# Blood Reference Levels

## SORT by a column: click header. SEARCH for a term: type "Ctrl-F".

### Component column has links to [Wikipedia](http://en.wikipedia.org/wiki/Main_Page) (collaborative encyclopedia), [MedLinePlus](http://www.nlm.nih.gov/medlineplus/) (medical encyclopedia for consumers, from NIH), and [PubMed](http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed) (journal publications, compiled by NIH). Reference Ranges are from *Harrison's Manual of Medicine* (17th ed). Analyte column indicates whole blood, plasma (cells removed), or serum (cells and clotting factors removed).

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| --- | --- | --- | --- |
| Category | Component | Reference/Target Range | Analyte |
| Acid-base & blood gas | Anion gap  [Wikipedia](http://en.wikipedia.org/wiki/Anion_gap)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22anion+gap%22) | 7-16 mmol/L | serum |
| Acid-base & blood gas | Bicarbonate (HCO3-), arterial  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22plasma+bicarbonate%22) | 22-30 mmol/L, 22-30 meq/L | plasma |
| Acid-base & blood gas | Carbon dioxide, sea level (TCO2)  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22plasma+carbon+dioxide%22) | 22-30 mmol/L, 22-30 meq/L | plasma |
| Acid-base & blood gas | Carboxyhemoglobin (CO content)  [Wikipedia](http://en.wikipedia.org/wiki/Carboxyhemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003371.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Carboxyhemoglobin) | Nonsmokers: 0-4%, Smokers: 4-9%  Symptom onset: 15-20%, Loss of consciousness/death: >50% | whole blood |
| Acid-base & blood gas | Oxygen content, sea level  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22arterial+oxygen%22) | Arterial: 17-21 vol%  Venous: 10-16 vol% | whole blood |
| Acid-base & blood gas | Oxygen, pct. saturation, sea level  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22oxygen+saturation%22) | Arterial: 94-100%  Venous (arm): 60-85% | whole blood |
| Acid-base & blood gas | pCO2, arterial  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22arterial+carbon+dioxide%22) | 4.3-6.0 kPa, 32-45 mmHg | plasma |
| Acid-base & blood gas | pH, arterial  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22arterial+pH%22) | 7.35-7.45 | plasma |
| Acid-base & blood gas | pO2, arterial  [Wikipedia](http://en.wikipedia.org/wiki/Arterial_blood_gas)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003855.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22arterial+oxygen%22) | 9.6-13.8 kPa, 72-104 mmHg | plasma |
| Cardiac function | Brain natriuretic peptide (BNP)  [Wikipedia](http://en.wikipedia.org/wiki/B-type_natriuretic_peptide)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/007509.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Brain+natriuretic+peptide%22) | Age and gender specific: <167 ng/L, <167 pg/mL | plasma |
| Cardiac function | C-reactive protein (CRP)  [Wikipedia](http://en.wikipedia.org/wiki/C-reactive_protein)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003356.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22C-reactive+protein%22) | 0.2-3.0 mg/L | serum |
| Cardiac function | Creatine (phospho)kinase, activity (CPK)  [Wikipedia](http://en.wikipedia.org/wiki/Creatine_kinase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003504.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22creatinine+kinase%22+OR+%22creatinine+phosphokinase%22) | Male: 0.87-5.0 μkat/L, 51-294 U/L  Female: 0.66-4.0 μkat/L, 39-238 U/L | serum |
| Cardiac function | Creatine (phospho)kinase-MB, mass  [Wikipedia](http://en.wikipedia.org/wiki/Creatine_kinase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003504.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22creatinine+kinase%22+OR+%22creatinine+phosphokinase%22) | 0-5.5 μg/L, 0-5.5 ng/mL | serum |
| Cardiac function | Creatine (phospho)kinase-MB, pct. total activity  [Wikipedia](http://en.wikipedia.org/wiki/Creatine_kinase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003504.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22creatinine+kinase%22+OR+%22creatinine+phosphokinase%22) | 0-4% | serum |
| Cardiac function | Myoglobin  [Wikipedia](http://en.wikipedia.org/wiki/Myoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003663.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=myoglobin) | Male: 19-92 μg/L  Female: 12-76 μg/L | serum |
| Cardiac function | Troponin I  [Wikipedia](http://en.wikipedia.org/wiki/Troponin_I)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/007452.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22troponin+I%22) | Normal, 99th%: 0-0.08 μg/L, 0-0.08 ng/mL  Cut-off for MI: > 0.4 μg/L, > 0.4 ng/mL | serum |
| Cardiac function | Troponin T  [Wikipedia](http://en.wikipedia.org/wiki/Troponin_T)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/007452.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22troponin+T%22) | Normal, 99th%: 0-0.1 μg/L, 0-0.1 ng/mL  Cut-off for MI: ???? | serum |
| Coagulation | D-dimer  [Wikipedia](http://en.wikipedia.org/wiki/D-dimer)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=D-dimer) | 0.22-0.74 μg/mL | plasma |
| Coagulation | Fibrin degr. products  [Wikipedia](http://en.wikipedia.org/wiki/Fibrin_degradation_product)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003655.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22fibrin+degradation+product%22) | 0-1 mg/L, 0-1 μg/mL | plasma |
| Coagulation | Fibrinogen  [Wikipedia](http://en.wikipedia.org/wiki/Fibrinogen)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003650.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=fibrinogen) | 2.33-4.96 g/L, 233-496 mg/dL | plasma |
| Coagulation | Partial thromboplastin time, act. (aPTT)  [Wikipedia](http://en.wikipedia.org/wiki/Partial_thromboplastin_time)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003653.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Partial+thromboplastin+time%22) | 26.3-39.4 s | plasma |
| Coagulation | Plasminogen, antigen  [Wikipedia](http://en.wikipedia.org/wiki/Plasminogen)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=plasminogen) | 84-140 mg/L, 8.4-14.0 mg/dL | plasma |
