



## Organic Acid in Urine LC-MS/MS Analysis Kit

Human urine is a complex biofluid of diverse small polar metabolites such as organic acids. Organic acidurias are inborn errors of metabolism given rise to by defections of inherited enzymes which lead to accumulation excess amounts of normal organic acids in human urine. For this reason qualitative and quantitative analyses of urinary organic acids are prominent diagnostic tools for the interpretation of metabolite profile that reflects inherited metabolic disorders. “Jasem-Organic Acids” method overcomes abovementioned drawbacks by using liquid chromatography tandem mass spectrometry (LC-MS/MS). Jasem method ensures quantification of 54 organic acids by absence of derivatization simplified sample preparation to diluting. Jasem offers two panels achieving sufficient chromatographic separation for crucial isomers by LC-MS/MS.

### Highlights of the Analysis Kit

---



12 min. run for each panel (Total analysis time 24 minutes-Panel 1&2)



Analysis of 54 organic acids without derivatization



Quick and easy sample preparation; just dilution



Successful chromatographic separation of isomers



Consuming small volume of patient's sample

## Parameters

2-Methyl citrate, 2-OH-Phenylacetic acid, 2-OH-Butyric acid, 2-Oxadipic acid, 3-Methylglutaconic acid, 3-OH-2-Methylbutanoic acid, 3-OH-3-Methylglutaric acid, 3-OH-Butyric acid, 3-OH-Isobutyrate, 3-Phenyllactic acid, 4-OH-Phenylacetic acid, Fumaric acid, Glycolic acid, Hexanoylglycine, Homogentisic acid, Malic acid, Malonic acid, N-(3-phenyl propionyl) glycine, N-Acetylaspartic acid, N-Acetyltyrosine, N-isovaleryl glycine, Oxoproline, 4-OH-Phenyl lactic acid, Propionylglycine, Sebacic acid, Suberic acid, Suberylglycine, Succinylacetone, 2-OH-Glutaric acid, 2-OH-3-Methylpentanoic acid, 2-OH-Isocaproic acid, 2-OH-Isovaleric acid, 3-OH-Glutaric acid, 3-OH-Propanoic acid, 3-Methylcrotonyl glycine, 3-Methylglutaric acid, 3-Methyl-2-oxovaleric acid, 3-OH-Isovaleric acid, 3-OH-pentanoic acid, 4-Methyl-2-oxovaleric acid, 4-OH-Phenylpyruvic acid, Adipic acid, Alpha-Ketoglutaric acid, Citric acid, Ethylmalonic acid, Glutaconic acid, Glutaric acid, Lactic acid, Methylmalonic acid, Orotic acid, Phenylpyruvic acid, Pyruvic acid, Succinic acid, Tiglylglycine

