

DSV Seminars

2017



UNIVERSITÀ
DEGLI STUDI DI TRIESTE



DIPARTIMENTO DI
SCIENZE DELLA VITA

PhD Program in Molecular Biomedicine

October 20, 2017 - 9:30

Seminar Room, Building Q – Via Giorgieri, 5 Trieste

Dr. Domenico Garozzo
CNR IPCB
Uos Catania

**From micro- to femto-moles, from
small to giant molecules: the route
of biological mass spectrometry**

The mass spectrometer is no longer just a tool for measuring molecular masses, but an analytical tool able to perform structural identification. and it is becoming more and more present in the biological labs, pharmaceutical industry and even hospitals.

This revolution starts in 1988, when Electrospray ionization (ESI) developed by John B. Fenn and Matrix assisted laser desorption (MALDI) introduced concurrently by Koichi Tanaka, Franz Hillenkamp and Michael Karas appeared almost simultaneously. These desorption-ionization methods revolutionized mass spectrometry: for the first time, we could measure the mass of a protein with accuracy of 0.01% (100 ppm). At that time (1988) molecular weights values from other methods seldom had accuracies of about 10%. 14 years later, John Fenn and Koichi Tanaka received the Nobel Prize for Chemistry for their discoveries.

Nowadays the mass spectrometer is found in all the bio-research labs. In fact, it is widely used in proteomics, glycomics, and all “omics” studies, in the pharmaceutical industry it is used for most of the pharmacokinetic analyses and in the hospital, it is used for the new neonatal screening.

