

## **Curriculum vitae**

### **Ilda Santos Sanches**

Nationality: Portuguese

Year of birth: 1958

### **INSTITUTIONAL ADDRESS**

Departamento de Ciências da Vida. Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa (FCT/UNL). Campus de Caparica. 2829-516 Caparica. PORTUGAL

### **CONTACT DATA**

Tel: +351 21 2948530. Fax: +351 21 2948530. Cell phone: +351 962489110

E-mail: [isanches@fct.unl.pt](mailto:isanches@fct.unl.pt)

URL: <http://www.dcv.fct.unl.pt/pessoas/docentes/ilda-santos-sanches>

[http://www.crem.fct.unl.pt/Personal/Ilda\\_Sanches/Ilda\\_Sanches.htm](http://www.crem.fct.unl.pt/Personal/Ilda_Sanches/Ilda_Sanches.htm)

### **EDUCATION**

#### **ACADEMIC QUALIFICATIONS/INSTITUTION**

- 1991 Ph.D. in Biology – Molecular Biology, 1991. Faculdade de Ciências e Tecnologia. Universidade Nova de Lisboa (FCT/UNL), Portugal
- 1983 B.Sc. (5-year degree course) in Biology, Faculdade de Ciências. Universidade de Lisboa, Portugal

#### **ACADEMIC CAREER**

- 2003 - present Associate Professor. FCT/UNL (Department of Life Sciences)
- 1996 - 2003 Assistant Professor w/tenure. FCT/UNL
- 1991 - 1996 Assistant Professor. FCT/UNL
- 1987 - 1991 Teaching Assistant. FCT/UNL
- 2007 - present Group Leader of Research Group “Interactions Microorganism-Environment”. Centro de Recursos Microbiológicos - CREM. FCT/UNL
- 2003 - present Head of research laboratory in ‘Molecular Epidemiology and Genetics of Bacteria’ (CREM. FCT/UNL)
- 2008 - 2012 Coordinator (elected) of CREM. FCT/UNL
- 2003 - 2007 Group Leader of Research line “Molecular Characterisation of Pathogenic Bacteria: beta-hemolytic streptococci in carriage and disease”. CREM. FCT/UNL
- 2000 - 2002 Head of Microbial Pathogenesis Laboratory. Instituto de Tecnologia Química e Biológica (ITQB/UNL)
- 1991 - 2000 Member of the team of Molecular Genetics Laboratory. ITQB/UNL
- 1990 - 1995 Visiting scientist (2 month periods/year). Laboratory of Microbiology and Infectious Diseases. The Rockefeller University. NY, US
- 1989 - 1991 PhD student. ITQB/UNL
- 1983 - 1989 PhD student. Instituto Gulbenkian de Ciência (IGC), Oeiras, Portugal

**Area of scientific activity:** Biology: Molecular Biology, Molecular Microbiology

**Domain of specializations:** Molecular Epidemiology and Genetics of Gram-Positive Bacteria. Molecular Biology of Bacteriophages.

## MAIN RESEARCH INTERESTS

The main research interest of our laboratory is to understand the dynamics of populations of bacterial pathogens from human and animal origin and the molecular mechanisms involved in pathogen adaptation and virulence.

Research activities include: i) Comparison of phenotypes/genotypes of bacterial species/strains from different niches, clinical origins and hosts; ii) Analysis of the genomic structure and potential for horizontal gene transfer of phages (bacterial virus) and of other mobile genetic element; iii) Study of antimicrobial resistance patterns and mechanisms of resistance; iv) Investigation of the biological activity of new materials and new biocompounds against various pathogens; iv) Investigation of tailor-made strategies for infection control and risk assessment for bacterial colonization and infection.

**Keywords.** Biochemistry & Molecular Biology; Molecular Microbiology; Bacterial Genetics; Molecular Epidemiology; Bacteriophages; Veterinary; Infectious Diseases; Virulence; Pathogenesis.

