

# MINING THE LIPIDOME USING THE AGILENT 6545 Q-TOF LC/MS SYSTEM

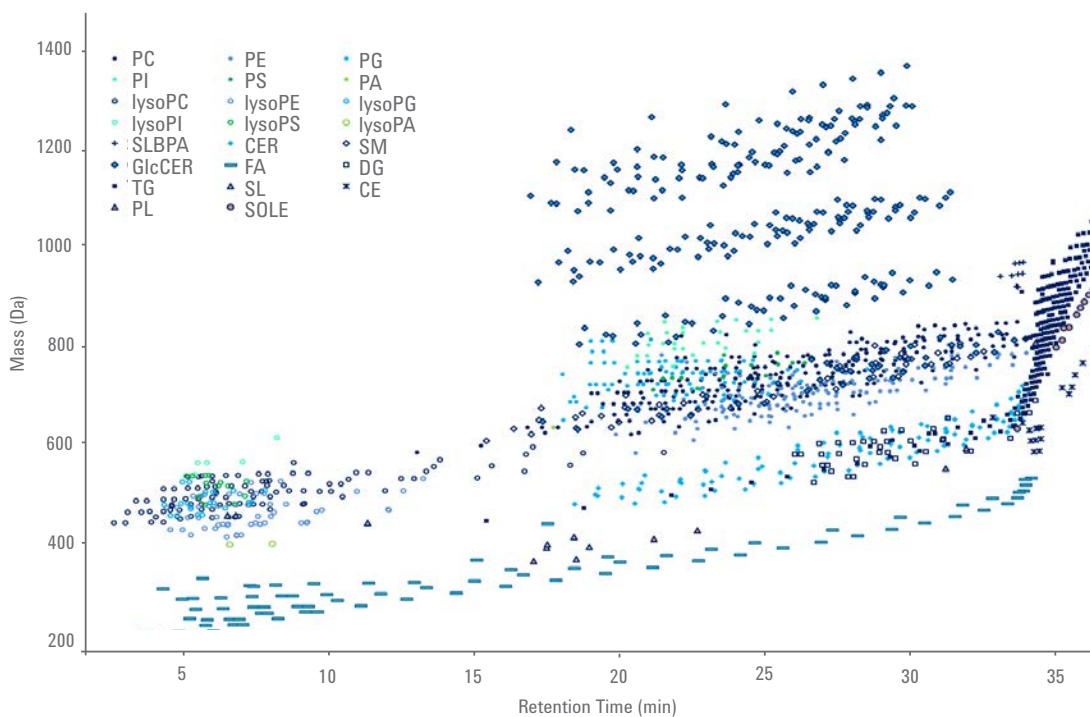
The measurement of lipids in a biological matrix to study their responses to diseases, drugs, genetic modifications, and other stimuli requires a Q-TOF system with outstanding resolution, mass accuracy, and sensitivity.

