 2008, Barcelona, Spain.
5. **Saraiva RG**, **Costa SS**, Couto I, Viveiros M, Feio MJ, Gameiro P. The role of enrofloxacin-based-metallocomplexes in the war against bacterial resistance. F24. International Conference on Antimicrobial Resistance (ICAR2010), 3 - 5 November 2010, Valladolid, Spain.
4. **Costa SS**, Viveiros M, Falcão C, Melo-Cristino J, Amaral L, Couto I. Genetic diversity of the *Staphylococcus aureus* efflux pump gene *norA*. S3-P271. Micro09. 28 - 39 November 2009, Vilamoura, Portugal.
3. **Falcão C**, **Costa SS**, Viveiros M, Machado D, Martins M, Melo-Cristino J, Amaral L, Couto I. Importance of efflux systems on the resistance to fluoroquinolones by *Staphylococcus aureus*. S3-P270. Micro09. 28 - 39 November 2009, Vilamoura, Portugal.
2. **Martins M**, Viveiros M, Couto I, **Costa SS**, Pacheco T, Amaral L. New method for the rapid screening of efflux pump activity in multi-drug resistant clinical strains. S3-P274. Micro09. 28 - 39 November 2009, Vilamoura, Portugal.
1. **Costa SS**, Couto I, Viveiros M, Martins M, Leandro C, Amaral L. Characterization of reduced susceptibility to biocides, dyes, and quinolones in a *Staphylococcus aureus* strain exposed to ethidium bromide. S7-P38. Micro07. 30 November - 2 December 2007, Lisbon, Portugal.

PEER-REVIEW PANELS

2018: Journal of Antimicrobial Chemotherapy (1)

2017: Veterinary Quarterly (1); Journal of Medical Microbiology (1); Plos One (1)

2016: Journal of Ethnopharmacology (1); BMC Microbiology (1); Phytochemistry Reviews (1); The Journal of Biological Regulators & Homeostasis Agents (1)

EXPERIENCE AS SCIENTIFIC ADVISER

AS CO-SUPERVISOR:

Frederico Duarte Holtreman, MSc Thesis in Biomedical Sciences

Influence of efflux in antibiotic resistance and reduced susceptibility to biocides in staphylococci

September 2016 – ongoing

Supervisor: Isabel Couto

Ana Cláudia Mineiro Santos, MSc Thesis in Medical Microbiology

Influence of efflux activity in biofilm production and resistance to antimicrobials in staphylococci

September 2016 – ongoing

Supervisor: Isabel Couto

Mafalda Sofia Reisinho de Oliveira Rosa, MSc Thesis in Biomedical Sciences

Contribution of efflux to antimicrobial resistance in staphylococci

Concluded in March 2017

Supervisor: Isabel Couto

Elizeth do Rosário Lopes, MSc Thesis in Medical Microbiology

Development of new methodological strategies to evaluate new compounds for their therapeutical potential against tuberculosis and other mycobacterioses

Concluded in January 2016

Supervisor: Isabel Couto

Diana Castañeda Fajardo, ERASMUS Exchange program (20 ECTS) - Jagiellonian University, Krakow, Poland.

Evaluation of efflux pump activity in bacteria

February – June 2014

Supervisor: Isabel Couto

LABORATORIAL SUPERVISION: MSc THESIS

Cláudia Alexandra Tormenta Palma, MSc Thesis in Medical Microbiology

Role of plasmid encoded determinants in antimicrobial resistance of *Staphylococcus aureus*

Concluded in December 2013

Supervisor: Isabel Couto

Cláudia Alinho Mourato, MSc Thesis in Medical Microbiology

The contribution of efflux pumps QacA and Smr in multiresistance of *Staphylococcus aureus*

Concluded in January 2012

Supervisor: Isabel Couto

LABORATORIAL SUPERVISION: SHORT-TERM SCIENTIFIC VISITS

PhD student Karen Prado Herzer Mattos, Universidade Estadual de Campinas (UNICAMP), Brazil. FELLOW-MUNDUS Scholarship (November 2016 – July 2017).

