

Reference Interval:
Effective November 18, 2019

Components	Age	Reference Interval
α-Aminoadipic acid	0-2 months	Less than or equal to 700 μmol/g creatinine
	3-11 months	Less than or equal to 520 μmol/g creatinine
	1-2 years	Less than or equal to 470 μmol/g creatinine
	3-5 years	Less than or equal to 200 μmol/g creatinine
	6-11 years	Less than or equal to 125 μmol/g creatinine
	12 years and older	Less than or equal to 100 μmol/g creatinine
α-Amino-n-butyric acid	0-2 months	Less than or equal to 120 μmol/g creatinine
	3-11 months	Less than or equal to 80 μmol/g creatinine
	1-2 years	Less than or equal to 70 μmol/g creatinine
	3-5 years	Less than or equal to 60 μmol/g creatinine
	6-11 years	Less than or equal to 50 μmol/g creatinine
	12 years and older	Less than or equal to 25 μmol/g creatinine
Alanine	0-2 months	475-3330 μmol/g creatinine
	3-11 months	270-3020 μmol/g creatinine
	1-2 years	170-1750 μmol/g creatinine
	3-5 years	100-1000 μmol/g creatinine
	6-11 years	80-930 μmol/g creatinine
	12 years and older	60-500 μmol/g creatinine
Anserine	0-2 months	Less than or equal to 60 μmol/g creatinine
	3-11 months	Less than or equal to 300 μmol/g creatinine
	1-2 years	Less than or equal to 720 μmol/g creatinine
	3-5 years	Less than or equal to 385 μmol/g creatinine
	6-11 years	Less than or equal to 480 μmol/g creatinine
	12 years and older	Less than or equal to 250 μmol/g creatinine
Arginine	0-2 months	Less than or equal to 470 μmol/g creatinine
	3-11 months	Less than or equal to 340 μmol/g creatinine
	1-2 years	Less than or equal to 390 μmol/g creatinine
	3-5 years	Less than or equal to 270 μmol/g creatinine
	6-11 years	Less than or equal to 160 μmol/g creatinine
	12 years and older	Less than or equal to 100 μmol/g creatinine
Argininosuccinic acid	0-2 months	Less than or equal to 110 μmol/g creatinine
	3-11 months	Less than or equal to 100 μmol/g creatinine
	1-2 years	Less than or equal to 80 μmol/g creatinine
	3-5 years	Less than or equal to 65 μmol/g creatinine
	6-11 years	Less than or equal to 50 μmol/g creatinine
	12 years and older	Less than or equal to 40 μmol/g creatinine
Asparagine	0-2 months	55-1445 μmol/g creatinine
	3-11 months	45-910 μmol/g creatinine
	1-2 years	80-675 μmol/g creatinine
	3-5 years	50-345 μmol/g creatinine
	6-11 years	40-390 μmol/g creatinine
	12 years and older	25-180 μmol/g creatinine
Aspartic acid	0-2 months	Less than or equal to 370 μmol/g creatinine
	3-11 months	Less than or equal to 160 μmol/g creatinine
	1-2 years	Less than or equal to 65 μmol/g creatinine
	3 years and older	Less than or equal to 25 μmol/g creatinine
β-Alanine	0-5 months	Less than or equal to 250 μmol/g creatinine
	6 months and older	Less than or equal to 125 μmol/g creatinine
β-Aminoisobutyric acid	0-2 months	Less than or equal to 6780 μmol/g creatinine
	3-11 months	Less than or equal to 6000 μmol/g creatinine
	1-2 years	Less than or equal to 5500 μmol/g creatinine
	3-5 years	Less than or equal to 3490 μmol/g creatinine
	6-11 years	Less than or equal to 1720 μmol/g creatinine
	12 years and older	Less than or equal to 1200 μmol/g creatinine
Citrulline	0-2 months	Less than or equal to 145 μmol/g creatinine
	3-11 months	Less than or equal to 75 μmol/g creatinine
	1-2 years	Less than or equal to 40 μmol/g creatinine
	3 years and older	Less than or equal to 15 μmol/g creatinine
Cystathionine	0-2 months	Less than or equal to 235 μmol/g creatinine
	3-11 months	Less than or equal to 60 μmol/g creatinine
	1-2 years	Less than or equal to 75 μmol/g creatinine
	3-5 years	Less than or equal to 35 μmol/g creatinine
	6-11 years	Less than or equal to 25 μmol/g creatinine
	12 years and older	Less than or equal to 60 μmol/g creatinine

