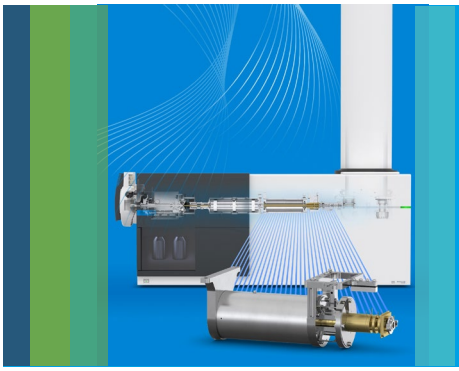


Product Backgrounder

Agilent ExD Cell for 6545XT AdvanceBio LC/Q-TOF

Key Uses

- Generate complementary structural information.
- Top- and middle-down workflows for fast and thorough protein characterization.
- Generate sequence-informative fragment ions while retaining fragile modifications.
- Fragment amino acid sidechains to differentiate aspatate/isoaspartate and leucine/isoleucine isomers.

Key Features

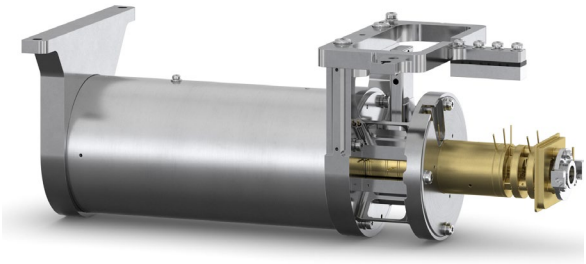
- Evolution of previous ExD cell design.
- Added ECD capabilities in addition to CID.
- ExDViewer data analysis freeware.

Overview

The Agilent ExD cell, available for the 6545XT AdvanceBio LC/Q-TOF, enhances the peptide & protein characterization capabilities of the platform by adding electron capture dissociation (ECD).

With the trend towards increasingly complex biotherapeutics comes the need for more thorough structural characterization. The field-installable ExD cell addon for the 6545XT is designed for researchers in the 'discovery phase' who are faced with diverse analytical challenges and in need of a diverse toolset. ECD is particularly well-suited for the study of large proteins, fragile modifications, and isomeric residues – analytes which can be difficult to unambiguously characterize with traditional collision induced dissociation (CID) methods alone.

The high-efficiency ECD performed by the ExD cell is applicable even for peptides, which have traditionally been difficult to characterize with electron-based fragmentation because the relatively low charge was limiting. Coupled with the inherent capabilities of the 6545XT for intact protein analyses, the ExD cell is also well-suited for performing top-/middle-down characterization of large & highly-charged proteins/subunits; the extraordinarily rich spectra produced can be interpreted with confidence using ExDViewer.



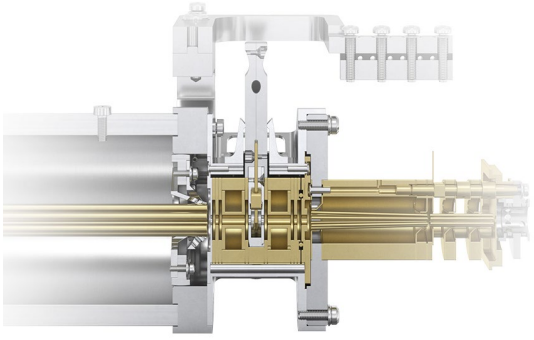
The Agilent ExD cell attached to the collision cell.

Agilent

Agilent ExD Cell Key Features

Evolution of Previous ExD Cell Design

The Agilent ExD cell was re-designed based on the ExD cell platform technology first commercialized by e-MSion, Inc. Repositioning the ExD cell downstream of the collision cell affords major simplifications to method setup. The ExDControl acquisition software which runs in parallel with Agilent MassHunter has also been streamlined. An organic-soluble peptide is spiked into Agilent Tuning Mix to enable single-bottle tuning of both the Q-TOF & ExD cell.



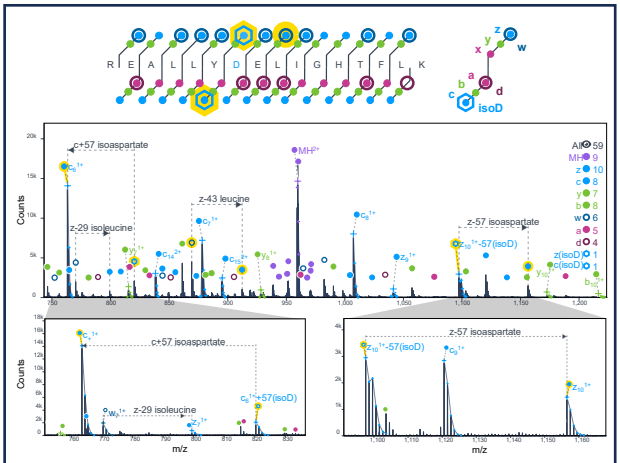
The ExD cell is repositioned downstream of the collision cell.

Add ECD Capabilities On Top of CID

The ExD cell enables ECD for proteins and peptides in positive polarity, in addition to the innate CID capabilities of the 6545XT system. ECD and CID are independently controlled and can be employed separately or together. Increased ECD efficiency means greater applicability for lower-charge peptides & lower-abundance analytes, faster practical acquisition rates, and less time spent fine-tuning in the pursuit of optimal performance.

ExDViewer Data Analysis Software

Deconvolute isotopically resolved ions with a robust ion scoring algorithm designed specifically for TOF profile data. Parameters automatically adapt to input complexity such that minimal manual optimization is required to reach confident conclusions about complex fragmentation patterns. View shared links to results online in the online version of ExDViewer.



Example ECD data as viewed in ExDViewer, with uniquely informative side-chain ECD fragments highlighted.

Key Benefits of the Agilent ExD Cell to Lab Operators and Managers

Meaningful Insights

Employ alternative fragmentation to unlock new meaningful insights about protein and peptide sequence, modifications, and structure. Gain an additional degree of characterization for especially complex or fragile samples otherwise recalcitrant to traditional methods.

Removing Barriers to Entry

The ExD cell facilitates entry into new types of analyses, such as top-down protein characterization. Confidently interpret the new results with ExDViewer freeware, then quickly and intuitively communicate them by sharing figures & direct links to the data.

For more information visit www.agilent.com

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