

Client: Example Client ABC123
123 Test Drive
Salt Lake City, UT 84108
UNITED STATES

Physician: Doctor, Example

Patient: Patient, ExampleDOB: 4/16/2018
Gender: Unknown
Patient Identifiers: 01234567890ABCD, 012345
Visit Number (FIN): 01234567890ABCD
Collection Date: 00/00/0000 00:00**Autism and Intellectual Disability Metabolic Panel**

ARUP test code 2014312

Creatinine, Urine	57 mg/dL	
Alpha-amino butyric acid, Plasma	29 umol/L	(Ref Interval: <=40)
Alanine, Plasma	425 umol/L	(Ref Interval: 160-530)
Allo-isoleucine, Plasma	<2 umol/L	(Ref Interval: <=5)
Alpha-aminoadipic acid, Plasma	<2 umol/L	(Ref Interval: <=4)
Anserine, Plasma	<5 umol/L	(Ref Interval: <=5)
Arginine, Plasma	89 umol/L	(Ref Interval: 35-125)
Argininosuccinic Acid, Plasma	<2 umol/L	(Ref Interval: <=2)
Asparagine, Plasma	24 umol/L	(Ref Interval: 20-80)
Aspartic Acid, Plasma	<5 umol/L	(Ref Interval: <=15)
Beta-amino isobutyric acid, Plasma	<5 umol/L	(Ref Interval: <=10)
Beta-alanine, Plasma	<25 umol/L	(Ref Interval: <=25)

H=High, L=Low, *=Abnormal, C=Critical

Citrulline, Plasma	27 umol/L	(Ref Interval: 10-45)
Cystathionine, Plasma	<5 umol/L	(Ref Interval: <=5)
Cystine, Plasma	37 umol/L	(Ref Interval: 10-65)
Ethanolamine, Plasma	<5 umol/L	(Ref Interval: <=15)
Gamma-amino butyric acid, Plasma	<5 umol/L	(Ref Interval: <=5)
Glutamic Acid, Plasma	95 umol/L	(Ref Interval: 15-130)
Glutamine, Plasma	573 umol/L	(Ref Interval: 380-680)
Glycine, Plasma	271 umol/L	(Ref Interval: 140-420)
Histidine, Plasma	94 umol/L	(Ref Interval: 50-130)
Homocitrulline, Plasma	<5 umol/L	(Ref Interval: <=5)
Homocystine, Plasma	<2 umol/L	(Ref Interval: <=2)
Hydroxylysine, Plasma	<5 umol/L	(Ref Interval: <=5)
Hydroxyproline, Plasma	13 umol/L	(Ref Interval: 5-40)
Isoleucine, Plasma	85 umol/L	(Ref Interval: 30-120)
Leucine, Plasma	154 umol/L	(Ref Interval: 60-180)
Lysine, Plasma	124 umol/L	(Ref Interval: 85-230)

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Methionine, Plasma	33 umol/L	(Ref Interval: 15-40)
Ornithine, Plasma	76 umol/L	(Ref Interval: 25-110)
Phenylalanine, Plasma	36 umol/L	(Ref Interval: 30-82)
Proline, Plasma	99 umol/L	(Ref Interval: 90-350)
Sarcosine, Plasma	<5 umol/L	(Ref Interval: <=5)
Serine, Plasma	105 umol/L	(Ref Interval: 60-170)
Taurine, Plasma	62 umol/L	(Ref Interval: 30-130)
Threonine, Plasma	95 umol/L	(Ref Interval: 60-190)
Tryptophan, Plasma	58 umol/L	(Ref Interval: 25-80)
Tyrosine, Plasma	42 umol/L	(Ref Interval: 35-110)
Valine, Plasma	225 umol/L	(Ref Interval: 120-320)
C2, Acetyl	6.91 umol/L	(Ref Interval: 3.69-24.71)
C3, Propionyl	0.37 umol/L	(Ref Interval: 0.00-0.97)
C4, Iso-/Butyryl	0.12 umol/L	(Ref Interval: 0.00-0.50)
C5, Isovaleryl/2Mebutyryl	0.12 umol/L	(Ref Interval: 0.00-0.28)
C5-DC, Glutaryl	0.03 umol/L	(Ref Interval: 0.00-0.07)

