Curriculum Vitae of investigator

1. **Name:** Celso Vladimiro Ferreira de Abreu Cunha
2. **Date of birth:** August 15, 1960
3. **Nationality:** Portuguese
4. **Institutional address:** Medical Microbiology Unit, Institute of Hygiene and Tropical Medicine, Rua da Junqueira 100, 1349-008, Lisboa
5. **Telephone**: +351 213652620
6. **Email:** ccunha@ihmt.unl.pt
7. **Main scientific areas of research:** virology; molecular and cellular biology
8. **Academic degrees, fields of study, awarding institutions, dates in reverse chronological order:**

   2012: Habilitation (Agregation) in Biomedical Sciences (Microbiology), Institute of Hygiene and Tropical Medicine, Nova University, Lisbon.

   1992: PhD. In Biology (Genetics); Faculty of Sciences, University of Lisbon (with honours).

   1983: Degree in Biochemistry, Moscow State University

9. **Present position, institution:**
   Assistant Professor with Habilitaion of Microbiology and Molecular and Cellular Biology since 2012.
   Adjunct Director of the Medical Microbiology Unit, Institute of Hygiene and Tropical Medicine, Nova University, Lisbon.

10. **Previous positions, institutions, dates, in reverse chronological order:**

    2002-2010: Director of the Molecular Biology Unit of the Institute of Hygiene and Tropical Medicine, Lisbon.
    1996-2000: Assistant Professor of Cell Biology, Lusofona University, Lisbon
    1994-1996: Post-doctoral fellow, Faculty of Medicine, University of Lisbon
    1992-1994: Research Assistant, Portuguese Institute of Oncology, Lisbon

11. **Prizes**:

    2001: Ricardo Jorge Prize of Public Health. Instituto Nacional de Saúde, Lisbon

    2001: Laura Ayres Prize of Control of Infectious Diseases. Instituto Nacional de Saúde, Lisbon

    2016: 1º Prémio de investigação do Grupo de Investigação do Cancro Digestivo e Bayer

12. Principal Investigator of the Following Projects

- A yeast two-hybrid and yeast three-hybrid approach to study hepatitis delta virus replication and pathogenesis (2009-2012). Supported by Fundação para a Ciência e Tecnologia (PTDC/SAU-MII/098314/2008)

- Gene expression changes in hepatitis delta virus infection. I – Analysis of the host proteome (2005-2008). Supported by Fundação para a Ciência e Tecnologia (POCTI/SAU-IMI/55112/2004)

- Study of the RNA export pathway of Hepatitis Delta virus (2001-2004). Supported by Fundação para a Ciência e Tecnologia (POCTI/ESP/37786/2001)

- Nucleocytoplasmic transport of Hepatitis Delta virus: construction of fusion proteins (1999). Supported by Gabinete de Apoio à Investigação Científica da Faculdade de Medicina de Lisboa

- Nucleocytoplasmic transport of Hepatitis Delta virus (1999-2002). Supported by Fundação para a Ciência e Tecnologia (PRAXIS/P/SAU/14043/98)

- DNA methylation in breast neoplasias (1993-1994). Supported by Núcleo Regional do Sul da Liga Portuguesa Contra o Cancro

13. Member of the research team of the following most recent projects

- Splicing changes during Hepatitis delta virus infection - a link to hepatocelular carcinoma? Coordenador João Paulo Tavanez (GICD/Bayer; emongoing)

- Immunophenotypic changes in peripheral blood from patients infected with Hepatitis Delta vírus: comparison in different stages of treatment with pegylated alfa-interferon. MCTI/CNPq Nº 14/2014. Coordinator: Prof. Doutor Juan Salcedo, Fundação Oswaldo Cruz, Rondônia, Brasil (ongoing).

- Ecoepidemiology of d Dirofilaria spp: molecular chracterization of vectors and transmission dynamics. PTDC/SAU-SAP/113523/2009. Coordinator: Prof.ª Doutora Silvana Belo, Instituto de Higiene e Medicina Tropical da Universidade Nova de Lisboa. Supported by Fundação para a Ciência e Tecnologia.

