

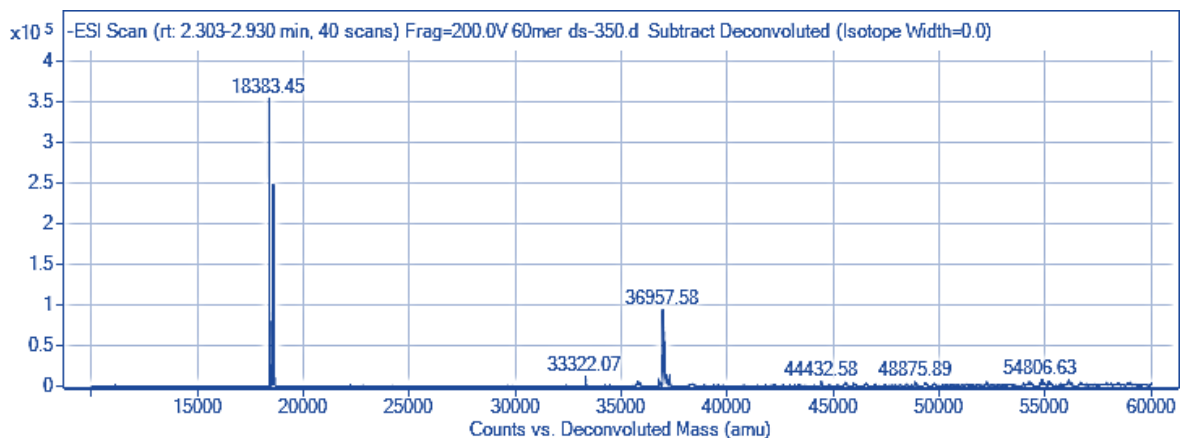
Mass Spectrometry of Duplex Oligonucleotides

At *metabion* each single stranded oligonucleotide is QC checked to meet our high-quality standards before used for duplex formation. In addition, we routinely perform ESI mass analysis for all ordered DNA-duplexes to verify duplex formation and sequence integrity.

Mass spectrometry of duplex oligonucleotides is rather complex, and carefully tuned conditions are mandatory to obtain satisfactory results. Despite our optimized conditions it is inevitable to completely avoid decomposition of the duplex into the two single stranded oligomers during the ionization process. This leads to additional mass signals, and this is why you will usually see three peaks in your duplex mass spectrum – two representing the respective single strands and one representing the duplex, respectively.

Please note that this has nothing to do with the quality of the delivered DNA-duplex but is an artifact generated during the ionization process caused by the conditions necessary for efficient ionization, i.e. high temperature and high voltage. The extent of single strand masses obtained during duplex measurements strongly depends on duplex stability and thus on length and sequence of the ordered duplex.

ESI spectrum for a 60mer DNA-duplex (example):



Calculated molecular weight single strand 1: 18574 Da

Calculated molecular weight single strand 2: 18383 Da

Calculated molecular weight duplex: 36957 Da