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OVERVIEW

Total number of publications	77
Total ISI (Web of Science) citations:	~1000
Total no. of grants as PI	19
Total budget in grants	2.577.933 €
International conferences/ seminars	~90
Poster communications (team members)	~300
Published peer-reviewed abstracts	~120
Patents	2
Teaching Experience	48 semesters (average: 9,3 h /week)
Completed PhD supervisions	10
Ongoing PhD supervisions	5
Post-docs supervisions	13

ACADEMIC/SCIENTIFIC BACKGROUND

Jul 2006 ″Habilitation″ to the title of ″**Professor Agregado**″, Area of **Chemistry**, Sub-area of **Biochemistry**, Univ Lisboa, Portugal. Unanimously Approved. Course proposal: "*Human Molecular Biology from a Systems Biology Perspective*".

1993 PhD in **Biochemistry/Molecular Genetics**, Univ Lisboa, Portugal & Gulbenkian Institute of Science (Oeiras, Portugal). Supervisor: Prof Claudina Rodrigues-Pousada. Final mark: *summa cum laude*. Thesis: "*Stress Proteins: Induction and Regulation in Tetrahymena pyriformis*".

1986 MSc (equiv) in **Biochemistry**, Univ Lisboa, Portugal & Gulbenkian Institute of Science (Oeiras, Portugal). Supervisor: Prof Claudina Rodrigues-Pousada. Final mark: *summa cum laude*. Thesis: "*The Response of the Protozoan Tetrahymena pyriformis to a Stress Agent: Sodium Meta-Arsenite*".

1982 BSc in **Chemistry/Biochemistry**, Univ Lisboa Portugal. Work carried out as undergraduate research student at the Faculty of Medical Sciences, New University of Lisboa, Portugal. Final mark: 17/20. Thesis: "*Lipid Content of Liver and Blood Plasma of Hepatomized Rats*".

POSITIONS/TRAINING

Aug 08- Jul 10 - Visiting fellow (2-year sabbatical) at the Pepperkok group, European Molecular Biology Laboratory, Heidelberg (Germany) to coordinate EU project TargetScreen.

2007 - Founding member of BioFiG- Centre for Biodiversity, Functional and Integrative Genomics, University of Lisboa (Portugal) and group leader

Since 2006 - Assistant Professor with "Habilitation" (Biochemistry), Fac Sciences, Univ Lisboa.
- Coordinator of the Cystic Fibrosis Research Unit, Centre of Human Genetics of the National Institute of Health, Lisboa (Portugal)

1993/2006 - Assistant Professor, Faculty Sciences, Univ Lisboa, Portugal (tenure: 1998).
- Invited Researcher at the Centre Human Genetics, National Institute of Health and Head of Cystic Fibrosis Research Group since May 2005.

1986/1993 - Teaching Assistant, Dept. Chemistry & Biochemistry, Faculty of Sciences, University of Lisboa.
- Graduate student at the Gulbenkian Institute of Science, Oeiras, Portugal.

1983/1986 - Trainee Teaching Assistant, Dept. Chem & Biochemistry, Faculty of Sciences, University of Lisboa.
- Graduate student at the Gulbenkian Institute of Science, Oeiras, Portugal.

RESEARCH INTERESTS

Study of human disease mechanisms associated with membrane proteins. Particular focus has been on the molecular and cellular mechanisms of the autosomic genetic disease Cystic Fibrosis (CF). Most of my research has been aimed at understanding the molecular mechanisms that retain the CFTR (CF transmembrane Conductance Regulator) protein with the most frequent mutation in patients (F508del) in the endoplasmic reticulum (ER). Indeed, through manipulation of these ER quality control mechanisms, which involve multiple intervenients, namely molecular chaperones, we could enable some mutant protein to escape its ER retention and thus restore (even if partially) Cl^- transport at the cell membrane, with substantial benefit for CF patients.

My research has also focused on the characterization of other CFTR gene mutations, namely on the effect of CF-causing mutations at the level of: 1) mutations that affect the **processing of mRNA**, namely, those impairing the mechanisms of *splicing* and stop mutations inducing nonsense-mediated decay; and 2) additional **CFTR traffic mutants**, and characterization of genetic revertants which rescue the ER retention defect. A major emphasis has been on the assessment of basic cellular defects in **fresh native tissues** (collected from patients), namely, nasal epithelial cells and rectal biopsies.

