

Curriculum Vitae:

Name: Mayte Coiras

Date and place of birth: 1971, Madrid, Spain

Present position:

- 2008- present. Staff scientist in the AIDS Immunopathology Unit, Molecular Pathology Service, National Centre of Microbiology, Instituto de Salud Carlos III, Madrid, Spain.

Tertiary Education

- Degree in Pharmacy, Universidad Complutense, Madrid, Spain 1989-1994.
- Doctor in Pharmacy. Microbiology Department, Universidad Complutense, Madrid, Spain 1999.
- Post-doctoral fellow. Respiratory Viruses Unit, National Centre of Microbiology, Instituto de Salud Carlos III, Madrid, Spain 2000-2003.
- PhD in molecular immunology. Thesis entitled "Study of the transcriptional regulation and postraductional expression of HLA-DP". Department of Microbiology II. Universidad Complutense, Madrid, 1994.

Positions and employment

- 1994-1999: Graduate Research Associate of the Immunology Unit in the Microbiology Department, Faculty of Pharmacy, Universidad Complutense de Madrid, Spain.
- 2000-2003: Postdoctoral Research Fellow at the Respiratory Viruses Unit, National Centre of Microbiology (WHO: Influenza Surveillance Programme), Virology Department, National Centre of Microbiology, Instituto de Salud Carlos III Madrid, Spain.
- 2003-2008: Postdoctoral Research Associate at the AIDS Immunopathology Unit, National Centre of Microbiology, Instituto de Salud Carlos III, Madrid, Spain.
- 2008-present: Staff scientist at the AIDS Immunopathology Unit, National Centre of Microbiology, Instituto de Salud Carlos III, Madrid, Spain.

Consultancies and evaluation of scientific reports:

- 2003-present. Consultant of the Research Fund Secretariat Food and Health Bureau (RFCID), Hong Kong gov.
- 2004-present. Consultant of the Fondo de Investigaciones Sanitarias (FIS, spanish MRC).
- 2004-present. Consultant of the National Medical Research Council (NMRC), Singapore.
- 2005-present. Consultant of the Council for the AIDS Trust Fund (ATF), Hong Kong gov.
- 2006-present. Consultant of the Spanish Agency of Evaluation and Prospective, Spain.
- 2006-present. Consultant of the Foundation for AIDS Research and Prevention of Spain.
- 2011-present. Consultant of the Fundação para a Ciência e a Tecnologia-Portugal, Portugal.
- Reviewer of scientific articles for the following journals: Journal of Virological Methods, Leukemia and Lymphoma, Journal of Medical Virology, Nature Protocols, Proteomics, Clinical Microbiology and Infection, Archives of Medical Research.

Teaching activity

- Professor of Virology and immunology at the European University of Madrid.
- Co-direction of two PhD students.

Areas of research interest:

- Interactions between HLA-class II and peptides: definition of functionally important epitopes implicated on the susceptibility to chronic autoimmune diseases. Functional characterization of polymorphic residues of HLA-DP and their implication in diseases associated with the presence of metal in the environment. Use of mutant lymphoblastoid cell lines defective in HLA-DP expression to study the transcriptional regulation of this locus.
- Development of new molecular techniques to detect and characterize the influenza viruses with potential pandemic as essential part of the Influenza Surveillance System in Spain. Influenza Surveillance: identification of new human and animal viruses. Development of a Multiplex RT-PCR method of diagnosis for respiratory viruses (Currently being used by all the Reference Laboratories of the Spanish Influenza Surveillance Network) Patent pending P200403083.
- Study of latency and reactivation of HIV-1; analysis of transactivation mechanisms responsible for active viral replication in CD4+ T cells; study of NF-kB/Tat synergy for the identification of new therapeutic targets; analysis of changes of expression and postraductional modifications in the proteome and genome of T cells expressing intracellular Tat and its impact on the structure of the

cellular cytoskeleton; analysis of the mechanisms of degradation of p65/RelA (NF- κ B) and its importance in HIV-1 infection; study of changes in RNA metabolism induced by the intracellular expression of Tat.

