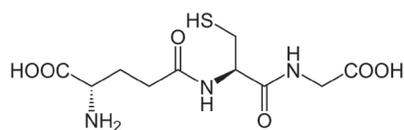
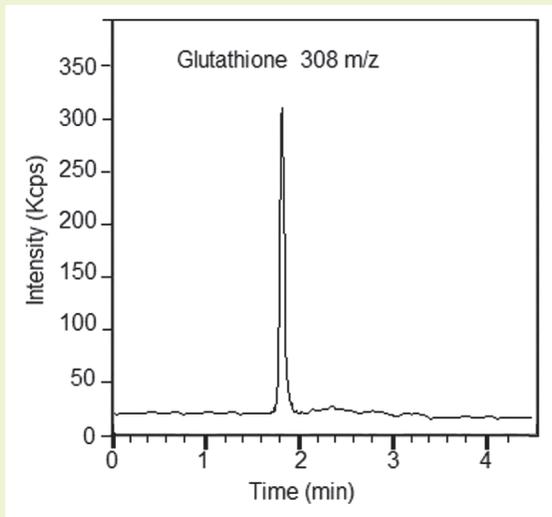


# Glutathione (GSH)

## LC-MS method without derivatization



Glutathione

**Note:** Glutathione (GSH, gamma-L-glutamyl-L-cysteinyl-glycine) is a non-protein thiol compound which plays important role in protecting cells against oxidative stress. Lower levels of glutathione were found in different diseases, like cardiovascular disease, cancers, and aging [3,3]. Under oxidative stress, GSH is converted into its oxidized form glutathione disulfide (GSSG). A lower level of GSH is an early indicator of disease risk.

### Method Conditions

**Column:** Cogent Diamond Hydride™, 2.2µm, 120Å

**Catalog No.:** 70200-05P-2

**Dimensions:** 2.1 x 50 mm

**Mobile Phase:** A: DI H<sub>2</sub>O / 0.1% formic acid (v/v)  
B: Acetonitrile / 0.1% formic acid (v/v)

Gradient:	time (min.)	%B
	0	85
	2	30
	4	30
	5	85

**Post Time:** 3 min

**Injection vol.:** 1µL

**Flow rate:** 0.3 mL/min

**Detection:** ESI - POS - PerkinElmer Flexar SQ 300 mass spectrometer

**Sample:** 1 ppm of glutathione in 50% acetonitrile / 50% DI H<sub>2</sub>O / 0.1% formic acid

**Peak:** 1. Glutathione 308 m/z

**t<sub>0</sub>:** 0.7 min

### Discussion

The major benefit of this analysis method for glutathione which uses the Cogent Diamond Hydride column and MS detection is that it is performed without derivatization, unlike other LC-MS approaches. A GSH signal of MS is stable after repeated analyses. The unique design of the ESI offers efficient supersoft ionization which helps to preserve the structure of the analyte. The Cogent Diamond Hydride column ensures low variability of the results.

The LC-MS method presented here is simple and fast. After validation, it could be applied to routine analysis of oxidative stress in clinical samples (blood or plasma).