| Coagulation | Plasminogen, functional  [Wikipedia](http://en.wikipedia.org/wiki/Plasminogen)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=plasminogen) | 70-130% | plasma |
| Coagulation | Plasminogen activator inhibitor-1  [Wikipedia](http://en.wikipedia.org/wiki/Plasminogen_activator_inhibitor-1)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Plasminogen+activator+inhibitor+1%22) | 4-43 μg/L, 4-43 ng/mL | plasma |
| Coagulation | Protein C, total antigen  [Wikipedia](http://en.wikipedia.org/wiki/Protein_C)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003659.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22protein+C%22) | 70-140% | plasma |
| Coagulation | Protein C, functional  [Wikipedia](http://en.wikipedia.org/wiki/Protein_C)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003659.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22protein+C%22) | 70-130% | plasma |
| Coagulation | Protein S, total antigen  [Wikipedia](http://en.wikipedia.org/wiki/Protein_S)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003660.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22protein+S%22) | 70-140% | plasma |
| Coagulation | Protein S, functional  [Wikipedia](http://en.wikipedia.org/wiki/Protein_S)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003660.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22protein+S%22) | 65-140% | plasma |
| Coagulation | Protein S, free antigen  [Wikipedia](http://en.wikipedia.org/wiki/Protein_S)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003660.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22protein+S%22) | 70-140% | plasma |
| Coagulation | Prothrombin time  [Wikipedia](http://en.wikipedia.org/wiki/Prothrombin_time)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003652.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22prothrombin+time%22) | 12.4-15.4 s | plasma |
| Coagulation | Thrombin time  [Wikipedia](http://en.wikipedia.org/wiki/Thrombin_time)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22thrombin+time%22) | 15.3-18.5 s | plasma |
| Coagulation | Viscosity, plasma  [Wikipedia](http://en.wikipedia.org/wiki/Blood_viscosity)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22plasma+viscosity%22) | 1.7-2.1 mPas | plasma |
| Coagulation | Viscosity, serum  [Wikipedia](http://en.wikipedia.org/wiki/Blood_viscosity)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+viscosity%22) | 1.4-1.8 mPas | serum |
| Hematology, erythrocyte | Erythrocyte count, adult  [Wikipedia](http://en.wikipedia.org/wiki/Red_blood_cell)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003644.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22erythrocyte+count%22) | Male: 4.30-5.60 x 1012/L, 4.30-5.60 x 106/mm3  Female: 4.00-5.20 x 1012/L, 4.00-5.20 x 106/mm3 | whole blood |
| Hematology, erythrocyte | Erythrocyte life span  [Wikipedia](http://en.wikipedia.org/wiki/Red_blood_cell)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22erythrocyte+life+span%22) | Normal survival: 120 days, Chromium labeled, half life: 25-30 days | whole blood |
| Hematology, erythrocyte | Erythrocyte sed. rate (ESR)  [Wikipedia](http://en.wikipedia.org/wiki/Erythrocyte_sedimentation_rate)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003638.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22erythrocyte+sedimentation+rate%22) | Male: 0-15 mm/h  Female: 0-20 mm/h | whole blood |
| Hematology, erythrocyte | Hematocrit (HCT), adult  [Wikipedia](http://en.wikipedia.org/wiki/Hematocrit)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003646.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=hematocrit) | Male: 38.8-46.4%  Female: 35.4-44.4% | whole blood |
| Hematology, erythrocyte | Hemoglobin, glycosylated (HbA1C)  [Wikipedia](http://en.wikipedia.org/wiki/Glycated_hemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003640.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22glycosylated+hemoglobin%22) | 4-6% | whole blood |
| Hematology, erythrocyte | Hemoglobin, plasma  [Wikipedia](http://en.wikipedia.org/wiki/Hemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003677.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22plasma+hemoglobin%22) | 6-50 mg/L, 0.6-5.0 mg/dL | plasma |
| Hematology, erythrocyte | Hemoglobin, adult, whole blood  [Wikipedia](http://en.wikipedia.org/wiki/Hemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003677.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=hemoglobin) | Male: 133-162 g/L, 13.3-16.2 mg/dL  Female: 120-158 g/L, 12.0-15.8 mg/dL | whole blood |
| Hematology, erythrocyte | Hemoglobin A  [Wikipedia](http://en.wikipedia.org/wiki/Hemoglobin_A)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003639.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22hemoglobin+A%22) | 95-98% | whole blood |
| Hematology, erythrocyte | Hemoglobin A2  [Wikipedia](http://en.wikipedia.org/wiki/Hemoglobin_A2)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003639.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22hemoglobin+A2%22) | 1.5-3.1% | whole blood |
| Hematology, erythrocyte | Hemoglobin F  [Wikipedia](http://en.wikipedia.org/wiki/Hemoglobin_F)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003639.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22hemoglobin+F%22) | 0-2.0% | whole blood |
| Hematology, erythrocyte | Hemoglobins other than A, A2, and F  [Wikipedia](http://en.wikipedia.org/wiki/Hemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003639.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=hemoglobin) | Absent | whole blood |
| Hematology, erythrocyte | Mean corpuscular hemoglobin (MCH)  [Wikipedia](http://en.wikipedia.org/wiki/Mean_corpuscular_hemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003648.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Mean+corpuscular+hemoglobin%22) | 26.7-31.9 pg/cell | whole blood |