## RESEARCH FUNDING

- Principal investigator of 13 research projects (out of 28 as Team member)

*Funding Agencies: Fundação para a Ciência e a Tecnologia, Ministério da Educação e Ciência, Fundação Calouste Gulbenkian, Ministério da Saúde, Conselho de Reitores das Universidades Portuguesas (Portugal), European Union*

## CURRENT AND RECENT PROJECTS

- Unraveling the host specificity within *Streptococcus dysgalactiae* subsp. *dysgalactiae*" - ref PTDC/CVT-EPI/4651/2012 – Fundação para a Ciência e a Tecnologia, Portugal (2013-2015). Principal Investigator: I. Santos Sanches
- NANO\_GUARD: Fullerene-based systems for oxidative inactivation of airborne microbial pathogens. Ref 269138. MC-IRSES International Research Staff Exchange Scheme (IRSES). FP7-PEOPLE-2010-IRSES. 2010-2015. Team Leader: I. Santos Sanches; Principal Investigator: Svetlana Lyubchik (FCT/UNL)
- Ocean Treasures - Ocean sediments from Madeira Archipelago: a new source of innovative and bioactive compounds. PTDC/QUI-QUI/119116/2010 – Fundação para a Ciência e Tecnologia, Portugal (2012-2015). Team Leader: I. Santos Sanches; Principal Investigator: Susana Gaudêncio (REQUIMTE-FCT/UNL)
- Project "Study of evasion mechanisms to innate immunity in group B streptococcal infections: identification of novel therapeutic targets" - ref PTDC/SAU-MII/105114/2008 – Fundação para a Ciência e a Tecnologia, Portugal (2010-2013). PI: I. Santos Sanches. Other Participants: M.J. Borrego, Pró-INSA, Associação para a Promoção da Investigação em Saúde (Pró-INSA/INSARJ); B. Spellerberg, University of Ulm - Institute of Medical Microbiology and Hygiene (Uni-Ulm).

## BILATERAL AGREEMENTS/RESEARCH

Collaborations with international teams for joint research activities in molecular microbiology and infectious diseases.

- Institute of Experimental Medicine, Saint-Petersburg, Russia (A. Dmitriev, PhD, Head of Dep.). In the scope of project “MC-IRSES International Research Staff Exchange Scheme (IRSES). FP7-PEOPLE-2010-IRSES”. (2010-2014). *Team Leader*: I. Santos-Sanches
- Instituto de Microbiologia Professor Paulo de Góes, Universidade Federal do Rio de Janeiro, Brazil. (A.M. Figueiredo, PhD, Head of Dep.) In the scope of project “MC-IRSES International Research Staff Exchange Scheme (IRSES). FP7-PEOPLE-2010-IRSES”. (2010-2014). *Team Leader*: I. Santos-Sanches
- Universidad de Barcelona, Hospital Universitari de Bellvitge, Fundació ÌDIBELL, Spain. (J. Ayats, MD, PhD, C. Ardanuy, PhD, J. Linares, MD, PhD). In the scope of project Ref.: 74 (PT), Conselho de Reitores das Universidades Portuguesas (CRUP), Portugal / Ministerio de Ciencia y Tecnologia, Spain (2008-2009): PI: I. Santos-Sanches
- Microbial Pathogenesis Helmholtz Centre for Infection Research, Braunschweig, Germany (G.S. Chatwall, PhD, Head of Dep.).
- Dep. of Bacteriology at Smittskyddsinstitutet, and Microbiology and Tumor Biology Center, Karolinska Institutet, Stockholm, Sweden (B. Henriques-Normark, MD, PhD).
- University of Ulm, Institute of Medical Microbiology and Hygiene, Germany. (B. Spellerberg, PhD)

## AWARDS

- 2000 Award of Clinical Pathology (co-author). Portuguese Society of Internal Medicine
- 1999 Award of Clinical Pathology (co-author). Hospital Dona Estefânia, Lisbon, Portugal
- 1996 First Krugman Award in the area of clinical research (co-author). International Society of Pediatrics.