- CHAIN - Collaborative HIV and Anti-HIV Drug Resistance Network. FP-7 Projects, EU. Contrato nº 223131. Coordenador: Prof. Deenan Pillay, University College London.

- Isolation, expansion, and cryopreservation of olfactory mucosa cells for treatment of spinal cord injuries (2004-2006). Supported by Fundação Millenium Banco Comercial Português. Coordinator: Dr. Carlos Lima, Hospital de Egas Moniz, Lisboa.

14. Research networks

Polaris – Global Hepatitis Observatory. Coordinated by Devin Razavi-Shearer, Center for Disease Analysis.

Rede ProCura – Portuguese Proteomics Association (Member of the Direction since 2010)

CHAIN - Collaborative HIV & Anti-HIV Network. Coordinated by Deenan Pillay, University College, London.

15. Publications

International peer- reviewed journals:

- Barros MF, Cunha CV, Costa JV (1986). Single-stranded deoxyribonucleic acid nuclease induced by African swine fever virus and associated to the virion. Virology 155: 183-191.

- Cunha CV, Costa JV (1992). Induction of ribonucleotide reductase activity in cells infected with African swine fever virus. Virology 187: 73-83.

- Carmo-Fonseca M, Cunha C, Custódio N, Carvalho C, Jordan P, Ferreira J, Parreira L (1996). The topography of chromosomes and genes in the nucleus. Experimental Cell Research 229: 247-252.

- Jordan P, Cunha C, Carmo-Fonseca M (1997). The cdk7-Cyclin H-MAT1 complex associated with TFIIH is localized in coiled bodies. Molecular Biology of the Cell 8: 1207-1217.

- Cunha C, Monjardino J, Chang D, Krausse S, Carmo-Fonseca M (1998). Localization of hepatitis delta virus RNA in the nucleus of human cells. RNA 4: 680-693

- Soares J, Pinto AE, Cunha CV, André S, Barão I, Sousa JM, Cravo M. (1999). Global DNA methylation in breast carcinoma: correlation with prognostic factors and tumor progression. Cancer 85 (1): 112-118.

- Bronze da Rocha E, Nóvoa A, Cunha C, Carmo-Fonseca M, Staines NA, Sunkel CE (2000). The human autoantigen MCP1 is required during early stages of DNA replication. Chromossome Research 8 (8): 699-711.

- Vautier D, Chesné P, Cunha C, Calado A, Renard J, Carmo-Fonseca M (2001). Transcription-dependent nucleocytoplasmic distribution of hnRNP A1 protein in early mouse embryos. J. Cell Science 114: 1521-1531.

- Tavanez J, Cunha C, Silva M C, David E, Monjardino J, Carmo-Fonseca M (2002). Hepatitis delta virus ribonucleoproteins shuttle between the nucleus and the cytoplasm. RNA, 8: 637-646.

- Cunha C, Freitas N, Mota S (2003). Developments in Hepatitis Delta Research. Internet Journal of Tropical Medicine, 1 (2).

- Collares-Pereira M, Couceiro S, Franca I, Kurtenbach K, Schafer SM, Vitorino L, Gonçalves L, Batista S, Vieira ML, Cunha C (2004). First isolation of Borrelia lusitaniae from a human patient. J. Clinical Microbiology, 42 (3): 1316-1318.

- Afonso A, Hunt P, Cheesman S, Alves AC, Cunha C, Rosário V, Cravo P (2006). Malaria parasites can develop stable resistance to artemisinin but lack mutations in candidate genes atp6 (SERCA), tctp, mdr1 and cg10. Antimicrobial agents and Chemotherapy 50 (2): 480-489

- Alves C, Freitas N, Cunha C (2008). Characterization of the nuclear localization signal of the hepatitis delta virus antigen. *Virology* 370 (1): 12-21

- Mota, S., Mendes, M., Penque, D., Coelho, A. V., Cunha, C. (2008). Changes in the proteome of Huh7 cells induced by transient expression of hepatitis D virus RNA and antigens. *Journal of Proteomics* 71; 71-79.