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Cystine	0-2 months	Less than or equal to 870 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 300 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 150 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 125 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 100 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 150 $\mu\text{mol/g}$ creatinine
Ethanolamine	0-2 months	390-6560 $\mu\text{mol/g}$ creatinine
	3-11 months	320-1410 $\mu\text{mol/g}$ creatinine
	1-2 years	270-1160 $\mu\text{mol/g}$ creatinine
	3-5 years	245-825 $\mu\text{mol/g}$ creatinine
	6-11 years	130-770 $\mu\text{mol/g}$ creatinine
	12 years and older	100-510 $\mu\text{mol/g}$ creatinine
γ -Amino-n-butyric acid	0-2 months	Less than or equal to 60 $\mu\text{mol/g}$ creatinine
	3-5 months	Less than or equal to 50 $\mu\text{mol/g}$ creatinine
	6 months and older	Less than or equal to 25 $\mu\text{mol/g}$ creatinine
Glutamic acid	0-2 months	Less than or equal to 560 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 360 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 190 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 80 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 70 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 52 $\mu\text{mol/g}$ creatinine
Glutamine	0-2 months	380-3860 $\mu\text{mol/g}$ creatinine
	3-11 months	310-3240 $\mu\text{mol/g}$ creatinine
	1-2 years	340-2225 $\mu\text{mol/g}$ creatinine
	3-5 years	300-1525 $\mu\text{mol/g}$ creatinine
	6-11 years	165-1530 $\mu\text{mol/g}$ creatinine
	12 years and older	100-665 $\mu\text{mol/g}$ creatinine
Glycine	0-2 months	1620-19725 $\mu\text{mol/g}$ creatinine
	3-11 months	915-10220 $\mu\text{mol/g}$ creatinine
	1-2 years	775-6600 $\mu\text{mol/g}$ creatinine
	3-5 years	600-4600 $\mu\text{mol/g}$ creatinine
	6-11 years	310-5700 $\mu\text{mol/g}$ creatinine
	12 years and older	230 – 3510 $\mu\text{mol/g}$ creatinine
Histidine	0-2 months	325-4940 $\mu\text{mol/g}$ creatinine
	3-11 months	290-4850 $\mu\text{mol/g}$ creatinine
	1-2 years	340-4420 $\mu\text{mol/g}$ creatinine
	3-5 years	315-2460 $\mu\text{mol/g}$ creatinine
	6-11 years	160-2380 $\mu\text{mol/g}$ creatinine
	12 years and older	80-1130 $\mu\text{mol/g}$ creatinine
Homocitrulline	0-2 months	Less than or equal to 675 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 220 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 150 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 100 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 70 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 40 $\mu\text{mol/g}$ creatinine
Hydroxylysine	0-2 months	Less than or equal to 510 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 240 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 85 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 50 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 40 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 30 $\mu\text{mol/g}$ creatinine
Hydroxyproline	0-2 months	Less than or equal to 6100 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 1270 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 100 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 35 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 20 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 30 $\mu\text{mol/g}$ creatinine
Isoleucine	0-2 months	Less than or equal to 360 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 140 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 100 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 70 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 60 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 45 $\mu\text{mol/g}$ creatinine
Leucine	0-2 months	20-420 $\mu\text{mol/g}$ creatinine
	3-11 months	20-195 $\mu\text{mol/g}$ creatinine
	1-2 years	20-190 $\mu\text{mol/g}$ creatinine
	3-5 years	20-110 $\mu\text{mol/g}$ creatinine
