

Short CV – June 2024

PERSONAL INFORMATION

Name Paula Marques Alves
Place and Date of Birth Lisbon, 26 July 1967
Nationality Portuguese
Country of Residence Portugal
Civil Status Married, two children (boys born 1997 and 2000)
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ORCID ID [0000-0003-1445-3556](https://orcid.org/0000-0003-1445-3556);
Google Scholar [http://scholar.google.pt](https://scholar.google.pt) Paula M Alves



EDUCATION

2024 Habilitation in Bioengineering, ITQB NOVA, Universidade NOVA de Lisboa
2001 PhD in Biochemical Engineering, ITQB NOVA, Universidade NOVA de Lisboa
1991 Diploma in Biochemistry, Faculdade de Ciências, Universidade de Lisboa

CURRENT POSITIONS

ACADEMIA 2024-(...) Principal Investigator with Habilitation, ITQB-NOVA
2009-(...) Principal Investigator, ITQB-NOVA
2007-(...) Head of Cell Bioprocesses Laboratory, ITQB-NOVA

OTHER 2023-(...) Member of the General Council of CIP – Confederação Industrial de Portugal, Portugal, Member of the Health, Prevention and Wellbeing Council of CIP
2023-(...) President of the Fiscal Council of the SPCE-TC- Portuguese Society for Stem Cells and Cell Therapy; Portugal
2022-(...) President of the General Assembly of AICIB – Agência Investigação Clínica e Inovação Biomédica, Portugal
2021-(...) Member of the US National Academy of Engineering, USA
2021-(...) Senior Scientific Advisor, GenIBET Biopharmaceuticals, Portugal
2012-(...) CEO, iBET, Portugal
2007-(...) Head of Cell Bioprocesses Laboratory, ITQB-UNL/iBET, Portugal.
2007-(...) Director, Animal Cell Technology Unit, ITQB-UNL/iBET, Portugal

PREVIOUS POSITIONS

ACADEMIA

2011-2019 Invited Associate Professor, FCT-NOVA
2007-2012 Lecturer, MIT-Portugal Program
2006-2009 Assistant Investigator, ITQB, NOVA University of Lisbon
2005-2006 Principal Investigator, ITQB/iBET/IGC LAO - Associated Laboratory
2001-2005 Assistant Investigator, ITQB/iBET/IGC LAO - Associated Laboratory
1995-2000 PhD Student, ITQB, NOVA University of Lisbon, Portugal

OTHER

2017-2022 Chairperson of the ESACT - European Society for Animal Cell Technology.
2015-2022 Member of the Board, GenIBET Biopharmaceuticals, Portugal (was part of the team that negotiated the transaction of Genibet to Recipharm in 2022)

- 2015-2017 Member of the Scientific Council for Life and Health Sciences, Fundação para a Ciência e Tecnologia, Portugal
- 2013-2017 Vice-Chair of the ESACT-European Society for Animal Cell Technology, Germany
- 2013-2017 Chairperson of the General Assembly of the SPCE-TC- Portuguese Society for Stem Cells and Cell Therapy; Portugal
- 2009-2010 CSO, GenIBET Biopharmaceuticals, Portugal
- 2008- 2012 Member of the Executive Board, iBET, Portugal.
- 2008- 2009 Member of the Board, GenIBET Biopharmaceuticals, Portugal

ADVISORY POSITIONS

EUROPEAN COMMISSION

- 2018-2021 Member of the IMI (Innovative Medicines Initiative) Scientific Committee
- 2017-2021 Member of the ESAC - EURL ECVAM Scientific Advisory Committee
- 2014 Member of the Advising Working Group for the EU Joint Program - JPND, Neurodegenerative Disease Research Group, Berlin
- 2013-2018 Member of the Advisory Group for Horizon 2020 Societal Challenge 1- European Commission, Brussels