- Cunha, C. (2008). Structure and replication of the hepatitis delta virus. African Journal of Biotechnology 7 (25); 4911-4916.

- Mota, S., Mendes, M., Penque, D., Freitas, N., Coelho, A. V., Cunha, C. (2009). Proteome analysis of a human liver carcinoma cell line stably expressing hepatitis delta virus ribonucleoproteins. *Journal of Proteomics* 72: 616-627.

- Freitas N, Cunha C (2009) Mechanisms and signals for the nuclear import of proteins. *Current Genomics* 10: 550-557.

- Sousa BC, Cunha C (2010). Development of mathematical models for the analysis of hepatitis delta virus viral dynamics. *PLoS ONE* 5 (9): e12512.

- Casaca A, Fardilha M, da Cruz e Silva E, Cunha C (2011). *In vivo* interaction of the hepatitis delta virus small antigen with the ELAV-like protein HuR. *The Open Virology Journal* 5: 12-21.

- Casaca A, Fardilha M, da Cruz e Silva E, Cunha C (2011). The heterogeneous ribonuclear protein C (hnRNPC) interacts with the hepatitis delta virus small antigen. *Virology Journal* 8 (1): 58.

- Freitas N, Salisse J, Cunha C, Toshkov I, Menne S, Gudima S (2012). Hepatitis delta vírus infects the cells of hepadnavirus-induced hepatocelular carcinoma in woodchucks. *Hepatology*, 56 (1): 76-85.

- Alves C, Cunha C (2012). Order and disorder in viral proteins: new insights into an old paradigm. *Future Virology* 7 (12): 1183-1191.

- Cunha C, Coelho AV (2012). Comparative proteome analysis of a human liver cell line stably transfected with Hepatitis D virus full-length cDNA. *Methods in Molecular Biology*, 909: 205-225.

- Cavaco-Silva J, Aleixo MJ, Van Laethem K, Faria D, Valadas E, Gonçalves MF, Gomes P, Vandamme A-M, Cunha C, Camacho RJ, on behalf of the Portuguese HIV-2 Resistance Study Group (2013). Mutations selected in HIV-2-infected patients failing a regimen including atazanavir. *Journal of Antimicrobial Chemotherapy*, 68 (1): 190-192.

- Mendes M, Pérez Hernandez D, Vazquez J, Coelho AV, Cunha C (2013). Proteomic changes in HEK-293 cells induced by hepatitis delta virus replication. *Journal of Proteomics,* 89: 24-38.

- Freitas N, Cunha C (2013). Searching for nuclear export elements in hepatitis delta virus RNA. *World Journal of Virology*, 2 (3): 123-135.

- Alves C, Branco C, Cunha C (2013). Hepatitis Delta virus: still an awkward virus. *Advances in Virology*, doi: 10.1155/2013/560105, 11 pages.

- Cavaco-Silva J, Abecassis A, Miranda AC, Poças J, Narciso J, Águas MJ, Maltez F, Almeida I, Germano I, Diniz A, Gonçalves MF, Gomes P, Cunha C, Camacho RJ (2014). HIV-2 Integrase Polymorphisms and Longitudinal Genotypic Analysis of HIV-2 Infected Patients Failing a Raltegravir-Containing Regimen. PLoS One, 9(3):e92747

- Freitas N, Cunha C,. Menne S, and Gudima SO (2014) Envelope proteins derived from integrated hepatitis B virus DNA support assembly and release of infectious hepatitis delta virus particles", Journal of Virology, PMID: 24623409