| Hematology, erythrocyte | Mean corpuscular hemoglobin concentration (MCHC)  [Wikipedia](http://en.wikipedia.org/wiki/Mean_corpuscular_hemoglobin_concentration)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003648.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Mean+corpuscular+hemoglobin+concentration%22) | 323-359 g/L, 32.3-35.9 g/dL | whole blood |
| Hematology, erythrocyte | Mean corpuscular Hb of reticulocytes  [Wikipedia](http://en.wikipedia.org/wiki/Mean_corpuscular_hemoglobin_concentration)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Hemoglobin+AND+reticulocyte) | 24-36 pg | whole blood |
| Hematology, erythrocyte | Mean corpuscular volume (MCV)  [Wikipedia](http://en.wikipedia.org/wiki/Mean_corpuscular_volume)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003648.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Mean+corpuscular+volume%22) | 79-93.3 fL, 79-93.3 μm3 | whole blood |
| Hematology, erythrocyte | Methemoglobin  [Wikipedia](http://en.wikipedia.org/wiki/Methemoglobin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003371.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Methemoglobin) | 0-1% | whole blood |
| Hematology, erythrocyte | Osmotic fragility of erythrocytes  [Wikipedia](http://en.wikipedia.org/wiki/Erythrocyte_fragility)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003641.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Osmotic+fragility%22+AND+erythrocytes) | Direct: 0.35-0.45%, Indirect: 0.30-0.65% | whole blood |
| Hematology, erythrocyte | Reticulocyte count  [Wikipedia](http://en.wikipedia.org/wiki/Reticulocyte)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003637.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Reticulocyte+count%22) | Male: 0.8-2.3% RBCs  Female: 0.8-2.0% RBCs | whole blood |
| Hematology, leukocyte | Banded neutrophils (bands)  [Wikipedia](http://en.wikipedia.org/wiki/Band_cell)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22band*+neutrophil%22+OR+%22band+cell%22) | 0-5% | whole blood |
| Hematology, leukocyte | Basophils  [Wikipedia](http://en.wikipedia.org/wiki/Basophil)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=basophils) | 0-2% | whole blood |
| Hematology, leukocyte | Eosinophils, total  [Wikipedia](http://en.wikipedia.org/wiki/Eosinophil)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=eosinophil) | 150-300 x 106/L, 150-300/mm3 | whole blood |
| Hematology, leukocyte | Leukocyte alkaline phosphatase (LAP)  [Wikipedia](http://en.wikipedia.org/wiki/Alkaline_phosphatase)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Leukocyte+alkaline+phosphatase%22) | 0.2-1.6 μkat/L, 13-100 μg/L | whole blood |
| Hematology, leukocyte | Leukocyte count  [Wikipedia](http://en.wikipedia.org/wiki/Leukocyte)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003643.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Leukocyte+count%22) | 3.54-9.06 x 109/L, 3.54-9.06 x 103/mm3 | whole blood |
| Hematology, leukocyte | Lymphocytes  [Wikipedia](http://en.wikipedia.org/wiki/Lymphocytes)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Lymphocytes) | 20-50% | whole blood |
| Hematology, leukocyte | Monocytes  [Wikipedia](http://en.wikipedia.org/wiki/Monocyte)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=monocytes) | 4-8% | whole blood |
| Hematology, leukocyte | Neutrophils  [Wikipedia](http://en.wikipedia.org/wiki/Neutrophil)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=neutrophils) | 40-70% | whole blood |
| Hematology, thrombocyte | Platelet aggregation  [Wikipedia](http://en.wikipedia.org/wiki/Platelet)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003669.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Platelet+aggregation%22) | > 65% in response to ADP, EPI, collagen, ristocetin, arachidonic acid | platelet-rich plasma |
| Hematology, thrombocyte | Platelet count  [Wikipedia](http://en.wikipedia.org/wiki/Platelet)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003647.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Platelet+count%22) | 165-415 x 109/L, 165-415 x 103/mm3 | whole blood |
| Hematology, thrombocyte | Platelet, mean volume (MPV)  [Wikipedia](http://en.wikipedia.org/wiki/Mean_platelet_volume)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22mean+Platelet+volume%22) | 9.00-12.95 fL, 9.00-12.95 μm3 | whole blood |
| Hormone | Adrenocorticotropic hormone (ACTH)  [Wikipedia](http://en.wikipedia.org/wiki/Adrenocorticotropic_hormone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003695.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Adrenocorticotropic+hormone%22+OR+ACTH+OR+corticotropin) | 1.3-16.7 pmol/L, 6.0-76.0 pg/mL | plasma |
| Hormone | Aldosterone (adult)  [Wikipedia](http://en.wikipedia.org/wiki/Aldosterone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003704.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=aldosterone) | Supine, normal sodium diet: 55-250 pmol/L, 2-9 ng/dL  Upright, normal sodium diet: 2-5-fold more than supine value  Supine, low sodium diet: 2-5-fold more than normal sodium diet level | serum, plasma |
| Hormone | Androstenedione (adult)  [Wikipedia](http://en.wikipedia.org/wiki/Androstenedione)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Androstenedione+OR+4-androstenedione+OR+17-ketoestosterone) | 1.75-8.73 nmol/L, 50-250 ng/dL | serum |
| Hormone | C-peptide (adult)  [Wikipedia](http://en.wikipedia.org/wiki/C-peptide)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003701.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22c-peptide%22) | 0.17-0.66 nmol/L, 0.5-2.0 ng/mL | serum, plasma |
| Hormone | Calcitonin  [Wikipedia](http://en.wikipedia.org/wiki/Calcitonin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003699.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=calcitonin) | Male: 3-26 ng/L, 3-26 pg/mL  Female: 2-17 ng/L, 2-17 pg/mL | serum |
| Hormone | Compound S (11-Deoxycortisol), adult, 8AM  [Wikipedia](http://en.wikipedia.org/wiki/11-Deoxycortisol)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=11-Deoxycortisol+OR+Cortodoxone+OR+cortexolone) | 0.34-4.56 nmol/L, 12-158 ng/dL | serum |
