Analytical Unit
Metabolomics & Bioanalysis

APPLICATION NOTE

BILE ACID PROFILING IN BIOLOGICAL SAMPLES

BILE ACIDS

Bile acids (BA) are a group of chemically-related cholesterol-derived acids recognized as regulatory molecules in cells in the liver and gastrointestinal tract, with profiles that can change in different physio-pathological situations.

BILE ACIDS PROFILING

Physiological concentrations of circulating BA in healthy subjects are low. Various conditions, including hepatobiliary and intestinal diseases or drug-induced liver injury can alter homeostasis and lead to increased BAs levels.

UPLC-MSMS ANALYSIS

An UPLC-MS/MS method able to detect 31 conjugated and non-conjugated BA in biological matrices (serum, plasma, cells and tissue) from human, rats and mouse has been developed and fully validated with LoQ ranging between 2,5-20 nM (1).

Determination of BA profiling is a valuable tool when searching for biomarkers and understanding liver or other tissue damage mechanisms

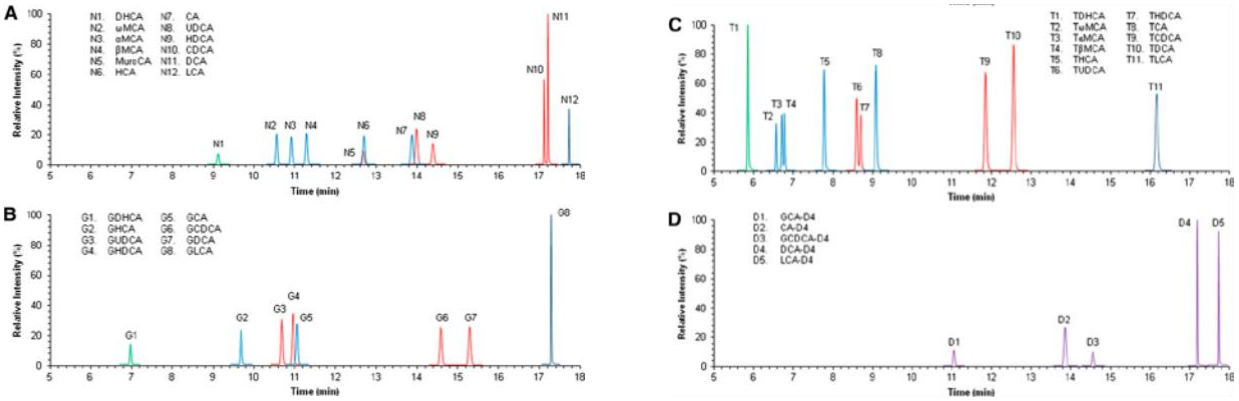

Figure. MRM chromatograms obtained from a standard mixed solution containing BA metabolites (1)

	Non-conjugated	Glycine-conjugated	Taurine-conjugated
3OH-CA	Cholic acid	Glycocholic acid	Taurocholic acid
	ω-Muricholic acid		Tauro-α-muricholic acid
	α-Muricholic acid		Tauro-α-muricholic acid
	β-Muricholic acid		Tauro-β-muricholic acid
	Hyocholic acid	Glycohyocholic acid	Taurohyocholic acid
2OH-CA	Chenodeoxycholic acid	Glycochenodeoxycholic acid	Taurochenodeoxycholic acid
	Deoxycholic acid	Glycodeoxycholic acid	Taurodeoxycholic acid
	Ursodeoxycholic acid	Glycoursodeoxycholic acid	Tauroursodeoxycholic acid
	Hyodeoxycholic acid	Glycohyodeoxycholic acid	Taurohyodeoxycholic acid
	Murocholic acid		
1 OH-CA	Lithocholic acid	Glycolithocholic acid	Taurolithocholic acid
3 O-CA	Dehydrocholic acid	Glycodehydrocholic acid	Taurodehydrocholic acid

REFERENCES

(1) J.C. García-Cañaveras, M.T. Donato, J.V. Castell and A. Lahoz (2012). Jounal Lipid Research, 53:2231-2241

Analytical Unit
Metabolomics & Bioanalysis
Instituto de Investigación Sanitaria La Fe

Instituto Investigación Sanitaria La Fe | Avda. Fernando Abril Martorell, 106 Torre A, Sótano, 46026 Valencia, Spain | www.iislafe.es
e-mail: analytical_unit@iislafe.es | Responsable: marta_roca@iislafe.es (+34 961 24 66 71 / Corp. 48 56 35) | Researcher: marina_lopez@iislafe.es (+34 961 24 66 72)