

Mendes, Ana Isabel

Researcher unique identifiers: ORCID: 0000-0003-4724-0784
Web of Science Researcher ID: T-5165-201
Ciência ID: CC15-B6E5-4F8D

Date of birth: 20th of September 1988

Nationality: Portuguese

E-mail: anamendes@live.com.pt

Phone number: +351938583292



EDUCATION

09/2017 – 11/2022 – Campus de Gualtar, Braga, Portugal

DOCTOR OF PHILOSOPHY IN HEALTH SCIENCES – School of Medicine - University of Minho

- Working experience in biosafety level 2 and 3 laboratories.
- Laboratory Animal Science Certification (FELASA C).

Main activities:

- Development of polymeric drug delivery systems (DDS) for the topical treatment of infected chronic wounds, particularly diabetic foot infection caused by methicillin resistant *Staphylococcus aureus* (MRSA), and Buruli ulcer disease caused by *Mycobacterium ulcerans* skin infection.
 - Physical and chemical characterization of developed polymeric DDS.
 - *In vitro* studies to evaluate the antimicrobial activity and biocompatibility of polymeric DDS.
 - Optimization of mouse models of infected chronic wounds: diabetic mouse model of MRSA-infected skin wounds and *M. ulcerans*-infected skin wounds.
 - *In vivo* studies using mouse models to assess the therapeutic potential of developed polymeric DDS.
 - *In vivo* studies on the evaluation of therapeutic potential of bacteriophage-based approach for *Acinetobacter baumannii* in a mouse sepsis model.
- Technical competences in microbiology (culture methods, antimicrobial activity tests, minimum inhibitory concentration test), cell culture (culture methods, cytocompatibility tests, differentiation of bone marrow-derived macrophages), histology and immunohistochemistry, analytical methods (LC-MS, FTIR, flow cytometry), molecular biology (RNA extraction, cDNA synthesis, qPCR, ELISA), data and statistical analysis.
- Advanced courses: Fundamentals of Genetics, Development and Neoplasia; Epidemiology; Cell Functional and Phenotypical Analysis; Being a Bio-entrepreneur.

Thesis: “An Innovative Therapeutic Approach for Infected Chronic Wounds”.

09/2010 – 01/2013 – Quinta de Prados, Vila Real, Portugal

MASTER’S IN BIOTECHNOLOGY FOR HEALTH SCIENCES – University of Trás-os-Montes and Alto Douro

Technical competences in research fields of medical biotechnology and nanotechnology, genetics of cancer, forensic genetics.

Thesis: “Preparation and characterization of miconazole-loaded lipid nanoparticles dispersions”.

09/2006 – 02/2010 – Rua D. Mendo Afonso, 147, Ponte de Lima, Portugal

DEGREE IN BIOTECHNOLOGY – Polytechnic Institute of Viana do Castelo - School of Agriculture

Technical competences in the application of biological processes for food production, modelling and control of biological reactors for wastewater treatment, solid waste and bioremediation, enzymatic technology.

Thesis: “Analysis of the genetic structure of *Dicentrarchus labrax* populations using the Random Amplification of Polymorphic DNA – Polymerase Chain Reaction (RAPD-PCR) technique”.

● WORK EXPERIENCE

07/2022 – 05/2023 – Braga, Portugal

RESEARCHER – B'ACIS (Associação Ciência, Inovação e Saúde) – University of Minho

- Specialized services in microbiology and histopathology.

04/2022 – 05/2022 – Porto, Portugal

TECHNICIAN – i3S – University of Porto

- Diagnostic testing for SARS-CoV-2 by RT-qPCR.

04/2017 – 08/2017 – Braga, Portugal

RESEARCH FELLOW – Life and Health Sciences Research Institute - University of Minho

- Study of the immune response to mycobacterial infections using mouse models.
- Optimization of immunohistochemistry technique for efficacy evaluation of immunotherapies.

02/2016 – 01/2017 – Aveiro, Portugal

RESEARCH FELLOW – University of Aveiro

PLATOX project - "*In vitro* and *in vivo* investigations to generate validated toxicity data of graphene nanoplatelets vs. a carbon black reference". ERA-SIINN/0003/2013

- *In vitro* assays for the assessment of the cytotoxic and genotoxic potential of graphene nanomaterials in primary rat alveolar macrophages, MRC-5 lung fibroblasts, and RAW 264.7 macrophages.
- Cell culture techniques.
- Laboratory maintenance operations.

07/2014 – 01/2015 – Barcelona, Spain

INTERN – Unit of Experimental Toxicology and Ecotoxicology (UTOX/PCB)

- *In vitro* assays for the assessment of cytotoxic and genotoxic potential of nanoparticles and nanomaterials.
- *In vivo* evaluation of skin sensitization potential of nanoparticles through local lymph node assay in a mouse model.
- *In vivo* ecotoxicology assay using earthworms.
- Laboratory maintenance operations.
- Preparation of standard operation procedures.

● PUBLICATIONS

Article

Mendes, A.I.; Fraga, A.G.; Peixoto, M.J.; Aroso, I.; Longatto-Filho, A.; Marques, A.P.; Pedrosa, J. "Gellan gum spongy-like hydrogel-based dual antibiotic therapy for infected diabetic wounds". *Bioengineering and Translational Medicine*, 8, 3 (2023). <https://doi.org/10.1002/btm2.10504>.

Article

Mendes, A.I.; Peixoto, M.J.; Marques, A.P.; Pedrosa, J.; Fraga, A.G. "An optimized mouse model of *Staphylococcus aureus* infected diabetic wounds". *BMC Research Notes*, 15, 293 (2022). <https://doi.org/10.1186/s13104-022-06170-5>.

