Age-related reference ranges

Alkaline Phosphatase (ALP) IU/L

Gender	Age	Low	High
Both	less than 14 days	90	273
Both	14 days – <1 year	134	518
Both	1 – 9 years	156	369
Both	10 – 12 years	141	460

Gender	Age	Low	High
M	13 - 14 years	127	517
M	15 – 16 years	89	365
M	17 -18 years	59	164
M	19 + years	30	130

Gender	Age	Low	High
F	13 - 14 years	62	280
F	15 – 16 years	54	130
F	17 – 18 years	48	130
F	19 + years	30	130

Aspartate aminotransferase (AST) IU/L

Gender	Age	Low	High
Both	less than 6 weeks	0	122
Both	6 weeks – <1 year	15	77
Both	1 – 2 years	15	71
Both	3 – 5 years	15	53
Both	6 – 11 years	10	50
Both	12 – 16 years	10	45
Both	17+ years	10	35

Amino Acids (Plasma, umol/L)

Gender	Age <4 months	Low	High
Both	Taurine	20	256
Both	Aspartic Acid	5	100
Both	Threonine	114	336
Both	Serine	94	324
Both	Glutamic acid	20	142
Both	Glutamine	530	960
Both	Proline	107	435
Both	Glycine	224	515
Both	Alanine	236	675
Both	Cystine	35	92
Both	Valine	80	370
Both	Methionine	10	96
Both	Iso-Leucine	27	105
Both	Leucine	46	230
Both	Tyrosine	42	196
Both	Phenylalanine	42	182
Both	Ornithine	49	214
Both	Lysine	114	316
Both	Histidine	49	195
Both	Arginine	22	155
Both	Citrulline	5	63

Gender	Age Child(>4m)/Adult	Low	High
Both	Taurine	16	142
Both	Aspartic Acid	0	173
Both	Threonine	81	217
Both	Serine	88	288
Both	Glutamic acid	5	130
Both	Glutamine	544	836
Both	Proline	185	285
Both	Glycine	100	390
Both	Alanine	176	480
Both	Cystine	20	100
Both	Valine	100	330
Both	Methionine	5	80
Both	Iso-Leucine	23	98
Both	Leucine	60	220
Both	Tyrosine	45	100
Both	Phenylalanine	21	133

Both	Ornithine	25	105
Gender	**Age Child(>4m)/Adult**	**Low**	**High**
Both	Lysine	110	284
Both	Histidine	20	220
Both	Arginine	32	130
Both	Citrulline	20	70

Caeruloplasmin g/L

Gender	Age	Low	High
F	Less than 4m	0.15	0.56
F	4 - 6m	0.24	0.83
F	6 - 18m	0.27	0.91
F	18m - 3y	0.28	0.9
F	3 - 9y	0.24	0.46
F	9 - 12y	0.23	0.45
F	12 - 19y	0.21	0.5
F	19+ years	0.23	0.6

Gender	Age	Low	High
M	Less than 4m	0.15	0.56
M	4 - 6m	0.24	0.83
M	6 - 18m	0.27	0.91
M	18m - 3y	0.28	0.9
M	3 - 9y	0.24	0.46
M	9 - 12y	0.24	0.45
M	12 - 19y	0.15	0.37
M	19+ years	0.21	0.4

Creatinine (serum) umol/L

Gender	Age	Low	High
Both	less than 2 weeks	27	77
Both	2 weeks - <1 year	14	34
Both	1 - 2 years	15	31
Both	3 - 4 years	23	37
Both	5 - 6 years	25	42
Both	7 - 8 years	30	47
Both	9 - 10 years	29	56
Both	11 years	36	64
Both	12 years	36	67

Gender	Age	Low	High
M	13 years	38	76
M	14 years	40	83
M	15 years	47	98
M	16 years	54	99
M	17+ years	59	104

Gender	Age	Low	High
F	13 years	38	74
F	14 years	43	75
F	15 years	44	79
F	16 years	48	81
F	17+ years	45	84

Free T3 pmol/L

Gender	Age	Low	High
Both	less than 6 days	2.65	9.68
Both	6 – 13 days	3.00	9.28
Both	14 days – 16 years	3.1	6.8
Both	16+ years	3.1	6.8

Free T4 pmol/L

Gender	Age	Low	High
Both	less than 6 days	11	32
Both	6 – 13 days	11.5	28.3
Both	14 days – 16 years	12	22
Both	16+ years	12	22

Galactitol umol/mmol creatinine

Gender	Age	Low	High
Both	less than 3 months	3	80
Both	3 - 12 months	10	65
Both	1 year	6	22
Both	2 - 5 years	3	17
Both	6 - 14 years	2	10
Both	15+ years	2	4

Methylmalonic acid (Urine MMA) umol/mmol creatinine

Gender	Age	Low	High
Both	less than 1 year	0.4	23
Both	1 - 16 years	2	5.1
Both	16+ years	0.7	3.2

Mucopolysaccharide screen:
Urine Glycosaminoglycans (mg GAG/mmol creatinine)

Gender	Age	Upper limit of normal
B	0 - 6 months	<30
B	6 - 12 months	<26
B	1 – 2 years	<21
B	3 – 4 years	<14
B	5 – 7 years	<11
B	8 – 15 years	<9
B	16 years plus	<3

Phenylalanine targets in PKU patients (bloodspots) umol/L

Gender	Age	Low	High
Both	up to 5 years	150	350
Both	5 - 10 years	150	500
Both	10+ years	150	700
F	Trying to conceive	100	250
F	Pregnant	100	250

Phosphate mmol/L

Gender	Age	Low	High
Both	less than 1 month	1.3	2.6
Both	1 – 12 months	1.3	2.4
Both	1 - 15 years	0.90	1.80
Both	16+ years	0.80	1.50

Potassium mmol/L

Gender	Age	Low	High
Both	less than 4 weeks	3.4	6.0
Both	4 weeks – 1 year	3.5	5.7
Both	1 – 15 years	3.5	5.3
Both	16+ years	3.5	5.3

Triglycerides mmol/L

Gender	Age	Low	High
Both	less than 13 weeks	1.1	2.3
Both	13 weeks – 13 years	0.4	1.2
Both	14+ years	0.5	1.7

TSH mU/L

Gender	Age	Low	High
Both	less than 6 days	0.7	15.2
Both	6 – 13 days	0.72	11.0
Both	14 days – 16 years	0.27	4.2
Both	16+ years	0.27	4.2

Urea mmol/L

Gender	Age	Low	High
Both	less than 28 days	0.8	5.5
Both	28 days – 1 year	1.0	5.5
Both	1 – 15 years	2.5	6.5
Both	16+ years	2.5	7.8

Urate (Uric acid) umol/L

Gender	Age	Low	High
M	Less than 8 years	60	240
M	8 – 10 years	70	350
M	11 – 15 years	120	460
M	16+ years	200	430
Gender	**Age**	**Low**	**High**
F	Less than 8 years	60	240
F	8 – 10 years	130	370
F	11 – 15 years	150	390
F	16 – 49 years	190	360
F	50+ years	140	360