Transcriptomics and **proteomics** projects have also been underway in the lab to better understand CF pathophysiology and also, in collaboration with nanoelectronics centres, towards the development

of novel chips (based on magnetic sensors) for the quick and cheap diagnosis of CF. I am also involved in pharmacological projects (elucidation of the mechanism of action of compounds) and genomic (**human artificial chromosomes**) approaches to CF therapy.

Recent work on **genome-wide functional genomics** has been carried out through EU-project TargetScreen2 (*Novel post-genomics cell-based screens for drug targeting in membrane protein disorders*) in collaboration with EMBL (Heidelberg and other partners, including 4 companies). The goal was to identify and characterize proteins involved in the traffic/function of three model proteins, namely: CFTR, the epithelial Na^+ channel ENaC and the G-protein coupled receptor (GPCR) melanocortin 4 receptor (MC4R) and to identify novel small-molecules that correct the defects associated with these membrane proteins.

PUBLICATIONS

Book chapters

1. Amaral MD (2011) In: Tratado de Fibrosis Quística. Salcedo A, Gartner S, Novo MDG, Girón RM, editores. Editorial Just in Time SL. In press.
2. Kunzelmann K & Amaral MD (2008) "Novas Abordagens Terapêuticas Destinadas a corrigir o Defeito Básico na Fibrose Cística". In: *Fibrose Cística: Enfoque Multidisciplinar*. Neto NL, Coordenador. Secretaria de Estado de Santa Catarina, Florianópolis, SC, Brasil.
3. Freitas PP, Ferreira HA, Graham DL, Clarke LA, Amaral MD, Martins V, Fonseca L, Cabral JS (2004) Magnetoresistive DNA chips. In: *Magnetoelectronics*. Johnson M (Editor). Elsevier-Academic Press, Amsterdam, Netherlands, pp. 331-373.
4. Farinha CM, Amaral MD (2002) Processing and intracellular trafficking of wild-type and mutant CFTR. In: *Proc 25th European Cystic Fibrosis Conference Genova*, Italy (June 20-23). Romano L, Manno G, Galietta LJV, Eds, Monduzzi Editores, Bologna, Italy, pp.1-6. ISBN: 88-323-2622-1.

Submitted International Articles

5. Almaça J, Faria D, Conrad C, Sousa M, Clarke L, Martins JP, Santos M, Heriché J-K, Huber W, Schreiber R, Kunzelmann K, Pepperkok R, Amaral MD (2012) High-content siRNA screen reveals DAG kinase as a key regulator of ENaC and therapeutic target for cystic fibrosis. *Cell*. Under revision.
6. Silva MC, Amaral MD, Richard I Morimoto RI (2012) Modulation of Synaptic Activity Restores Protein Homeostasis in Muscle Cells by Calcium-Dependent Regulation of HSF-1. *Cell*. In 2nd revision.
7. Tosoni K, Stobbart M, Luz S, Cassidy DM, Pagano M, Venerando A, Amaral MD, Kunzelmann K, Pinna L, Farinha CM, Mehta A (2012) *Biochem J*. In revision.
8. Mendes F, Farinha CM, Alves PC, Vieira I, Amaral MD (2012) BAG-1 Stabilizes Mutant F508del-CFTR in a Ubiquitin-Like-Domain-Dependent Manner. *Cell Physiol Biochem*. In revision.
9. De Boeck K, Cuppens H, Amaral M, Elborn S, Kerem E, Kerem B, Olesen H, Gulmans V, Bilton D, Janssen H, Castellani C, Macek M, Lemonnier L, Stern M, Fletcher G, Galeva I, Mosse N, Lindblad A, Zolin A, Sermet I, Viviani L (2012) The Challenges of CF Mutation Class-Specific Therapies: Towards Personalized Medicine in a Heterogeneous Population. *Eur Resp J*. In revision.
10. Tian Y, Schreiber R, Kongsuphol P, Sousa M, Uliyakina I, Palma M, Faria D, Traynor-Kaplen A, Fragata J, Amaral M, Kunzelmann K (2012) Control of TMEM16A by INO-4995 and other inositolphosphates. *Br J Pharmacol*. In revision.
11. Li H, Yang W, Mendes F, Amaral MD, Sheppard DN (2012) Impact of the cystic fibrosis mutation F508del-CFTR on renal cyst formation and growth. *Am J Physiol - Renal Physiol*. In revision.

Published International Articles

12. Faria D, Lentze N, Almaça J, Luz S, Alessio L, Tian Y, Martins JP, Cruz P, Schreiber R, Farinha CM, Auerbach D, Amaral MD, Kunzelmann K (2012) Differential regulation of biogenesis of ENaC and CFTR by the stress response protein SERP1. *Eur J Physiol (Pflügers Arch)*. In press.