| Hormone | Cortisol  [Wikipedia](http://en.wikipedia.org/wiki/Cortisol)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003693.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=cortisol) | Fasting, 8AM-12noon: 138-690 nmol/L, 5-25 μg/dL  12noon-8PM: 138-414 nmol/L, 5-15 μg/dL  8PM-8AM: 0-276 nmol/L, 0-10 μg/dL | serum |
| Hormone | Deoxycorticosterone (11-Deoxycorticosterone), adult  [Wikipedia](http://en.wikipedia.org/wiki/Deoxycorticosterone)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Deoxycorticosterone) | 61-576 nmol/L, 2-19 ng/dL | serum |
| Hormone | Erythropoietin (EPO)  [Wikipedia](http://en.wikipedia.org/wiki/Erythropoietin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003683.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Erythropoietin) | 4-27 U/L | serum |
| Hormone | Gastrin  [Wikipedia](http://en.wikipedia.org/wiki/Gastrin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003697.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=gastrin) | < 100 ng/L, < 100 pg/mL | serum |
| Hormone | Glucagon  [Wikipedia](http://en.wikipedia.org/wiki/Glucagon)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003716.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=glucagon) | 20-100 ng/L, 20-100 pg/mL | plasma |
| Hormone | Growth hormone  [Wikipedia](http://en.wikipedia.org/wiki/Growth_hormone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003706.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Growth+hormone%22) | 0.5-17 μg/L, 0.5-17 ng/mL | serum |
| Hormone | Insulin  [Wikipedia](http://en.wikipedia.org/wiki/Insulin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=insulin) | 14.35-143.5 pmol/L, 2-20 μU/mL | serum, plasma |
| Hormone | Osteocalcin  [Wikipedia](http://en.wikipedia.org/wiki/Osteocalcin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Osteocalcin) | 11-50 μg/L, 11-50 ng/mL | serum |
| Hormone | Parathyroid hormone (PTH), intact  [Wikipedia](http://en.wikipedia.org/wiki/Parathyroid_hormone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003690.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Parathyroid+hormone%22) | 8-51 ng/L, 8-51 pg/mL | serum |
| Hormone | Prolactin  [Wikipedia](http://en.wikipedia.org/wiki/Prolactin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003718.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=prolactin) | 0-20μg/L, 0-20 ng/mL | serum |
| Hormone | Somatomedin-C (IGF-1), adult  [Wikipedia](http://en.wikipedia.org/wiki/Insulin-like_growth_factor_1)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/001167.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Somatomedin-C+OR+IGF-1) | 16-24 yrs: 182-780 μg/L, 182-780 ng/mL  25-39 yrs: 114-192 μg/L, 114-192 ng/mL  40-54 yrs: 90-360 μg/L, 90-360 ng/mL  > 54 yrs: 71-290 μg/L, 71-290 ng/mL | serum |
| Hormone | Somatostatin  [Wikipedia](http://en.wikipedia.org/wiki/Somatostatin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Somatostatin) | < 25 ng/L, < 25 pg/mL | plasma |
| Hormone | Thyroglobulin  [Wikipedia](http://en.wikipedia.org/wiki/Thyroglobulin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003557.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Thyroglobulin) | 0.5-53 μg/L, 0.5-53 ng/mL | serum |
| Hormone | Thyroid-binding globulin (TBG)  [Wikipedia](http://en.wikipedia.org/wiki/Thyroxine-binding_globulin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Thyroid-binding+globulin%22) | 13-30 mg/L, 1.3-3.0 mg/dL | serum |
| Hormone | Thyroid-stimulating hormone (TSH)  [Wikipedia](http://en.wikipedia.org/wiki/Thyroid_function_tests#Thyroid-stimulating_hormone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003684.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Thyroid-stimulating+hormone%22) | 0.34-4.25 mIU/L, 0.34-4.25 μIU/mL | serum |
| Hormone | Thyroxine, free (fT4)  [Wikipedia](http://en.wikipedia.org/wiki/Thyroid_function_tests#Free_thyroxine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003517.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Thyroxine) | 10.3-21.9 pmol/L, 0.8-1.7 ng/dL | serum |
| Hormone | Thyroxine, total (T4)  [Wikipedia](http://en.wikipedia.org/wiki/Thyroid_function_tests#Total_thyroxine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003517.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Thyroxine) | 70-151 nmol/L, 5.4-11.7 μg/dL | serum |
| Hormone | Thyroxine index, free  [Wikipedia](http://en.wikipedia.org/wiki/Thyroid_function_tests#Free_thyroxine_index)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003517.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Thyroxine) | 6.7-7.9 | serum |
| Hormone | Triiodothyronine, free (fT3)  [Wikipedia](http://en.wikipedia.org/wiki/Thyroid_function_tests#Free_triiodothyronine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003687.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Triiodothyronine) | 3.7-6.5 pmol/L, 2.4-4.2 pg/mL | serum |
| Hormone | Triiodothyronine, total (T3)  [Wikipedia](http://en.wikipedia.org/wiki/Thyroid_function_tests#Total_triiodothyronine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003687.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=Triiodothyronine) | 1.2-2.1 nmol/L, 77-135 ng/dL | serum |
| Hormone | Vasoactive intestinal polypeptide  [Wikipedia](http://en.wikipedia.org/wiki/Vasoactive_intestinal_polypeptide)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003508.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Vasoactive+intestinal+polypeptide%22) | 0-60 ng/L, 0-60 pg/mL | plasma |
| Immunology | Beta-2 microglobulin (B2M)  [Wikipedia](http://en.wikipedia.org/wiki/Beta-2-microglobulin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22beta-2+microglobulin%22) | < 2.7 mg/L, < 0.27 mg/dL | serum |
| Immunology | C1 esterase inhibitor (C1-INH)  [Wikipedia](http://en.wikipedia.org/wiki/C1-inhibitor)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003353.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=C1+esterase+inhibitor) | antigenic: 124-250 mg/L, 12.4-24.5 mg/dL; functional: present | serum |
| Immunology | Complement  [Wikipedia](http://en.wikipedia.org/wiki/Complement_system)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003456.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+complement%22) | C3: 0.83-1.77 g/L, 83-177 mg/dL  C4: 0.16-0.47 g/L, 16-47 mg/dL  Total hemolytic complement (CH50): 50-150%  Factor B: 0.17-0.42 g/L, 17-42 mg/dL | serum |