## REFEREEING ACTIVITIES

- 2013 - 2014 Member of the evaluation panel of Individual Doctoral and Post-doctoral Grant proposals (area Biological Sciences). Fundação para a Ciência e a Tecnologia, Portugal
- 2013 Expert Evaluator in the “FCT Investigator 2013” call (area Life.Health). Fundação para a Ciência e a Tecnologia, Portugal
- 2009 - 2010 Coordinator of the External Advisory Board of the Research Centre of Malaria and Tropical Diseases, Associate Laboratory - CMDT-LA (Centro de Malária e Outras Doenças Tropicais), Portugal
- 2012 Member of the Review Panel of the ‘Santander Totta – Universidade Nova de Lisboa’ Scientific Merit Award (area Life Sciences).
- 2008-2009 Evaluator of research projects – Integrated Actions. CRUP - Council of Rectors of Portuguese Universities
- 2003 Coordinator of the NATO/IMB/ARW working groups for elaboration of recommendations. NATO/International Medical Association Bulgaria (IMAB) - Advanced Research Workshop (ARW) on “Risk Infections and Biomedical Terrorism”. Varna, Bulgaria

## REFEREEING ACTIVITIES

Regular reviewer of several international journal manuscripts.

Editorial Board of 'Interdisciplinary Perspectives on Infectious Diseases'. Hindawi Publishing Corporation - <http://www.hindawi.com/journals/ipid/editors/>

Review Editor of 'Frontiers in Antimicrobials, Resistance and Chemotherapy'. - [http://community.frontiersin.org/people/IldaSantos\\_Sanches/21862](http://community.frontiersin.org/people/IldaSantos_Sanches/21862)

## OTHERS

- 2008 - 2014 Pool of Scientific Advisors on Risk Assessment (Commission Decision 2008/721/EC) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:049:0033:0042:EN:PDF>
- 2009 Organization of the 3<sup>rd</sup> Joint National Congress of the Portuguese Society of Microbiology and the Portuguese Society of Biotechnology – MicroBiotec09, Vilamoura, Portugal
- 2008 Technical Expert of Molecular Biology, Internal Quality of Laboratory Standards (NP EN ISO/IEC 17025:2005) of the biotech company Biopremier, Portugal <http://www.biopremier.com/en>
- 2007- Member of the European Study group on Microbial Biofilms - European Society of Clinical Microbiology and Infectious Diseases (ESCMID)
- 2004- Member of the European Study group on Microbial Epidemiological Markers - European Society of Clinical Microbiology and Infectious Diseases (ESCMID)
- 2001 - 2002 Co-coordination of the activity "Biological Risk" of the Associate Laboratory ITQB/IBET/IGC, Portugal
- 2001 Invited Participant in the thematic workshops "*European Conference on Antibiotic Use in Europe*" and "*Link between Consumption and Resistance – Data Analysis and Mathematical Modelling*" for recommendation of priority topics of research in medical microbiology and infectious diseases. Brussels. Belgium.
- 1998 Invited Participant in the thematic workshop "*Biological Threat*" ("*Ameaça Biológica*") for recommendation of priority topics of research in medical microbiology and infectious diseases. Direcção Geral da Saúde, Lisbon, Portugal.