13. Silva MC, Fox S, Thakkar H, Beam M, Amaral MD, Morimoto RI (2011) A Genetic Screening Strategy Identifies Novel Regulators of the Proteostasis Network. *PLoS Genetics* **7**, e1002438.

14. Luz S, Kongsuphol P, Mendes AI, Romeiras F, Sousa M, Schreiber R, Matos P, Jordan P, Mehta A, Amaral MD, Kunzelmann K, Farinha CM (2011) The contribution of CK2 and spleen tyrosine kinase (SYK) to CFTR trafficking and PKA-induced activity. *Mol Cell Biol* **31**, 4392-404.

15. Martins JR, Kongsuphol P, Sammels E, Daimène S, Aldehni F, Clarke L, Schreiber R, de Smedt H, Amaral MD, Kunzelmann K (2011) F508del-CFTR increases intracellular Ca^{2+} signaling that causes enhanced Ca^{2+}-dependent Cl^- conductance in cystic fibrosis. *Biochim Biophys Acta* **1812**, 1385-92.

16. Mendes AI, Matos P, Moniz S, Luz S, Amaral MD, Farinha CM, Jordan P (2011) Antagonistic Regulation of CFTR Cell Surface Expression by the Protein Kinases WNK4 and Spleen Tyrosine Kinase. *Mol Cell Biol* **31**, 4076-86.

17. Roth EK, Hirtz S, Duerr J, Wenning D, Eichler I, Seydewitz HH, Amaral MD, Mall MA (2011) The K^+ Channel Opener 1-EBIO Potentiates Residual Function of Mutant CFTR in Rectal Biopsies from Cystic Fibrosis Patients. *PLoS ONE* **6**, e24445.

18. Ramalho AS, Clarke LA, Amaral MD (2011) Quantification of CFTR Transcripts. *Methods Mol Biol* **741**, 115-35.

19. Amaral MD, Lukacs GL. (2011) Introduction to Section III: Biochemical Methods to Study CFTR Protein. *Methods Mol Biol* **741**, 213-8.

20. Ramachandran S, Clarke LA, Scheetz TE, Amaral MD, McCray PB Jr (2011) Microarray mRNA expression profiling to study cystic fibrosis. *Methods Mol Biol* **742**, 193-212.

21. Almaça J, Dahimène S, Appel N, Conrad C, Kunzelmann K, Pepperkok R, Amaral MD (2011) Functional genomics assays to study CFTR traffic and ENaC function. In: Cystic Fibrosis Protocols and Diagnosis. *Methods Mol Biol* **742**, 249-64.

22. Amaral MD (2011) Introduction to section III: resources for CFTR research. In: Cystic Fibrosis Protocols and Diagnosis. *Methods Mol Biol* **742**, 281-3.

23. De Boeck K, Derichs N, Fajac I, de Jonge HR, Bronsveld I, Sermet I, Vermeulen F, Sheppard DN, Cuppens H, Hug M, Melotti P, Middleton PG, Wilschanski M & ECFS Diagnostic Network Working Group. EuroCareCF WP3 Group on CF diagnosis] (2011) New clinical diagnostic procedures for cystic fibrosis in Europe. *J Cyst Fibros* **10 Suppl 2**,S53-66.

24. Amaral MD (2011) Targeting CFTR: How to Treat Cystic Fibrosis by CFTR-Repairing Therapies. *Curr Drug Targets* **12**, 683-93.

25. Faria D, Dahimène S, Alessio L, Scott-Ward T, Schreiber R, Kunzelmann K, Amaral MD (2011) Effect of Annexin A5 on CFTR: regulated traffic or scaffolding? *Mol Memb Biol* **28**, 14-29.

26. Da Paula AC, Sousa M, Xu Z, Dawson ES, Boyd AC, Sheppard DN, Amaral MD (2010) Folding and rescue of a CFTR trafficking mutant identified using human - murine chimeric proteins. *J Biol Chem* **85**, 27033-44.

27. Amaral MD (2010) Cystic Fibrosis – Translating Basic Science Knowledge into Therapies. *Eur Resp Disease* **6**, 66-9.

28. Rocchi L, Braz C, Cattani S, Ramalho A, Christan S, Edlinger M, Laner A, Kraner S, Amaral MD, Schindelhauer D (2010) *E. coli* cloned CFTR *loci* relevant for human artificial chromosome therapy. *Hum Gene Ther* **21**, 1-16.