| Immunology | Immunofixation  [Wikipedia](http://en.wikipedia.org/wiki/Immunofixation)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003543.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=immunofixation) | no bands | serum |
| Immunology | Immunoglobulin, adult  [Wikipedia](http://en.wikipedia.org/wiki/Immunoglobulin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=immunoglobulin) | IgA: 0.70-3.50 g/L, 70-350 mg/dL  IgD: 0-140 mg/L, 0-14 mg/dL  IgE: 24-430 μg/L, 10-179 IU/mL  IgG: 7.0-17.0 g/L, 700-17000 mg/dL      IgG1: 2.7-17.4 g/L, 270-1740 mg/dL      IgG2: 0.3-6.3 g/L, 30-630 mg/dL      IgG3: 0.13-3.2 g/L, 13-320 mg/dL      IgG4: 0.11-6.2 g/L, 11-620 mg/dL  IgM: 0.50-3.0 g/L, 50-300 mg/dL | serum |
| Immunology | Rheumatoid factor  [Wikipedia](http://en.wikipedia.org/wiki/Rheumatoid_factor)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003548.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22rheumatoid+factor%22) | < 30 kIU/L, < 30 IU/mL | serum |
| Ion, trace metal, etc. | Calcium, ionized (free)  [Wikipedia](http://en.wikipedia.org/wiki/Serum_calcium#Measurement)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003486.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+calcium%22) | 1.12-1.32 mmol/L, 4.5-5.3 mg/dL | whole blood |
| Ion, trace metal, etc. | Calcium, total  [Wikipedia](http://en.wikipedia.org/wiki/Serum_calcium#Measurement)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003477.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+calcium%22) | 2.2-2.6 mmol/L, 8.7-10.2 mg/L | serum |
| Ion, trace metal, etc. | Ceruloplasmin  [Wikipedia](http://en.wikipedia.org/wiki/Ceruloplasmin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003662.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Ceruloplasmin) | 250-630 mg/L, 25-36 mg/dL | serum |
| Ion, trace metal, etc. | Chloride  [Wikipedia](http://en.wikipedia.org/wiki/Serum_chloride)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003485.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+chloride%22) | 102-109 mmol/L, 102-109 meq/L | serum |
| Ion, trace metal, etc. | Ferritin  [Wikipedia](http://en.wikipedia.org/wiki/Ferritin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003490.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=ferritin) | Male: 29-248 μg/L, 29-248 ng/mL  Female: 10-150 μg/L, 10-150 ng/mL | serum |
| Ion, trace metal, etc. | Iron  [Wikipedia](http://en.wikipedia.org/wiki/Serum_iron)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003488.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+iron%22) | 7-25 μmol/L, 41-141 μg/dL | serum |
| Ion, trace metal, etc. | Iron-binding capacity, total (TIBC)  [Wikipedia](http://en.wikipedia.org/wiki/Iron-binding_capacity)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003489.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22total+iron+binding+capacity%22) | 45-73 μmol/L, 251-406 μg/dL | serum |
| Ion, trace metal, etc. | Iron-binding capacity, saturation (iron/TIBC x 100)  [Wikipedia](http://en.wikipedia.org/wiki/Iron-binding_capacity)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003489.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22iron+binding+capacity%22+AND+saturation) | 16-35% | serum |
| Ion, trace metal, etc. | Magnesium  [Wikipedia](http://en.wikipedia.org/wiki/Magnesium#Biological_role)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003487.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+magnesium%22) | 0.62-0.95 mmol/L, 1.5-2.3 mg/dL | serum |
| Ion, trace metal, etc. | Osmolarity  [Wikipedia](http://en.wikipedia.org/wiki/Plasma_osmolarity)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/000304.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22plasma+osmolarity%22) | 275-295 mOsmol/kg serum water | plasma |
| Ion, trace metal, etc. | Phosphorus, inorganic  [Wikipedia](http://en.wikipedia.org/wiki/Phosphorus#Biological_role)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003478.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+phosphorus%22) | 0.81-1.4 mmol/L, 2.5-4.3 mg/dL | serum |
| Ion, trace metal, etc. | Potassium  [Wikipedia](http://en.wikipedia.org/wiki/Potassium_in_biology)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/000479.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+potassium%22) | 3.5-5.0 mmol/L, 3.5-5.0 meq/L | serum |
| Ion, trace metal, etc. | Sodium  [Wikipedia](http://en.wikipedia.org/wiki/Serum_sodium)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003481.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+sodium%22) | 136-146 mmol/L, 136-146 meq/L | serum |
| Ion, trace metal, etc. | Transferrin  [Wikipedia](http://en.wikipedia.org/wiki/Transferrin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003489.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=transferrin) | 2.0-4.0 g/L, 200-400 mg/dL | serum |
| Ion, trace metal, etc. | Zinc  [Wikipedia](http://en.wikipedia.org/wiki/Zinc#Biological_role)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+zinc%22) | 11.5-18.4 μmol/L 75-120 μg/dL | serum |
| Lipid | Cholesterol, HDL  [Wikipedia](http://en.wikipedia.org/wiki/HDL_cholesterol)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003491.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22HDL+cholesterol%22) | Low: < 40 mg/dL, 1.03 mmol/L  High: > 60 mg/dL, 1.55 mmol/L | serum |
| Lipid | Cholesterol, LDL  [Wikipedia](http://en.wikipedia.org/wiki/LDL_cholesterol)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003491.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22LDL+cholesterol%22) | Optimal: < 100 mg/dL, 2.59 mmol/L  High: 160-189 mg/dL, 4.14-4.89 mmol/L | serum |
| Lipid | Cholesterol, total  [Wikipedia](http://en.wikipedia.org/wiki/Cholesterol)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003491.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=cholesterol) | Desirable: < 200 mg/dL, 5.17 mmol/L  High: >240 mg/dL, 6.21 mmol/L | serum |