	6-11 years	20-100 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 45 $\mu\text{mol/g}$ creatinine

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Lysine	0-2 months	120-2270 $\mu\text{mol/g}$ creatinine
	3-11 months	55-1260 $\mu\text{mol/g}$ creatinine
	1-2 years	45-930 $\mu\text{mol/g}$ creatinine
	3-5 years	40-475 $\mu\text{mol/g}$ creatinine
	6-11 years	25-440 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 355 $\mu\text{mol/g}$ creatinine
Methionine	0-2 months	Less than or equal to 100 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 60 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 50 $\mu\text{mol/g}$ creatinine
	3-11 years	Less than or equal to 30 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 20 $\mu\text{mol/g}$ creatinine
	Ornithine	0-2 months
3-11 months		Less than or equal to 150 $\mu\text{mol/g}$ creatinine
1-2 years		Less than or equal to 70 $\mu\text{mol/g}$ creatinine
3 years and older		Less than or equal to 30 $\mu\text{mol/g}$ creatinine
Phenylalanine	0-2 months	45-360 $\mu\text{mol/g}$ creatinine
	3-11 months	65-370 $\mu\text{mol/g}$ creatinine
	1-2 years	50-350 $\mu\text{mol/g}$ creatinine
	3-5 years	35-170 $\mu\text{mol/g}$ creatinine
	6-11 years	30-140 $\mu\text{mol/g}$ creatinine
	12 years and older	15-85 $\mu\text{mol/g}$ creatinine
Proline	0-2 months	130-2340 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 1190 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 170 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 60 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 40 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 35 $\mu\text{mol/g}$ creatinine
Sarcosine	0-2 months	Less than or equal to 300 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 75 $\mu\text{mol/g}$ creatinine
	1 year and older	Less than or equal to 25 $\mu\text{mol/g}$ creatinine
Serine	0-2 months	70-4125 $\mu\text{mol/g}$ creatinine
	3-11 months	275-2730 $\mu\text{mol/g}$ creatinine
	1-2 years	390-1890 $\mu\text{mol/g}$ creatinine
	3-5 years	260-990 $\mu\text{mol/g}$ creatinine
	6-11 years	130-1100 $\mu\text{mol/g}$ creatinine
	12 years and older	90-470 $\mu\text{mol/g}$ creatinine
Taurine	0-2 months	95-9800 $\mu\text{mol/g}$ creatinine
	3-11 months	Less than or equal to 7400 $\mu\text{mol/g}$ creatinine
	1-2 years	Less than or equal to 9000 $\mu\text{mol/g}$ creatinine
	3-5 years	Less than or equal to 4400 $\mu\text{mol/g}$ creatinine
	6-11 years	Less than or equal to 3800 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 3200 $\mu\text{mol/g}$ creatinine
Threonine	0-2 months	125-2890 $\mu\text{mol/g}$ creatinine
	3-11 months	50-1300 $\mu\text{mol/g}$ creatinine
	1-2 years	85-910 $\mu\text{mol/g}$ creatinine
	3-5 years	50-380 $\mu\text{mol/g}$ creatinine
	6-11 years	40-470 $\mu\text{mol/g}$ creatinine
	12 years and older	25-250 $\mu\text{mol/g}$ creatinine
Tryptophan	0-2 months	25-395 $\mu\text{mol/g}$ creatinine
	3-11 months	45-390 $\mu\text{mol/g}$ creatinine
	1-2 years	45-325 $\mu\text{mol/g}$ creatinine
	3-5 years	35-150 $\mu\text{mol/g}$ creatinine
	6-11 years	20-180 $\mu\text{mol/g}$ creatinine
	12 years and older	15-95 $\mu\text{mol/g}$ creatinine
Tyrosine	0-2 months	50-870 $\mu\text{mol/g}$ creatinine
	3-11 months	70-700 $\mu\text{mol/g}$ creatinine
	1-2 years	65-560 $\mu\text{mol/g}$ creatinine
	3-5 years	40-300 $\mu\text{mol/g}$ creatinine
	6-11 years	40-280 $\mu\text{mol/g}$ creatinine
	12 years and older	15-150 $\mu\text{mol/g}$ creatinine
Valine	0-2 months	40-425 $\mu\text{mol/g}$ creatinine
	3-11 months	30-250 $\mu\text{mol/g}$ creatinine
	1-2 years	40-280 $\mu\text{mol/g}$ creatinine
	3-5 years	30-160 $\mu\text{mol/g}$ creatinine
	6-11 years	20-120 $\mu\text{mol/g}$ creatinine
	12 years and older	Less than or equal to 55 $\mu\text{mol/g}$ creatinine