OTHER INTERNATIONAL

- 2024-(...) Member of the Board Engineering Conferences International, USA
- 2022-(...) Member IABS (International Alliance for Biological Standardization (IABS) Endowment Fund Committee, France
- 2022-(...) Member of the International Advisory Committee of the Center for Research and Development of Immunobiologicals – CerDI (Instituto Butantan, Brasil)
- 2022 Member of the Expert Panels for Swecco, AdBIOPRO, Sweden
- 2021 Member of the Evaluation Panel of BOKU - The University of Natural Resources and Applied Life Sciences, Austria
- 2021 Member of the Panels for Linköping University Recruitment if Staff
- 2017 Member of the Jury of Sartorius & Science International Prize for Regenerative Medicine & Cell Therapy, Science AAAS
- 2016-2019 Member of the External Scientific Advisory Board of Technobeat (Horizon2020 Project)
- 2016-(...) Member of the External Scientific Advisory Board of Ingestem Infrastructure – ANR, France
- 2016 Member of the External Scientific Committee of NICO - Neuroscience Institute Cavalieri Ottolenghi, Italy
- 2014-(...) Member of the Advisory Board of the BioTOP – International PhD Program in Protein Biotechnology at BOKU, Austria

IN PORTUGAL

- 2021 Commissioner of “Encontro Ciência 2021”, invited by the Portuguese Minister of Science, Technology and higher Education, Prof Manuel Heitor, June 2021
- 2020-2023 Member of the Committee “Empresas” - Prémio Nacional de Agricultura (PNA), Cofina/BPI
- 2009-2012 Member of the Steering Committee of the Harvard Medical School Portugal Program, ITQB NOVA representative
- 2008-(...) iBET representative in “Health Cluster Portugal” board

AWARDS AND RECOGNITIONS (MOST PRESTIGIOUS)

- 2024 Medal of Honor of the European Society for Animal Cell Technology
- 2024 ECI Advancing Manufacture of Cell and Gene Therapies Award, USA
- 2021 Elected Member of the American National Academy of Engineering. *Election Citation: For Leadership in Biomanufacturing, Advanced Biotherapeutics and Bridging the Gap Between Academia and Industry.*
- 2021 Ciência 2021 Commissioner, invitation by the Portuguese Minister of Science, Technology and Higher Education, Prof Manuel Heitor
- 2021 Gold Medal of Merit from Oeiras Municipality, June 2021

- 2017 Chairwoman of the European Society for Animal Cell technology (elected by the ESACT Executive Committee)
- 2017 Recognized as one of the 100 Top Portuguese Women Scientists by Centro Ciência Viva, Portugal (exhibition in Pavilhão do Conhecimento)
- 2009 Scientific Merit Award from New University of Lisbon
- 2008 Scientific Merit Award from Santander Totta/ New University of Lisbon
- 2005 Scientific Award from the Portuguese association of French Doctorates

RESEARCH INTERESTS AND KEY CONTRIBUTIONS TO R&D - SYNOPSIS

Paula Alves has been working in the advancement of cell culture technologies for more than 30 years. Her research integrates cell metabolism understanding with biochemical engineering tools for the improvement of bioprocesses efficiency. Paula's work has contributed for the development of industrially relevant and academically recognized tools and technologies for production of biopharmaceuticals and ATMPs (Advanced Therapy Medicinal Products) in particular pluripotent stem cells and viral vectors for cell and gene therapy.

Key contributions include:

- Establishing 3D culture systems for expansion and differentiation of stem cells in bioreactors for cell therapy and as tools for drug development and pre-clinical research
- Better understanding the complex interplay of cell metabolism and stem cells differentiation and maturation
- Determining key factors in the "Cell Density Effect" for improved viral vectors yields through manipulation of host cells energetic metabolism
- Developing bioanalytics for bioprocess understanding and cell- and viral- based products characterization

Since 2012, Paula is the CEO of iBET – Instituto de Biologia Experimental e Tecnológica, a private not for profit research organization (www.ibet.pt) located in Oeiras, near Lisbon. Created in 1989 by Prof. Manuel Carrondo, iBET is active in bridging university and industry through R&D projects for the global Biopharmaceutical Industry, also advancing Innovative Therapies. Over the last 5 years iBET has grown to more than 200 employees, from which >100 are PhDs, and attracted >60 M€ in industry funding. To meet this significant growth, Paula has been specially committed to iBET reorganization. Some highlights/achievements during the last years as CEO, supported by the board of directors, were: i. launching a competitive grant program, iBETxplore, with annual calls for internal projects to promote collaborative projects within iBET scientists from different labs, support new ideas and young scientists; ii. renewal of the iBET infrastructure (GMP certified analytical services unit in 2017 and pilot unit in 2019); iii. Construction of a new Building – iBET Biofarma - to expand R&D activities and the support to Pharma and Biotech (25 M€ investment, 30 BSL2 R&D labs, 1 BSL3 Lab, 800 m² area for clean rooms and social areas) inaugurated in June 2023, iv. implementing Evaluation Policies and training programs to promote a meritocracy culture at the institute and iBET's People Development at all hierarchical levels.