Molecular epidemiology and genetic characterization of *Klebsiella pneumoniae* isolates from inpatients at the Hospital de Clínicas, UNICAMP. Scholarship supervisor: Miguel Viveiros

PhD student Moisés Francisco, IHMT, UNL. (2015 – 2017)

Antimicrobial resistance and molecular characterization of *Salmonella enterica* spp. isolated from human specimens, food and environmental samples in Luanda, Angola, during 2013-2014. Supervisor: Miguel Viveiros; co-supervisor: Constança Pomba.

PhD student Monia Khemiri, Tunisia (2015)

Antimicrobial resistance and molecular characterization of staphylococci collected from inpatients at a Libyan Hospital and from ruminants and milk samples.

Visiting student at Faculty of Veterinary Medicine, FMV, University of Lisbon. Exchange supervisor: Constança Pomba.

PhD student Rolando Cannalire, Università degli Studi di Perugia, Italy (May 2013)

Evaluation of semi-synthetic compounds as efflux inhibitors of MDR efflux systems of *Staphylococcus aureus*
Supervisors: Miguel Viveiros, Isabel Couto

Professor Andrea von Groll, Faculdade de Medicina, Universidade Federal do Rio Grande, Brasil (June 2012)

Evaluation of tetrahydropyridines as efflux inhibitors of MDR efflux systems of *Escherichia coli*.

Supervisors: Miguel Viveiros, Isabel Couto

PhD student Eleni Ntokou, University of Thessaly, Greece (June 2009)

(COST ACTION BM0701 – Antibiotic transport and efflux: new strategies to combat bacterial resistance)

Supervisor: Leonard Amaral

TEACHING EXPERIENCE (ASSISTING)

Since 2016 - UC “Prevention and therapeutics of infectious diseases”. PhD Program Biomedical Sciences, IHMT/UNL.

June 2014 – UC “Molecular toxicology and membrane transport”. PhD Program Human Genetics and Infectious Diseases, IHMT/UNL.

Since June 2014 – UC “Molecular Diagnostic in Bacteriology and Mycology”, MSc in Medical Microbiology, UNL.

Since 2013 – UC “Mechanisms of resistance to antibiotics”, MSc in Biomedical Sciences, IHMT/UNL.

Since 2008 – UC “Mechanisms of resistance to antibiotics”, MSc in Medical Microbiology, UNL.

PRIZES AND AWARDS

Excellence Award Garcia de Orta (2013) - Best student of 2013 of the Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa.

Award Professor Doutor Manuel Pinto (2013) - Best PhD student in Biomedical Sciences, specialization Microbiology of 2013 of the Instituto de Higiene e Medicina Tropical, Universidade NOVA de Lisboa.

ESCMID grant (free registration). 22nd ECCMID), London, United Kingdom, European Society of Clinical Microbiology and Infectious Diseases (ESCMID).

OTHER ACTIVITIES/INTERESTS

ORGANIZING AND SCIENTIFIC COMMITTEES

Organization of the scientific visit of Dr. Charles Mgone (WHO) to IHMT, 11 December 2017.

Organization of the “First GHTM Antimicrobial Resistance Awareness Day” at IHMT, 15 November 2017.

Organizing Committee of the GHTM sessions at IHMT, UNL, since April 2016.

Organizing Committee of the “Open Day at IHMT”, 8-9 April, 2016

Scientific Committee of the “VI Jornadas do IHMT”, at IHMT, UNL, 11 December, 2015

Representative of the PhD students in Biomedical Sciences in the Pedagogic Council of the IHMT, UNL. (April 2010 – December 2012).

Organizing Committee of the Journal Club of the PhD students in Biomedical Sciences (2011/2012).

Organizing Committee of the 1st Chemistry Forum, held at the Faculdade de Ciências e Tecnologia (FCT), UNL. 16 - 17 October 2003.

PROFESSIONAL MEMBERSHIPS

Portuguese Society of Microbiology (SPM, no. 285).

American Society for Microbiology (ASM, no. 56835119).

European Society of Clinical Microbiology and Infectious Diseases (ESCMID, no. 51307).

Lisbon, 08 March 2018