

Curriculum Vitae



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Marcelo Sousa Silva has a PhD in Biotechnology (IST-UTL-Portugal, 2006), MSc in Biotechnology (USP-Brazil, 2001) and Graduation in Pharmaceutical Sciences (UFRN-Brazil, 1999). During his degree, he was a Research Fellowship at the Instituto Butantan (<http://www.butantan.gov.br>) and at the University of São Paulo (<http://www5.usp.br>), supervised by Prof. Isaias Raw and Prof. Denise Tambourgi, and supported by the Brazilian Academy of Science (1997-1998).

He developed his Post-doctoral at the *Centro de Biologia Molecular Severo Ochoa* – Universidad Autónoma de Madrid (Spain, 2007) and at the Instituto de Higiene e Medicina Tropical – Universidade Nova de Lisboa (IHMT-UNL-Portugal, from 2007 to 2012).

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I. PERSONAL DATE

Date of birth: June 18, 1974
Citizenship: Portuguese/Brazilian
Marital status: Single
Citizen Card: 31185226 – 2ZZO

II. EDUCATION

2006 – **PhD in Biotechnology**. Instituto Superior Técnico – Universidade Técnica de Lisboa, Lisbon – Portugal. Thesis: *Vacinas de DNA: um modelo experimental de imunização contra a Tripanosomose Africana*. Supervisors: Dr. Duarte Miguel Prazeres and Dr. Gabriel Amaro Monteiro

2001 – **Master in Biotechnology**. São Paulo University, São Paulo – Brazil. Dissertation: *Estudo dos mecanismos moleculares envolvidos na hemólise, dependente de complemento, induzida pelo veneno da aranha Loxosceles gaúcho*. Supervisor: Dr. Denise Vilarinho Tambourgi

1999 – **Degree in Pharmaceutical Sciences**. Faculdade de Ciências Farmacêuticas. Universidade Federal do Rio Grande do Norte. Natal – Brazil.

III. PREVIOUS ACTIVITIES

1. Post-doctoral Fellow – Instituto de Higiene e Medicina Tropical – Universidade Nova de Lisboa – Portugal, 2008-2012. Tutor: Doctor Jorge Atouguia.

2. Post-doctoral Fellow - Centro de Biologia Molecular Severo Ochoa – Universidade Autónoma de Madrid. Madrid – Spain, 2007. Tutor: Doctor Encarnacion Martínez-Salas.

3. PhD Fellow - Centro de Bioengenharia Química e Biológica – Universidade Técnica de Lisboa. Portugal, 2002-2006. Tutor: Doctor Duarte Miguel Prazeres.

4. MSc Fellow – Instituto Butantan. São Paulo – Brazil, 1999-2001. Tutor: Doctor Denise Vilarinho Tambourgi.

IV. AREAS OF EXPERTISE

1. Molecular parasitology
2. Immunology and toxinology
3. Biotechnology and vaccine development

V. CURRENT RESEARCH INTERESTS

1. Immunopathology of infectious caused by trypanosomatids (*Trypanosoma cruzi*, *Trypanosoma brucei* and *Leishmania spp*)
2. Vaccine development against neglected tropical diseases
3. Development of diagnosis tests
4. Clinical trials for development of drugs against neglected tropical diseases

VI. OTHER SKILLS AND ACTIVITIES

1. From 2014 to 2015: Member of IHMT-UNL Council.
2. 2012 Member of the Scientific Committee and Organizer of the event “II International Workshop on Chagas Disease, Triatomine Vectors, *Trypanosoma cruzi* and Triatoma Virus”. Bogotá – Colombia.
3. From 2010 to date: Member of the Portuguese Society for Biochemistry.
4. 2010 Member of the Scientific Committee and Organizer of the event “I International Workshop on Chagas Disease, Triatomine Vectors, *Trypanosoma cruzi* and Triatoma Virus”. Lisbon - Portugal.
5. From 2006 to date: Member of the Brazilian Society of Immunology.

VII. EXPERIENCE IN SCIENTIFIC ADVICE

7.1. PhD STUDENTS (in progress)

1. Sónia Pestana de Ascensão. Immunopathology of infections caused by *Trypanosoma brucei* in murine model. PhD in Biomedical Sciences, IHMT-UNL, 2011.
2. Sílvia Donato. Immunochemistry characterization of antigens from *Trypanosomatids*. PhD in Biomedical Sciences, IHMT-UNL, 2015.
3. Yorleydy Ruiz Moreno. Characterization of humoral immune in human malaria. PhD in Biomedical Sciences, IHMT-UNL, 2015.
4. Cláudia Jassyka Moreno. Biochemical and biological characterization of metalloproteinases in *Trypanosomatids*. Ph. D. in Biochemistry. Universidade Federal do Rio Grande do Norte, Brazil, 2016.