Article

Mendes, A.I.; Rebelo, R.; Aroso, I.; Correlo, V.M.; Fraga, A.G.; Pedrosa, J.; Marques, A.P. "Development of an antibiotics delivery system for topical treatment of the neglected tropical disease Buruli ulcer". *International Journal of Pharmaceutics*, 623 (2022), 121954. <https://doi.org/10.1016/j.ijpharm.2022.121954>

Article

Creutzenberg, O.; Oliveira, H.; Farcas, L.; Schaudien, D.; **Mendes, A.**; Menezes, A.C.; Tischler, T.; Burla, S.; Ziemann, C. "PLATOX: Integrated in vitro/in vivo approach for screening of adverse lung effects of graphene-related 2D nanomaterials". *Nanomaterials* 12 8 (2022): 1254. <https://doi.org/10.3390/nano12081254>.

Article

Oliveira, H.; **Mendes, A.**; Fraga, A.G.; Ferreira, A.; Pimenta, A.I.; Mil-Homens, D.; Fialho, A.M.; Pedrosa, J.; Azeredo, J. "K2 Capsule Depolymerase Is Highly Stable, Is Refractory to Resistance, and Protects Larvae and Mice from *Acinetobacter baumannii* Sepsis". *Applied and Environmental Microbiology* 85 17 (2019): <http://dx.doi.org/10.1128/aem.00934-19>.

Article

Cerqueira-Rodrigues, B.; **Mendes, A.**; Correia-Neves, M.; Nobrega, C. "Ag85-focused T-cell immune response controls *Mycobacterium avium* chronic infection". *PLOS ONE* 13 3 (2018): e0193596. <http://dx.doi.org/10.1371/journal.pone.0193596>.

Article

Mendes, A.I.; Silva, A.C.; Catita, J.A.M.; Cerqueira, F.; Gabriel, C.; Lopes, C.M. "Miconazole-loaded nanostructured lipid carriers (NLC) for local delivery to the oral mucosa: Improving antifungal activity". *Colloids and Surfaces B: Biointerfaces* 1 11 (2013): 755-763. <http://dx.doi.org/10.1016/j.colsurfb.2013.05.041>.

Article

Mendes, A.I.; Fraga, A.G.; Peixoto, M.J.; Aroso, I.; Longatto-Filho, A.; Marques, A.P.; Pedrosa, J. "Gellan Gum Spongy-like Hydrogel-based Dual Antibiotic Therapy for Infected Diabetic Wounds". *Bioengineering & Translational Medicine*. Under review.

Meeting Abstract

Menezes, C.; **Mendes, A.**; Farcas, L.; Ziemann, C.; Burla, S.; Creutzenberg, O.; Costa, C.; Fraga, S.; Teixeira, JO; Oliveira, H. "Cytotoxicity and genotoxicity of graphene-family nanomaterials in RAW 264.7 mouse macrophages". *Toxicology Letters* 280 1 (2018): S190. <http://dx.doi.org/10.1016/j.toxlet.2017.07.534>.

● CONFERENCE COMMUNICATIONS

Oral

Mendes, Ana; Fraga, Alexandra; Peixoto, Maria; Marques, Alexandra; Pedrosa, Jorge. "Targeting diabetic foot infection through a novel biomaterial-based topical therapeutic approach". *Microbiotec'21*, Lisboa, 2021.

Poster

Mendes, Ana; Fraga, Alexandra; Rebelo, Rita; Reis, Rui; Correlo, Vitor; Pedrosa, Jorge; Marques, Alexandra. "Biomaterials-based therapeutic approach targeting *Mycobacterium ulcerans* infection". *Microbiotec'19*, Coimbra, 2019.

Poster

Mendes, Ana; Fraga, Alexandra; Rebelo, Rita; Reis, Rui; Correlo, Vitor; Pedrosa, Jorge; Marques, Alexandra. "Exploiting biomaterials for the topical treatment of Buruli ulcer". *Gene2Skin*, Porto, 2018.

Poster

Mendes, Ana; Menezes, C.; Farcas, L.; Ziemann, C.; Burla, S.; Creutzenberg, O.; Oliveira, H. "In vitro screening of graphene-family nanomaterials". Nanoscience and Nanotechnology International Conference NanoPT2017, Porto, 2017.

Poster

Mendes, Ana; A.C. Silva; J. Catita; F. Cerqueira; C. Gabriel; C. Lopes. "Evaluation of antifungal activity of miconazole-loaded nanostructured lipid carriers (NLC) formulations for oral mucosal administration". Nanoscience and Nanotechnology International Conference NanoPT2013, Porto, 2013.

● LANGUAGE SKILLS

Mother tongue(s): **PORTUGUESE**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
SPANISH	B1	B1	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● DIGITAL SKILLS

- Data analysis statistics
- GraphPad Prism software
- SPSS software
- Image J Fiji
- Microsoft Office

● ORGANISATIONAL SKILLS

- Time management skills
- Problem-solving ability
- High commitment in respecting working deadlines

● COMMUNICATION AND INTERPERSONAL SKILLS

- Experience in preparation of reports, scientific publications, and data presentation.
- Experience with oral and written communication.
- Good verbal communication skills
- Ability to work in a team-oriented environment.
- Motivation to work in an interdisciplinary environment.

● SUPERVISION

09/2020 – 03/2021

Co-supervision: Maria Inês Fernandes Monteiro, “Avaliação da eficácia de novas abordagens terapêuticas para lesões ulcerativas infetadas”. Degree in Biochemistry, University of Trás-os-Montes and Alto Douro.

● ADDITIONAL INFORMATION

2013 – 2015

Entrepreneur “Passaporte para o Empreendedorismo” – IAPMEI, I.P. - Agency for Competitiveness and Innovation.