



POSITION

Project Title/ Job position title:

Non-Alcoholic Fatty Liver Disease in Vertically HIV Infected Children and Young Adults: Non-invasive imaging techniques and microbiome-related biomarkers / Pre-doctoral Position

Area of Knowledge:

Life Science Panel:

Medicine, Public Health, Sports Science, Nutrition, Clinical Psychology, Healthcare Management

Research Project/Research Group Description

Survival of HIV-infected individuals, both children and adults, has improved dramatically in countries with access to combination antiretroviral therapy (ART). In parallel with the increase in non-fatty liver disease (NAFLD) described in the general population consuming a western diet, some studies report a prevalence of NAFLD up to 65% in otherwise healthy HIV-infected adults in the western world. An important proportion of cases will progress to steatohepatitis, but the underlying mechanisms are not fully understood. Few data are available regarding vertically infected patients, exposed to long-term effects of the virus and its treatment. However, both factors have been suggested to contribute to liver damage, together with genetic, dietary, inflammatory and microbiome-related factors. The aims of this study are: to address the prevalence of liver abnormalities in vertically HIV-infected children and young adults by using clinical scores together with novel non-invasive imaging techniques [Transient elastography measurement (FibroScan) and shear wave elastography (SWE)], to analyze the presence of gut dysbiosis in these patients compared to both HIV and uninfected subjects, with the final goal of identifying genetic, inflammatory or microbiome-related biomarkers (mRNA, PNPLA3, cytokines, bacterial biomarkers) available to routine clinical practice for the detection of high-risk patients as well as identification of potential therapeutic targets.

This study proposal is vertebrated around the Spanish Cohort of vertically HIV-infected children and adolescents (CoRISpe), a group of multidisciplinary professionals with a large trajectory of collaborative research, and continuous public funding from the Spanish Ministry of Health and Innovation (FIPSE grant nº 36531/05, 36644/07, 36737/08, 360829/09, FIS nº PI070236 and PI13/0422). Since 2009, the CoRISpe works in collaboration with the Spanish HIV Biobank located in the Gregorio Marañón Hospital. On-going research lines include the study of metabolic abnormalities, cardiovascular risk, neurocognitive disorders, co-infections and since 2013 an innovative area aimed at characterization of the gut microbiota and vaccine response in children and adolescents that resulted perinatally infected by HIV.

Job position description

The candidate will be in charge of most of the coordination tasks and will join the group, as a junior investigator starting a PhD project. He/she will have the opportunity to participate in several studies within the group, mainly focused at understanding comorbidities and its relations to the inflammation and immunedysfunction associated to vertically acquired HIV-infection, including two pioneer studies on gut microbiota in this unique population. He/She will have direct supervision from a postdoctoral research fellow, expert in the field of gut microbiota, together with his/her mentor, Dr Mellado, who is



an internationally recognized expert in pediatric HIV disease. He/She will actively participate in a multidisciplinary group (The Microbiota Consortium) aiming to address the role of the gut microbiota in HIV pathogenesis, integrated by basic and clinical researchers from different institutions, including the platform integrated by CORISPE and the Immunobiology Lab- HIV Biobank, The Unit of Infectious Diseases-HIV at Hospital La Paz and Hospital Ramon y Cajal, and the group led by Dr Andrés Moyá at the genomic Unit at **FISABIO-Salud Pública de Valencia**, for the analysis of gut microbiota and biostatistics.

The candidate should be interested in the field of pediatric research, as well as in the area of gut microbiota. By means of his/her participation in the study, the fellow will acquire experience in clinical management of HIV infection, epidemiology and statistics. The platform integrated by the Immunobiology Laboratory- HIV Biobank at the Gregorio Marañón Hospital, represents the perfect place to develop skills in basic immunology and biology lab, and offers the opportunity to deepen into the basic lab. She/he will be directly involved in transport, process and storage of biologic samples, according to normalized procedures. The lab offers the necessary equipment and required software, available for research purposes.

For the analysis of gut microbiota, the student will be under direct supervision of our colleagues from the Genomics Unit of FISABIO, Valencia, participating in the previous studies in HIV-infected populations within the Microbiota Consortium. He/She will participate in the pyrosequencing, analysis and interpretation of results regarding composition of the microbiome

GROUP LEADER

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