

Curriculum vitae

Name: Margarida Henriques da Gama Carvalho

Date of Birth: October 1st 1972, in Lisbon, Portugal

Work Address: Faculdade de Ciências de Lisboa, Campo Grande, Ed. C8, 1749-016

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Education

1994 BSc in Biology, Faculty of Sciences, University of Lisbon, final grade 17/20

2000 Tenure track equivalent of the MSc (Provas de Aptidão Pedagógica e Capacidade Científica), Faculty of Medicine, University of Lisbon with the dissertation “Detection of viral mRNAs using oligonucleotide in situ hybridization” and the laboratory class plan “Expression and purification of a recombinant protein”. Approved with distinction by unanimity (maximum grade).

2003 PhD in Biomedical Sciences, in the area of Cell and Molecular Biology, Faculty of Medicine, University of Lisbon, with the thesis “Nuclear compartmentalization of splicing factors: Characterisation of molecular signals and role in alternative splicing regulation”. Advisor: Professor Maria do Carmo Fonseca. Approved with Suma cum Laude, numerical grade of 20/20.

Current Positions

Since July 2011: Tenured Assistant Professor, Faculty of Sciences, University of Lisbon, Department of Chemistry and Biochemistry.

Since January 2015: Group Leader, Gene Expression and Regulation Group, BioISI – Institute for Biological Systems and Integrative Sciences, Faculty of Sciences, University of Lisbon; Coordinator of the Communication and Outreach Workgroup.

Since January 2009: Principal Investigator, RNA Biology and Bioinformatics Laboratory, Faculty of Sciences, University of Lisbon.

Previous positions

1995-1996: Research fellowship, Program Praxis XXI, at the Institute of Histology and Embryology, Faculty of Medicine, University of Lisbon.

1996-2000: Trainee Teaching Assistant, tenure track (*‘Assistente Estagiária’*) of Molecular Cell Biology at the Institute of Histology and Embryology, Faculty of Medicine, University of Lisbon.

2000-2003: Teaching Assistant, tenure track (*‘Assistente’*) of Molecular Cell Biology at the Institute of Histology and Embryology, Faculty of Medicine, University of Lisbon.

2003-2004: ‘Visiting researcher’ Department of Cancer Biology, Dana Farber Cancer Institute, Boston, MA, USA, Prof. Pamela Silver’s lab, Department of Chemistry and Biochemistry, Harvard Medical School.

2003-2008: Assistant Professor, tenure track (*‘Professora Auxiliar’*) at the Institute for Molecular Biology and Researcher at the Cell Biology Unit, Institute of Molecular Medicine Faculty of Medicine, University of Lisbon.

2008-2011: Tenured Assistant Professor (*‘Professora Auxiliar com nomeação definitiva’*), Institute of Molecular Medicine Faculty of Medicine, University of Lisbon.

2009-2014: Researcher at the Center for Biodiversity, Functional and Integrative Genomics, Faculty of Sciences, University of Lisbon, Group Leader of the Gene Expression and Bioinformatics Unit and Principal Investigator, RNA Biology and Bioinformatics Laboratory, Faculty of Sciences, University of Lisbon.

2016 Visiting assistant Professor (in sabbatical leave), Department of Cell Biology, Harvard Medical School, MA, USA

Fellowships and awards

1995 Bolsa de Iniciação à Investigação Científica da Fundação para a Ciência e Tecnologia, Programa Praxis XXI

2003 Human Frontiers Science Program Short Term Fellowship

2003 Short term fellowship Fundação Calouste Gulbenkian

2004 1º Award L’Oreal Portugal/Unesco for Women in Science

2010 ‘*Outstanding teacher*’ award by the students of the third edition of the Gulbenkian Program for Advanced Medical Training

2011 Best practices award, E-learning Program, University of Lisbon

Teaching activities

Undergrad teaching – main courses

1996-2008 Lab Instructor for Molecular and Cell Biology, Faculty of Medicine, University of Lisbon; 1st semester, 12h/week

2008-2012 Lecturer in Cell Biology, Health Sciences Degree, University of Lisbon; 1st semester, 2h/week

2013-2015 Lab Instructor for Biochemistry (Biology and Biomedical Engineering degrees) and Experimental Biochemistry I (Biochemistry degree); 1st and 2nd semester, 3h/week

2015-2016 Lecturer in Molecular Biology, Biochemistry degree, Faculty of Sciences, University of Lisbon; 1st semester, 6h/week

2009-present Head of the Molecular Biology course, Health Sciences Degree, University of Lisbon; 2nd semester, 5h/week

2013-present Lecturer in Computational Biochemistry (Biochemistry degree), Faculty of Sciences, University of Lisbon; 2nd semester, 8h

2017 Instructor in Experimental Biochemistry IV Biochemistry (Biochemistry degree), Faculty of Sciences, University of Lisbon; 2nd semester, 54h total

Undergrad teaching – invited lecturer on gene expression topics

2005-2007 Virology, *Microbiology degree*, Faculty of Medicine, University of Lisbon; 2 lectures

2008-2009 Developmental Biology, Health Sciences Degree, University of Lisbon; 2 lectures

Post-graduate teaching – course coordination

2001 to 2005 Director and lecturer of the '*mRNA Biogenesis*' module, ***Gulbenkian PhD Program in Biology and Medicine***

2004 Director and lecturer of the ***Advanced Course on Molecular Medicine***, Hematology Unit, Children's Hospital, Coimbra (Hospital Pediátrico de Coimbra)

2009 Director and lecturer of the Gene Expression and Regulation Module, ***GABBA PhD Program*** (Universidade do Porto)

2011 Director and lecturer of the Workshop in Bioinformatics and Systems modelling, Faculty of Sciences, University of Lisbon

2014 – present Co-director and lecturer of the module 'Topics in Gene Expression' **BioSys PhD program**, Faculty of Sciences, University of Lisbon; 1st semester, 120h

Post-graduate teaching – teaching

1994 a 1999 Lab instructor, Gulbenkian PhD Program in Biology and Medicine

1996 Lecturer for the course on Cell and Tissue Biology, *MSc Human Molecular Biology* (Faculty of Sciences e Tecnologia, Universidade Nova de Lisboa)

2000-2001 Lecturer of the Cell Biology Module, ***GABBA PhD Program*** (Universidade do Porto)

2001 Invited Lecturer of the Cell Biology Module, MSc in Molecular Medicine (Faculty of Medicine da Universidade do Porto)