In this application, the 6545 Q-TOF and 1290 Infinity LC system are used

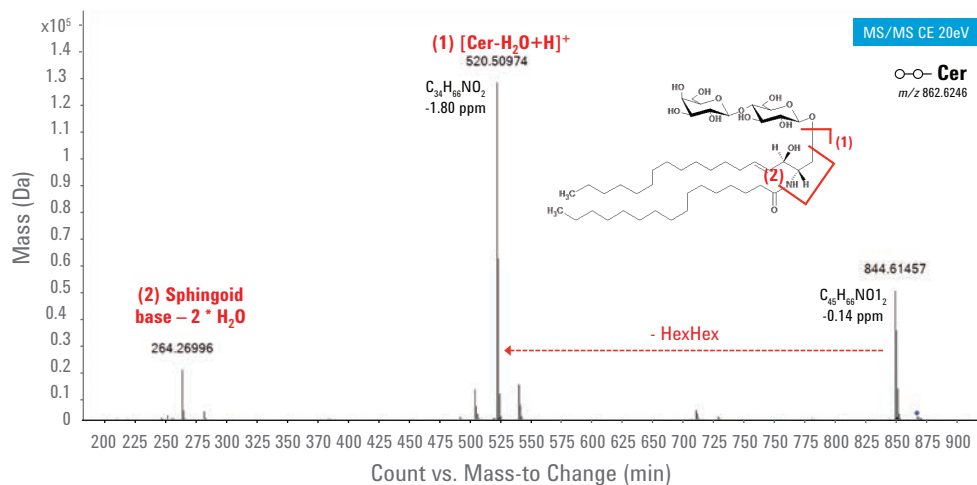
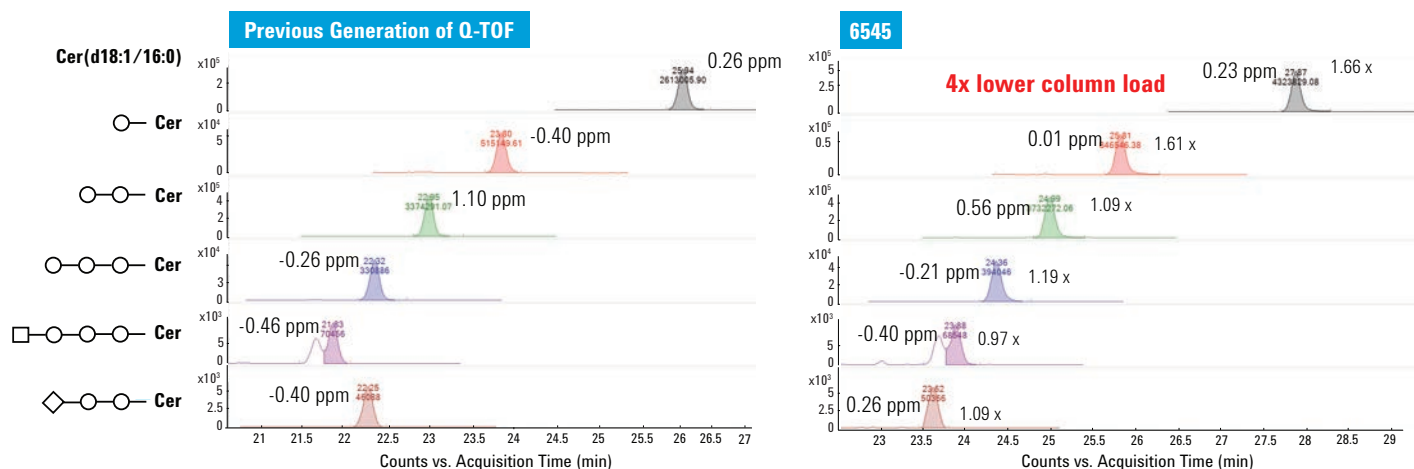
to analyze an induced sputum lipid extract from a donor with chronic obstructive pulmonary disease (COPD). The 6545 Q-TOF is tuned by novel Swarm Autotune for optimal performance in the  $m/z$  range of the lipids, and data acquired in both positive and negative ionization modes with reference mass correction.

## Substantial sensitivity gains for all lipid classes

More than 1,500 lipid species, including sphingolipids, phospholipids, glycerolipids, sterols and sterol esters, prenols and prenol esters, and fatty acids are identified. Some tobacco-specific lipids are revealed as well.



The 6545 Q-TOF enables the sensitive detection of lipids, structure confirmation and isomeric differentiation by MS/MS fragmentation. Here we see the sensitivity improvement of 6545 Q-TOF allows 4-fold less sample consumption while still maintaining the same signal strength and mass accuracy compared with previous generation of Q-TOF.



Here, we see excellent mass accuracy of MS/MS fragments, which enables the identification of the glycolipids structure.

The 6545 Q-TOF enables detection of thousands of lipids at high sensitivity with less precious biological material.

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