29. Almaça J, Kongsuphol P, Hieke B, Ousingsawat J, Viollet B, Schreiber R, Amaral MD, Kunzelmann K (2009) AMPK controls epithelial Na(+) channels through Nedd4-2 and causes an epithelial phenotype when mutated. *Eur J Physiol (Pflügers Arch)* **458**, 713-721.

30. Ramalho AS, Lewandowska M, Farinha CM, Mendes F, Gonçalves J, Barreto C, Harris A, Amaral MD (2009) Deletion of CFTR translation start site reveals functional isoforms of the protein in CF patients. *Cell Physiol & Biochem* **24**, 335-346.

31. Scott-Ward TS, Amaral MD (2009) Deletion of F508 in the first nucleotide binding domain of CFTR increases its affinity to bind the Hsc70 chaperone. *FEBS J* **276**, 7097-7109.

32. Bachhuber T, Almaça J, Aldehni F, Mehta A, Amaral MD, Schreiber R, Kunzelmann K (2008) Regulation of the epithelial Na^+ channel by protein kinase CK2. *J Biol Chem* **283**, 13225-32.

33. Pissarra LS, Farinha CM, Xu Z, Schmidt A, Thibodeau PH, Cai Z, Thomas PJ, Sheppard DN, Amaral MD (2008) Solubilizing mutations used to crystallize one CFTR domain attenuate the trafficking and channel defects caused by the major cystic fibrosis mutation. *Chem Biol* **15**, 62-9.

34. Rakonczay Z Jr, Hegyi P, Hasegawa M, Inoue M, You J, Iida A, Ignáth I, Alton EWFW, Griesenbach U, Óvári G, Vág J, Da Paula AC, Crawford RM, Varga G, Amaral MD, Mehta A, Lonovics J, Argent BE, Gray MA (2008) CFTR gene transfer to human cystic fibrosis pancreatic duct cells using a Sendai virus vector. *J Cell Physiol* **214**, 442-55.

35. Schmidt A, Hughes LK, Cai Z, Mendes F, Li H, Sheppard DN, Amaral MD (2008) Prolonged treatment of cells with genistein modulates the expression and function of the cystic fibrosis transmembrane conductance regulator. *Br J Pharmacol* **153**, 1311-23.

36. Amaral MD, Kunzelmann K (2007) Molecular targeting of CFTR as a therapeutic approach to cystic fibrosis. *Trends Pharmacol Sci* **28**, 334-341.

37. Garcia SM, Casanueva MO, Silva MC, Amaral MD, Morimoto RI (2007) Neuronal signaling modulates protein homeostasis in *Caenorhabditis elegans* post-synaptic muscle cells. *Genes Dev* **21**, 3006-16.

38. Scott-Ward TS, Dawson ES, Cai Z, Doherty A, Da Paula AC, Davidson H, Porteous DJ, Wainwright BJ, Amaral MD, Sheppard DN, Boyd AC (2007) Chimeric constructs endow the human CFTR Cl^- channel with the gating behaviour of murine CFTR. *Proc Natl Acad Sci USA* **104**, 16365-70.

39. Sousa M, Ousingsawat J, Seitz R, Puntheeranurak S, Regalado A, Schmidt A, Grego T, Jansakul C, Amaral MD, Schreiber R, Karl Kunzelmann K (2007) An extract from the medicinal plant *Phyllanthus acidus* and its isolated compounds induce airway secretion: A potential treatment for cystic fibrosis. *Mol Pharmacol*, **71**, 366-376.

40. Amaral MD (2006) Therapy through chaperones: sense or anti-sense? Cystic fibrosis as a model disease. *J Inherit Metab Dis* **29**, 477-487.

41. Amaral MD, Clarke LA, Roxo-Rosa M, Sousa L (2006) Genomics and proteomics approaches to study the genetic disease cystic fibrosis. *Revstat* **27**, 47-54.

42. Davidson H, McLachlan G, Wilson A, Boyd AC, Doherty A, Macgregor G, Davies L, Painter HA, Coles R, Hyde SC, Gill DR, Amaral MD, Collie DD, Porteous DJ, Penque D (2006) Human specific CFTR antibodies detect *in vivo* gene transfer to ovine airways. *Am J Respir Cell Mol Biol* **35**, 72-83.