2002 Lecturer on Gene Expression and Regulation, ***Advanced Course on Molecular Biology***, Hematology Unit, Children's Hospital, Coimbra (Hospital Pediátrico de Coimbra)

2003 Lecturer on Molecular Biology MSc in Emergent Infectious Diseases (Faculty of Medicine, University of Lisbon)

2005-2006 Lecturer in the *RNomics*, ***GABBA PhD Program*** (Universidade do Porto)

2007 e 2010 Invited Lecturer, RNA Biology Module MSc in Cell and Molecular Biology (Universidade de Aveiro)

2009 Invited Lecturer on Regulation of Gene Expression, MSc in Biochemistry, Faculty of Sciences, University of Lisbon

2009 e 2010 Invited Lecturer (research seminars) *MSc in Cell Biology and Biotechnology*, Faculty of Sciences, University of Lisbon

2010 Invited Lecturer on 'Gene Therapy and Nuclear Biology', PhD program in *Experimental Biology and Biomedicine*, Centro de Neurociências e Biologia Celular, Universidade de Coimbra

2008-2011 Invited Lecturer, *Gene Expression module*, Gulbenkian Program for Advanced Medical Training (***PGFMA***).

2012-2013 Invited Lecturer, Frontiers of Research in Biology, MSc in Molecular Biology and Genetics and MSc in Bioinformatics and Computational Biology, Faculty of Sciences, University of Lisbon

2012-present Invited Lecturer, on Human Molecular Genetics, MSc in Biochemistry, Faculty of Sciences, University of Lisbon

2015-present Invited Lecturer, PhD and MSc in Neurosciences, Faculty of Medicine, University of Lisbon

Trainees

Master trainees

(past)

Ana Luisa Gomes, (2010). 'Characterization of post-transcriptional control mechanisms regulating SMN2 gene expression'. MSc degree in Molecular Biology and Genetics, Faculty of Sciences, University of Lisbon.

Mariana Oliveira (2010). 'Functional and Biochemichal characterization of protein complexes bound to mRNA 3'UTRs'. MSc degree in Biochemistry, Faculty of Sciences, University of Lisbon.

Ana Isabel Pinheiro (2010). 'MicroRNA and gene expression profiling of adult cardiac stem cells'. MSc degree in Cell Biology and Biotechnology, Faculty of Sciences, University of Lisbon.

Ana Rita Micaelo Mendes (2010). 'Understanding the interactions between retroviral vectors and the genome of human keratinocytes' (as internal advisor). MSc degree in Microbiology, Faculty of Sciences, University of Lisbon.

Sara Maria Ferreira Fernandes (2011). 'Identification of the RNA regulators operating in the segmentation clock'. MSc degree in Biochemistry, Faculty of Sciences, University of Lisbon.

Ana Margarida Ferreira Góis (2012). 'Malaria pigment of different origins: Assessment of biological activities and immunomodulatory properties in leukocytes' (as internal advisor). MSc degree in Microbiology, Faculty of Sciences, University of Lisbon.

Ana Margarida Fernandes Pereira de Matos (2013). "Characterization of differentially expressed microRNAs in HIV-1 and HIV-2 infection in Human CD4-T cells: a role for miR-34c-5p in T-cell activation and response to HIV infection". MSc degree in Emerging Infectious diseases, Faculty of Medicine, University of Lisbon.

Laura do Souto (2014). Characterization of post-transcriptional control of eukaryotic gene expression programs using large-scale transcriptomic approaches. MSc degree in Bioinformatics, Université de Rouen, France.

Francisco Brito (2014). Identification of Smn-dependent transcriptome changes in a Drosophila model of spinal muscular atrophy using massive parallel sequencing. MSc degree in Bioinformatics and Computational Biology, Faculty of Sciences, University of Lisbon.

Marina Luque (2016). Exploring the interactions between neuron degeneration and RNA homeostasis through biological network analysis. MSc degree in Biochemistry, Faculty of Sciences, University of Lisbon.

(current)

João Paulo Sá. Role of LARP for in the CNS and connections to Spinal Muscular Atrophy. MSc in Neurosciences, Faculty of Medicine, University of Lisbon

Inês Alexandra de Jesus Martins. Identification of new microRNA isoforms and their functional impact in the immune system and in tumor cells. MSc in Molecular Genetics and Biomedicine, New University of Lisbon.

PhD students

(current)

Sara Maria Ferreira Fernandes. **Institute of Molecular Medicine/CAML PhD Program (2013)**. 'Identification of the post-transcriptional regulators that modulate somitogenesis'. FCT fellowship SFRH/BD/86371/2012. (as co-advisor)

Hugo F. Santos. **BioSys PhD program, 1st edition (2014)**. "Gene networks for motor neuron degeneration: from disease model transcriptomes to cellular systems". FCT fellowship SFRH/BD/52492/2014.

Paulo Costa. **BioSys PhD program, 1st edition (2014)**. "Functional networks in which the DIS3 and DIS3L1 exosome subunits participate and their relevance in colorectal cancer". FCT fellowship SFRH/BD/52495/2014. (as co-advisor)

Nuno Domingues. **BioSys PhD program, 2nd edition (2015)**, "sncRNA regulatory networks in T cell activation and viral response".

Marina Luque. **BioSys PhD program, 3rd edition (2016)**. "A systems approach to the mechanisms of neurodegeneration".

Marta Correia. **BioSys PhD program, 3rd edition (2016)**. "Identification of novel

biomarkers to distinguish polygenic and monogenic dyslipidemia by a system biology approach“. (as co-advisor)

Saumya Kumar. **Institute of Molecular Medicine/CAML PhD Program (2016)**. “Transcriptional profile of T follicular helper (Tfh) cells induced by type 1 and type 2 adjuvants.” (as co-advisor)

Mariana Pinhão. **BioSys PhD program, 4th edition (2017)**. “What are the determinants of human genetic individuality?” (as co-advisor)

Post-doctoral fellows

(current)

Marcelo Luís Monteiro Pereira. Jan 2016 -

Christian Gomes da Silva Ramos. Dec 2014 -

Patrícia Alexandra de Sousa Barros. June 2014- (as co-advisor)

(former)

Andreia de Jesus Amaral Gomes Barbosa Fonseca, June 2010 – Nov 2016

Sudha Govindarajan, June 2015 – Jan 2016

Jorge Miguel Calheiros de Andrade, Jan 2012- June 2014

Isabel Peixeiro, Sep 2012 – Feb 2014

Vânia Marina Cristóvão Gonçalves (as co-advisor), June 2010 - June 2015

Publications

I. Original Research papers

Gama-Carvalho, M., Krauss, R.D., Chiang, L., Valcárcel, J., Green, M.R. and Carmo-Fonseca, M. (1997). Targeting of U2AF⁶⁵ to sites of active splicing in the nucleus. *J. Cell Biol.* **5**: 1-14.

