HUMAN HEALTH

ENVIRONMENTAL HEALTH

MSMS Maintenance Solution and AAAC Multilevel DBS

The PerkinElmer MSMS Maintenance Solution and Multilevel DBS products are designed to verify and optimize instrument performance, both on a routine basis and after instrument service or repairs.

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For the Better

MSMS Maintenance Solution

The MSMS Maintenance Solution contains both amino acid (AA) and acylcarnitine (AC) analytes (Table 1) and their equivalent stable isotope labeled analogues in approximately 1:1 equimolar ratios. This solution can be used to determine total ion chromatogram (TIC) shape and peak intensity ratios between non-labeled and stable isotope labeled analytes, to assess general instrument performance on a regular basis. The product is for maintenance use only.

Package contents

Component	Quantity
MSMS Maintenance Solution	1 vial, dry

Reconstitute the vial with 1.0 mL of 80:20 mixture of LC-MS grade methanol and water.

Table 1. Analytes and internal standard analogues contained in MSMS Maintenance Solution

ANALYTE	ABBREVIATION	ABBREVIATION
AMINO ACIDS		
Alanine	Ala	$^{2}H_{4}$-Alanine
Arginine	Arg	$^{2}H_{4}$,^{13}C-Arginine
Citrulline	Cit	$^{2}H_{2}$-Citrulline
Glycine	Gly	^{15}N,2-^{13}C-Glycine
Leucine	Leu	$^{2}H_{3}$-Leucine
Methionine	Met	$^{2}H_{3}$-Methionine
Ornithine	Orn	$^{2}H_{2}$-Ornithine
		$^{2}H_{6}$-Ornithine
Phenylalanine	Phe	$^{2}H_{5}$-Phenylalanine
		$^{13}C_{6}$-Phenylalanine
Proline	Pro	$^{13}C_{5}$-Proline
Tyrosine	Tyr	$^{13}C_{6}$-Tyrosine
Valine	Val	$^{2}H_{8}$-Valine
3-(5-methyl-1H-pyrazol-3-yl) propanoic acid	MPP	$^{13}C_{5}$-3-(5-methyl-1H-pyrazol-3-yl)propanoic acid
(ACYL)CARNITINES		
Free carnitine	C0	$^{2}H_{9}$-Free carnitine
Acetylcarnitine	C2	$^{2}H_{3}$-Acetylcarnitine
Propionylcarnitine	C3	$^{2}H_{3}$-Propionylcarnitine
Butyrylcarnitine	C4	$^{2}H_{3}$-Butyrylcarnitine
Isovalerylcarnitine	C5	$^{2}H_{9}$-Isovalerylcarnitine
Glutarylc arnitine	C5DC	$^{2}H_{6}$-Glutarylcarnitine
Hexanoylcarnitine	C6	$^{2}H_{3}$-Hexanoylcarnitine
Octanoylcarnitine	C8	$^{2}H_{3}$-Octanoylcarnitine
Decanoylcarnitine	C10	$^{2}H_{3}$-Decanoylcarnitine
Dodecanoylcarnitine	C12	$^{2}H_{3}$-Dodecanoylcarnitine
Tetradecanoylcarnitine (Myristoylcarnitine)	C14	$^{2}H_{3}$-Tetradecanoylcarnitine
Hexadecanoylcarnitine (Palmitoylcarnitine)	C16	$^{2}H_{3}$-Hexadecanoylcarnitine
Octadecanoylcarnitine (Stearoylcarnitine)	C18	$^{2}H_{3}$-Octadecanoylcarnitine

AAAC Multilevel DBS

The AAAC Multilevel DBS contains two filter paper casettes, each containing six-levels of amino acid (AA) and acylcarnitine (AC) analytes (Table 2 and Table 3). AAAC Multilevel DBS specimens can be used to monitor method precision, accuracy, linear dynamic range and determine the performance variation between different instruments.

The AAAC Multilevel DBS is prepared in whole human blood. The hemoglobin concentration is approximately 170 g/L prior to dispensing onto filter paper, and hematocrit level approximately 50–55%. The product is for maintenance use only.

Package contents

Component	Quantity
AAAC Multilevel Dried Blood Spots 6 levels of concentration	2 filter paper cassettes containing 1 spot for each concentration level per cassette

Table 2. Analyte enrichment levels and their linear relative dilution ratios (the highest enrichment level 6 is indicated as 1)

LEVEL	DILUTION RATIO FROM LEVEL 6
1	Non/enriched endogenous level
2	1:16
3	1:8
4	1:4
5	1:2
6	1

Table 3. Analytes enriched in the AAAC Multilevel DBS and approximate gravimetric target values of the enriched levels (µmol/L)

ANALYTE NAME	ABREVIATIONS	L6	L5	L4	L3	L2	L1
AMINO ACIDS							
Alanine	Ala	2857	1429	714	357	179	0
Arginine	Arg	1424	712	356	178	89	0
Citrulline	Cit	1038	519	259	130	65	0
Glycine	Gly	2422	1211	605	303	151	0
Leucine	Leu	1109	554	277	139	69	0
Methionine	Met	548	274	137	69	34	0
Ornithine	Orn	1510	755	377	189	94	0
Phenylalanine	Phe	1101	550	275	138	69	0
Proline	Pro	1579	790	395	197	99	0
Tyrosine	Tyr	1706	853	426	213	107	0
Valine	Val	1086	543	272	136	68	0
KETONES							
Succinylacetone	SA	63	32	16	7.9	4.0	0
(ACYL) CARNITINES							
Free carnitine	C0	1265	632	316	158	79	0
Acetylcarnitine	C2	355	177	89	44	22	0
Propionylcarnitine	C3	44	22	11	5.5	2.8	0
Butyrylcarnitine	C4	23	12	5.8	2.9	1.5	0
Isovalerylcarnitine	C5	18	8.9	4.4	2.2	1.1	0
Glutarylcarnitine	C5DC	48	24	12	6.0	3.0	0
Hexanoylcarnitine	C6	25	13	6.3	3.2	1.6	0
Octanoylcarnitine	C8	19	10	4.8	2.4	1.2	0
Decanoylcarnitine	C10	21	11	5.3	2.7	1.3	0
Dodecanoylcarnitine	C12	23	12	5.8	2.9	1.4	0
Tetradecanoylcarnitine (Myristoylcarnitine)	C14	21	11	5.4	2.7	1.3	0
Hexadecanoylcarnitine (Palmitoylcarnitine)	C16	63	32	16	7.9	3.9	0
Octadecanoylcarnitine (Stearoylcarnitine)	C18	43	22	11	5.4	2.7	0

ORDERING INFORMATION

4145-0010	MSMS Maintenance Solution
4146-0010	AAAC Multilevel DBS

Products are not available in the USA. Please check availability from your local PerkinElmer representative.

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