43. Roxo-Rosa M, Xu Z, Schmidt A, Neto M, Cai Z, Soares CM, Sheppard DN, Amaral MD (2006) Revertant mutants G550E and 4RK rescue cystic fibrosis mutants in the first nucleotide-binding domain of CFTR by different mechanisms. *Proc Natl Acad Sci USA* **103**, 17891-17896.

44. Roxo-Rosa M, da Costa G, Luider TM, Scholte BJ, Coelho AV, Amaral MD, Penque D (2006) Proteomic analysis of nasal airway cells from cystic fibrosis (CF) Patients and non-CF control individuals: search for novel biomarkers of lung disease. *Proteomics* **6**, 2314-2325.

45. Mendes F, Wakefield J, Barroso M, Penque D, Bebok Z, Bachhuber T, Kunzelmann K, Amaral MD (2005) Establishment and characterization of a novel polarized MDCK epithelial cellular model for CFTR studies. *Cell Physiol Biochem*, **16**, 281-90.

46. Amaral MD (2005) Processing of CFTR – Traversing the cellular maze. How much CFTR needs to go through to avoid Cystic Fibrosis? *Pediatric Pulmonol* **39**, 479-491.

47. Da Paula AC, Ramalho AS, Farinha CM, CheungJ, Maurisse R, Gruenert D, Ousingsawat J, Kunzelmann K, Amaral MD (2005) Characterization of Novel Airway Submucosal Gland Cell Models for Cystic Fibrosis Studies. *Cell Physiol Biochem* **15**, 251-262.

48. Englmann A, Clarke LA, Christan S, Amaral MD, Zink D (2005) The replication timing of *CFTR* and adjacent genes. *Chromosome Res* **13**, 183-194

49. Farinha CM & Amaral MD (2005) Most F508del-CFTR is targeted to degradation at an early folding checkpoint and independently of calnexin. *Mol Cell Biol* **25**, 5242-5252.

50. Ferreira HA, Feliciano N, Graham DL, Clarke LA, Amaral MD, Freitas PP (2005) Rapid DNA hybridization based on AC field focusing of magnetically labeled target DNA. *Appl Phys Lett* **87**, 013901/1-3.

51. Ferreira HA, Graham DL, Feliciano N, Clarke LA, Amaral MD, Freitas PP (2005). Detection of cystic fibrosis related DNA targets using AC field focusing of magnetic labels and spin valve sensors. *IEEE Trans Magnetics* **41**, 4140-4142.

52. Graham DL, Ferreira HA, Feliciano N, Freitas PP, Clarke LA, Amaral MD (2005) Magnetic field-assisted DNA hybridisation and simultaneous detection using micron-sized spin-valve sensors and magnetic nanoparticles. *Sens Actuators B Chem* **107**, 936-944.

53. Lagae L, Wirix-Speetjens R, Liu C-X, Laureyn W, Borghs G, Harvey S, Galvin P, Ferreira HA, Graham DL, Freitas PP, Clarke LA, Amaral MD (2005) Magnetic biosensors for genetic screening of cystic fibrosis. *IEEE Proc-Circuits Devices Syst* **152**, 393-400.

54. Laner A, Goussard S, Ramalho AS, Schwarz T, Amaral MD, Courvalin P, Schindelhauer D, Grillot-Courvalin C (2005) Bacterial transfer of large functional genomic DNA into human cells. *Gene Therapy* **12**, 1559-1572.

55. Amaral MD (2004) CFTR and chaperones: processing and degradation. *J Mol Neurosci* **23**, 29-36.

56. Amaral MD (2004) Editorial. *J Cyst Fibros* **3(S2)**, 3.

57. Amaral MD, Clarke LA, Ramalho AS, Beck S, Broackes-Carter F, Rowntree R, Mouchel N, Williams SH, Harris A, Tzetis M, Steiner B, Sanz J, Gallati S, Nissim-Rafinifa M, Kerem B, Hefferon T, Cutting GR, Goina E, Pagani F (2004) Quantitative methods for the analysis of CFTR transcripts / splicing variants. *J Cyst Fibros* **3(S2)**, 17-23.

58. Barreto C, Mall M, Amaral MD (2004) Assessment of CFTR function in native epithelia for the diagnosis of cystic fibrosis. *Pediatr Pulmonol* **37(S26)**, 243.

59. Carvalho-Oliveira I, Efthymiadou A, Malhó R, Nogueira P, Tzetis M, Kanavakis E, Amaral MD, Penque D (2004). CFTR localization in native airway cells and cell lines expressing wild-type or F508del-CFTR by a panel of different antibodies. *J Histochem Cytochem* **52**, 193-203.