SCIENTIFIC ACTIVITY – PUBLICATIONS

BIBLIOMETRICS (JUNE 2024)

Scopus: 343 peer-reviewed publications, h-index 55, citations >11112; 286 original articles, 32 review articles; 13 book Chapters, 6 conference Papers, 6 editorials,

Source Web of Science: 448 publications indexed, h-index 51, citations >10221

Source academic Google: h-index 66, citations >16268, i10=288

5 RELEVANT PUBLICATIONS (OUT OF 343) THAT I CONSIDER SEMINAL FOR ADVANCING THE FIELD

- Tostões RM, Leite SB, Serra M, Jensen J, Bjorquist P, Carrondo MJT, Brito C, **Alves PM** (2012) Human liver cell spheroids in extended perfusion bioreactor culture for repeated dose drug testing, *Hepatology*, 55(4):1227-1236. DOI: 10.1002/hep.24760 **Journal Cover**

- Serra M, Brito C, Sousa MFQ, Jensen J, Strehl R, Hyllner J, Tostões R, Clemente J, Carrondo MJT, **Alves PM** (2010) Improving expansion of pluripotent human embryonic stem cells in perfused bioreactors through oxygen control, *Journal of Biotechnology*, 148: 208-215. DOI: 10.1016/j.jbiotec.20DOI: 10.06.015 **invited by editors to be include in a Cell Press Reviews Book**
- Correia C, Koshkin A, Duarte P, Hu D, Teixeira A, Domian I, Serra M, **Alves PM** (2017) Distinct carbon sources affect structural and functional maturation of cardiomyocytes derived from human pluripotent stem cells, *Scientific Reports*, 7(1): 8590. DOI: 10.1038/s41598-017-08713-4
- Bernal V, Carinhas N, Yokomizo AY, Carrondo MJT, Oliveira R, **Alves PM** (2009) Cell density effect in the Baculovirus-Insect Cells system: a quantitative analysis of energetic metabolism, *Biotechnology and Bioengineering*, 104(1): 162-180. DOI: 10.1002/bit.22364 **Selected for the ISSUE HIGHLIGHT**
- **Alves PM**, Flögel U, Brand A, Leibfritz D, Carrondo MJT, Santos H, Sonnewald, U (1996) Immobilization of Primary Astrocytes and Neurons for NMR Monitoring of Biological Processes in Vivo, *Developmental Neuroscience*, 18:478-483. DOI: 10.1159/000111443

SCIENTIFIC ACTIVITY- SUPERVISION AND FUNDING (SUMMARY)

Paula has supervised 18 Post-Docs, 40 PhD students (3 on going) and several master and graduate students. Participated in 38 PhD Juries in Portugal and abroad. She was awarded with 34 research projects as Principal Investigator, from which 25 funded by the European Commission and 9 by FCT-Fundação para a Ciência e Tecnologia, Portugal. To date, the total funding obtained in competitive open calls was approx. 12.5 M€ of which 10.8 M€ in projects and 1,75 M€ in fellowships. Additionally, Paula obtained more than 10 M€ in research contracts as PI with industry.

SCIENTIFIC ACTIVITY - ORGANIZATION OF INTERNATIONAL CONFERENCES AND ADVANCED COURSES

INTERNATIONAL CONFERENCES CHAIR

- 2022 Conference Chair** – ESACT – 27th Meeting of the European Society for Animal Cell Technology, 24-28 May 2022, Lisbon Portugal, 1018 participants
- 2019 Conference Chair** – Eppendorf Stem Cell Community Day, November 21, Cascais Portugal, approx. 100 participants
- 2017 Conference Chair** (with Suzanne Farid from University College London – UK, Chetan Goudar, Amgen-USA and Veena Warikoo, Axcella Health-USA), Integrated Continuous Biomanufacturing, Engineering Conferences International, 17-21 September 2017, Cascais, Portugal, approx. 200 participants
- 2015 Conference Chair** – 9th Annual Meeting of the Portuguese Society for Stem Cells and Cell Therapies, 15-16 October 2015, Oeiras, Portugal – 130 participants
- 2008, 2010 & 2012 Conference Chair** (with Barry Buckland and John Aunins from Merck & Co - USA and Katrin Jansen from Wyeth), Vaccine Technology Meeting, Engineering Conferences International, approx. 200 participants *per edition*