## ACADEMIC AND SCIENCE MANAGEMENT ACTIVITIES

- 2009 - present Member (elected) of the Faculty Council ('Conselho da Faculdade'), FCT/UNL
- 2009 - present Member (elected) of the Coordinating Committee of the Scientific Council, FCT/UNL
- 2008 - 2012 Coordinator (elected) of the R&D Unit - Centro de Recursos Microbiológicos - CREM. FCT/UNL
- 2011 - 2014 Coordinator of the Master of Science Program in Medical Microbiology of UNL
- 2006 - 2011 Coordinator of the Master of Science Program in Molecular Genetics and Biomedicine of FCT/UNL
- 2004 - 2006 Coordinator of the Degree in Cellular and Molecular Biology of FCT/UNL
- 2002 - 2004 Installation committee of the Cellular and Molecular Biology Degree of FCT/UNL
- 2008 - present Co-coordinator of Core Unit – Research Training (I) of the PhD program in Molecular Biosciences (MolBioS) funded by Fundação para a Ciência e Tecnologia (PD-F), Portugal

## ACADEMIC AND SCIENCE MANAGEMENT ACTIVITIES

- 2009 - present     Member of the Scientific Committee of the PhD program in Biology of FCT/UNL
- 2003 - present     Member of the Scientific Committee of the Master of Science Program in Medical Microbiology of UNL
- 2003 - 2005        Member of the Scientific Committee of the Master of Science Program in Clinical Microbiology of the Faculty of Medicine, University of Lisbon

## RESEARCH SUPERVISION

Topics: Genetics and Molecular Epidemiology of Antimicrobial Resistant and Susceptible Staphylococci and Streptococci

- Supervision and co-supervision:

- 7 Postdoc Fellows and PhD researchers (1994-2000; 2012 – present)
- 8 PhD Students (2002 – present)
- 20 MSc Students (2004 – present)
- 57 BSc Students (2000 – 2007)

## Recent Supervision

### Ongoing

### PhD Theses

- Cinthia Barroco. "Unravelling the host specificity within streptococci". PhD in Biology, Faculdade de Ciências e Tecnologia, UNL. Supervisor: I. Santos Sanches (FCT/UNL). Co-Supervisor: A. Fernandes (FCT/UNL). Start: April 2014.
- Célia Leão. "Novel pangenomic approaches for the characterization of Mycobacterium avium subsp. paratuberculosis". PhD grant Ref. SFRH/BD/62469/2009 from FCT. PhD in Biology, Faculdade de Ciências e Tecnologia, UNL. Supervisor: J. Inácio (School of Pharmacy and Biomolecular Sciences, University of Brighton, UK). Co-Supervisors: I. Santos Sanches (FCT/UNL); K. Stevenson (Moredun Research Institute, UK) Start: July 2010.
- Carlos Florindo. "Molecular Epidemiology and Virulence Factors of Streptococcus agalactiae". PhD grant Ref. SFRH/BD/48231/2008 from FCT. PhD in Biology, Faculdade de Ciências e Tecnologia, UNL. Supervisor: M. J. Borrego (INSA, Portugal). Co-Supervisors: I. Santos Sanches (FCT/UNL); B. Spellerberg (University of Ulm, Germany). Start: January 2009.

### MSc Theses

- João Caço. "Expression of Streptococcus virulence genes and evaluation of infection potential. MSc in Medical Microbiology, UNL. Supervisor: I. Santos Sanches (FCT/UNL). Co-supervisor: A. Fernandes (FCT/UNL). Start: September 2014.
- João Brito. "Evolution of the genomic structure of Streptococcus dysgalactiae subsp. dysgalactiae". MSc in Medical Microbiology, UNL. Supervisor: I. Santos Sanches (FCT/UNL). Co-supervisor: R. Mato (FCT/UNL). Start: September 2014.
- José Almeida. "Infection detection in a breath - An artificial nose for microbial detection". MSc in Biotechnology. Faculdade de Ciências e Tecnologia, UNL. Supervisor: C. Roque (FCT/UNL). Co-supervisor: I. Santos Sanches (FCT/UNL). Start: September 2014.

