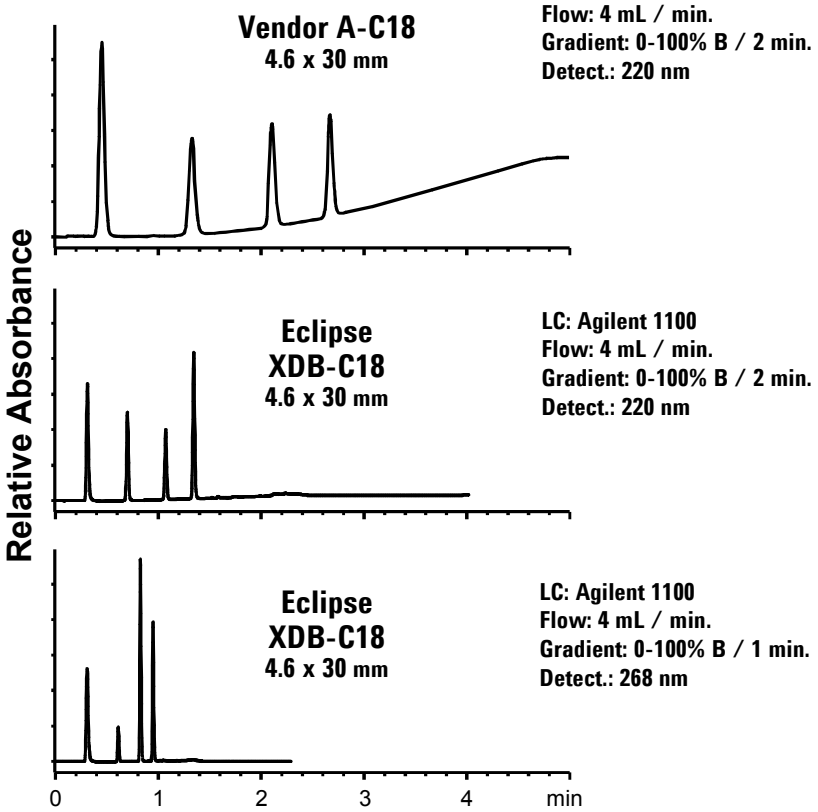
Optimized Column Configuration and Operating Parameters for High-Throughput Analyses

Application

Technical

Robert Ricker

Recent advances in chemistry and improvements in LC-MS have led to a need for ultra-rapid HPLC separations. The following chromatograms show optimization of a method in relation to optimal column, time for separation, mobile-phase re-equilibration, and drift in baseline.



Conditions:
Column: ZORBAX Eclipse XDB-C18, 3.5 µm, Agilent PN 931975-932
Mobile Phase: A: 10/90, MeOH / H2O + 0.2% H_3PO_4
B: 90/10, MeOH / H2O + 0.2% H_3PO_4
Inj. Vol.: 20 mM each compound, 5 µL; 23°C

Highlights

- *By switching to an Agilent ZORBAX Eclipse XDB-C18, the same conditions reduced run time from 3 min to just over 1 min. The baseline change was also improved by the Agilent 1100 detector.*
- *Reducing gradient time from 2 min to 1 min reduced run time to less than 1 min. Use of 268 nm further improved the baseline, for optimal peak quantitation.*
- *For optimal combinatorial and LC-MS studies, full gradients were run on these short columns, in 1 or 2 minutes.*
- *Time required for a re-equilibration with 5 column volumes on these short cartridge columns at 4 mL/min is only 22.5 seconds.*

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