| Lipid | Triglycerides  [Wikipedia](http://en.wikipedia.org/wiki/Triglyceride)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003493.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=triglycerides) | 30-200 mg/dL, 0.34-2.26 mmol/L | serum |
| Liver function | 5'-Nucleotidase  [Wikipedia](http://en.wikipedia.org/wiki/Nucleotidase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003575.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%225'+Nucleotidase%22) | 0.02-0.19 μkat/L, 0-11 U/L | serum |
| Liver function | Alanine (amino)transferase (ALT, SGPT)  [Wikipedia](http://en.wikipedia.org/wiki/Alanine_transaminase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003473.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Alanine+transferase%22) | 0.12-0.70 μkat/L, 7-41 U/L | serum |
| Liver function | Albumin  [Wikipedia](http://en.wikipedia.org/wiki/Albumin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003480.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+albumin%22) | Male: 40-50 g/L, 4.0-5.0 g/dL  Female: 41-53 g/L, 4.1-5.3 g/dL | serum |
| Liver function | Aspartate (amino)transaminase (AST, SGOT)  [Wikipedia](http://en.wikipedia.org/wiki/Aspartate_transaminase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003472.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Aspartate+transaminase%22) | 0.20-0.65 μkat/L, 12-38 U/L | serum |
| Liver function | Bilirubin  [Wikipedia](http://en.wikipedia.org/wiki/Bilirubin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003479.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=bilirubin) | Total: 5.1-22 μmol/L, 0.3-1.3 mg/dL  Direct: 1.7-6.8 μmol/L, 0.1-0.4 mg/dL  Indirect: 3.4-15.2 μmol/L, 0.2-0.9 mg/dL | serum |
| Liver function | Phosphatase, alkaline  [Wikipedia](http://en.wikipedia.org/wiki/Alkaline_phosphatase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003470.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22alkaline+phosphatase%22) | 0.56-1.63 nkat/L, 33-96 U/L | serum |
| Liver function | Prealbumin (Transthyretin)  [Wikipedia](http://en.wikipedia.org/wiki/Prealbumin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Transthyretin+OR+prealbumin) | 170-340 mg/L, 17-34 mg/dL | serum |
| Liver function | Protein, albumin  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003480.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=albumin) | 35-55 g/L, 3.5-5.5 g/dL, 50-60% | serum |
| Liver function | Protein, globulins (total)  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003540.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=globulin) | 20-35 g/L, 2.0-3.5 g/dL, 40-50% | serum |
| Liver function | Protein, alpha1 globulins  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003540.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22alpha+globulin%22) | 2-4 g/L, 0.2-0.4 g/dL, 4.2-7.2% | serum |
| Liver function | Protein, alpha2 globulins  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003540.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22alpha+globulin%22) | 5-9 g/L, 0.5-0.9 f/dL, 6.8-12% | serum |
| Liver function | Protein, beta globulins  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003540.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22beta+globulin%22) | 6-11 g/L, 0.6-1.1 g/dL, 9.3-15% | serum |
| Liver function | Protein, gamma globulins  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003540.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22gamma+globulin%22) | 7-17 g/L, 0.7-1.7 g/dL, 13-23% | serum |
| Liver function | Protein, total  [Wikipedia](http://en.wikipedia.org/wiki/Serum_protein_electrophoresis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003540.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22serum+protein%22) | 67-86 g/L, 6.7-8.6 g/dL | serum |
| Metabolite | Acetoacetate  [Wikipedia](http://en.wikipedia.org/wiki/Acetoacetate)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=acetoacetate) | 20-99 μmol/L, 0.2-1.0 mg/dL | plasma |
| Metabolite | Ammonia as NH3  [Wikipedia](http://en.wikipedia.org/wiki/Ammonia)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003506.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=ammonia) | 11-35 μmol/L, 19-60 μg/dL | plasma |
| Metabolite | Beta-hydroxybutyrate  [Wikipedia](http://en.wikipedia.org/wiki/Beta-hydroxybutyrate)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Beta-hydroxybutyrate) | 0-290 μmol/L, 0-3 mg/dL | plasma |
| Metabolite | Creatinine  [Wikipedia](http://en.wikipedia.org/wiki/Creatinine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003475.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=creatinine) | Male: 53-106 μmol/L, 0.6-1.2 ng/mL  Female: 44-80 μmol/L, 0.5-0.9 ng/mL | serum |
| Metabolite | Fatty Acids, free non-esterified  [Wikipedia](http://en.wikipedia.org/wiki/Free_fatty_acids)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22free+Fatty+Acids%22) | <0.28-0.89 mmol/L, <8-25 mg/dL | plasma |
| Metabolite | Fructosamine  [Wikipedia](http://en.wikipedia.org/wiki/Fructosamine)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=fructosamine) | <285 μmol/L | serum |
| Metabolite | Glucose  [Wikipedia](http://en.wikipedia.org/wiki/Glucose)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003482.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22fasting+glucose%22) | Fasting: 4.2-6.1 mmol/L, 75-110 mg/dL  Postprandial (2 h): 3.9-6.7 mmol/L, 70-120 mg/dL | plasma |
| Metabolite | Homocysteine  [Wikipedia](http://en.wikipedia.org/wiki/Homocysteine)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Homocysteine) | 4.4-10.8 μmol/L | plasma |
| Metabolite | Ketone (acetone)  [Wikipedia](http://en.wikipedia.org/wiki/Ketosis)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003498.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=ketone) | none | serum |
| Metabolite | Lactate  [Wikipedia](http://en.wikipedia.org/wiki/Lactic_acid)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003507.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Lactate) | arterial: 0.5-1.6 mmol/L, 4.5-114.4 mg/dL  venous: 0.5-2.2 mmol/L, 4.5-19.8 mg/dL | plasma |
