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Hospital Universitario La Paz
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Edificio Norte, 4ªPlanta
28046 - Madrid

POSITION

1. Project Title/ Job Position title:

Biomarkers for earlier diagnosis of patient with biliary atresia

2. Area of Knowledge:

Life Sciences

3. Group of disciplines:

Human Biology, Microbiology, Molecular Biology, Genetics, Cellular Biology, Genomics and Proteomics, Biochemistry

4. Research project/ Research Group description

Biliary atresia (BA) is a fibro-inflammatory and life threatening disease in infants being the main reason for performing liver transplantation in childhood. **BA is a rare disease** with an incidence of approximately 1:15.000 in successful births worldwide; in Europe, BA affects 1:18.000 successful births. It is a disease with an **unknown etiology** and is characterized by inflammatory and fibrotic mechanisms that cause progressive obliterative cholangiopathy. The available therapy is the Kasay's surgery that aims to reestablish the bile flow in the first 90 days of life. Without adequate treatment, all BA patients die within the first two years of life, if not transplanted. An early diagnosis is imperative so that therapeutic intervention is able to prolong the life of the native liver. Thus, a major medical challenge for treating BA is to retain the native liver for a longer time period, thereby avoiding liver transplantation in childhood.

Dr. Luiz Stark from the Molecular Hepatology research group of IdiPAZ seeks the *identification of molecular biomarker signatures* that provide an early unequivocal diagnosis of BA. Biomarkers shall be obtained from multi-scale molecular and cellular information. The transcriptome and specific immunophenotyping data shall be integrated within a bioinformatics pipeline in order to construct biological system networks representing the relevant regulatory pathways that define the patient's disease.

To achieve this objective, the process involved in liver will be studied through the transcriptomic analysis of liver explants and its integration by machine-learning to define biomarker patterns from these networks characteristic of BA, while distinguishing it from other similar diseases.

The following steps will be the identification in circulating blood cells, of biomarkers that correlate with the process involved in liver. It is expected that recirculating inflammatory cells may allow the identification of biomarkes to diagnose BA.

5. Job position description

Role: An opportunity exists for a person who is passionate about human translational research and has demonstrated evidence of reaching key career milestones. The individual will oversee and lead an exciting, internationally facing program studying the immunopathogenesis of biliary atresia.

Responsibilities

Set up and perform experiments, maintain experimental resources (as cell lines, reagents, etc.) according to protocols, analyze & interpret results and contribute to the development of experimental strategies with accuracy and honesty.

Keep updated the laboratory notebook and properly store the data produced during the project.

Collaborate with colleagues and participate in team activities (such as meetings, seminars, workshops, etc.) across the research group and wider scientific community.

Participate in knowledge exchange with several stakeholders, to promote the value of research in public health, to keep up to date with current knowledge and recent advances and to contribute to the dissemination of his/her research results in the principles of EU's Open Science policy.

Undertake any other duties of equivalent standing as assigned to him/her.

Skills

Master degree in Immunology, Cancer Biology, Molecular or Cell Biology.

Prior experience with molecular biology and flowcytometry is a plus.

Experience in liver biology is desirable.

Motivation, critical thinking and problem-solving oriented skills.

Good interpersonal skills, including team working.

Good communication skills, willingness to engage in public presentations and ability to transmit complex concepts in a clear way.

Good workload management skills, including both initiative and flexibility.

GROUP LEADER

1. **Title:** Dr.
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4. **Research project/ Research Group website (Url):** http://www.idipaz.es/PaginaDinamica.aspx?IdPag=225&Lang=EN