60. Edelman A, Amaral MD (2004) General introduction to section C: biochemistry and biophysics of CFTR. *J Cyst Fibros* **3(S2)**, 67.

61. Farinha CM, Mendes F, Roxo-Rosa M, Penque D, Amaral MD (2004) A comparison of 14 antibodies for the biochemical detection of the cystic fibrosis transmembrane conductance regulator protein. *Mol Cell Probes* **18**, 235-42.

62. Farinha CM, Penque D, Roxo-Rosa M, Lukacs G, Dormer RL, McPherson M, Pereira M, Bot AGM, Jorna H, Willemsen R, De Jonge H, Heda GD, Marino CR, Fanen P, Hinzpeter A, Lipecka J, Fritsch J, Gentzsch M, Edelman A, Amaral MD (2004) Biochemical methods to assess CFTR expression and membrane localization. *J Cyst Fibros* **3(S2)**, 73-77.

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64. Galvin P, Clarke LA, Harvey S, Amaral MD (2004) Microarray analysis in cystic fibrosis. *J Cyst Fibros* **3(S2)**, 29-33.

65. Harris CM, Mendes F, Dragomir A, Doull IJM, Carvalho-Oliveira I, Bebok Z, Clancy JP, Eubanks V, Sorscher EJ, Roomans GM, Amaral MD, McPherson MA, Penque D, Dormer RL (2004) Assessment of CFTR localisation in native airway epithelial cells obtained by nasal brushing. *J Cyst Fibros* **3(S2)**, 43-48.

66. Hirtz S, Gonska T, Seydewitz HH, Thomas J, Greiner P, Kuehr J, Matthias Brandis M, Eichler I, Rocha H, Lopes A-I, Barreto C, Ramalho AS, Amaral MD, Kunzelmann K, Mall M (2004) CFTR Cl^- channel function in native human colon correlates with the genotype and phenotype in cystic fibrosis. *Gastroenterology* **127**, 1085-1095.

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75. Freitas PP, Freitas H, Graham D, Clarke L, Amaral M, Martins V, Fonseca L, Cabral JS (2003) Magnetoresistive Biochips. *Europhysics News* **34**, 224-226.

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85. Amaral MD, Galego L, Rodrigues-Pousada C (1988) Stress response of *Tetrahymena pyriformis* to arsenite and heat shock: differences and similarities. *Eur J Biochem* **171**, 463-470.

Published National Articles

86. Amaral MD, Clarke LA, Roxo-Rosa M, Sousa L (2006) Genomics and proteomics approaches to study the genetic disease cystic fibrosis. *Revstat* **27**, 47-54.

87. Mauricio AC, Penque D, Amaral MD, Ferreira KT (2004) Ionic transport in tall columnar epithelial (TCE) cells obtained by nasal brushing from non-cystic fibrosis (CF) individuals. *Acta Med Port* **17**, 427-34.

Proceedings Articles

88. Barreto C, Mall M, Amaral MD (2004) Assessment of CFTR function in native epithelia for the diagnosis of cystic fibrosis. Pediatr Pulmonol 37(S26), 243.

89. Farinha CM, Amaral MD (2002) Processing and intracellular trafficking of wild-type and mutant CFTR. In: Proc 25th European Cystic Fibrosis Conference Genova, Italy (June 20-23). Romano L, Manno G, Galietta LJV, Eds, Monduzzi Editores, Bologna, Italy, pp.1-6. ISBN: 88-323-2622-1.

In addition, ~200 published peer-reviewed abstracts

PATENTS:

1. Amaral MD, Almaça J, Faria D, Kunzelmann K, Schreiber R, Conrad C, Pepperkok R (2012) High-content siRNA screen reveals DAG kinase as a key regulator of ENaC and therapeutic target for cystic fibrosis. Pat Pending PT1000017005.
2. Matos P, Amaral MD, Moniz S, Moraes B, Mendes AI, Jordan P (2011) Rac1 signalling stimulation rescues F508del-CFTR plasma membrane expression and function in human airway cells: a novel therapeutic approach for cystic fibrosis. Pat Pending PT105682.
3. Amaral MD, Dahimène S, Mendes F, Luz S (2011) Two novel human epithelial cell lines to be used in assays for traffic studies/ screens of CFTR protein (wild-type and with the F508del mutation). Pat Pending PT105697.

