
Review

Mitochondrial Fatty Acid β -Oxidation Disorders: From Disease to Lipidomics Studies - A Critical Review

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Supplementary Material

Supplementary Table S1: Additional information of the published studies on lipidomics in FAOD.

Analytical Method	Lipid Extraction Method	Type of Sample	Type of FAOD	Number of patients	Age Range	Reference
GC-MS Methylation of nonesterified FA(acetyl chloride/metanol 50:1 (v/v))	No extraction step	Plasma	MCADD	6	INF	Martínez et al. [1]
			LCHADD	3	INF	
			VLCADD	4	INF	
GC-MS simultaneous trifluoroacetylation (TFA) of hydroxyl groups and tert-butyldimethylsilylation (tBDMS) of the carboxyl groups	ethyl acetate	Plasma	LCHADD/MTP	5/1	INF	Costa et al. [2]
			VLCADD	2	INF	
			MCADD	1	INF	
			CPT-I/CPT-II	1/1	INF	
GC-FID FAMES (methanol/benzene 4:1 (v/v) and acetyl chloride, 100°C, 1h)	Chloroform/Methanol (2:1, V/V)	Post mortem liver tissue	MCADD	1 (F)	2.2 yr	Onkenhout et al. [3]
		Post mortem liver and muscle tissue	VLCADD	2 (M)	2 mth	

GC-FID FAMES (methanol/benzene 4:1 (v/v) and acetyl chloride, 80°C, 4h)	No extraction step	Plasma	LCHADD	9	3.5-10.6 yr	Lund et al. [4]
		RBC				
GC-MS Methylation of nonesterified FA (acetyl chloride/methanol 50:1 (v/v))	Acetyl chloride + 6% potassium carbonate + hexane	DBS	MCADD	2	INF	Kimura et al. [5]
			VLACDD	4	INF	
LSI-MS	INF	Plasma	LCHADD	23 (9M+14F)	INF	van Hove et al. [6]
		DBS				
Triple Quadupole-MS/MS	Hexane	Human skin fibroblasts	LCHADD	5	INF	Shen et al. [7]
ESI-MS/MS	Acetonitrile/water (80/20, v/v)	DBS from VLCAD ^{-/-} mice	VLCAD	M and F	6 mth	Tucci et al. [8]
GC-MS FAMES (trimethylsulfonium hydroxide)	Chloroform/Methanol (1:2, V/V)	Hepatic and cardiac tissue from VLCAD ^{-/-} mice	VLCADD	INF	5-7 w	Tucci et al. [9]
UHLC-MS/MS base Metabolomics	INF	Plasma	VLCADD	8	INF	Sklirou et al. [10]

Shotgun lipidomics ESI-Qexactive-MS and MS/MS	Chloroform/Methanol (17:1, V/V)	Murine fibroblasts from WT and VLCAD ^{-/-} mice	VLCADD	M and F	9-10 w	Alatibi et al. [11]
Shotgun lipidomics ESI-Qexactive-MS and MS/MS	Chloroform/Methanol (17:1, V/V)	Human fibroblast	VLCADD	6 (3M+3F)	INF	Alatibi et al. [12]
			LCHADD	3(2M+1F)	INF	
			CPT-II	2(1M+1F)	INF	
Shotgun lipidomics ESI-Qexactive-MS and MS/MS	Chloroform/Methanol (17:1, V/V)	Human fibroblast	VLCADD	6 (3M+3F)	INF	Alatibi et al. [13]
			LCHADD	3(2M+1F)	INF	
CSH-ESI QTOF MS/MS	MTBE	Plasma	LCHADD and CPT-II	12 (7M+5F)	14.7 yr	McCoin et al. [14]
LC-MS based untarget metabolomics using amino-propyl column	methanol/water	DBS	MCADD	8	INF	Najderkr et al. [15]

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