Gama-Carvalho, M., Carvalho, M. P., Kehlenbach, A., Valcárcel, J. e Carmo-Fonseca, M. (2001). Nucleocytoplasmic shuttling of heterodimeric splicing factor U2AF. *J. Biol. Chem.* **16**: 13104-13112.

Gama-Carvalho, M., Condado, I., and Carmo-Fonseca, M. (2003). Regulation of adenovirus alternative RNA splicing correlates with a re-organization of splicing factors in the nucleus. *Exp. Cell Res.* **289**: 77-85

Lindberg, A., Gama-Carvalho, M., Carmo-Fonseca, M., and Kreivi, P. (2004). A single RNA recognition motif in splicing factor ASF/SF2 directs it to nuclear sites of adenovirus transcription. *J Gen Virol.* **85**: 603-608.

Gama-Carvalho M, Barbosa-Morais NL, Brodsky AS, Silver PA, Carmo-Fonseca M. (2006). Genome wide identification of functionally distinct subsets of cellular mRNAs associated with two nucleocytoplasmic-shuttling mammalian splicing factors. *Genome Biol.* **7**(11):R113 (Highly accessed)

Barreto-Hernandez E, Gama-Carvalho M, and Sousa, L (2011). Pre-processing Optimization of RNA Immunoprecipitation Microarray Data. *J. Comp. Biology* **18**(10): 1319-28.

Alves PM, Neves-Costa A, Raquel H, Pacheco TR, D'Almeida B, Rodrigues R, Cadima-Couto I, Chora A, Oliveira M, Gama-Carvalho M, Hacohen N, Moita LF (2011). An shRNA-based Screen of Splicing Regulators Identifies SFRS3 as a Negative Regulator of IL-1 β Secretion. *Plos One* **6**(5):e19829.

Bras-Rosario, L., Matsuda, A., Pinheiro, A. I., Gardner, R., Lopes, T., Amaral, A., & Gama-Carvalho, M. (2013). Expression Profile of microRNAs Regulating Proliferation and Differentiation in Mouse Adult Cardiac Stem Cells. *PloS One*, **8**(5), e63041. 10.1371/journal.pone.0063041

Figueiredo N, Chora A, Raquel H, Pejanovic N, Pereira P, Hartleben B, Neves-Costa A, Moita C, Pedroso D, Pinto A, Marques S, Faridi H, Costa P, Gozzelino R, Zhao JL, Soares MP, Gama-Carvalho M, Martinez J, Zhang Q, Döring G, Grompe M, Simas JP, Huber TB, Baltimore D, Gupta V, Green DR, Ferreira JA and Moita LF (2013). Anthracyclines Induce DNA Damage Response-Mediated Protection against Severe Sepsis. *Immunity*, **39**(5), 874–884. IF 19.795

Amaral, A. J., Brito, F. F., Chobanyan, T., Yoshikawa, S., Yokokura, T., Van Vactor, D., & Gama-Carvalho, M. (2014). Quality assessment and control of tissue specific RNA-seq libraries of Drosophila transgenic RNAi models. *Frontiers in Genetics*, **5**. doi: 10.3389/fgene.2014.00043

Gonçalves V, Henriques A, Pereira J, Neves Costa A, Moyer MP, Moita LF, Gama-Carvalho M, Matos P and Jordan P (2014). Phosphorylation of SRSF1 by SRPK1 regulates alternative splicing of tumor-related Rac1b in colorectal cells. *RNA*. 2014; **20**(4): p. 474-482. IF 5.088

Amaral AJ, Andrade J, Foxall RB, Matoso P, Matos AM, Soares RS, Rocha C, Ramos CG, Tendeiro R, Serra-Caetano A, Guerra-Assunção JA, Santa-Marta M, Gonçalves J,

Gama-Carvalho M, Sousa AE (2017). miRNA profiling of human naive CD4 T cells links miR-34c-5p to cell activation and HIV replication. *EMBO J.* 2017 Feb 1;36(3):346-360.

Review papers

Gama-Carvalho M., and Carmo-Fonseca, M. (2001). The rules and roles of nucleocytoplasmic shuttling proteins. *FEBS Letters* **498**: 157-163.

Gama-Carvalho, M., Andrade, J., & Bras-Rosario, L. (2014). Regulation of Cardiac Cell Fate by microRNAs: Implications for Heart Regeneration. *Cells*, 3(4), 996–1026. doi:10.3390/cells3040996

Gama-Carvalho M, Garcia-Vaquero ML, Pinto FR, Besse F, Weis J, Voigt A, Schulz JB, De Las Rivas J (2017) Linking Amyotrophic Lateral Sclerosis and Spinal Muscular Atrophy through RNA-transcriptome homeostasis: a genomics perspective. *J. Neurochem.* 2017 Jan 5. doi: 10.1111/jnc.13945. [Epub ahead of print]

Book Chapters

Gama-Carvalho M., and Carmo-Fonseca, M. (2005). Heterokaryon assays. *In* "Cell Biology – a Laboratory Manual", ed. Julio Celis, Academic Press, London, UK.

Gama-Carvalho M., and Carmo-Fonseca, M. (2007). Tráfego de RNA e patogénese. *In* "O Mundo do RNA: Novos desafios e Perspectivas Futuras", ed. Cecília M. Arraiano e Arsénio M. Fialho, Lidel, Lisboa, Portugal.

Laura Do Souto, Alfonso González-Briones , Andreia J. Amaral, Margarida Gama-Carvalho, Juan F. De Paz (2016) Large-Scale Transcriptomic Approaches for Characterization of Post-Transcriptional Control of Gene Expression. 10th International Conference on Practical Applications of Computational Biology & Bioinformatics Volume 477 of the series Advances in Intelligent Systems and Computing pp 109-119

Published abstracts

Silva-Fortes, C.; Hernandez-Barreto, E.; Sousa, L.; Turkman, M.A.A. e Gama-Carvalho, M. (2007) Normalização e selecção de genes com expressão diferencial: mRNA splicing factors microarrays. Livro de Actas do XV Congresso da Sociedade Portuguesa de Estatística, Edições SPE.

