ADVANCED MASS SPECTROMETRY METHODS FOR THE DETERMINATION OF GANGLIOSIDES STRUCTURE AND FUNCTIONAL INTERACTIONS

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Abstract
To address the issues of high biological relevance of gangliosides (GGs), mass spectrometry (MS) has lately become a method of choice due to its capability to detect minor species in complex mixtures and the unsurpassed sensitivity. GGs are localized in the cellular membrane, with the ceramide (Cer) rooted in the lipid bilayer and the oligosaccharide chain protruding freely outside the cell, acting as a receptor [1,2]. Here, a complex mixture of GGs extracted from adult human brain was first characterized by MS for a thorough mapping and a detailed structural characterization, and lately, the complex GG mixture was submitted to an interaction assay with the B subunit monomers of cholera toxin (Ctb5). Aliquots of the reaction products were collected after 10 and 30 min and also after 60 min and submitted to MS analysis. Multistage fragmentation by electron transfer dissociation (ETD) and collision-induced dissociation (CID) completed the assay and provided solid data on the noncovalent biding site at the monomer level.

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References

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