## Completed

### PhD Theses

- Renato Pires. 2011. "Evolution of genotypes of group A streptococci from colonization and infection". PhD grant Ref. SFRH/BD/32374/2006 from FCT. PhD in Biology, Faculdade de Ciências e Tecnologia, UNL. Supervisor: I. Santos Sanches (FCT/UNL).
- Márcia Rato. 2011. "Epidemiological characterization, antimicrobial resistance and virulence mechanisms in animal and human streptococci". PhD in Biology, Faculdade de Ciências e Tecnologia, UNL. Supervisor: I. Santos Sanches (FCT/UNL). Co-supervisor: C. L. Vilela (Faculdade de Medicina Veterinária, UL).

### MSc Theses

- Tiago Dias. 2013. "Estudo da biodiversidade em bactérias marinhas, provenientes de sedimentos oceânicos colhidos no Arquipélago da Madeira". MSc in Biotechnology, Faculdade de Ciências e Tecnologia, UNL. Supervisor: S. Gaudencio (FCT/UNL). Co-supervisor: I. Santos Sanches (FCT/UNL).
- Inês Silvestre. 2013. "Evolution of genotypes of *Streptococcus agalactiae* causing colonization in pregnant women". MSc in Medical Microbiology, UNL. Supervisor: I. Santos Sanches (FCT/UNL). Co-supervisors: R. Castro (IHMT/UNL) and M. J. Borrego (INSA, Portugal).

## SCIENTIFIC PRODUCTIVITY:

Publications (published): **61**

Book Chapters: **5**

Extended Abstracts published in WoK ISI Journals: **2**

Abstract published in WoK ISI Journals: **16**

Invited Talks at Congresses and Workshops: **43**

## SCIENTIFIC IMPACT:

RID: C-5693-2011

Number of Publications (WoK ISI): **57**

Articles with Citation Data: **54**

Sum of the Times Cited: **2083**

Average Citations per Article: **38.57**

h-index: **28**

## SELECTED PUBLICATIONS

### BOOK CHAPTERS

(\*Corresponding author)

Santos Sanches I\*, D.C. Oliveira, M Aires de Sousa, R. Sá-Leão, A. Tomasz and H. de Lencastre. 2003. Molecular Epidemiology of Antibiotic-Resistant Bacteria. In Applications of Genomics and Proteomics for Analysis of Bacterial Biological Warfare Agents. p.75-81. NATO Science Series I: Life and Behavioural Sciences, vol. 352. V. G. DelVecchio and V. Kramery Eds. IOS Press, Netherlands.

Santos Sanches I\*. 2014. Streptococcus. In Microbiologia Médica Vol1. Part IV. Bacteriologia médica. Chapter 21, pp. 255-276. Editors: Barroso H., Meliço-Silvestre A., Taveira N. Lidel Edições Técnicas Lda, Portugal. ISBN 978-989-752-057-0

Santos Sanches I\*, and R. Bexiga. 2014. Epidemiologia molecular de *Streptococcus uberis* associados a mastites em bovinos: análise do polimorfismo de macrofragmentos de restrição separados por electroforese de campo pulsado (PFGE) e sequenciação de múltiplos loci (MLST). In Abordagens Moleculares em Veterinária - Como desvendar a etiologia e a epidemiologia da infeção. Section IV: Exemplos práticos de aplicações moleculares em veterinária. Chapter 26. In press. Editors: Cunha M., Inácio J. Lidel Edições Técnicas Lda, Portugal (in press).

Santos Sanches I\*, L. Chambel, and R. Tenreiro. 2014. Pulsed-Field Gel Electrophoresis (PFGE): Application in Population Structure Studies of Bovine Mastitis-Causing Streptococci. Chapter 23. In *Veterinary Infection Biology: Molecular Diagnostics and High-Throughput Strategies, Methods in Molecular Biology*, vol. 1247, DOI 10.1007/978-1-4939-2004-4\_23, © Springer Science+Business Media New York 2015 (in press).