Brás-Rosário L, Pinheiro AI, Matsuda A, Gardner R, Amaral A, Gama-Carvalho M (2011). microRNA profiling of mouse adult cardiac stem cells reveals key gene expression pathways for proliferation control and cardiovascular differentiation. *Circulation* 124:A15093

Rosario, L. B., Pinheiro, A. I., Matsuda, A., Fonseca, A. M., & Gama Carvalho, M. (2011, August). MicroRNA profiling of cardiac stem cells to unravel its biologic functions. *European Heart Journal*, Vol. 32, pp. 957-957.

Simão, AL; Afonso, MB; Rodrigues, PM; Amaral, AJ; Gama-Carvalho, M; Borralho, PM; Machado, MV; Cortez-Pinto, H; Rodrigues, CMP; Castro, RE (2015). Modulation of muscle microRNA expression profiles in patients with NAFLD and in C2C12 cells incubated with palmitic acid. *Journal of Hepatology*, 62, S699

HAF Santos, A Amaral, T Yokokura, D Van Vactor, M Gama-Carvalho (2015). Characterization of Smn-dependent gene expression changes underlying motor neuron degeneration and synaptic dysfunction in SMA. *The Febs Journal* 282, 175-176.

CG Ramos, J Andrade, M Gama-Carvalho (2015). Impact of small Rna molecules derived from the 5' ends of trnas in cell function. *The Febs Journal* 282, 217.

Simão, AL; Afonso, MB; Rodrigues, PM; Amaral, AJ; Gama-Carvalho, M; Borralho, PM; Machado, MV; Cortez-Pinto, H; Rodrigues, CMP; Castro, RE (2015). mirna-339-3p is increased in human and experimental models of Nafld and targeted by Tudca in insulin-resistant muscle cells. *Hepatology*, 62, 681A

Science Communication papers

Gama-Carvalho, M., Desterro, J., Carvalho, C., Carvalho, T, Calado, P. e Custódio, N. (2007). Invisible rays: our extraterrestrial enemies? Detecting UV radiation in our environment. *Bioscience explained*, Vol. 3, No. 2 (online journal)

Papers in portuguese journals

Gama-Carvalho, M. (2006). Compartimentalização Nuclear de Factores de Splicing: caracterização de sinais moleculares e papel na regulação do splicing alternativo. *Revista da Faculty of Medicine de Lisboa. Série III*; 11 (6).

Gama-Carvalho, M. e Carmo, A. M. (2006). 2º Encontro Nacional de RNólogos- RNA 2005. *ANQBio Info* (Boletim informativo da Associação Nacional de Bioquímicos) nº 8.

Bi-monthly article Series “Da ciência e da vida” on the journal “A página da educação” (2004-2009)

Oral Communications

As guest speaker

Gama-Carvalho, M., Krauss, R.D., Chiang, L., Valcárcel, J., Green, M.R. e Carmo-Fonseca, M. The localization of the splicing factor U2AF65 to subnuclear domains. X Congresso Nacional de Bioquímica, Universidade do Minho, Braga, October 31 to Nov 2, 1996.

Gama-Carvalho, M. Organização espacial de factores de splicing no núcleo: um papel na regulação da expressão génica?". 1º Congresso Luso-Brasileiro de Morfologia Funcional, 2000.

Gama-Carvalho, M. Nucleocytoplasmic shuttling splicing factors: coordinators of mRNA metabolism? Centro de Investigacion del Cancer, Universidade de Salamanca, November 11, 2004.

Gama Carvalho, M. Genomewide identification of mRNA molecules associated with the nucleocytoplasmic shuttling splicing factors U2AF65 and PTB Dynamic Nuclear Architecture and Chromatin Function - First EuroDYNA Conference, Thun – Switzerland, September 22 to 25, 2005

Gama Carvalho, M. A Tecnologia dos Microarrays de DNA. Intervenção na Sessão clínica HSM/FML. 4 de Maio de 2006

Gama Carvalho, M. Splicing e cancro. Actualizações em Oncologia 2007, Coimbra, 18 de Janeiro de 2007

Gama Carvalho, M.. Orchestrating gene expression: RNA binding proteins as cellular maestros. 11.ª Reunião Anual da Sociedade Portuguesa de Genética Humana. 15 a 17 de Novembro de 2007. Centro de Cultura e Congressos da Ordem dos Médicos, Porto

Gama-Carvalho, M. 'Understanding SMN2 mRNA post-transcriptional control – a systematic approach towards the identification of novel targets for SMA therapy' UK SMA conference, Edinburgh October 5-6th 2009

An overview of large scale genome and transcriptome analysis: from DNA microarrays to next generation technologies. Next generation sequencing - applications in genetic and infectious diseases. Lisbon, 5th November 2012. Instituto Nacional de Saúde Dr. Ricardo Jorge

Searching RNA-seq data for novel isoform variants: the rare and the error. 3º Workshop em Bio-optimização, Instituto Superior de Agronomia, 29 de Novembro de 2014.

Gama-Carvalho, M. Souto, L and Amaral, A. (2015). Searching RNA-seq data for novel isoform variants: the rare and the error. IV Workshop em Bio-optimização, Instituto Superior de Agronomia, Portugal

M.Gama-Carvalho. Deep sequencing of human naive CD4 T cells identifies miR-34c-5p as a novel regulator of T cell activation and HIV replication. Lisbon Area Immunity and Infection Meeting, IMM, October 16th 2015

At meetings

Carvalho, M.H. e Carmo-Fonseca, M. Produção de anticorpos monoclonais anti-U2AF65. XXIX Reunião Anual da Sociedade Portuguesa de Microscopia Electrónica e Biologia Celular. Coimbra, December 15-16 1994.

Gama-Carvalho, M. e Carmo-Fonseca, M. Localização intranuclear do factor de splicing U2AF. XXX Reunião Anual da Sociedade Portuguesa de Microscopia Electrónica e Biologia Celular. Porto, December 14-15 1995.

