



POSITION

Project Title/ Job position title

Clinical and Virological Studies of Respiratory Syncytial Virus (RSV): Implementation of new vaccines and their global impact on the infection /Pre-doctoral position

Area of Knowledge

Life Science Panel

Human Biology, Microbiology, Genetics, Cell Biology, Genomics and Proteomics,
Biochemistry

Research Project/Research Group Description

The topic: high prevalent and complicated RSV infections

RSV is the leading cause of acute bronchiolitis and one of the most common causes of infant viral death worldwide. Clinical manifestations range from coryza to bronchiolitis and pneumonia which can lead to hospitalization/respiratory failure, particularly severe in high risk pediatric populations. Two RSV antigenic groups, A and B, serologically and genetically distinguishable, and multiple genotypes coexist during epidemic seasons. Novel strains spread rapidly.

The control of infection: the era of the forthcoming RSV vaccines and surveillance

Several vaccine candidates are in preclinical studies, including live-attenuated and live-vectored, protein based vaccines (whole-inactivated virus, subunit antigens in aggregate particles, and non-particle based subunit antigens), nucleic acid and gene-based vectors. A promising strategy is the immunization of pregnant women, as antibodies are efficiently placenta-transferred with protective titers that will protect the newborn during the first months of life. The surveillance is needed to meet specific Public Health objectives.

The current gaps: research project objectives

Virological and clinical variables, with potential utility in the development of more effective preventive strategies will be estimated.

1. To estimate the clinical impact of RSV disease due to different virulent genotypes and define strain-specific phenotypes to be included in future therapeutical options and vaccine development.

- 1.1 Using and applying the metagenomics for Acute Respiratory Viral infection, to study the RSV molecular epidemiology, evolution and transmission.



1.2 Relative frequency of high-throughput sequenced viruses with the severity of the infections to understand the role of RSV: viral composition of follow up clinical samples when patients that require long stays in hospital.

2. To study the antigenic variation to evaluate changes in RSV proteins that helps the virus to alter the antigenic characteristics and different degree of virulence.

3. To analyse the level maternal antibodies against RSV to know how is related to the incidence of RSV infections and RSV-related hospitalization in infants during the first months of life

Job position description

Role in the Working area

The main research is the interconnecting of several aspects of the clinical and the virological characteristics of RSV infections with focus on the establishment of the new RSV vaccines at the global level and their effects at the National and European level.

The candidate's main activity will be to conduct and develop the specific research to obtain results that will cover the objectives of the project, to establish research-based actions for improving the management of RSV infections in one of the most important pediatric hospital in Spain (Hospital La Paz). Simultaneously, the candidate will be enrolled at the beginning of the RSV surveillance as a member of the research activity in the National Influenza Center in Spain which coordinates the Influenza surveillance and, in a near future, the RSV surveillance at National level.

The Institutions involved expected to stimulate and coordinate research and innovation activities on clinical virology and infection biology with special emphasis on disease prevention and health promotion with the project presented here.

Responsibilities and skills

The Early-Stage Researcher candidate has to act as a member of a multidisciplinary research group, participate in knowledge exchange with society and industry, and develop the interface of clinical, virological and Public Health. The research is focus on human health, virology, biostatistics, and pathogen discovery, and we are looking for highly motivated and talented candidates with a MSc degree in Life Sciences who are interested in viruses and infectious diseases.

We offer challenging research projects to lead to a dissertation (PhD thesis) at high profile universities and research institutions located in Europe and The States.

Currently, many EU/EEA countries collect RSV detections from hospital and national laboratory notification systems which are not standardized, no systematic and lacks epidemiological baseline. Further clinical and virological data will be coordinate by WHO,



CDC and ECDC, and will be integrated in a new system to cover a main objectives for RSV surveillance

GROUP LEADER

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Research project/Research group website:

<http://idipaz.es/PaginaDinamica.aspx?IdPag=53&Lang=EN>