## **PUBLICATIONS – LAST 5 YEARS (OUT OF 61)**

(\* Santos-Sanches I, Corresponding author)

**Florindo C., V. Damião, I. Silvestre, C. Farinha, F. Rodrigues, F. Nogueira, F. Martins-Pereira, R. Castro, M. J. Borrego, I. Santos-Sanches, and The Group for the Prevention of Neonatal GBS Infection.** 2014. Epidemiological surveillance of colonising group B Streptococcus epidemiology in the Lisbon and Tagus Valley regions, Portugal (2005 to 2012): emergence of a new epidemic type IV/clonal complex 17 clone. *Euro Surveill.* 2014;19(23):pii=20825.

**Leão C., D. Machado, I. Santos Sanches, I. Couto, M. Viveiros, J. Inácio, and A. Botelho.** 2014. Relatedness of Mycobacterium avium subspecies hominissuis clinical isolates of human and porcine origins assessed by MLVA. *Vet. Microbiol.* **173**: 92-100. doi: 10.1016/j.vetmic.2014.06.027

**Rato M. G., R. Bexiga, C. Florindo, L. M. Cavaco, C. L. Vilela, and I. Santos-Sanches\*.** 2013. Antimicrobial resistance and molecular epidemiology of streptococci from bovine mastitis. *Vet. Microbiol.* **161**: 286-294. doi: 10.1016/j.vetmic.2012.07.043

**Pires R., C. D. Rolo, A. Morais, A. Brito-Avô, C. Johansson, B. Henriques-Normark, J. Gonçalo-Marques, and I. Santos-Sanches\*.** 2011. Description of macrolide-resistant and potential virulent clones of Streptococcus pyogenes causing asymptomatic colonization during 2000-2006 in Lisbon area. *Eur. J. Clin. Microbiol. Infect. Dis.* **31**:849-857. doi: 10.1007/s10096-011-1384-x

**Florindo C., J. P. Gomes, M. G. Rato, L. Bernardino, B. Spellerberg, I. Santos-Sanches, and M. J. Borrego.** 2011. Molecular epidemiology of group B streptococcal meningitis in children beyond the neonatal period from Angola. *J. Med. Microbiol.* **60**: 1276-1280. doi: 10.1099/jmm.0.031674-0

**Rato M. G., A. Nerlich, R. Bergmann, R. Bexiga, S. F. Nunes, C. L. Vilela, I. Santos-Sanches\*, and G. S. Chhatwal.** 2011. Virulence gene pool detected in bovine group C Streptococcus dysgalactiae subsp. dysgalactiae using a group A Streptococcus pyogenes virulence microarray. *J. Clin. Microbiol.* **49**:2470-2479. doi: 10.1128/JCM.00008-11

**Pires R., C. Ardanuy, D. Rolo, A. Morais, A. Brito-Avô, J. Gonçalo-Marques, J. Liñares, and I. Santos-Sanches\*.** 2010. Emergence of ciprofloxacin-nonsusceptible Streptococcus pyogenes isolates from healthy children and pediatric patients in Portugal. *Antimicrob. Agents Chemother.* **54**:2677-2780. doi: 10.1128/AAC.01536-09

**Pires R. D. Rolo, R. Mato, J. F. Almeida, C. Johansson, B. Henriques-Normark, A. Morais, A. Brito-Avô, J. G. Marques, and I. Santos-Sanches\*.** 2009. Resistance to bacitracin in Streptococcus pyogenes from oropharyngeal colonization and noninvasive infections in Portugal was caused by two clones of distinct virulence genotypes. *FEMS Microbiol. Lett.* **296**:235-240. doi: 10.1111/j.1574-6968.2009.01642.x

**Mato R., F. Almeida, R. Pires, P. Rodrigues, S. Carvalho, T. Ferreira, and I. Santos-Sanches.** 2009. Assessment of high-level gentamicin and glycopeptide-resistant Enterococcus faecalis and E. faecium clonal structure in a Portuguese hospital over a 3-year period. *Eur. J. Clin. Microbiol. Infect. Dis.* **28**:855-859. doi: 10.1007/s10096-009-0704-x