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C5-OH, 3-OH Isovaleryl	0.05 umol/L	(Ref Interval: 0.00-0.07)
C6, Hexanoyl	0.04 umol/L	(Ref Interval: 0.00-0.12)
C8, Octanoyl	0.07 umol/L	(Ref Interval: 0.00-0.23)
C8:1, Octenoyl	0.03 umol/L	(Ref Interval: 0.00-0.63)
C10, Decanoyl	0.04 umol/L	(Ref Interval: 0.00-0.35)
C10:1, Decenoyl	0.03 umol/L	(Ref Interval: 0.00-0.41)
C12, Dodecanoyl	0.04 umol/L	(Ref Interval: 0.00-0.12)
C12:1, Dodecenoyl	0.02 umol/L	(Ref Interval: 0.00-0.16)
C12-OH, 3-OH-Dodecanoyl	0.01 umol/L	(Ref Interval: 0.00-0.02)
C14, Tetradecanoyl	0.03 umol/L	(Ref Interval: 0.00-0.07)
C14:1, Tetradecenoyl	0.03 umol/L	(Ref Interval: 0.00-0.23)
C14:2, Tetradecadienoyl	0.02 umol/L	(Ref Interval: 0.00-0.12)
C14-OH, 3-OH-Tetradecanoyl	0.00 umol/L	(Ref Interval: 0.00-0.02)
C14:1-OH, 3-OH-Tetradecenoyl	0.00 umol/L	(Ref Interval: 0.00-0.03)
C16, Palmitoyl	0.09 umol/L	(Ref Interval: 0.00-0.10)
C16:1, Palmitoleyl	0.02 umol/L	(Ref Interval: 0.00-0.05)

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C16-OH, 3-OH-Palmitoyl	0.00 umol/L	(Ref Interval: 0.00-0.01)
C16:1-OH, 3-OH-Palmitoleyl	0.00 umol/L	(Ref Interval: 0.00-0.01)
C18, Stearoyl	0.03 umol/L	(Ref Interval: 0.00-0.05)
C18:1, Oleyl	0.08 umol/L	(Ref Interval: 0.00-0.16)
C18:2, Linoleyl	0.03 umol/L	(Ref Interval: 0.00-0.08)
C18-OH, 3-OH-Stearoyl	0.00 umol/L	(Ref Interval: 0.00-0.01)
C18:1-OH, 3-OH-Oleyl	0.01 umol/L	(Ref Interval: 0.00-0.01)
C18:2-OH, 3-OH-Linoleyl	0.00 umol/L	(Ref Interval: 0.00-0.01)
Mucopolysaccharides mg/mmol CRT	15.1	(Ref Interval: 5.4-30.8)
	REFERENCE INTERVAL: Mucopolysaccharides mg/mmol CRT	
	Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).	
	Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement B: aruplab.com/CS	
Lactic Acid, Urine	34	(Ref Interval: 0-150)
Pyruvic Acid, Urine	18	(Ref Interval: 0-30)
Succinic Acid, Urine	14	(Ref Interval: 0-80)
Fumaric Acid, Urine	1	(Ref Interval: 0-10)
2-Ketoglutaric Acid, Urine	17	(Ref Interval: 0-120)

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Methylmalonic Acid, Urine	3	(Ref Interval: 0-5)
3-OH-Butyric Acid, Urine	4	(Ref Interval: 0-4)
Acetoacetic Acid, Urine	1	(Ref Interval: 0-4)
2-Keto-3-methylvaleric Acid, Urine	1	(Ref Interval: 0-10)
2-Ketoisocaproic Acid, Urine	Not Detected	(Ref Interval: 0-4)
2-Ketoisovaleric Acid, Urine	Not Detected	(Ref Interval: 0-4)
Ethylmalonic Acid, Urine	7	(Ref Interval: 0-15)
Adipic Acid, Urine	32	(Ref Interval: 0-35)
Suberic Acid, Urine	5	(Ref Interval: 0-10)
Sebacic Acid, Urine	1	(Ref Interval: 0-3)
4-OH-phenylacetic Acid, Urine	48	(Ref Interval: 0-100)
4-OH-phenyllactic Acid, Urine	1	(Ref Interval: 0-4)
4-OH-phenylpyruvic Acid, Urine	Not Detected	(Ref Interval: 0-2)
Succinylacetone, Urine	Not Detected	(Ref Interval: 0-0)
Creatine, Urine	617 mmol/mol CRT	(Ref Interval: 23-1500)
Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement B: aruplab.com/CS		

