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Pharmacogenomics are of particular interest for the clinical management of HIV because of the long-term nature of therapy, the use of combination antiretroviral regimens, the high prevalence of adverse reactions and long-term drug toxicity. Different factors may influence to the treatment response: gender, environment, concurrent disease, concurrent drugs and genetics. The main goal of this field is to benefit from predictive tools to identify the drug combination most likely to be tolerated and effective. Specifically our group is studying those polymorphisms used as a markers to avoid dyslipidemia and myocardial infarction, lipodystrophy and hypersensitivity reactions to antiretroviral drugs in HIV patients.

Until now, research has been restricted to a reduced number of variants of a limited number of genes associated with drug toxicity. Moving from the current single candidate gene and single nucleotide polymorphism (SNP) approach requires the effective use of novel genotyping technologies that allow a more through, cost-effective genetic work.

In addition genetic analysis holds promise for the study of HIV disease progression. This is of relevance for the understanding of pathogenesis and for vaccine development through the investigation of mechanisms defining interindividual differences in susceptibility to HIV. This is why our group is interested to study the miRNA as a genetic machinery involved in the control of HIV infection.

PUBLICATIONS

M Arnedo, P Taffé, R Sahli, H Furrer, B Hirschel, M Battegay, R Weber, P Vernazza, E Bernasconi, R Darioli, D Waterworth, J Beckmann, A Telenti, PE. Tarr. Contribution of 20 SNPs of 13 genes to dyslipidemia associated with antiretroviral therapy. *Pharmacogenetics and Pharmacogenomics*. 2007.

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WORKSHOPS AND CONFERENCES

Curso de Farmacogenómica en el VIH. Hospital Clínic Barcelona. 2008. Organizers: M Arnedo

European Science Foundation-EMBO RNA interference. Antiviral Applications of RNA Interference. 30 May - 4 June 2010
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Boulanger N, Plana M, Garcia F, Escribà T, León A, Crespo-Guardo A, Egaña L, Mirambeau G, Gatell JM, Arnedo M. miRNA profile in human immunodeficiency virus type 1 (HIV-1) seropositive individuals that control viremia without antiretroviral treatment

Red Investigación en SIDA. Dr JM Gatell and J Alcamí <http://www.retic-ris.net>

Master Biomedicina <http://www.ub.edu/biomed/>

Programa doctorat Biomedicina. http://www.ub.edu/doctorat_biomedicina/cas/index.htm

2dn Workshop de Biotecnologia i Empresa- PCB

PROJECTS

"Genetic factors involved on dyslipidemia in HIV treated patients". Fundings: Fondo de Investigación Sanitaria FIS (2010-2012). PI M Arnedo

"Genetic factors involved on lypodistrophy in HIV patients". Fundings: Laboratory of Retrovirology and Viral Immunopathogenesis-IDIBAPS. Dr Gatell

"Study of HLA polymorphisms in patients with HRS to NVP". Fundings: Laboratory of Retrovirology and Viral Immunopathogenesis-IDIBAPS. Dr Gatell

"Study of genetic factors involved on HIV control in patients without antiretroviral treatment" Fundings: Laboratory of Retrovirology and Viral Immunopathogenesis-IDIBAPS. Dr Gatell

INVESTIGATORS

Mireia Arnedo: *PhD in Virology of HIV. Antiretroviral resistance. University of Barcelona (2004). Post-doctoral Fellow on HIV and Pharmacogenomics at CHUV. Lausanne-Switzerland (2004-2006). Researcher at the Institut Investigacions Biomèdiques Augustí Pi i Sunyer (2006-2007). Professeur at Máster of Biomedicine of UB (2006-2009). Professeur at Máster of SIDA -University of Barcelona (2003-). Researcher of Miquel Servet Program-Laboratory of Retrovirology and Viral Immunopathogenesis. IDIBAPS (2007-). Member of the AIDS Spanish Network (2006-). Member of the Biomedicine PhD Program at UB (2010-). Expert of the ANEP (2010-).*

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Tuixent Escribà: Lab technician by the I.E.S Guineueta (2007). Experience in the Toxicology lab of the Hospital Clínic and in the Blood and Tissue bank of the Vall d'Hebron Hospital in Barcelona (2007). Current lab technician in the Laboratory of Retrovirology and Viral Immunopathogenesis at Fundació Clínic.

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