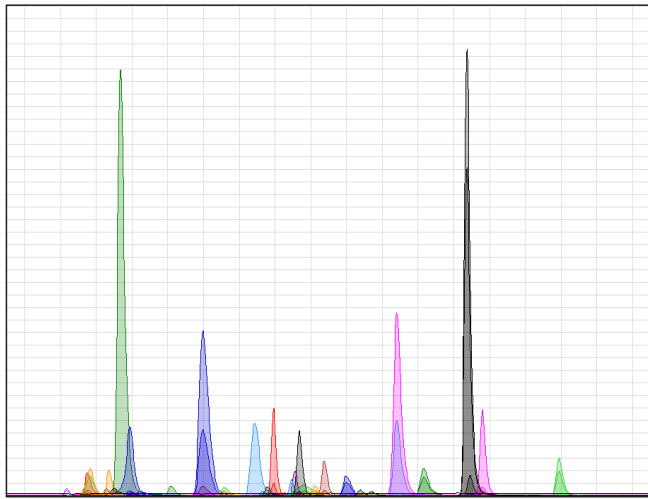
## Sample Type

Urine

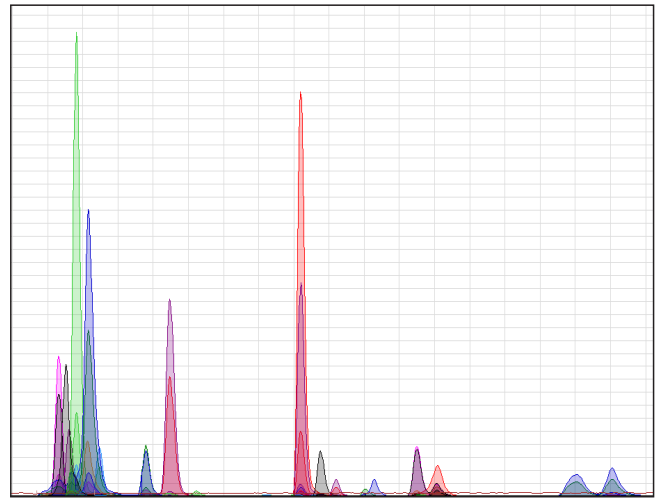
## Sample Preparation

1	Dilute urine sample 5 times using Reagent-1
2	Transfer 50 µl of diluted urine sample to a vial
3	Add 25 µl of IS mix and 425 µl of Reagent-1 into the sample and inject to LC-MS/MS system

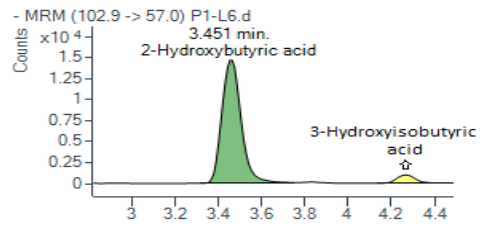
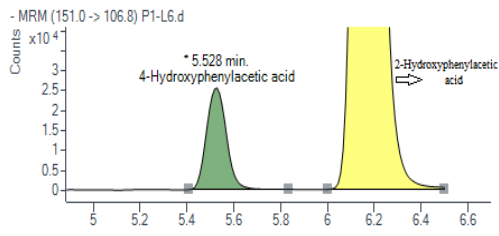
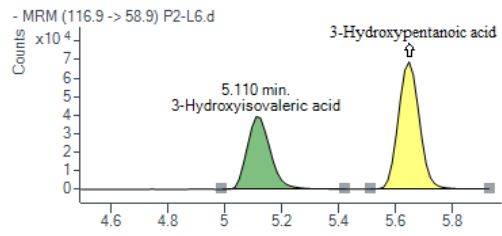
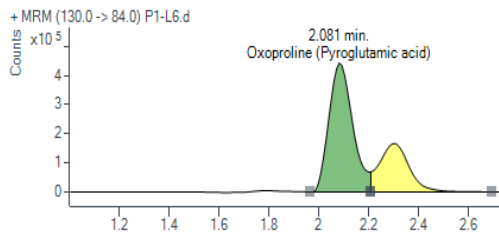
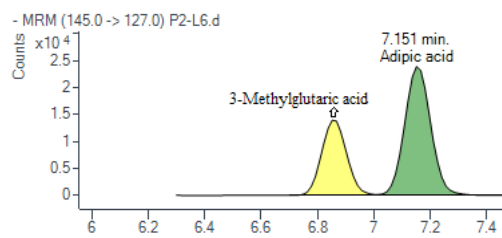
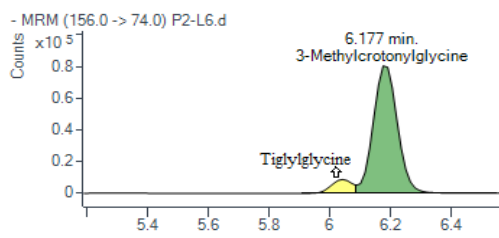
### Example Chromatogram