Gama-Carvalho, M., Krauss, R.D., Chiang, L., Valcárcel, J., Green, M.R. e Carmo-Fonseca, M. U2AF65 is localized to nuclear speckles. 1st Annual Meeting of the RNA Society, Madison, USA

Gama-Carvalho M., Akusjarvi, G. e Carmo-Fonseca, M. Organização nuclear de factores de splicing e regulação de splicing alternativo em células infectadas por adenovírus. XXXIV Reunião Anual da Sociedade Portuguesa de Microscopia Electrónica e Biologia Celular. Lisboa, December 9-11 1999.

Gama-Carvalho M., Brodsky, A., Silver, P. and Carmo-Fonseca, M.. Specific subsets of mRNA molecules associate with the U2AF65 and PTB splicing factors. RNA Structure and Function: a joint Biochemical Society/Royal Society of Chemistry Focused Meeting. Edimburgo, December 4-6, 2004

Gama-Carvalho, M., Brodsky, A., Barbosa-Morais, N., Silver, P. and Carmo-Fonseca, M. The polypyrimidine-binding splicing factors U2AF65 and PTB associate with functionally distinct subsets of mRNA molecules post-splicing. Eukaryotic mRNA processing – a Cold Spring Harbor Laboratory Meeting, Cold Spring Harbor, August 24-28 2005

Ana Luísa Gomes, Mariana Oliveira and Margarida Gama-Carvalho. Identification of post-transcriptional control mechanisms regulating SMN2 mRNA expression. Portuguese RNA Meeting, Carcavelos Nov 5-6 2009

Andreia J. Amaral, Paula Matoso, Rui Soares, Margarida Gama-Carvalho, João Gonçalves, Ana E. Sousa (2010) Profiling the effect of cell activation in the microRnome of human naïve CD4+ T-cells. XXXVI Annual Meeting of SPI (Portuguese Society of Immunology), 20-22 September, Braga, Portugal

Gomes, AL and Gama-Carvalho, M. (2011). Identification and characterization of genetic modifiers of SMA. 15th Anual Meeting of the Portuguese Human Genetics Society, 10-12 November 2011, Lisbon, Portugal

Luis Brás Rosário, Alex Matsuda, Ana Isabel Pinheiro, Rui Gardner, Telma Lopes, Andreia Amaral, Margarida Gama-Carvalho. (2012) 'microRNA profiling of mouse adult cardiac stem cells reveals key gene expression pathways for proliferation control and cardiovascular differentiation'. RNA 2012 Meeting - 26-27 January 2012, IMM, Lisbon, Portugal

Margarida Gama-Carvalho, Andreia Fonseca, Jorge Andrade, Paula Matoso, Rui Soares, Russell B Foxall, Rita Tendeiro, Mariana Santa-Marta, João Gonçalves, Ana E Sousa (2012). Small non-coding RNAs: central players in the CD4 T cell response to retroviral infection. FEBS International Workshop on New Developments in RNA Biology (a FEBS 2012 RNA Satellite Meeting). September 1-4th 2012, Tavira, Portugal

Andreia J Amaral, Margarida Gama-Carvalho, Jorge Andrade, Ana Margarida Matos, Ana Serra-Caetano, Paula Matoso, Rui Soares, Rita Tendeiro, Russell B Foxall, Mariana Santa-Marta, João Gonçalves, Ana E Sousa (2012). Small non-coding RNAs: a possible role in HIV infection. Next generation sequencing - applications in genetic and infectious diseases. Lisbon, 5th November 2012. Instituto Nacional de Saúde Dr. Ricardo Jorge

Andreia J Amaral, Jorge Andrade, Ana Margarida Matos, Russell B Foxall, Paula Matoso, Mariana Santa-Marta, Rita Tendeiro, Ana Serra-Caetano, Rui S Soares, João Gonçalves, Ana E Sousa, Margarida Gama-Carvalho. miR-34c-5p is a novel regulator of naive T-cell activation that impacts HIV replication. RNA 2013 - The 18th Annual Meeting of the RNA Society, June 11 - June 16, 2013, Davos, Switzerland.

Andreia Amaral, Paula Matoso, Rui Soares, Russel Foxall, Ana Sousa and Margarida Gama-Carvalho. Detecting footprints of HIV-1 derived small non-coding RNAs in small-RNA-seq data. Bioinformatics Open Days 2015. April 10th 2015, Faculty of Sciences, ULisboa

Posters:

Pacheco, T.R., Mendes-Soares, L., Benes, V., Ansorge, W., Stewart, F., Gama-Carvalho M., Valcárcel, J. e Carmo-Fonseca, M. A novel vertebrate U2AF35-like protein. 5th Annual Meeting of the RNA Society, Universidade de Madison, USA, May 30 to June 4, 2000.

Gama-Carvalho M., Carvalho, M. e Carmo-Fonseca, M. Subcellular distribution of splicing factor U2AF. 5th Annual Meeting of the RNA Society, Universidade de Madison, USA, May 30 to June 4 2000.

Gama-Carvalho M., Condado, I. e Carmo-Fonseca, M. In situ detection of alternatively spliced mRNAs during adenovirus infection. 7th Annual Meeting of the RNA Society, Universidade de Madison, USA, May 28 to June 2, 2002.

Gama-Carvalho M., Custódio, N., Carvalho, C., Carvalho, T. and Ferreira, J. Teaching molecular biology to medical students - simulating a biomedical research project. Encontro anual da Association for Medical Education in Europe, Lisboa, August 29 to September 1, 2002

M. Gama-Carvalho, N. Barbosa-Morais, A. Brodsky, P. Silver and M. Carmo-Fonseca. Dissecting RNA-protein interactions at the genome wide level. Workshop on Statistics in Genomics and Proteomics Hotel Estoril Eden, Monte Estoril, Portugal 5-8 October 2005.

S. Keusch and M. Gama-Carvalho. The nucleocytoplasmic shuttling activity of the U2AF 65 splicing factor and its post-splicing effects on mRNA fate. RNA 2005 2^o Meeting of Portuguese RNologists, Lisbon, Instituto de Medicina Molecular, December 16th 2005.

S. Keusch and M. Gama-Carvalho. The nucleocytoplasmic shuttling activity of the U2AF 65 splicing factor and its post-splicing effects on mRNA fate. The Annual Meeting of the Gulbenkian PhD program in Biomedicine, Tomar, 18 th to 21 st of December 2005.