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Guanidinoacetic acid, Urine	182 mmol/mol CRT	(Ref Interval: 45-250)
Creatinine, Urine	5039.9 umol/L	
Creatine, Serum/Plasma	81.7 umol/L	(Ref Interval: 37.0-117.0)
Guanidinoacetic acid, Serum/Plasma	0.91 umol/L	(Ref Interval: 0.50-1.80)

Autism/Intellectual Disability Interp

See Note

No metabolic abnormalities identifiable by this panel were detected. Genetic evaluation is recommended to assess the need for additional testing to exclude other rare metabolic disorders associated with autism and/or intellectual disability.

INTERPRETIVE INFORMATION: Autism and Intellectual Disability Metabolic Panel
 MPS Screen, Urine: Mucopolysaccharides (Glycosaminoglycans) include: Keratan Sulfate, Heparan Sulfate, Dermatan Sulfate, and Chondroitin Sulfates 4 and 6. The excretion of Heparan Sulfate is variable. A normal mucopolysaccharides screen does not exclude Sanfilippo Syndrome (Mucopolysaccharidosis Type III).

Organic Acids, Urine: Results are reported in mmol/mol creatinine.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement B: aruplab.com/CS

VERIFIED/REPORTED DATES				
Procedure	Accession	Collected	Received	Verified/Reported
Creatinine, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Alpha-amino butyric acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Alanine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Allo-isoleucine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Alpha-aminoadipic acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Anserine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Arginine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Argininosuccinic Acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Asparagine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Aspartic Acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Beta-amino isobutyric acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Beta-alanine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

H=High, L=Low, *=Abnormal, C=Critical

Citrulline, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Cystathionine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Cystine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Ethanolamine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Gamma-amino butyric acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Glutamic Acid, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Glutamine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Glycine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Histidine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Homocitrulline, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Homocystine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Hydroxylysine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Hydroxyproline, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Isoleucine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Leucine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Lysine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Methionine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Ornithine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Phenylalanine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Proline, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Sarcosine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Serine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Taurine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Threonine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Tryptophan, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Tyrosine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Valine, Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C2, Acetyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C3, Propionyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C4, Iso-/Butyryl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C5, Isovaleryl/2Mebutyryl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C5-DC, Glutaryl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C5-OH, 3-OH Isovaleryl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C6, Hexanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C8, Octanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C8:1, Octenoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C10, Decanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C10:1, Decenoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C12, Dodecanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C12:1, Dodecenoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C12-OH, 3-OH-Dodecanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C14, Tetradecanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

H=High, L=Low, *=Abnormal, C=Critical

C14:1, Tetradecenoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C14:2, Tetradecadienoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C14-OH, 3-OH-Tetradecanoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C14:1-OH, 3-OH-Tetradecenoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C16, Palmitoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C16:1, Palmitoleyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C16-OH, 3-OH-Palmitoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C16:1-OH, 3-OH-Palmitoleyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C18, Stearoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C18:1, Oleyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C18:2, Linoleyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C18-OH, 3-OH-Stearoyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C18:1-OH, 3-OH-Oleyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
C18:2-OH, 3-OH-Linoleyl	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Mucopolysaccharides mg/mmol CRT	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Lactic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Pyruvic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Succinic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Fumaric Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
2-Ketoglutaric Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Methylmalonic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
3-OH-Butyric Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Acetoacetic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
2-Keto-3-methylvaleric Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
2-Ketoisocaproic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
2-Ketoisovaleric Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Ethylmalonic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Adipic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Suberic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Sebacic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
4-OH-phenylacetic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
4-OH-phenyllactic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
4-OH-phenylpyruvic Acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Succinylacetone, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Creatine, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Guanidinoacetic acid, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Creatinine, Urine	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Creatine, Serum/Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Guanidinoacetic acid, Serum/Plasma	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Autism/Intellectual Disability Interp	20-106-102745	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

H=High, L=Low, *=Abnormal, C=Critical

END OF CHART

H=High, L=Low, *=Abnormal, C=Critical