- Freitas N, Abe K, Cunha C, Menne S, and Gudima SO (2014). Support of the infectivity of hepatitis delta virus particles by the envelope proteins of different genotypes of hepatitis B virus. Journal of Virology, PMID: 24648462

- Landum M, Ferreira CC, Calado M, Alho A, Maurício I, Meireles JS, Carvalho LM, Cunha C, Belo S (2014). Detection of Wolbachia in Dirofilaria infected dogs in Portugal. Veterinary Parasitology, 204 (3-4): 407-410

- Tavanez J, Quina AS, Cunha C (2014). Virus and non-coding RNAs: stars in the host-virus interaction game. Future Virology, 9 (12): 1077-1088

- Cunha C, Tavanez J, Gudima S. (2015). Hepatitis delta virus: A fascinating and neglected pathogen. World Journal of Virology 12 (4): 313-322

- Alves C, Cheng H, Tavanez JP, Casaca A, Gudima S, Roder H, Cunha C (2017). Structural and nucleic acid binding properties of the hepatitis delta virus small antigen. World Journal of Virology 6 (2): 26-35

Book chapters

- Alves C, Cunha C (2012). Electrophoretic Mobility Shift Assay: Analyzing Nucleic Acid-Protein Interactions. *In* Gel Electrophoresis. Book 2; pp 205-228. Sameh Magdeldin Ed. InTech Open Science. ISBN 979-953-307-276.

- Freitas N, Cunha C (2013). Mechanisms and signals for the nuclear import of proteins. *In* Advances in Genome Science (Ebook), Vol 2: 1-24. Christian Neri Ed. Bentham Science Publishers.

- Casaca A, Alves C, Cunha C, Luxo C, Valente C, Freitas N, (2014). Vírus da hepatite. In Microbiologia Médica, 3ª edição. Lidel- edições técnicas, páginas 722-755.

Patent:

Carvalhal, Ana Verónica; Lima, Carlos; Basto, Vera; Cunha, Celso; Escada, Pedro; Cruz, Helder; Cruz, Pedro (2005). "Adult human neural stem/progenitor cells from the olfactory epithelium and olfactory lamina propria, process for its obtention, proliferation in serum free culture medium and differentiation and utilization for transplantation". *International Publication Number* WO 2007/020611 A3

16. Experience of Supervision:

Supervised 6 PhD thesis and several Masters and Diploma thesis.
Currently supervises 1 Post-doc and 1 PhD thesis. Also co-supervises 1 PhD thesis and 2Master thesis.

17. Other activities

- Coordinator of the Masters Course in Biomedical Sciences
- Member of the Pedagogic Council of IHMT
- Member of the Scientific Council of the Center for Malaria and Tropical Diseases
- Member of the Editorial Board of World Journal of Virology and Journal of Integrated Omics

- Member of the Scientific Evalauation Panel for the following Agencies:

  Rustaveli Foundation (Georgia)
  NationalResearch Foundation (South Africa)
  INTAS (European Union)
  Agência de Inovação (Portugal)
  Health and Medical Research Fund (HMRF), Hong Kong
  EVAL-INCO, European and International Cooperation Project Management Agency
  Gilead and Instituto Carlos III (Spain)

  - Reviewer for the following journals:

  Journal of Proteomics, BBA Proteins and Proteomics, Journal of General Viriology, Virus Research, World Journal of Gastroenterology, World Journal of Virology, World Journal of Hepatology, Journal of Integrated Omics, Archives of Virology, Future Virology, The Open Virology Journal, Proteome Science, Journal of Infection in Developing Countries, Recent Patents on Endocrine, Metabolic & Immune Drug Discovery, Ultrasonic Sonochemistry, Folia Microbiologica, Epidemiology – Theory, Research and Practice, International Journal of Biochemistry Research & Review, Annual Research and Review in Biology, African Journal of Pharmacy and Pharmacology, Journal of Clinical and Experimental Hepatology, Journal of Liver, BMC Infectious Diseases of Poverty, Journal of Clinical Microbiology, Scientific Reports.