| Metabolite | Lipoprotein(a)  [Wikipedia](http://en.wikipedia.org/wiki/Lipoprotein%28a%29)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/007262.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Lipoprotein(a)) | 0-300 mg/L, 0-30 mg/dL | serum |
| Metabolite | Metanephrine  [Wikipedia](http://en.wikipedia.org/wiki/Metanephrine)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=metanephrine) | <0.5 nmol/L, <100 pg/mL | plasma |
| Metabolite | Pyruvate, arterial or venous  [Wikipedia](http://en.wikipedia.org/wiki/Pyruvate)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=pyruvate) | Arterial: 40-130 μmol/L, 0.35-1.14 mg/dL | plasma |
| Metabolite | Urea nitrogen (BUN)  [Wikipedia](http://en.wikipedia.org/wiki/Urea_nitrogen)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003474.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22urea+nitrogen%22+OR+BUN) | 2.5-7.1 mmol/L, 7-20 mg/dL | serum |
| Metabolite | Uric Acid  [Wikipedia](http://en.wikipedia.org/wiki/Uric_acid)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003476.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22uric+acid%22) | Male: 0.18-0.41 μmol/L, 3.1-7.0 mg/dL  Female: 0.15-0.33 μmol/L, 2.5-5.6 mg/dL | serum |
| Misc. enzyme | Aldolase, fructose-bisphosphate  [Wikipedia](http://en.wikipedia.org/wiki/Aldolase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003566.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=aldolase) | 26-138 nkat/L, 1.5-8.1 U/L | serum |
| Misc. enzyme | Alpha 1-antitrypsin  [Wikipedia](http://en.wikipedia.org/wiki/Alpha_1-antitrypsin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003715.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Alpha+1-antitrypsin%22) | 1.0-2.0 g/L, 100-200 mg/dL | serum |
| Misc. enzyme | Amylase  [Wikipedia](http://en.wikipedia.org/wiki/Amylase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003464.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=amylase) | 0.34-1.6 μkat/L, 20-96 U/L | serum |
| Misc. enzyme | Angiotensin converting enz. (ACE)  [Wikipedia](http://en.wikipedia.org/wiki/Angiotensin-converting_enzyme)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003567.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Angiotensin+converting+enzyme%22) | 0.15-1.1 μnkat/L, 9-67 U/L | serum |
| Misc. enzyme | Cholinesterase  [Wikipedia](http://en.wikipedia.org/wiki/Cholinesterase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003358.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=cholinesterase) | 5-12 kU/L, 5-12 U/mL | serum |
| Misc. enzyme | Gamma-glutamyltransferase  [Wikipedia](http://en.wikipedia.org/wiki/Gamma-glutamyltransferase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003458.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Gamma-glutamyltransferase) | 0.15-0.99 μkat/L, 9-58 U/L | serum |
| Misc. enzyme | Lactate dehydrogenase  [Wikipedia](http://en.wikipedia.org/wiki/Lactate_dehydrogenase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003471.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Lactate+dehydrogenase%22) | 2.0-3.8 μkat/L, 115-221 U/L  Fract 1: 14-26%, Fract 2: 29-39%, Fract 3: 20-26%, Fract 4: 8-16%, Fract 5: 6-16% | serum |
| Misc. enzyme | Lipase  [Wikipedia](http://en.wikipedia.org/wiki/Lipase)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003465.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=lipase) | 0.51-0.73 μkat/L, 3-43 U/L | serum |
| Neurotransmitter | Dopamine  [Wikipedia](http://en.wikipedia.org/wiki/Dopamine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003561.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=dopamine) | < 475 pmol/L, < 87 pg/mL | plasma |
| Neurotransmitter | Epinephrine (adrenalin)  [Wikipedia](http://en.wikipedia.org/wiki/Epinephrine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003561.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=epinephrine) | Supine (30 min): < 273 pmol/L, < 50 pg/mL  Sitting: < 328 pmol/L, < 60 pg/mL  Standing (30 min): < 491 pmol/L, < 90 pg/mL | plasma |
| Neurotransmitter | Norepinephrine (noradrenalin)  [Wikipedia](http://en.wikipedia.org/wiki/Norepinephrine)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003561.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=norepinephrine) | Supine (30 min): 650-2423 pmol/L, 110-410 pg/mL  Sitting: 709-4019 pmol/L, 120-680 pg/mL  Standing (30 min): 739-4137 pmol/L, 125-700 pg/mL | plasma |
| Neurotransmitter | Serotonin  [Wikipedia](http://en.wikipedia.org/wiki/Serotonin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003562.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=serotonin) | 0.28-1.14 μmol/L, 50-200 ng/mL | whole blood |
| Sex hormone | 17-hydroxyprogesterone, adult  [Wikipedia](http://en.wikipedia.org/wiki/17-hydroxyprogesterone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003713.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=17-hydroxyprogesterone) | Male: 0.15-7.5 nmol/L, 5-250 ng/dL  Female, follicular phase: 0.6-3.0 nmol/L, 20-100 ng/dL  Female, mid-cycle peak: 3-7.5 nmol/L, 100-250 ng/dL  Female, luteal phase: 3-15 nmol/L, 100-500 ng/dL  Female, postmenopausal: <2.1 nmol/L, <70 ng/dL | serum |
| Sex hormone | Human chorionic gonadotropin (hCG)  [Wikipedia](http://en.wikipedia.org/wiki/Human_chorionic_gonadotropin)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003510.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Human+chorionic+gonadotropin%22) | Non-pregnant female: < 5 IU/L (or mIU/mL)  1-2 weeks postconception: 9-130 IU/L  2-3 weeks postconception: 75-2600 IU/L  3-4 weeks postconception: 850-20,800 IU/L  4-5 weeks postconception: 4000-100,200 IU/L  5-10 weeks postconception: 11,500-289,000 IU/L  10-14 weeks postconception: 18,300-137,000 IU/L  Second trimester: 1400-53,000 IU/L  Third trimester: 940-60,000 IU/L | serum |
| Sex hormone | Leutinizing hormone (LH)  [Wikipedia](http://en.wikipedia.org/wiki/Leutinizing_hormone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003708.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Leutinizing+hormone%22) | Male: 2.0-12.0 U/L  Female, follicular phase: 2.0-15.0 U/L  Female, ovulatory phase: 22.0-105.0 U/L  Female, luteal phase: 16.0-64.0 U/L  Female, postmenopausal: 16-64 U/L | serum, plasma |