7.2. PhD STUDENTS (concluded)

1. Maria Lina Antunes. Severe malaria: serological and biological markers of severity and prognosis. PhD in Tropical Medicine, IHMT-UNL, 2010.

7.2. MASTER STUDENTS (concluded)

1. Hílana Patrícia Aristizabal Pineda. Immunoidentification of *Trypanosoma cruzi* antigens using sera from chronically infected patients. Master in International Health, Charité – Universitätsmedizin Berlin - Germany, 2015.
2. Cláudia Jássica Gonçalves Moreno. *Estudo do modelo murino para a modulação da toxicidade do Benznidazol durante a terapêutica da doença de Chagas*. Master in Tropical Health, IHMT-UNL, 2015.
3. Joana Monteiro. Caracterização bioquímica de metaloproteases de tripanossomatídeos. Master in Biomedical Sciences, IHMT-UNL, 2015.
4. Daniela Portugal Calisto. *Caracterização de anticorpos anti-Plasmodium spp em indivíduos com estadias prévias em zonas endémicas de malária*. Master in Tropical Health, IHMT-UNL, 2015.
5. Vanessa Alexandra Agostinho Martins. *Análise da ativação do sistema complemento e produção de mediadores pró-inflamatórios em pacientes com malária importada*. Master in Tropical Health, IHMT-UNL, 2014.
6. João Gomes Pereira. *Estudo da ação farmacológica de Benznidazol durante a infecção murina com Trypanosoma brucei brucei*. Master in Veterinary Science, FV-UTL, 2013.
7. Karina Pires de Sousa. *Caracterização bioquímica de metaloproteinases de parasitas tripanosomatídeos*. Master in Biomedical Sciences, IHMT-UNL, 2013.
8. Ana Raquel Ferreira. *Pesquisa de anticorpos anti-Plasmodium spp em doadores de sangue*. Master in Emerging Infectious Diseases, FM-UL, 2013.
9. Ana Filipa Gonçalves Teixeira. *Clonagem e expressão génica de potenciais candidatos antigénicos do parasita Trypanosoma brucei brucei*. Master in Biomedical Sciences, IHMT-UNL, 2013.
10. Anaxore Inhelder Cardoso Casimiro. *Mediadores pró-inflamatórios como fatores preditivos de malária grave em crianças*. Master in Tropical Health, IHMT-UNL, 2012.
11. Ana Rita Filipe Ferrão. *Estudo piloto sobre a prevalência da doença de Chagas em grávidas Latino-americanas em Portugal*. Master in Tropical Health, IHMT-UNL, 2012.
12. Daniel José Dias Gonçalves. *Efeito da minociclina em Mus musculus infectados com Trypanosoma brucei brucei*. Master in Tropical Health, IHMT-UNL, 2011.

13. Jailson Fernando Brito Querido. *Desenvolvimento de técnicas imunoquímicas e moleculares para a detecção do Triatoma virus (TrV) em amostras humanas e animais*. Master in Medical Biochemistry, FC-UL, 2011.

14. Rita de Cássia Guimarães Medina Costa. *Análise serológica e imunoquímicas de potenciais antigénios para a pesquisa de anticorpos anti-Plasmodium falciparum em pacientes com malária importada*. Master in Medical Biochemistry, FC-UL, 2011.

15. Elisa Miguel. *Malária na mulher grávida submetida ao tratamento intermitente e preventivo em Angola*. Master in Tropical Health, IHMT-UNL, 2009.

VIII. PARTICIPATION IN RESEARCH PROJECTS

1. *Benznidazol and Triazol Research Group for Nanomedicine and Innovation on Chagas Disease (BERENICE)*. Supported by FP7/EU. 2012-2017 - **Member Investigator**.

2. *Anti-trypanosomatids activity (Trypanosoma brucei and Leishmania sp) of ursolic acid and oleanolic acids*. Supported by FAPESP – São Paulo University – Brazil. 2014 - 2016, **Member Investigator**.

3. *Biochemical and pharmacological characterization of metalloproteinases isolated from Trypanosoma brucei*. Supported by FCT/Portugal-Capes/Brazil. 2010 - 2012, **Principal Investigator**.

4. PTDC/CVT/102486/2008 – *Immunotherapy of African trypanosomiasis in mice model by DNA vaccines*. Supported by FCT-Portugal. 2010 - 2013, **Principal Investigator**.

5. P208RT0430 - *Red iberoamericana para el estudio del control biológico con TRV de triatomíneos transmisores de Chagas*. Supported by Programa Ibero-americano de Ciência e Tecnologia para o Desenvolvimento (CYTED). 2009-2012, **Member Investigator**.