- Discovery of new potential strategies to reduce the size of the reservoir during HIV-1 infection: analysis of PKC theta, PKC delta and Lck as potential targets to reduce HIV-1 replication in T lymphocytes during acute infection.

Recent Research support.

- Analysis of selective inhibitors of PKC theta to control HIV-1 replication during acute infection. Ministry of Health and Social Policy, Independent Investigation 2011. 2011-2012.
- Analysis of postraductional modifications induced by the intracellular expression of HIV-1 Tat protein in T lymphocytes and effect on the RNA metabolism. Spanish Ministry of Economy and Competitiveness (SAF2010-18388). 2010-2012.
- Role of PKC theta in HIV-1 infection and search for new therapeutic targets. Foundation for AIDS Research in Spain (FIPSE 360924/10). 2010-2012.
- Role of PKC theta in the apoptotic mechanisms mediated by HIV-1 Tat protein. Program of creation and consolidation of research groups granted by the Universidad Rey Juan Carlos and the Community of Madrid, 2009. 2009-2010.
- Study of p65/RelA degradation in human T lymphocytes. Foundation for AIDS Research in Spain (FIPSE 36633/07). 2007-2009.

Agreements of Research with the following companies.

- Bristol Myers Squibb.
- Pfizer.
- Novartis.
- CompleGen.
- Vertex Pharmaceuticals.
- Boehringer-Ingelheim.

Ongoing Scientific collaborations.

- Dr. Joel Hedgpeth, CompleGen Inc, Seattle, WA.
- Dr. Sudha Rao, University of Canberra, Australia.
- Dr Monsef Benkirane. Institut Génétique Humaine. CNRS. Montpellier. France
- Dr. Carles Suñé, Parasitology and Biomedicine, CSIC, Granada, Spain.

Publications.

- **Coiras M.**, Montes M., Montanuy I., López-Huertas M.R., Mateos E., Le Sommer C., García-Blanco M.A., Hernández-Munain C., Alcamí J., Suñé C. Transcription elongation regulator 1 (TCERG1) regulates efficient RNA polymerase II-mediated elongation of HIV-1 transcription and is required for viral replication. Submitted to *Retrovirology* (16-09-2013).
- López-Huertas MR, Mateos E, Sánchez Del Cojo M, Gómez-Esquer F, Díaz-Gil G, Rodríguez-Mora S, López JA, Calvo E, López-Campos G, Alcamí J, **Coiras M.** The presence of HIV-1 Tat protein second exon delays fas protein-mediated apoptosis in CD4+ T lymphocytes: a potential mechanism for persistent viral production. *J Biol Chem.* 2013 Mar 15;288(11):7626-44.
- Sánchez-Del Cojo M, López-Huertas MR, Mateos E, Alcamí J, **Coiras M.** Mechanisms of RNA interference in the HIV-1-host cell interplay. *AIDS Rev.* 2011 Jul-Sep;13(3):149-60.
- López-Huertas MR, Mateos E, Díaz-Gil G, Gómez-Esquer F, Sánchez del Cojo M, Alcamí J, **Coiras M.** Protein kinase Ctheta is a specific target for inhibition of the HIV type 1 replication in CD4+ T lymphocytes. *J Biol Chem.* 2011 Aug 5;286(31):27363-77.
- Alcamí J, **Coiras M.** [Immunopathogenesis of HIV infection]. *Enferm Infecc Microbiol Clin.* 2011 Mar;29(3):216-26.
- **Coiras M.**, López-Huertas MR, Sánchez del Cojo M, Mateos E, Alcamí J. Dual role of host cell factors in HIV-1 replication: restriction and enhancement of the viral cycle. *AIDS Rev.* 2010 Apr-Jun;12(2):103-12. Review. PubMed PMID: 20571604.
- **Coiras M.**, Lopez-Huertas MR, Alcamí J. HIV-1 latency and eradication of long-term viral reservoirs. *Discov Med.* 2010 Mar;9(46):185-91. Review. PubMed PMID: 20350483.
- López-Huertas MR, Callejas S, Abia D, Mateos E, Dopazo A, Alcamí J, **Coiras M.** Modifications in host cell cytoskeleton structure and function mediated by intracellular HIV-1 Tat protein are greatly

