Nuclear Magnetic Resonance (NMR) 1D, 2D and 3D
STAN 2616

Description

Based on the spectrometry technique of Nuclear Magnetic Resonance (NMR), which studies in a non-destructive way the composition and internal structure of biological materials at an atomic scale, we offer services for:

Protein analysis for biosimilar development, drug design and quality control of finished products:
Post-translational modifications.
Exercises of biosimilar comparability and conformational similarity.
Protein-ligand interaction studies. Analysis of drug libraries.
Conformational dynamics.

Analysis of organic molecules in liquid phase:
Identification and quantification of impurities, isomeric composition.
Metabolic profiles, identification of markers.
Analysis of complex mixtures by NMR. Identification and quantification of metabolites.
Statistical analysis and classification of samples.
Services can be carried out through one-dimensional, two-dimensional or three-dimensional experiments. According to the client's needs, the type of NMR spectrum/s to be made, the total experimental time and the characteristics of the technical report are defined.

Equipment

600 MHz Spectrometer of magnetic resonance AV600-TCI, Bruker, with exchanger for 24 samples.

Applications

In the last decades, NMR has positioned itself as an essential tool to determine the molecular constitution and conformation of organic molecules. The technique can be used for the analysis of drugs and in quality controls, identifying and quantifying possible impurities. It can also be used to study complex mixtures and is a unique technique to determine the high resolution structure and the function of proteins and nucleic acids. NMR has become a fundamental technology for the development of new drugs, since it is used in almost all stages of the process. It analyzes drug libraries and understands the

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properties of molecules and their behavior.
Metabolomics, one of the most recent applications of NMR, allows the identification and quantification of metabolites produced in an organism, which may be altered in certain diseases or may occur after drug metabolization.

Advantages

In general, it allows the study of the structure and dynamics of molecules in solution with atomic resolution, from proteins to small organic molecules. It is a non-destructive technique and does not require a complex treatment of the sample.

Drug design

• Identify, determine and quantify the interactions of a drug with its target protein.
• Enables the rapid analysis of libraries of chemical compounds, selecting high potency molecules, which have optimal binding situations.

Biosimilars

• It is a high-resolution, fast and simple technique to carry out biosimilar comparability exercises and conformational similarity.