

# Cogent UDC-Cholesterol™

## Liquid Crystal

Cogent Phase	Particle Size (µm)	Pore Size (Å)	Surface Area (m <sup>2</sup> /g)	Carbon Load (%)	Endcapped	Optimum pH Range	Recommended Max. Temp. (°C)	USP Code
UDC-Cholesterol	4	100	390	13-14	No	2.0 – 8.0	80	L101
UDC-Cholesterol 2.6™	2.2	120	340	13-14	No	2.0 – 8.0	80	L101

For further details on 2.6 columns, please see page 25. For ordering information, see page 32.

The Cogent UDC-Cholesterol phase is bonded directly to the TYPE-C silica hydride surface with direct silicon-carbon bonds. These Si-C bonds make these columns hydrolytically stable. They produce unique selectivity for many compounds, especially at lower temperatures and can separate some compounds based on molecular shape. For this phase mobile phase composition and temperature are powerful tools for controlling and optimizing separations in Aqueous-Normal-Phase (ANP) and Reversed-Phase (RP) modes, since the cholesterol ligand can act as a liquid crystal and can change geometry.

In buffered aqueous/methanol these columns exhibit typical RP properties, but changing to buffered aqueous/acetonitrile additionally enables ANP and ONP selectivity mechanisms.

The Cogent UDC-Cholesterol phase is particularly useful for the separation of steroid hormones. Temperature can be used to affect the retention of these steroids, which generally decreases with increasing temperature. The separation selectivity may also change.

Figure 18.

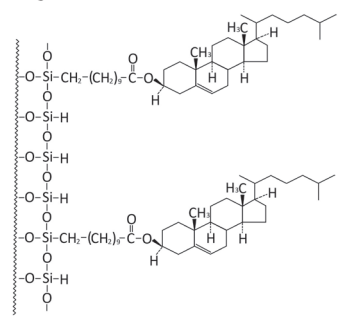


Figure 19.

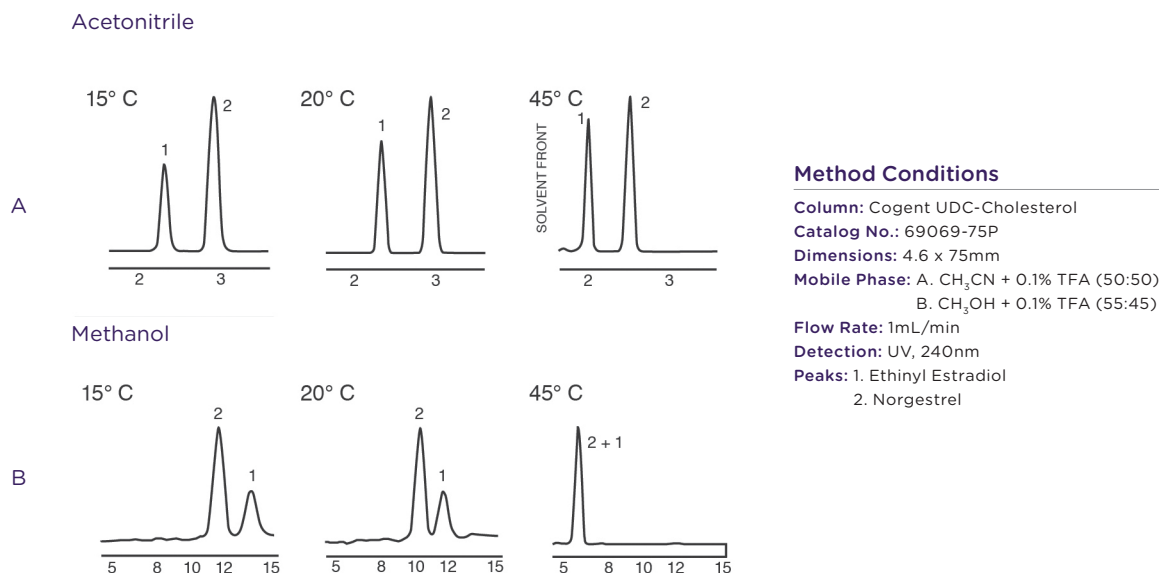


Figure 19 shows that when used with acetonitrile as organic modifier, Cogent UDC-Cholesterol produced similar results for the separation of the steroids ethinyl estradiol and norgestrel at the three different temperatures shown, with negligible effects on selectivity and retention. However, using methanol as modifier, relative retention times differ considerably at the three different temperatures and elution order is reversed. This indicates that when used with methanol, the fundamental selectivity mechanism is based on shape recognition.