Gama-Carvalho, M., Barbosa-Morais, N.L., Brodsky, A., Silver, P.A. and Carmo-Fonseca, M.. Genome wide identification of functionally distinct subsets cellular mRNAs associated with the mammalian splicing factors U2AF65 and PTB. Congress of the Portuguese Biochemistry Society, Aveiro, 2006

S. Keusch and M. Gama-Carvalho. Post-splicing functions of U2AF 65 in mRNA biogenesis. Congress of the Portuguese Biochemistry Society, Aveiro, 2006.

Keusch, S., Carmo-Fonseca, M. and Gama-Carvalho, M.. Post-transcriptional control of gene expression by the mammalian splicing factors U2AF65 and PTB. Systems Biology – Global regulation of gene expression. Cold Spring Harbor Laboratory Meeting, Cold Spring Harbor, March 29 to April 2, 2007

Martins, S., Carmo-Fonseca, M. and Gama-Carvalho, M. The U2AF65 splicing factor regulates the expression levels of the CDK inhibitor p27 Kip1. ELSO 2008, 30 August – 2 September 2008, Nice, France

Gama-Carvalho, M. Regulation of mRNA expression by the U2AF65 splicing factor. Eukaryotic mRNA processing. Cold Spring Harbor Laboratory Meeting, Cold Spring Harbor, August 18 to 22, 2009

A.L. Gomes, Gama-Carvalho, M. 'Characterization of sequence elements regulating SMN2 mRNA expression' Workshop on RNA-Protein Interactions in Development and disease. Baeza, September 30 to October 4 2009

Ana Isabel Pinheiro¹, Alex Matsuda², Luís Rosário², Margarida Gama-Carvalho^{1,3}. MicroRNA and gene expression profiling of adult cardiac stem cells. Portuguese RNA Meeting, Carcavelos, 5-6 November 2009

Luis Bras-Rosario, Alex J Matsuda, Ana I Pinheiro, Ana M Fonseca, Laura Rodrigues, Telma A Lopes, Rui Gardner, Margarida Gama-Carvalho. Regulation of Cardiac Progenitor Cells Proliferation and Differentiation by microRNAs. Basic Cardiovascular Sciences 2010 Scientific Sessions: Technological and Conceptual Advances in Cardiovascular Disease, July 19–22, 2010 | Rancho Las Palmas | Rancho Mirage, CA, USA ([American Heart Association top 10%](#))

Andreia J. Amaral, Paula Matoso, Rui Soares, Margarida Gama-Carvalho, João Gonçalves, Ana E. Sousa. Profiling microRNA expression during human CD4+ T-cell activation. ESF Next Generation Sequencing Meeting, Leiden, The Netherlands, August 29 - September 1, 2010

Margarida Gama-Carvalho, Ana Isabel Pinheiro, Alex Matsuda, Andreia Amaral, Luís Rosário. Identification of microRNA regulators of adult cardiac stem cells . EMBO Conference on the Molecular and Cellular Basis of Regeneration and Tissue Repair, 26-30 Sept 2010, Sesimbra, Portugal (<http://cwp.embo.org/cfs3-10-01/>)

Andreia J. Amaral, Paula Matoso, Rui Soares, Margarida Gama-Carvalho, João Gonçalves, Ana E. Sousa (2010) Profiling the effect of cell activation in the microRnome of human CD4+ T-cells. The non coding genome meeting, EMBO, 13-16 October, Heidelberg, Germany.

Luis Bras-Rosario, Alex J Matsuda, Ana I Pinheiro, Ana M Fonseca, Laura Rodrigues, Telma A Lopes, Rui Gardner, Margarida Gama-Carvalho. Regulation of Cardiac Progenitor Cells Proliferation and Differentiation by microRNAs. American Heart Association (AHA) 2010 Scientific Sessions November 13 - 17, 2010; Chicago, Illinois (Invited communication)

Gomes, AL and Gama-Carvalho, M. Characterization of post-transcriptional control mechanisms regulating SMN2 gene expression. XVII Congresso Nacional de Bioquímica. 15 a 17 Dezembro 2010, Porto, Portugal

Luis Brás-Rosário, Ana Isabel Pinheiro, Alex Matsuda, Ana Marta, Andreia Amaral, Margarida Gama-Carvalho (2011) microRNA profiling of mouse adult cardiac stem cells reveals key gene expression pathways for differentiation and proliferation control. American Heart Association Scientific Sessions 2011, 12-16 November 2011, Orlando, Florida

Fernandes, S.F., Fior, R., Gama-Carvalho, M. and Saúde, L. (2012). Identification of the RNA regulators operating in the segmentation clock. RNA 2012 Meeting - 26-27 January 2012, IMM, Lisbon, Portugal

Luis Brás Rosário, Alex Matsuda, Ana Isabel Pinheiro, Rui Gardner, Telma Lopes, Andreia Amaral, Margarida Gama-Carvalho (2012). microRNA profiling of mouse adult cardiac stem cells reveals key gene expression pathways for proliferation control and

cardiovascular differentiation. The Portuguese RNA 2012 Meeting. Institute of Molecular Medicine, Lisbon 26th to 27th January.

Jorge Andrade, Andreia Fonseca, Mariana Santa-Marta, Paula Matoso, Rui Soares, Russell B Foxall, Rita Tendeiro, João Gonçalves, Ana E Sousa, Margarida Gama-Carvalho (2012). Novel species of tRNA derived small-RNAs are specifically induced in T cells in response to HIV infection. FEBS International Workshop on New Developments in RNA Biology (a FEBS 2012 RNA Satellite Meeting). September 1-4th 2012, Tavira, Portugal

Andreia Fonseca, Jorge Andrade, Ana Margarida Matos, Paula Matoso, Rui Soares, Russel Foxall, Rita Tendeiro, Margarida Gama-Carvalho, João Gonçalves, Ana Espada Sousa (2012). Deep-sequencing profile of small ncRNAs in human CD4+ T cells upon TCR-mediated activation and its modulation by HIV infection. FEBS International Workshop on New Developments in RNA Biology (a FEBS 2012 RNA Satellite Meeting). September 1-4th 2012, Tavira, Portugal

Ana Margarida Matos, Jorge Andrade, Andreia Fonseca, Mariana Santa-Marta, Ana Serra-Caetano, Russell B Foxall, Paula Matoso, Rui Soares, João Gonçalves, Ana E Sousa, Margarida Gama-Carvalho (2012). A role for miR-34c-5p in T-cell activation and response to HIV infection. FEBS International Workshop on New Developments in RNA Biology (a FEBS 2012 RNA Satellite Meeting). September 1-4th 2012, Tavira, Portugal

