

ANALYSIS OF THIOLS

Description: UPLC-Fluorescence (FLR) method for the sensitive detection and quantification of thiols. Detection limits depend on matrix type and input quantity. Samples are extracted using 0.1M HCl, semi-purified, derivatized using Monobromobimane and measured by UPLC-FLR.

Upon request reduced and oxidized Glutathione (GSH / GSSG) can be determined.

Analytes are reported as μM or pmol/mio cells or pmol/mg tissue.

Container: Eppendorf Tube or equivalent

Optimal Volume: Plasma / cell culture medium (100 μL); Tissue (25 mg)¹; Cells (1 mio).

Minimal Volume: Plasma / cell culture medium (25 μL); Tissue (10 mg)¹; Cells (0.5 mio).

Sample Collection: Please see our detailed sample collection protocols.

Quantification: Absolute, using external calibration.

Please note: For human material, note any known presence of infectious agents

List of reported compounds

Compound name	Identifier	Formula	Monoisotopic mass
Cysteine	HMDB0000574	$\text{C}_3\text{H}_7\text{NO}_2\text{S}$	121.020
Glutathione (total)	HMDB0000517	$\text{C}_{10}\text{H}_{17}\text{N}_3\text{O}_6\text{S}$	307.084
γ -Glutamylcysteine	HMDB0001049	$\text{C}_8\text{H}_{14}\text{N}_2\text{O}_5\text{S}$	250.062
Cysteinylglycine	HMDB0000078	$\text{C}_5\text{H}_{10}\text{N}_2\text{O}_3\text{S}$	178.041

LC conditions

Column	Waters BEH Shield RP 18 50 x 2.1mm
Temperature	42° C
Mobile phase A	100 mM K-Acetate, pH 5.3
Mobile phase B	ACN
Flow	0.85 ml/min

¹ Pulverized/crushed (deep-frozen) and exact weight noted

Notes

Samples need to be snap-frozen and stored at -80°C.

Variations in sampling procedures will affect metabolite measurements.

In the majority of sample types analyzed so far the concentrations of γ -Glutamylcysteine and Cysteinylglycine were below limit of detection.

¹ Pulverized/crushed (deep-frozen) and exact weight noted