INTERNATIONAL ADVANCED COURSES ORGANIZER

- 2021 & 22 Course Organizer** (with Eric Kremer from CNRS, France and Joaquim Vives from Banc de Sang e Teixits, Spain) of the ESACT Bioprocessing and Manufacturing of Gene and Cell Therapy Products (2021), Llafranc, Barcelona – 5 days course, 30 participants *per year*
- 2017 Course Organizer** (with Mariela Bollati, Marcelo Comini and Martina Crispo from Institut Pasteur de Montevideo) of Cells and Animal Models for Drug Discovery, Institut Pasteur de Montevideo, Uruguai, 30 participants
- 2014 & 15 Course Organizer** (with Hansjorg Hauser from HZI and Christa Burguer from Merck Serono, Germany) of the ESACT Cells for Compound Screening (2014 and 2015), Lafranc, Barcelona – 3 days course, 15 participants *per year*- 2 editions

- 2014 Course Organizer** (with Barry Buckland from Biologics B-USA and Tarit Mukhopadhyay from University College London), Vaccines Bioprocess Development and Commercialization, mbi-Modular training for the bioprocess industries, UCL, 14-16 April 2014, Oeiras, Portugal, approx. 50 participants
- 2011/(...) Course Organizer** (with Francesc Godia from UAB - Spain) of the ESACT Animal Cell Technology Course. Lafranc, Barcelona – 4 days course, 30 participants *per year* – 13 editions (annually from 2011 to present)
- 2012 Summer School Course Organizer** (with Seurat Research Initiative), Towards the Replacement of *in vivo* Repeated Dose Systemic Toxicity Testing, 4-8 June, Oeiras, Portugal, approx. 50 participants

Plus participated in Scientific and Organizing Committees of >30 International Conferences and as session Chair in > 25 international Conferences.

KEYNOTE PRESENTATIONS IN INTERNATIONAL CONFERENCES IN THE LAST 10 YEARS

- 2024 ALVES PM** Pluripotent Stem Cells for Drug Development and Therapy: Bioprocess Development Challenges, Advancing Manufacture of Cell and Gene Therapies VIII, AWARD lecture, Coronado, 4-8 February 2024
- 2021 ALVES PM** Pluripotent Stem Cells for Drug Development and Therapy: Bioprocess Development Challenges, Termis2021, Maastricht, The Netherlands, 15-99 November 2021
- 2019: ALVES PM** Bioengineering the Next Generation of 3D Cell Models, CIFARP 2019, Ribeirão Preto, Brazil, 06-09 November 2019
- 2019: ALVES PM** Advancing Manufacture of hPSC-derived cardiomyocytes through product and process understanding, BPI Europe, Vienna, 02-04 April 2019
- 2018: ALVES PM** Pluripotent Stem Cells for Drug Development and Therapy: Bioprocess Development Challenges, 31st annual meeting of JAACT- Japanese Association for Animal Cell Technology *Tsukuba, Japan* from 5-8 November 2018
- 2018: ALVES PM**, Bioengineering the next generation of 3D models, 20th International congress on In Vitro Toxicology, Berlin, 15-18 October 2018
- 2018: ALVES PM**, Stem Cells for Drug Discovery and Cell Therapy: Bioprocessing Challenges, 18th European Congress of Biotechnology (ECB2018) *to be held in Geneva* from 1st - 4th July 2018
- 2017: ALVES PM**, Integrative Bioprocess Approaches for Stem Cells Applications in Drug Discovery and Cell Therapy, ESACT UK Meeting, Oxford, UK, January 2017
- 2014: ALVES PM**, Bioreactor-based 3D *in vitro* models for Drug Screening and Toxicology: towards prediction of hepatic drug metabolism and neurotoxicity, 18th International Congress on In Vitro Toxicology, The Netherlands, June, 2014

Plus 41 invited talks in international conferences and 20 invited seminars at Pharma and Biotech Industry, 27 department seminars in Academic Departments and R&D organizations and 15 invited lecturers in International Advances Courses. In 2021 was invited by the Lisbon Academy of Sciences to present and discuss Current Challenges in Vaccine Manufacturing at the Academy Conferences “Encontro da Sociedade” Cycle.

