

Table 2. Plasma Amino Acid Age-Specific Reference Ranges (µmol/L)

| Amino Acid | ≤30 days | 31 days-23.9 months | 2-17.9 years | Adults (≥18 years) |
|-----------------------------|-----------|---------------------|--------------|--------------------|
| Aspartic acid | 2-20 | 2-14 | 1-8 | 1-4 |
| Glutamic acid | 51-277 | 32-185 | 9-109 | 10-97 |
| Hydroxyproline | 13-72 | 7-63 | 6-32 | 4-27 |
| Serine | 87-241 | 83-212 | 85-185 | 65-138 |
| Asparagine | 12-70 | 20-77 | 23-70 | 31-64 |
| α-Aminoadipic acid | ≤3 | ≤4 | ≤2 | ≤2 |
| Glycine | 133-409 | 103-386 | 138-349 | 122-322 |
| Glutamine | 240-1,194 | 303-1,459 | 405-923 | 428-747 |
| Sarcosine | ≤5 | ≤4 | ≤4 | ≤4 |
| β-Alanine | ≤8 | ≤8 | ≤5 | ≤5 |
| Taurine | 29-161 | 26-130 | 32-114 | 31-102 |
| Histidine | 40-143 | 42-125 | 54-113 | 60-109 |
| Citrulline | 3-35 | 4-50 | 9-52 | 16-51 |
| Arginine | 14-135 | 30-147 | 38-122 | 43-107 |
| Threonine | 56-392 | 40-248 | 59-195 | 67-198 |
| Alanine | 83-447 | 119-523 | 157-481 | 200-483 |
| 1-Methylhistidine | ≤4 | ≤9 | ≤27 | ≤47 |
| γ-Aminobutyric acid | <1 | <1 | ≤2 | ≤3 |
| 3-Methylhistidine | ≤10 | ≤8 | 1-6 | 2-9 |
| β-Aminoisobutyric acid | ≤9 | ≤8 | ≤6 | ≤3 |
| Proline | 87-375 | 104-348 | 99-351 | 104-383 |
| Ethanolamine | 8-106 | 5-19 | 5-15 | 5-13 |
| α-Aminobutyric acid | 1-20 | 4-30 | 6-30 | 7-32 |
| Tyrosine ^a | 33-160 | 24-125 | 31-108 | 38-96 |
| Valine ^{a,b} | 57-250 | 84-354 | 130-307 | 132-313 |
| Methionine | 13-45 | 12-50 | 14-37 | 16-34 |
| Cystathionine | <1 | <1 | <1 | <1 |
| Isoleucine ^{a,b} | 12-92 | 10-109 | 33-97 | 34-98 |
| Leucine ^{a,b} | 23-172 | 43-181 | 65-179 | 73-182 |
| Homocystine | <1 | <1 | <1 | <1 |
| Phenylalanine ^a | 30-79 | 31-92 | 38-86 | 40-74 |
| Tryptophan ^a | 17-85 | 16-92 | 30-94 | 40-91 |
| Ornithine | 29-168 | 19-139 | 33-103 | 27-83 |
| Lysine | 66-226 | 70-258 | 98-231 | 119-233 |
| Alloisoleucine ^b | <1 | <1 | <1 | <1 |

The full panel (test code 767) includes all amino acids listed except alloisoleucine. The order of amino acids in this table reflects laboratory considerations and matches the order presented in patient reports.

^a Included in the limited panel (test code 1776).

^b Included in the MSUD panel (test code 19779).