| Sex hormone | N-telopeptide, cross-linked (NTx)  [Wikipedia](http://en.wikipedia.org/wiki/N-terminal_telopeptide)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/000414.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=N-telopeptide) | Male: 5.4-24.2 nmol bone collagen equivalent (BCE)  Female, premenopausal: 6.2-19.0 nmol BCE | serum |
| Sex hormone | Progesterone  [Wikipedia](http://en.wikipedia.org/wiki/Progesterone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003714.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=progesterone) | Male: <3.18 nmol/L, <1.0 ng/mL  Female, follicular: <3.18 nmol/L, <1.0 ng/mL  Female, midluteal: 9.54-63.6 nmol/L, 3-20 ng/mL | serum, plasma |
| Sex hormone | Sex hormone binding globulin, adult  [Wikipedia](http://en.wikipedia.org/wiki/Sex_hormone_binding_globulin)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Sex+hormone+binding+globulin%22) | Male: 13-71 nmol/L  Female: 18-114 nmol/L | serum |
| Sex hormone | Testosterone, free  [Wikipedia](http://en.wikipedia.org/wiki/Testosterone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003707.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=testosterone) | Male: 163-847 pmol/L, 47-244 pg/mL  Female: 2.1-3.6 pmol/L, 0.6-6.8 pg/mL | serum |
| Sex hormone | Testosterone, total, morning sample  [Wikipedia](http://en.wikipedia.org/wiki/Testosterone)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003707.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed/?term=testosterone) | Male: 9.36-37.10 nmol/L, 270-1070 ng/dL  Female: 0.21-2.98 nmol/L, 6-86 ng/dL | serum |
| Tumor marker | Alpha-fetoprotein (adult)  [Wikipedia](http://en.wikipedia.org/wiki/Alpha_fetoprotein)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003573.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=Alpha-fetoprotein) | 0-8.5 μg/L, 0-8.5 ng/mL | serum |
| Tumor marker | CA-125 (MUC16)  [Wikipedia](http://en.wikipedia.org/wiki/CA-125)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/007217.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=CA-125) | 0-35 kU/L, 0-35 U/mL | serum |
| Tumor marker | CA-15-3 (MUC1)  [Wikipedia](http://en.wikipedia.org/wiki/CA_15-3)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=CA+15-3) | 0-34 kU/L, 0-34 U/mL | serum |
| Tumor marker | CA-19-9  [Wikipedia](http://en.wikipedia.org/wiki/CA_19-9)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=CA19-9) | 0-37 kU/L, 0-37 U/mL | serum |
| Tumor marker | CA-27-29  [Wikipedia](http://en.wikipedia.org/wiki/Ca_27-29)                                [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22CA+27-29%22) | 0-40 kU/L, 0-40 U/mL | serum |
| Tumor marker | Carcinoembryonic antigen (CEA)  [Wikipedia](http://en.wikipedia.org/wiki/Carcinoembryonic_antigen)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003574.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Carcinoembryonic+antigen%22) | Nonsmokers: 0-3.0 μg/L, 0-3.0 ng/mL  Smokers: 0-5.0 μg/L, 0-5.0 ng/mL | serum |
| Tumor marker | Prostate-specific antigen (PSA), Male  [Wikipedia](http://en.wikipedia.org/wiki/Prostate_specific_antigen)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/003346.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Prostate+specific+antigen%22) | <40 yrs: 0-2.0 μg/L, 0-2.0 ng/mL  >40 yrs: 0-4.0 μg/L, 0-4.0 ng/mL  Free PSA at 45-75 yrs w/ PSA of 4-20 μg/mL: >25% suggestive of BPH | serum |
| Vitamin | Vitamin A  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_A)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002400.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+a%22) | 0.7-3.5 μmol/L, 20-100 μg/dL | serum |
| Vitamin | Vitamin B1 (thiamine)  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_B1)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002401.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+b1%22) | 0-75 nmol/L, 0-2 μg/dL | serum |
| Vitamin | Vitamin B2 (riboflavin)  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_B2)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002411.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+b2%22) | 106-638 nmol/L, 4-24 μg/dL | serum |
| Vitamin | Vitamin B6  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_B6)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002402.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+b6%22) | 20-121 nmol/L, 5-30 ng/mL | plasma |
| Vitamin | Vitamin B12  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_B12)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002403.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+b12%22) | 206-735 pmol/L, 279-996 pg/mL | serum |
| Vitamin | Vitamin C (ascorbate)  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_C)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002404.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+c%22) | 23-57 μmol/L, 0.4-1.0 mg/dL | serum |
| Vitamin | Vitamin D3 (1,25-dihydroxy)  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_D)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002405.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+d3%22) | 60-108 pmol/L, 25-45 pg/mL | serum |
| Vitamin | Vitamin D3 (25-hydroxy)  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_D)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002405.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+d3%22) | Summer: 37.4-200 nmol/L, 15-80 ng/mL  Winter: 34.9-105 nmol/L, 14-42 ng/mL | plasma |
| Vitamin | Vitamin E  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_E)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002406.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+e%22) | 12-42 μmol/L, 5-18 μg/mL | serum |
| Vitamin | Vitamin K  [Wikipedia](http://en.wikipedia.org/wiki/Vitamin_K)   [MedLinePlus](http://www.nlm.nih.gov/medlineplus/ency/article/002407.htm)   [PubMed](http://www.ncbi.nlm.nih.gov/pubmed?term=%22vitamin+k%22) | 0.29-2.64 nmol/L, 0.13-1.19 ng/mL | serum |

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