TEACHING ACTIVITIES AT NOVA, OTHER UNIVERSITIES AND INTERNATIONAL ADVANCED COURSES

Since 2012, she is member of the directive Board of two PhD programs at NOVA University of Lisbon: PhD in Molecular Biosciences (MolBios) and PhD in Regenerative Medicine (RegMed). From 2014 she coordinates 2 curricular Units in MolBios ITQB NOVA University PhD program (“Frontiers in Biotechnology” and “Technology for Pharmaceuticals Development”. Students’ surveys, done annually, rate the overall quality of these units with an average of 4.5 in 5 (source: ITQB NOVA Academic Services Info 2012-2022). Was responsible for the “Viral Vaccines and VLPs” and “Stem Cell Bioprocessing” curricular unit of RegMed PhD Program (from 2014 to 2016). She was a lecturer at MIT-Portugal PhD Bioengineering Program from 2007 to 2019. Since 2014 coordinates the curricular unit

“Biopharmaceuticals” in the Biochemistry for Health Master Program of ITQB NOVA (offered also to 3 Masters at FCT NOVA), students’ surveys, done annually, rate the overall quality of this unit with an average of 4.7 in 5 (source: CLIP/NOVA 2014-2023). Until 2019 was responsible for the Animal Cell Technology module of Biochemical Engineering Curricular unit of the Biochemical and Chemical Engineering at FCT NOVA.

Paula is invited for seminar and workshops in several PhD and Master Programs in Portugal (27) on Animal Cell Technology, Biopharmaceuticals and Advanced Therapy Medicinal Products related topics several international postgraduation Courses (15).

In 2010 Paula started, with Prof Godia from Universidad Autonoma de Barcelona, the ESACT Advanced Courses Series, that run annually since then. More than 500 students were already trained in ACT and related areas through these courses.

INSTITUTIONAL RESPONSIBILITIES AT ITQB NOVA

- 2021-(...) Member of LS4Future Directive Board – Laboratório Associado (Fundação Ciência e Tecnologia)
- 2015-(...) Member of the Scientific and Directive Boards of iNOVA4Health Research Unit (Fundação Ciência e Tecnologia)
- 2015-2017 Member of the Board, NOVA Saúde, Rectory, NOVA University
- 2014-2022 Member of the Institute Board, ITQB NOVA University
- 2013-2014 Member of the Board, Bio-entrepreneur Committee, NOVA University
- 2013-2022 Head of the Technology Division, ITQB NOVA University
- 2012-(...) Member of the Scientific Board of the PhD Program in Regenerative Medicine, IST and IMM (Lisbon University) and ITQB, FCM and CEDOC (NOVA University) and IBET
- 2012-(...) Member of the Directive Board of the PhD Program in Molecular Biosciences, ITQB, FCT (NOVA University) and IBET
- 2011-2022 Member Scientific Council, ITQB NOVA
- 2008-2012 Member Pedagogic Council, PhD Program, ITQB NOVA
- 2008-(...) Represents ITQB NOVA at iBET Board

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2021** Member of the United States National Academy of Engineering (NAE)
- 2010** Member of the Portuguese Society for Stem Cells and Cell Therapy
- 2008** Member of the International Society for Protein Expression in Animal Cells
- 2007** Member of the European Society of Neurochemistry
- 2006** Member of the American Association for the Advancement of Science
- 2005** Member of the American Society for Cell Biology
- 2003** Member of the European Society for Animal Cell Technology (ESACT)
- 2000** Member of the Portuguese Society for Biotechnology
- 1995** Member of the Portuguese Society for Biochemistry

EDITORIAL, MENTORING, OUTREACH AND OTHER ACTIVITIES

Paula is Associate Editor of two journals (Journal of Biotechnology and BMC Biotechnology), Guest Editor of one Special Issue for Biotechnology and Bioengineering and has acted as reviewer for more than 25 journals.

She participates actively in junior scientists mentoring programs and in science outreach activities (e.g. TEDX, Cogito, FFMS series). She is a Mentor in the Gulbenkian Foundation “Jovens Talentos” Fellowship Program. Enrolled in training & internship programs for Africa (organized by Cirad-Montpellier France): hosted in her lab technicians from Ethiopia, Burkina Faso, Mali and Kenya to be trained in the Basics of Animal Cell Culture Techniques; Promotes Women in Science and Women & Girls in Engineering through seminars, TV and radio interviews visiting schools. At ITQB NOVA was founding member of the organizing committee of the ITQB NOVA Open Day (2005).