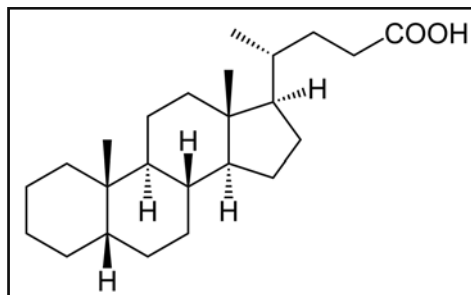


Assay Sheet: Biocrates Bile Acids Kit

Description:

This targeted metabolomics approach is based on reversed phase liquid chromatography-electrospray ionization tandem mass spectrometry measurements (LC-ESI-MS/MS) by Bile Acids Kit (biocrates life sciences ag).

The assay allows simultaneous quantification of 20 bile acids out of 10 μL plasma or similar volumes of other biological material or extracts, and includes cholic acid, chenodeoxycholic acid, deoxycholic acid, glycocholic acid, glycochenodeoxycholic acid, glycodeoxycholic acid, glycolithocholic acid, glyoursodeoxycholic acid, hyodeoxycholic acid, lithocholic acid, alpha-muricholic acid, beta-muricholic acid, omega-muricholic acid, taurocholic acid, taurochenodeoxycholic acid, taurodeoxycholic acid, tauroolithocholic acid, tauromuricholic acid (sum of alpha and beta), taurooursodeoxycholic acid, ursodeoxycholic acid. Compound identification and quantification are based on scheduled multiple reaction monitoring measurements (sMRM).



Sample handling is performed by a Hamilton Microlab STAR™ robot, beside standard laboratory equipment. Mass spectrometric analyses are done on a SCIEX API 4000 triple quadrupole system equipped with an Agilent 1260 Series HPLC and a CTC HTC-xc PAL auto sampler. Quantitative data evaluation and quality assessment are performed with the SCIEX software MultiQuant and the BIOCRATES MetIDQ™ software package. Metabolite concentrations are calculated using internal standards and reported in μM .

Each measurement batch additionally includes five aliquots of a pooled reference plasma as well as three aliquots of a spiked quality control sample. The results of these reference plasma and quality control samples can be used for calculation of potential batch effects and data normalization of different measurements.

Matrices:

- Plasma (min. 50 μl)
- Serum (min. 50 μl)
- Tissue (25-50 mg)
- Feces (25-50 mg)

Tissue types:

- Liver
- White Adipose Tissue

Species

- Human
- Mouse
- Rat
- Hamster
- Sheep
- Bovine
- Porcine

Selected References

McCreight LJ, Stage TB, Connelly P, Lonergan M, Nielsen F, Prehn C, Adamski J, Brosen K, Pearson ER (2018) Pharmacokinetics of metformin in patients with gastrointestinal intolerance. *Diabetes Obes Metab* 20: 1593-1601

Pham HT, Arnhard K, Asad YJ, Deng L, Felder TK, St. John-Williams L, Kaefer V, Leadley M, Mitro N, Muccio S, Prehn C, Rauh M, Rolle-Kampczyk U, Thompson JW, Uhl O, Ulaszewska M, Vogeser M, Wishart DS, Koal T (2016) Inter-Laboratory Robustness of Next-Generation Bile Acid Study in Mice and Humans: International Ring Trial Involving 12 Laboratories. *The Journal of Applied Laboratory Medicine: An AACC Publication*: 129-142

Metabolite Overview:

Metabolite Class	Acronym	Number of Metabolites
Bile Acids	BA	20

Detailed List of Metabolites:

Abbrev.	Name	Metabolite Class	Formula	ChEBI
CA	Cholic acid	Bile Acid	C ₂₄ H ₄₀ O ₅	CHEBI:16359
CDCA	Chenodeoxycholic acid	Bile Acid	C ₂₄ H ₄₀ O ₄	CHEBI:16755
DCA	Deoxycholic acid	Bile Acid	C ₂₄ H ₄₀ O ₄	CHEBI:28834
GCA	Glycocholic acid	Bile Acid	C ₂₆ H ₄₃ NO ₆	CHEBI:17687
GCDCA	Glycochenodeoxycholic acid	Bile Acid	C ₂₆ H ₄₃ NO ₅	CHEBI:36274
GDCA	Glycodeoxycholic acid	Bile Acid	C ₂₆ H ₄₃ NO ₅	CHEBI:27471
GLCA	Glycolithocholic acid	Bile Acid	C ₂₆ H ₄₃ NO ₄	CHEBI:37998
GUDCA	Glycoursodeoxycholic acid	Bile Acid	C ₂₆ H ₄₃ NO ₅	CHEBI:89929
HDCA	Hyodeoxycholic acid	Bile Acid	C ₂₄ H ₄₀ O ₄	CHEBI:52023
LCA	Lithocholic acid	Bile Acid	C ₂₄ H ₄₀ O ₃	CHEBI:16325
MCA(a)	Alpha-Muricholic acid	Bile Acid	C ₂₄ H ₄₀ O ₅	CHEBI:81243
MCA(b)	Beta-Muricholic acid	Bile Acid	C ₂₄ H ₄₀ O ₅	CHEBI:81298
MCA(o)	Omega-Muricholic acid	Bile Acid	C ₂₄ H ₄₀ O ₅	CHEBI:81299
TCA	Taurocholic acid	Bile Acid	C ₂₆ H ₄₅ NO ₇ S	CHEBI:28865
TCDCA	Taurochenodeoxycholic acid	Bile Acid	C ₂₆ H ₄₅ NO ₆ S	CHEBI:16525
TDCA	Taurodeoxycholic acid	Bile Acid	C ₂₆ H ₄₅ NO ₆ S	CHEBI:9410
TLCA	Taurolithocholic acid	Bile Acid	C ₂₆ H ₄₅ NO ₅ S	CHEBI:36259
TMCA (a+b)	Tauromuricholic acid (sum of alpha and beta)	Bile Acid	C ₂₆ H ₄₅ NO ₇ S	alpha: CHEBI:139136 beta: CHEBI:133057
TUDCA	Tauroursodeoxycholic acid	Bile Acid	C ₂₆ H ₄₅ NO ₆ S	CHEBI:80774
UDCA	Ursodeoxycholic acid	Bile Acid	C ₂₄ H ₄₀ O ₄	CHEBI:9907