Extracted ion chromatogram of Panel-1



Extracted ion chromatogram of Panel-2



## Method Performance

Compounds	LOQ (mg/L) 6460 QQQ	LOQ (mg/L) Ultivo	Linearity R <sup>2</sup> 6460 QQQ	Recovery % 6460 QQQ	Repeatability RSD (%) 6460 QQQ
Alpha-Ketoglutaric acid	0,61	1,65	0,9979	118	1,74
2-Methyl citrate	0,72	1,22	0,9969	95,7	16,03
2-OH-3-Methylpentanoic acid	0,08	0,12	0,9986	104,2	6,98
2-OH-Butyric acid	0,06	0,28	0,9987	120	4,97
2-OH-Glutaric acid	0,37	0,84	0,9992	106,6	1,97
2-OH-Isocaproic acid	0,07	0,22	0,9992	108,4	5,66
2-OH-Isovaleric acid	0,07	0,06	0,9976	90,7	2,59
2-OH-Phenylacetic acid	0,07	0,06	0,9994	105,8	1,59
2-Oxoadipic acid	0,06	0,89	0,9983	111,8	7,78
3-Methyl -2-oxovaleric acid	0,13	1,88	0,9953	91,7	6,13
3-Methylcrotonylglycine	0,1	0,13	0,9998	96,9	2,99
3-Methylglutaconic acid	0,05	0,03	0,9987	104,2	2,8
3-Methylglutaric acid	0,08	0,04	0,999	87,1	3,38
3-OH-2-Methylbutanoic acid	0,09	0,51	0,9856	99,4	13,27
3-OH-3-Methylglutaric acid	0,18	0,99	0,9994	82,5	1,85
3-OH-Butyric acid	0,26	0,09	0,9991	113,5	8,84
3-OH-Glutaric acid	0,05	0,21	0,9996	115	2,7
3-OH-Isobutyrate	0,55	0,45	0,9994	94,4	1,74
3-OH-Isovaleric acid	0,11	0,16	0,9983	101,8	3,24
3-OH-Pentanoic acid	0,16	0,12	0,9996	94,14	6,95
3-OH-Propanoic acid	1,49	2,51	0,9983	88,4	4,55
3-Phenyllactic acid	0,06	0,07	0,999	115,9	6,34
4-Methyl-2-oxovaleric acid	0,15	1,92	0,9999	111,3	6,46
4-OH-Phenyl lactic acid	0,08	0,08	0,9968	77,3	10,34
4-OH-Phenylacetic acid	1,4	1,67	0,9997	110,1	2,01
4-OH-Phenylpyruvic acid	0,39	2,19	0,9977	115,8	6,03
Adipic acid	0,08	0,14	0,9993	100,2	6,01
Citric acid	0,39	1,91	0,9957	101,5	8,85
Ethylmalonic acid	0,05	0,2	0,9984	86,4	1,98
Fumaric acid	0,06	0,49	0,999	75,9	10,75
Glutaconic acid	0,2	0,5	0,9992	101,8	11,58
Glutaric acid	0,23	0,51	0,9999	93,6	2,45
Glycolic acid	0,72	5,51	0,9977	101,6	11,9
Hexanoylglycine	0,09	0,09	0,9985	116,5	3,08
Homogentisic acid	0,04	0,02	0,9993	78,7	3,19
Lactic acid	3,54	3,32	0,9997	106,4	10,8
Malic acid	0,06	0,18	0,9952	115	4,04
Malonic acid	0,07	0,36	0,9996	115	6,15
Methylmalonic acid	0,34	0,41	0,9998	87,6	3,27
N-(3-phenyl propionyl)glycine	0,05	0,07	0,9984	106,4	2,03
N-Acetylaspartic acid	0,1	0,1	0,9994	119	5,89
N-acetyltyrosine	0,13	0,06	0,9995	86,3	6,03
N-isovalerylglycine	0,07	0,11	0,9997	96	2,61
Orotic acid	0,04	0,82	0,9991	73,1	2,36
Oxoproline	0,05	0,07	0,9984	79,5	3,72
Phenylpyruvic acid	0,1	0,09	0,9995	98,3	6,3
Propionylglycine	0,18	0,15	0,9995	100,3	3,51
Pyruvic acid	0,22	4,98	0,9965	119	17,09
Sebacic acid	0,07	0,12	0,9998	94,5	2,4
Suberic acid	0,08	0,11	0,9993	94,9	1,99
Suberylglycine	0,13	0,09	0,9998	111,8	3,14
Succinic acid	0,1	0,11	0,9996	92,9	3,25
Succinylacetone	0,05	0,06	0,9999	102,9	4,24
Tiglylglycine	0,05	0,16	0,9999	93,5	4,74



**Altium International Laboratuvar Cihazları A.Ş.**

Barbaros Mah. Temmuz Sk. No:6 Altium Plaza Ataşehir, İstanbul  
T: +90 216 571 02 00 F: +90 216 571 02 02

www.jasem.com.tr