CURRENT GRANTS:

2012 FCT/POCTI (PTDC/SAU-GMG/122299/2010) *Characterization of ER-quality control for the F508del-CFTR protein: potential therapeutic targets for cystic fibrosis*. Total budget: 170.000 €, 3 years. PI

2011 CFF-Cystic Fibrosis Foundation, USA (Ref: 7207534) *Identification of Novel Targets Rescuing of F508del-CFTR Traffic: Mechanism of Action*. Total budget: 227.881 US$, 2 years. PI

2010 COST (EU) BM1003. Microbial cell surface determinants of virulence as targets for new therapeutics in Cystic Fibrosis. Coordinator: Antonio Molinaro, Università di Napoli Federico II, Napoli, Italy. 349.600, €4 years.

2009 FCT (PIC/IC/83103/2007); Budget: 170 000€; 3 years. *Diagnosis, Prognosis and Treatment of Cystic Fibrosis*. Principal Investigator.

Previous grants included 6 EU-funded projects and multiple nationally funded (FCT) projects. Total budget: 2.1 M€

PREVIOUS GRANTS:

2007/2011 European Union (FP6-2005-LH-7-037365). *TargetScreen - Novel post-genomics cell-based screens for drug targeting in membrane protein disorders*. Budget: 3.7 M€; 4 years. Coordinator: MD Amaral. http://www.targetscreen.eu/

2005/2010 European Union (FP6-2004-LSH-018932). *EuroCareCF – European Coordination Action for Research in Cystic Fibrosis*. Budget: Euro 89,700; 3 years. Coordinator: David Sheppard, University of Bristol, Bristol (UK). Vice-Coordinator and PI for Coordination of Basic Research: MDAmaral. http://www.eurocarecf.eu/

2005/2008 European Union (FP6-2004-IST-NMP-2-016833). *SNiP2CHIP – Development of a complete integrated SNP analysis system*. Budget: Euro 195,380; 3 years. Coordinator: Paul Galvin, Tyndall National Institute, Cork (Ireland). PI for the FCUL group: MD Amaral. http://www.tyndall.ie/projects/snip2chip/

2005/2008 European Union (FP6-2003-LSH-512044). *NEUPROCF – Development of New Technologies for Low Abundance Proteomics: Application to Cystic Fibrosis*. Budget: Euro 15,000. 3 years. Coordinator: Aleksander Edelman, Faculté de Médecine Necker – Enfants Malades, Paris (France). PI for the FCUL group: MD Amaral. http://www.biocompetence.eu/index.php/kb_6/io_3466/io.html

2005/2008 BBSRC grant (*Biotechnology and Biological Sciences Research Council*, UK). *Use of Human-Murine CFTR Chimeras to Investigate the Coupling of Permeation and Gating in the CFTR Chloride Channel*. Budget: Euro 10,000. 3 years. Principal Investigator: David Sheppard, University of Bristol, Bristol (UK). PI for the FCUL group: MD Amaral.

2005/2008 FCT /POCTI (SAU/MMO/58425/2004). *CFTR Interactome*. Budget: Euro 95,000; 3 years. Principal Investigator: MD Amaral.

2005/2008 FCT /POCTI (BIA-BCM/56609/2004). *Caenorhabditis elegans as a model to study folding of CFTR protein*. Budget: Euro 95,000; 3 years. Principal Investigator: MD Amaral.

2005/2007 FCT. Budget: Euro 132.000. *Aquisition of a small physiology unit*. Project approved by the *National Programme for Scientific Re-equipament*. Principal Investigator: MD Amaral.

2003/2006 FCT /POCTI /MGI/47382/2002. Budget: Euro 86,819; 3 years. *Folding, Processing and Function of Normal and Mutant Cystic Fibrosis Transmembranar Conductance Regulator: Structural Implications*. Principal Investigator: MD Amaral.

2002/2005 European Union (FP5-QLRT-2000-0182). *CF-Chip – Novel Genechip Technology for Early Detection of Cystic Fibrosis*. Budget: Euro 147,602; 3 years. Coordinator: Paul Galvin, National Microelectronics Research Centre (NMRC), "Lee Maltings", University College, Cork (Ireland). PI for the FCUL group: MD Amaral. http://www.nmrc.ie/projects/cf-chip/

2000/2004 European Union (FP5-QLK-1999-00241, Concerted Action). *CF Network – Thematic Network around Cystic Fibrosis and Related Diseases*. Budget: Euro 236,400; 4 years. Coordinator: Jean-Jacques Cassiman, University of Leuven (Belgium). PI for the INSA/ FCUL group: MD Amaral. http://www.cfnetwork.be/ and http://central.igc.gulbenkian.pt/cftr/

2001/2004 FCT/ POCTI (MGI/35737/1999). *Biogenesis & Function of CFTR Protein with Different Mutations: Molecular Basis for Clinical and Therapeutic of Cystic Fibrosis?* Euro 84,796; 3 years. Principal Investigator: MD Amaral; Co-PI: D Penque (INSA).

