POSITION

1.   Project Title/ Job Position title:

Molecular Biology and Bioinformatics tools to obtain complete information about the Cancer epigenetic machinery.

2.   Area of Knowledge:

Life Sciences

3.   Group of disciplines:

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

4.   Research project/ Research Group description

The massive study of both targeted regions and complete genomes from an epigenetic point of view makes it necessary to approach them from the bioinformatics field. However, it is of great importance to gain insight into the molecular mechanisms in which the identified candidates are involved to understand their role in cancer progression. Thus, this research requires correlating a very varied -omics information, including, among others: transcript expression, non-coding RNAs such as miRNAs and lncRNAs, or methylation levels both in the classical promoter regions and in regulatory regions determined by the study of binding sites for transcription factors or enhancers.

All this information, obtained from both cell lines and patients, allows us to characterize the possible epigenetic regulation of interesting cancer phenotypes. However, this entails a significant limitation in number of samples and extrapolation of results. For that, the group takes advantage of the public databases created and maintained by international consortia. The large amount of data obtained, its diverse origin, as well as the correct assembly and analysis of them, makes necessary the use of bioinformatics that allow us to obtain complete information about what happens in the epigenetic machinery. In fact, this is a very innovative area in continuous progress

The pre-doctoral researcher will be integrated in the Experimental therapies and biomarkers in cancer group, led by Inmaculada Ibañez, Senior Researcher of IdiPAZ, and Javier de Castro, Head of Lung Cancer Unit of the HULP. It is a leading international group centered in translational research with a strong reputation for publishing in top management journals.

The group is focused in two different areas:

Genetic and epigenetic mechanisms involved in the resistance to chemotherapeutic drugs.

Novel molecular approaches to improve the clinical management in NSCLC patients.

5.   Job position description

Role: Participation in the design and the development of the functional studies associated with the data obtained from the NGS screening panels: RNA-seq, miRNA-seq, Methyl-seq, DNA variants, expression arrays.

Analysis and correlation between obtained metadata, in vitro and in vivo experimental results, and clinical parameters to get insight into the mechanisms involved in cancer progression and therapeutic response.

Responsibilities

Set up and perform experiments, maintain experimental resources (as cell lines, reactives, 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 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 community to exchange knowledge and disseminate project results while keeping up to date with current knowledge and recent advances.

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

Skills

Degree in Biology, Chemistry, Medicine or Pharmacy.

Experience in Bioinformatics.

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.

1. **GROUP LEADERTitle:** Dr.
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