Fernandes, S.F., Fior, R., Gama-Carvalho, M.2,3 and Saúde, L. (2012). Characterization of post-transcriptional mechanisms that regulate somitogenesis in the Zebra fish. FEBS International Workshop on New Developments in RNA Biology (a FEBS 2012 RNA Satellite Meeting). September 1-4th 2012, Tavira, Portugal

Gomes, AL, Oliveira, M, Matos, AM and Gama-Carvalho, (2012) Regulation of SMN mRNA expression by LARP4 and hnRNPG RNA binding proteins - potential targets for Spinal Muscular Atrophy. FEBS International Workshop on New Developments in RNA Biology (a FEBS 2012 RNA Satellite Meeting). September 1-4th 2012, Tavira, Portugal

Ana Margarida Matos, Russell B Foxall, Andreia J Amaral, Jorge Andrade, Paula Matoso, Mariana Santa-Marta, Rita Tendeiro, Ana Serra-Caetano, Rui S Soares, João Gonçalves, Margarida Gama-Carvalho, Ana E Sousa (2012). miR-34c-5p at the crossroads of human naive CD4 T cell activation and HIV infection. Meeting of the Portuguese Immunology Society, Porto, November 25th to 27th 2012.

Ana Miguel Fernandes, Mariana Oliveira, Ana Luísa Gomes, Ana Margarida Matos, Margarida Gama-Carvalho (2013). Post-transcriptional regulation of SMN2 expression by hnRNP G and LaRP Family. RNA 2013 - The 18th Annual Meeting of the RNA Society, June 11 - June 16, 2013, Davos, Switzerland.

Isabel Peixeiro, Samuel Casaca, Margarida Gama-Carvalho (2013). Regulation of mRNA metabolism by U2AF65 splicing factor - novel mechanisms for the coordination of gene expression? RNA 2013 - The 18th Annual Meeting of the RNA Society, June 11 - June 16, 2013, Davos, Switzerland.

Fernandes, SF, Fior, R, Gama-Carvalho, M. and Saúde, L. (2013). Quaking A - a post-transcriptional regulator of early patterning. EMBO Young Scientists's Forum, 15th-16th July 2013, Institute of Molecular Medicine, Lisbon, Portugal

Francisco Brito, Andreia Amaral, Takakazu Yokokura, David van Vactor and Margarida Gama-Carvalho (2013). A roadmap for tissue specific RNA-seq analysis of Drosophila shRNA models. Molecular Biology in Portugal and EMBL (and EMBL Alumni) Meeting, July 18th 2013, Faculty of Sciences, University of Lisbon, Portugal

Andreia Fonseca, Jorge Andrade, Ana Margarida Matos, Paula Matoso, Rui Soares, Russel Foxall, Rita Tendeiro, Margarida Gama-Carvalho, João Gonçalves, Ana Espada Sousa (2013). Deep-sequencing profile of small ncRNAs in human CD4+ T cells upon TCR-mediated activation and its modulation by HIV infection. Molecular Biology in Portugal and EMBL (and EMBL Alumni) Meeting, July 18th 2013, Faculty of Sciences, University of Lisbon, Portugal (2nd prize poster award winner)

Ana Margarida Matos, Jorge Andrade, Andreia Fonseca, Mariana Santa-Marta, Ana Serra-Caetano, Russell B Foxall, Paula Matoso, Rui Soares, João Gonçalves, Ana E Sousa, Margarida Gama-Carvalho (2013). A role for miR-34c-5p in T-cell activation and response to HIV infection. Molecular Biology in Portugal and EMBL (and EMBL Alumni) Meeting, July 18th 2013, Faculty of Sciences, University of Lisbon, Portugal

Ana Miguel Fernandes, Mariana Oliveira, Ana Luísa Gomes, Ana Margarida Matos, Margarida Gama-Carvalho (2013). Post-transcriptional regulation of SMN2 expression by hnRNP G and LaRP Family. Molecular Biology in Portugal and EMBL (and EMBL Alumni) Meeting, July 18th 2013, Faculty of Sciences, University of Lisbon, Portugal

Isabel Peixeiro, Samuel Casaca, Margarida Gama-Carvalho (2013). Regulation of mRNA metabolism by U2AF65 splicing factor - novel mechanisms for the coordination of gene expression? Molecular Biology in Portugal and EMBL (and EMBL Alumni) Meeting, July 18th 2013, Faculty of Sciences, University of Lisbon, Portugal

Fernandes, SF, Fior, R, Gama-Carvalho, M. and Saúde, L. (2013). Quaking A - a post-transcriptional regulator of early patterning. Molecular Biology in Portugal and EMBL (and EMBL Alumni) Meeting, July 18th 2013, Faculty of Sciences, University of Lisbon, Portugal

Isabel Peixeiro, Ana Luisa Gomes, Catarina Moita, Luis Ferreira-Moita and Margarida Gama-Carvalho (2014). SMN protein expression is controlled by a complex post-transcriptional regulatory network connecting multiple steps of the mRNA metabolism

pathway. EMBO Conference “From Functional Genomics to Systems Biology”, Nov 18th to 22nd 2014, EMBL, Heidelberg, Germany.

Hugo A F Santos, Andreia Amaral, Takakazu Yokokura, David Van Vactor and Margarida Gama-Carvalho (2015). Integrated in silico analysis of the neuronal transcriptome of SMA disease models: untangling the gene regulatory networks underlying motor neuron degeneration at the cell- and systems-level. Bioinformatics Open Days 2015. April 10th 2015, Faculty of Sciences, ULisboa

José Gil Lopes, Laura do Souto, Paula Matoso, Rui Soares, Russel B. Foxall, Ana E. Sousa, Margarida Gama-Carvalho, Andreia J. Amaral (2015). Detection of alternative miRNA Processing using the IsomIR_window. Bioinformatics Open Days 2015. April 10th 2015, Faculty of Sciences, ULisboa

Hugo A F Santos, Andreia Amaral, Takakazu Yokokura, David Van Vactor and Margarida Gama-Carvalho (2015). Smn-dependent changes in CNS gene expression in a Drosophila model of SMA. EMBO | EMBL Symposium Mechanisms of Neurodegeneration, 14-16 June 2015, Heidelberg, Germany

Hugo A F Santos, Andreia Amaral, Takakazu Yokokura, David Van Vactor and Margarida Gama-Carvalho (2015). Characterization of Smn-dependent gene expression changes underlying motor neuron degeneration and synaptic dysfunction in SMA. FEBS Meeting 2015 2-8 July, Berlin, Germany.