- dependent on the second coding exon. *Nucleic Acids Res.* 2010 Jun;38(10):3287-307. Epub 2010 Feb 5. PubMed PMID: 20139419; PubMed Central PMCID: PMC2879518.
- **Coiras M**, López-Huertas MR, Pérez-Olmeda M, Alcamí J. Understanding HIV-1 latency provides clues for the eradication of long-term reservoirs. *Nat Rev Microbiol.* 2009 Nov;7(11):798-812. Review. PubMed PMID: 19834480.
 - **Coiras M**, López-Huertas MR, Mateos E, Alcamí J. Caspase-3-mediated cleavage of p65/RelA results in a carboxy-terminal fragment that inhibits I κ B α and enhances HIV-1 replication in human T lymphocytes. *Retrovirology.* 2008 Dec 1;5:109. PubMed PMID: 19046417; PubMed Central PMCID: PMC2631510.
 - **Coiras M**, Camafeita E, López-Huertas MR, Calvo E, López JA, Alcamí J. Application of proteomics technology for analyzing the interactions between host cells and intracellular infectious agents. *Proteomics.* 2008 Feb;8(4):852-73. Review. PubMed PMID: 18297655.
 - Juozapaitis M, Zvirbliene A, Kucinskaite I, Sezaite I, Slibinskas R, **Coiras M**, de Ory Manchon F, López-Huertas MR, Pérez-Breña P, Staniulis J, Narkeviciute I, Sasnauskas K. Synthesis of recombinant human parainfluenza virus 1 and 3 nucleocapsid proteins in yeast *Saccharomyces cerevisiae*. *Virus Res.* 2008 May;133(2):178-86. Epub 2008 Feb 4. PubMed PMID: 18249456.
 - **Coiras M**, López-Huertas MR, Rullas J, Mittelbrunn M, Alcamí J. Basal shuttle of NF- κ B/I κ B α in resting T lymphocytes regulates HIV-1 LTR dependent expression. *Retrovirology.* 2007 Aug 8;4:56. PubMed PMID: 17686171; PubMed Central PMCID: PMC1988826.
 - López-Campos G, **Coiras M**, Sánchez-Merino JP, López-Huertas MR, Spiteri I, Martín-Sánchez F, Pérez-Breña P. Oligonucleotide microarray design for detection and serotyping of human respiratory adenoviruses by using a virtual amplicon retrieval software. *J Virol Methods.* 2007 Nov;145(2):127-36. Epub 2007 Jun 21. PubMed PMID: 17586060.
 - **Coiras M**, Camafeita E, Ureña T, López JA, Caballero F, Fernández B, López-Huertas MR, Pérez-Olmeda M, Alcamí J. Modifications in the human T cell proteome induced by intracellular HIV-1 Tat protein expression. *Proteomics.* 2006 Apr;6 Suppl 1:S63-73. PubMed PMID: 16526095.
 - Juozapaitis M, **Coiras M**, Staniulis J, Sasnauskas K. Synthesis of the human respiratory syncytial virus nucleoprotein in yeast *Saccharomyces cerevisiae*. *Biologija.* 2006; 3:79-82.
 - López-Huertas MR, Casas I, Acosta-Herrera B, García ML, **Coiras MT**, Pérez-Breña P. Two RT-PCR based assays to detect human metapneumovirus in nasopharyngeal aspirates. *J Virol Methods.* 2005 Oct;129(1):1-7. PubMed PMID: 15961167.
 - **Coiras MT**, López-Huertas MR, López-Campos G, Aguilar JC, Pérez-Breña P. Oligonucleotide array for simultaneous detection of respiratory viruses using a reverse-line blot hybridization assay. *J Med Virol.* 2005 Jun;76(2):256-64. Erratum in: *J Med Virol.* 2005 Sep;77(1):145. PubMed PMID: 15834876.
 - Sancho R, Márquez N, Gómez-Gonzalo M, Calzado MA, Bettoni G, **Coiras MT**, Alcamí J, López-Cabrera M, Appendino G, Muñoz E. Imperatorin inhibits HIV-1 replication through an Sp1-dependent pathway. *J Biol Chem.* 2004 Sep 3;279(36):37349-59. Epub 2004 Jun 24. PubMed PMID: 15218031.
 - **Coiras MT**, Aguilar JC, García ML, Casas I, Pérez-Breña P. Simultaneous detection of fourteen respiratory viruses in clinical specimens by two multiplex reverse transcription nested-PCR assays. *J Med Virol.* 2004 Mar;72(3):484-95. PubMed PMID: 14748074.
 - **Coiras MT**, Alvarez-Barrientos AM, Díaz G, Arroyo J, Sánchez-Pérez M. Evidence for discoordinate regulation of the HLA-DPB1 gene. *Tissue Antigens.* 2002 Dec;60(6):505-14. PubMed PMID: 12542744.
 - **Coiras MT**, Pérez-Breña P, García ML, Casas I. Simultaneous detection of influenza A, B, and C viruses, respiratory syncytial virus, and adenoviruses in clinical samples by multiplex reverse transcription nested-PCR assay. *J Med Virol.* 2003 Jan;69(1):132-44. PubMed PMID: 12436489.
 - **Coiras MT**, Aguilar JC, Galiano M, Carlos S, Gregory V, Lin YP, Hay A, Pérez-Breña P. Rapid molecular analysis of the haemagglutinin gene of human influenza A H3N2 viruses isolated in Spain from 1996 to 2000. *Arch Virol.* 2001;146(11):2133-47. PubMed PMID: 11765916.
 - Díaz G, Catálfamo M, **Coiras MT**, Alvarez AM, Jaraquemada D, Nombela C, Sánchez-Pérez M, Arroyo J. HLA-DP β residue 69 plays a crucial role in allorecognition. *Tissue Antigens.* 1998 Jul;52(1):27-36. PubMed PMID: 9714471.
- Book chapters:**
- MR López-Huertas, M **Coiras**. Retroviral Gene Expression Regulation. *Viral Gene Expression Regulation*, chapter 2, 2006. Ed: Novapublishers, NY.