6. PTDC/CVT/72624/2006 - *Use of the vaccine adjuvant for immunomodulation of the infection caused by Trypanosoma brucei: an approach to vaccine design*. Supported by FCT – Portugal. 2007 – 2010, **Principal Investigator**.

7. PTDC/EIA/70841/2006 - *ILP-web-service: an inductive logic programming based web service*. Supported by Fundação para a Ciência e a Tecnologia. 2007 – 2010, **Member Investigator**.

8. POCI/CVT/61090/2004 - *Development of DNA vaccine prototypes for veterinary trypanosomiasis*. Supported by FCT-Portugal. 2004 – 2007, **Member Investigator**.

9. POCI/BIO/55799/2004 - *Overcoming the nucleolytic barrier during trafficking of plasmid DNA vectors*. Supported by FCT – Portugal. 2004 – 2007, **Member Investigator**.

10. POCTI/CVT/47260/2002 - *Development of experimental DNA vaccines against sheep Maedi-Visna virus*. Supported by FCT – Portugal. 2003 – 2006, **Member Investigator**.

IX. AWARDS AND HONORS

1. Oscar Muscio Award 2011 - Advisor of the best Master's thesis in Triatoma virus – Master Student Jailson F. B. Querido.

2. Oscar Muscio Award 2013 - Advisor better Triatoma virus research project – 2011 – PhD Student Jailson F. B. Querido.

X. SCIENTIFIC PUBLICATIONS

10.1. THESIS

1. **Silva MS**. *Vacinas de DNA: um modelo experimental de imunização contra a Tripanosomose Africana*. Universidade Técnica de Lisboa. Instituto Superior Técnico. Lisboa – Portugal, 2006.

2. **Silva MS**. *Estudo dos mecanismos moleculares envolvidos na hemólise, dependente de complemento, induzida pelo veneno da aranha Loxosceles gaúcho*. Universidade de São Paulo. São Paulo – Brazil, 2001.

10.2. BOOK CHAPTER

1. Monte JFS, Moreno CJG, Monteiro JPMFL, de Oliveira Rocha HA, Ribeiro AR, **Silva MS**. Use of zymography in trypanosomiasis studies. *Methods. Mol. Biol.*, 1626: 213-220, 2017.

2. **Silva MS**, Lança AS, de Sousa KP, and Atouguia J. *DNA vaccination: progress and challenges*. In: *DNA vaccines: types, advantages, and limitations*. Editores: Erin C. Donnelly and Arthur M. Dixon. Nova Publishers, USA, 2011. ISBN: 978-1-61324-444-9

3. Monteiro GA, **Silva MS**, Henriques AM, Carvalho J, Atouguia J, Fevereiro M, Prazeres DM. *Advances in DNA vaccination: design, immunology and manufacturing*.

Veterinary Immunology and Immunopathology. Nova Science Publishers, Inc. USA, 2009. ISBN: 978-1-60876-342-9.

10.3. PAPERS IN INTERNATIONAL JOURNALS

1. Ribeiro AR, Lima L, de Almeida LA, Monteiro J, Moreno CJG, Nascimento JD, de Araújo RF, Mello F, Martins LPA, Graminha MAS, Teixeira MMG, **Silva MS**, Steindel M, da Rosa JA. Biological and molecular characterization of *Trypanosoma cruzi* strains from four states of Brazil. *Am. J. Trop. Med. Hyg.*, 98(2): 453-463, 2018.
2. Jesus JA, Fragoso TN, Yamamoto ES, Laurenti MD, **Silva MS**, Ferreira AF, Lago JH, Santos-Gomes G, Passero LF. Therapeutic effect of ursolic acid in experimental visceral leishmaniasis. *Intern. J. Parasitol: Drugs and Drug Resistance*, 7: 1-11, 2017.
3. Portugal-Calisto D, Ferreira AR, Teodosio R, **Silva MS**. Post exposure serological responses to malaria parasites in potential blood donors. *Malaria J.*, 15: 1-12, 2016.
4. Yamamoto ES, Campos BL, Jesus JA, Laurenti MD, Ribeiro SP, Kallás EG, Rafael-Fernandes M, Santos-Gomes G, **Silva MS**, Sessa DP, Lago JH, Levy D, Passero LF. The effect of ursolic acid on *Leishmania (Leishmania) amazonensis* is related to programmed cell death and presents therapeutic potential in experimental cutaneous leishmaniasis. *PloS One*, 10(12), 2015.
5. Querido JFB, Echeverría MG, Marti GA, Costa RM, Susevich ML, Rabinovich JE, Copa A, Montaña NA, Garcia L, Cordova M, Torrico F, Sánchez-Eugenia R, Sánchez-Magraner L, Muñiz-Trabudua X, López-Marijuan I, Rozas-Dennis GS, Diosque P, Castro AM, Robello C, Rodríguez JS, Altchek J, Salazar-Schettino PM, Bucio MI, Espinoza B, Guérin DMA, **Silva MS**. Seroprevalence of *Triatoma virus* (Dicistroviridae: Cripaviridae) antibodies in Chagas disease patients. *Parasites & Vectors*, 8: 29, 2015. Doi: 10.1186/s13071-015-0632-9.
6. Sánchez-Eugenia R, Méndez F, Querido JF, **Silva MS**, Guérin DM, Rodríguez JF. *Triatoma virus structural polyprotein expression, processing and assembly into virus-like particles*. *J. Gen. Virol.*, 96: 64-73, 2015.
7. Marti GA, Echeverría MG, Susevich ML, Ceccarelli S, Balsolobre ML, Grijalva MJ, Solorzano E, Monroy C, Espinoza-Blanco Y, Cordova-Benzaquen E, Ruelas-Llwewn N, Guzmán-Loyza M, Caceres AG, Vences-Blanco MO, Salazar-Schettino PM, Martínez-Martínez I, Espinoza-Gutiérrez B, Mojoli A, Arias AR, Feliciangeli MD, Mendoza PR,

