

# INTERNAL SEMINAR ONLINE



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Genome Analysis Platform  
CIC bioGUNE

## “Genomic solutions for your research”

Friday,  
July 10<sup>th</sup>  
ZOOM APP.  
12:00H

During the last 20 years, hundreds of genomic strategies have been developed, mainly arrays and high-throughput sequencing technologies, together with the corresponding panoply of machines and protocols. These techniques have allowed to identify events such as DNA sequence variants, differential gene expression, epigenetic modifications, chromatin structure or differential microbiome that might be causes of disease, antibiotic resistance, cancer susceptibility, etc..

The Genome Analysis Platform at CIC bioGUNE is responsible for setting up genomic techniques to aid researchers with all the tactics mentioned above, principally for biomedical investigations, but applicable to many other fields as agronomic improvement. At present, we are able to assist with specific experimental designs and to carry out more than 80 methods, from low-throughput quantitative PCRs to high-throughput complex sequencing protocols. Moreover, we develop basic dry-lab pipelines that help analyzing big data obtained from gene expression and DNA-methylation arrays and/or high-throughput sequencing.

Furthermore, the Genome Analysis Platform at CIC bioGUNE strives to anticipate the needs for genomic strategies. Thus, we are very interested in single-cell genomic approaches as well as in the newly designed spatial (multidimensional) transcriptomics strategy, which allows describing in-situ mRNA expression of cells in their morphological context. Subsequently, we will focus on setting up protocols, first, to obtain parallel catalogues of expressed mRNAs (mRNAseq) and open chromatin regions (ATACseq) for each individual studied cell; next, to additionally classify the studied cells based on their membrane proteins; and, after, for spatial transcriptomics. Single cell and spatial findings will reveal how complex and rare cell populations interact in healthy and diseased tissues or organs, and thus, will help understanding clue functional regulations and cell communications that cause diseases.

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