2002/2004 POCTI (MGI/40878/2001). *In search of New Molecular Targets for the Development of Novel Therapeutic Strategies for Cystic Fibrosis*. Budget: Euro 60,000; 2 years. Principal Investigator: D Penque (INSA); Co-PI: MD Amaral.

1997/2000 FCT/ PraxisXXI (PSAU/P/SAU/55/96). *Cystic Fibrosis - Traffic and Cellular Function of CFTR*. Budget: Euro 54,828; 3 years. Principal Investigator: MD Amaral.

1995/1997 JNICT (PBIC/C/BIA/2060/95). *Expression Studies of CFTR Gene*. Budget: Euro 37,410; 3 years. Principal Investigator: D Penque (INSA); Team member: MD Amaral.

1995/1997 JNICT/ French Embassy (049 C0). *Immortalization of Epithelial Cells in Portuguese Cystic Fibrosis Patients: Models to Study CFTR Gene Expression*. Budget: Euro 998; 1 year. Principal Investigator: MD Amaral.

1993/1995 JNICT (PBIC/C/SAU/1587/92). *Molecular Biology of Cystic Fibrosis in the Portuguese Population: Epidemiology, Anthropogenetics and Physiopathology*. Budget: Euro 74 820; 3 years. Principal Investigator: João Lavinha (INSA); Team member: MD Amaral.

VARIOUS:

Prizes: **2010 Award of the European Cystic Fibrosis Society** (jointly with David Sheppard, Bristol, UK).

Supervision: currently, 3 post-Docs, 4 PhD stds, 1 junior stds, 1 technician.

previously: 10 post-Docs; 12 PhD students (Univ of Lisboa, all approved with Honours); 1 MSc (DEA, France, Honours); 17 junior students (BICs); and 11 Diploma students (all approved). Member of 36 PhD, 6 MSc and 37 BSc theses committees.

Grant Reviewer: NSF- National Science Foundation (USA); DFG-Deutsche Forschungsgemeinschaft (Germany); Wellcome Trust (UK); FWO (Belgium); VLM - Vaincre la Mucoviscidose (French CF Foundation); SFI - Science Foundation Ireland; Canadian CF Foundation; Cystic Fibrosis Trust (UK); US-Israel Binational Science Foundation (BSF); Italian Cystic Fibrosis Foundation.

Reviewer: Science Transl Med; Nature Struct & Mol Biol; J Molecular Biology; BBA; Journal of Medical Genetics; Gene Therapy; Molecular and Cell Biology; Journal of Molecular Biology; Proteomics; Human Molecular Genetics, Thorax; Alberts 3rd ed - Essentials of Molecular and Cellular Biology (textbook, Garland).

Conferences organized: SAC member of the ABC – Special FEBS Meetings on ABC Proteins; Chairman (2004-2009) of the *ECFS Basic Science Conferences- New Frontiers in Basic Science of CF*; Scientific Committee member of various *European Cystic Fibrosis Society Conferences* (Vice-Chairman in 2007); *2nd International Congress on Stress Responses in Biology and Medicine* (2004); Co-Organizer and Chairman (2000-2003) of the *European CF Network Consensus Meetings Towards Validation of CFTR Gene Expression & Functional Assays*.

Invited talks: ~90 international invited talks at conferences and seminars in Europe and USA; ~300 poster communications (team members) at international scientific conferences, (~120 published peer-reviewed abstracts).

Other: Co-editor (with Karl Kunzelmann) of "*Cystic Fibrosis Protocols and Diagnosis*" (2011, Humana Press) Series: Methods in Molecular Biology Series; Volume I (Vol. 741): "*Approaches to Study and Correct CFTR Defects*" ISBN 978-1-61779-116-1 & Volume II (Vol. 742): "*Methods and Resources to Understand Cystic Fibrosis*" ISBN 978-1-61779-119-2; Associate Editor Journal of Cystic Fibrosis (Elsevier); Member of the Award Committee of EMBO/FEBS Women in Science (2007-2009); Member of the Research Advisory Board of the Cystic Fibrosis Trust (UK). Chief-editor of a special supplement of *J Cystic Fibrosis*. Member of the Award Committee of Fundação Pulido Valente (2011).