Ramos, C, Andrade, J, Gama-Carvalho, M (2015). Impact of small RNA molecules derived from the 5' ends of tRNAs in cell function. FEBS Meeting 2015, 2-8 July, Berlin, Germany.

Ramos CG, Andrade J, Muniz C, Domingues N, Amaral A, Almeida S, Sousa AE, Gama-Carvalho M. microRNA 34c-5p modulates HIV-1 reactivation in latently infected T-cells. EMBO|EMBL Symposia: Innate Immunity in Host-Pathogen Interactions, June 26 – 29 2016, Heidelberg, Germany

Hugo A. F. Santos, Takakazu Yokokura, Seiko Yoshikawa, Victoria Hamlin, Andreia Amaral, David Van Vactor and Margarida Gama-Carvalho. (2016) RNA-seq profiling of a Drosophila SMA model provides novel insights into the mechanisms of SMN-dependent neurodegeneration. Joint meeting of The RNA Society and RNA Society of Japan, to be held June 28 - July 2, 2016 in Kyoto, Japan

João Sá, Mariana Oliveira, Ana Luisa Gomes, Isabel Peixeiro and Margarida Gama-Carvalho (2016). A role of LARP4 in the regulation of SMN expression. UCL Neuroscience 2016. 24th June 2016

Hugo A. F. Santos, Andreia Amaral, Takakazu Yokokura, David Van Vactor and Margarida Gama-Carvalho (2016). Untangling the gene networks for motor neuron

degeneration: from disease model transcriptomes to cellular systems. NGS'2016 - Barcelona, Espanha. 04 - 06 April 2016.

Hugo A. F. Santos, Andreia Amaral, Takakazu Yokokura, David Van Vactor and Margarida Gama-Carvalho (2016). Genome-wide study on the impact of defective splicing machinery on the establishment of SMA's neurodegenerative phenotype. The Epitranscriptome - EMBL, Heidelberg, Germany. 20-24 April 2016.

Hugo A. F. Santos, Takakazu Yokokura, Seiko Yoshikawa, Elizabeth McNeill, Andreia Amaral, David Van Vactor and Margarida Gama-Carvalho (2016). Untangling the gene networks for motor neuron degeneration: from disease model transcriptomes to cellular systems. EMBO Conference: From Functional Genomics to Systems Biology - EMBL, Heidelberg, Germany. 12-15 November 2016.

Andreia J. Amaral, Russell B. Foxall, Paula Matoso, Rui S. Soares, Rita Tendeiro, Francisco Pinto, Ana E. Sousa, Margarida Gama-Carvalho. Small-RNA-seq of HIV infected human T cells reveals the existence of HIV-encoded miRNA-like molecules and the activation of host siRNA machinery. NGS2016- 4-6 April 2016 Barcelona, Spain

Funded research projects (since 2009)

SMA-EUROPE 2008 / PROJECT N° 13185 – SR "Characterization of post-transcriptional controls mechanisms acting on SMN2". Funding agency: SMA-EUROPE Role: PI. Total budget (€): 85.760,00. Start date: 01-03-2009 24 months

Marie Curie FP7- Reintegration-Grants PERG-GA-2009-256595 "AIDS and miRNAs". Funding agency: European Commission. Role: PI. Total budget (€): 45.000,00. Start date: 01-07-2010 36 months

Grant Fundação MSD "Caracterização de reguladores pós-transcricionais do gene SMN2". Funding agency: Fundação Merck, Sharp & Dome. Role: PI. Total budget (€): 11.460,00. Start date: 01-11-2010 12 months

Grant PTDC/BIA-BCM/101282/2008 "Identificação dos reguladores de RNA do relógio da segmentação". Funding agency: Fundação para a Ciência e a Tecnologia. Role: co-PI. Total budget (€): 188.743,00. Start date: 01-01-2010 36 months

Merck IISP#35271 "Modulation of HIV replication and latency in human CD4 T cells by regulatory small RNAs". Funding agency: Merck Internacional. Role: co-PI. Total budget (€): 150.000,00. Local budget(€): 50.000,00. Start date: 08-11-2011 24 months

PTDC/BIA-BCM/118434/2010 "Regulation of mRNA metabolism by the U2AF and PTB

splicing factors - novel mechanisms for the coordination of gene expression Funding agency: Fundação para a Ciência e a Tecnologia. Role: PI. Total budget (€):105.000,00. Start date: 01-03-2012 30 months

JPND_CD_FP-688-085 “Common RNA-dependent pathways for motor-neuron degeneration in spinocerebellar muscular atrophy and amyotrophic lateral sclerosis.” Funding agency: Joint Programme in Neurodegenerative Disease Research/FCT. Role: co-PI. Total budget (€): 796.817,00. Local budget (€):138.847,00. Start date: 01-05-2015 36 months

H2020-MSCA-RISE-2016 #734790 LungCARD “Blood test for clinical therapy guidance of non-small cell lung cancer patients”. Funding agency: European Commission. Proponent: StabVida. Role: Co-PI. Total budget (€): 976.500,00 Local budget (€): 180.000,00. Start date: January 2017, 48 months

PAC-03/SAICT/2015 MEDPERSYST: Synaptic networks and Personalized Medicine Approaches to Understand Neurobehavioural Diseases Across the Lifespan. Funding agency: Programa Operacional Competitividade e Internacionalização Portugal2020. Proponent: CNC.IBILI. Role: Researcher. Total budget (€): 2.500.000,00 Local budget (€): 500.000,00. Start date: January 2017, 36 months

Outreach activities

Head of the BiolSI Communication and Outreach Workgroup

Ciência Viva Agency projects:

2001: EU project for High Schools “Human Genome 2001- Perspectives for public health”.

2002: Online Scientists for schools

2003: Summer Science program for Schools at the Institute of Molecular Medicine

2006-2007: IMM coordinator for the EU Volvox program in collaboration with the Ciência Viva agency to develop science projects for schools: DNA damage and repair: daily threats to our genome - Effects of sun exposure on your body - measuring UV irradiation (for grades 4-6) and Mutagenic effects of environmental agents (for grades K10-K11)

Regular participation in conferences for the general public and schools

Lisbon, February 2017