- (Spanish) **Coiras** M, Pérez-Olmeda M, Alcami J. Estructura y cinética de replicación del VIH-1. Ciclo VIH- Etravirina 2008 Ed. Antares, Barcelona.
 - **Coiras** M. Influenza Virus. Encyclopedia of Medical Genomics and Proteomics. 2006. Ed. Dekker, NY.
 - (Spanish) J Alcami, M Bermejo, J García-Pérez, N González, M Beltrán, B Fernández, M **Coiras**, M Pérez-Olmeda, LM Bedoya y O Palao. Inmunopatología del VIH. Guía práctica del SIDA, 9ª Edición, 2006. Ed, MASSON, Barcelona.
 - (Spanish) Pérez-Olmeda M, Bermejo M, **Coiras** M, Alcamí J. Etiopatogenia de la infección por el VIH. Curso de VIH, 2005. Ed, Colegio Oficial de Médicos de Madrid, Madrid.
 - (Spanish) J Alcami, M Bermejo, J García-Pérez, N González, M Beltrán, B Fernández, M **Coiras**, M Pérez-Olmeda, LM Bedoya, O Palao. Inmunopatología del VIH. Guía práctica del SIDA, 8ª Edición, 2005. Ed, MASSON, Barcelona.
 - (Spanish) J Alcamí, M Bermejo, J Garcia, N González, M Beltrán, B Fernández, M **Coiras**, M Pérez-Olmeda, LM Bedoya, O Palao. Inmunopatología del SIDA. Capítulo 2, pp. 19-48, SIDA 8ª Edición 2005 EDITORIAL: MASSON, Barcelona.
- (Spanish) M **Coiras**, I Casas. Diagnóstico y Vigilancia de los virus influenza. Plan de Formación en Gripe Cap. 7, 2003. Ed., Ergón S.A, Madrid.

Other merits

Awarded by the Ministry of Health as the best young scientist in Spain in 2011.