Rozas-Dennis GS, Sánchez-Eugenia R, Agirre J, Viguera AR, Hernández-Suárez CM, Vilchez S, Osuna A, Gorla DE, Mougabure-Cueto G, Esteban L, Angulo VM, Querido JFB, **Silva MS**, Marques T, Anê ACBM, Gómez-Hernández C, Ramírez LE, Rabinovich JE, Diotaiuti L, Guérin DMA. *Exploration for Triatoma Virus (TrV) infection in laboratory-reared triatomines of Latin America: a collaborative study*. Int. J. Trop. Insect Science, 33: 294-304, 2013.

8. Costa RM, Nogueira F, de Sousa KP, Vitorino R, **Silva MS**. *Immunoproteomic analysis of Plasmodium falciparum antigens using sera from patients with clinical history of imported malaria*. Malaria Journal, 12: 100-106, 2013.

9. Costa RM, de Sousa KP, Atougua J, Tavira LT, **Silva MS**. *Prevalence and level of antibodies anti-Plasmodium spp. in travellers with clinical history of imported malaria*. Journal of Parasitology Research, 2013: 247273-247278, 2013.

10. Querido JFB, Agirre J, Marti GA, Guérin DMA, **Silva MS**. *Inoculation of Triatoma virus (Dicistroviridae: Cripavirus) elicits a non-infective immune response in mice*. Parasites & Vectors, 6: 66-71, 2013.

11. Querido JFB, Agirre J, Marti GA, Guérin DMA, **Silva MS**. *Molecular techniques for Dicistrovirus detection without RNA extraction or purification*. BioMed Research International, 2013: 218593-218596, 2013.

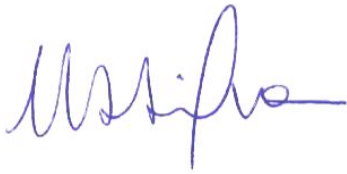
12. De Sousa KP, Atougua J, **Silva MS**. *Induced cytokine network during experimental African trypanosomiasis*. International. Journal of Interferon, Cytokine and Mediator Research, 3: 71-78, 2011.

13. Lança AS, de Sousa KP, Atougua J, Prazeres DM, Monteiro GA, **Silva MS**. *Trypanosoma brucei: immunisation with plasmid DNA encoding invariant surface glycoprotein gene is able to induce partial protection in experimental African trypanosomiasis*. Exp. Parasitol., 127: 18-24, 2011.

14. De Sousa KP, Atougua J, **Silva MS**. *Partial biochemical characterization of a metalloproteinase from the bloodstream forms of Trypanosoma brucei brucei parasites*. Protein J., 29: 283-289, 2010.

15. **Silva MS**, Prazeres DM, Lança A, Atougua J, Monteiro GA. *Trans-sialidase from Trypanosoma brucei as a potential target for DNA vaccine development against African trypanosomiasis*. Parasitol. Res., 105: 1223-1229, 2009.

16. Sousa K, **Silva MS**, and Tavira LT. *Variation of nitric oxide levels in imported Plasmodium falciparum malaria episodes*. African Journal of Biotechnology, 7 (6): 796-799, 2008.
17. Tambourgi DV, **Silva MS**, Billington SJ, Andrade RMG, Magnoli FC, Songer JG, and Van den Berg CW. *Mechanism of induction of complement susceptibility of erythrocytes by spider and bacterial sphingomyelinases*. Immunology, 107: 93-101, 2002.



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Lisbon, March 2018.