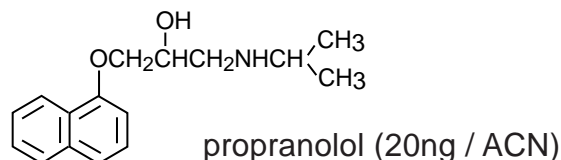
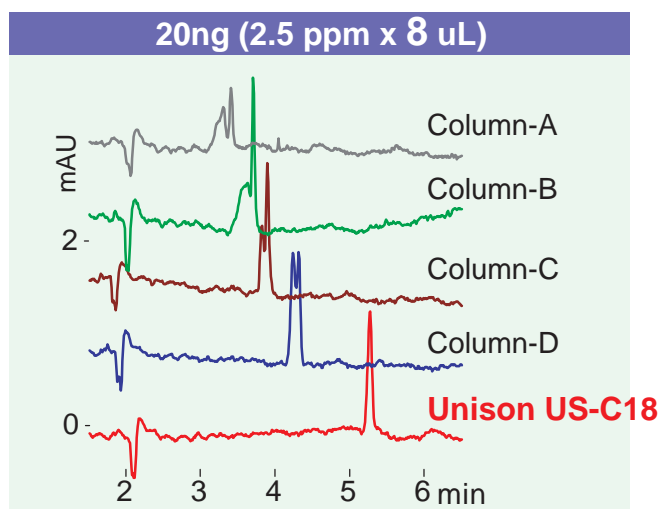


Unison US-C18

150 x 4.6 mm

Technical

The advantage of Unison US-C18 for high-sensitivity HPLC analysis

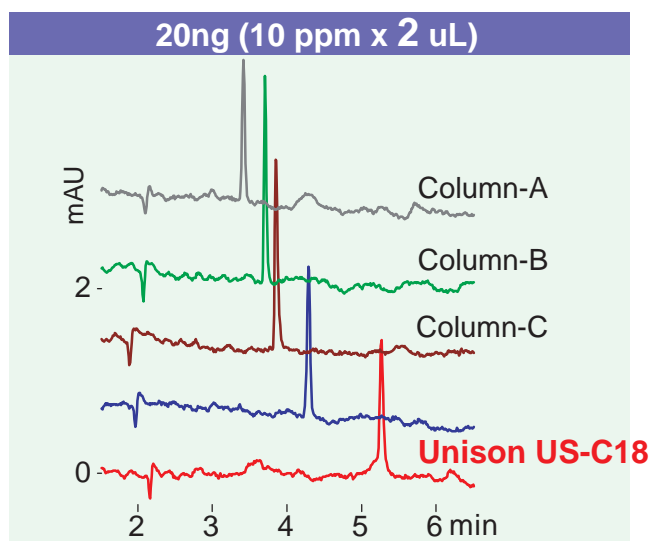
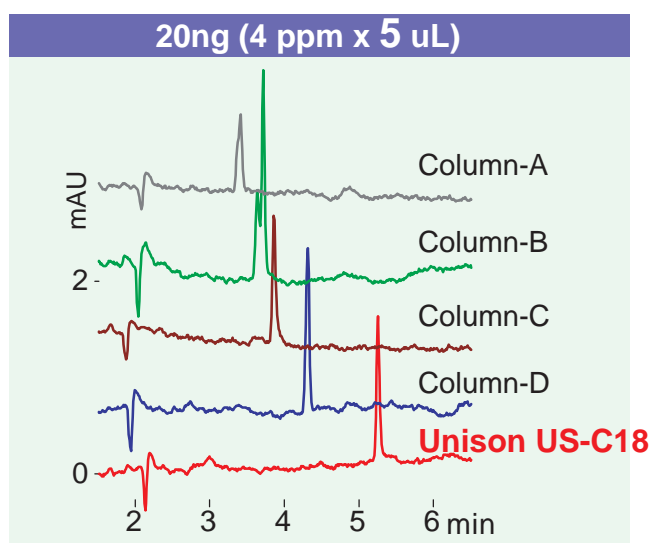


150 x 4.6 mm

A: water / formic acid = 100 / 0.1

B: acetonitrile / formic acid = 100 / 0.1  
20-80 %B (0-10min)

1 mL/min, 37 deg.C, 290 nm



Large injection volumes are required for trace analysis. ODS columns can be overloaded (resulting in peak splitting / loss in retention) when a large volume of a strong solvent (ACN) is injected into a weak eluent + ODS column. Reducing the injection volume minimizes this effect - but results in a loss in sensitivity.

In the figures shown, 20ng of solute is injected into various ODS columns from solutions of different concentrations. At the 10ppm level (2uL inj.) - all ODS columns showed acceptable peak shape. At the 2.5ppm level (8uL inj.) - retention was reduced for all experimental columns except Unison US-C18.

Retention and peak shape are affected by the surface chemistry of the packing material. This peak splitting / loss in retention, a result of solvent mismatch, seems to have the least affect on Unison US-C18. This important characteristic can be attributed to Imtakt's unique manufacturing process, utilizing a "polymeric end-capping structure."

In this study, Unison US-C18 was shown to offer a 4x increase in sensitivity than other manufacturer's columns. This same advantage (large injection volume capacity) was reported for Cadenza CD-C18 and Unison UK-C18 for LC-MS/MS analysis.

Ref) J. Watanabe et.al,ASMS(USA),2008