

**NCCPA LABORATORY VALUES**  
(Normal values for healthy adults)

**REFERENCE RANGE**

**BLOOD, PLASMA, SERUM**

|   |   |                 |                 |               |
|---|---|-----------------|-----------------|---------------|
| Alanine aminotransferase (ALT, GPT, SGPT) .....   | 8-20 U/L  |                 |                 |               |
| Alkaline phosphatase .....                        | 20-70 U/L   |                 |                 |               |
| Ammonia .....                                     | 10-80 µg/dL   |                 |                 |               |
| Amylase .....                                     | 25-125 U/L  |                 |                 |               |
| Aspartate aminotransferase (AST, GOT, SGOT) ..... | 8-20 U/L  |                 |                 |               |
| Brain natriuretic peptide (BNP) .....             | <50 pg/mL   |                 |                 |               |
| Bicarbonate .....                                 | 22-28 mEq/L   |                 |                 |               |
| Bilirubin (Total // Direct).....                  | 0.1-1.0 mg/dL // 0.0-0.3 mg/dL  |                 |                 |               |
| Calcium .....                                     | 8.4-10.2 mg/dL  |                 |                 |               |
| Chloride .....                                    | 95-105 mEq/L  |                 |                 |               |
| C-reactive protein .....                          | <5 mg/L   |                 |                 |               |
| C-reactive protein, high sensitivity.....         | Low: <1.0 mg/L<br>Average: 1.0-3.0 mg/L<br>High: >3.0 mg/L  |                 |                 |               |
| Creatine kinase .....                             | Male: 25-90 U/L<br>Female: 10-70 U/L  |                 |                 |               |
| Creatinine .....                                  | 0.6-1.2 mg/dL   |                 |                 |               |
| Fibrinogen .....                                  | 200-400 mg/dL   |                 |                 |               |
| Ferritin .....                                    | Male: 15-200 ng/mL<br>Female: 12-150 ng/mL  |                 |                 |               |
| Folate .....                                      | 3-20 ng/mL  |                 |                 |               |
| Follicle-stimulating hormone .....                | Male: 4-25 mIU/mL<br>Female: premenopause 4-30 mIU/mL<br>midcycle peak 10-90 mIU/mL<br>postmenopause 40-250 mIU/mL      |                 |                 |               |
| Gamma-glutamyl transferase .....                  | <30 U/L   |                 |                 |               |
| Gases, arterial blood (room air)                  |   |                 |                 |               |
| pH.....   | 7.35-7.45   |                 |                 |               |
| pCO <sub>2</sub> .....                            | 33-45 mmHg  |                 |                 |               |
| pO <sub>2</sub> .....                             | 75-105 mmHg   |                 |                 |               |
| HCO <sub>3</sub> .....                            | 22-26 mEq/L   |                 |                 |               |
| Glucose .....                                     | Fasting: 70-99 mg/dL<br>2-h postprandial: <120 mg/dL  |                 |                 |               |
| Hemoglobin A <sub>1c</sub> .....                  | Up to 5.7% of total hemoglobin  |                 |                 |               |
| Iron .....  | 50-170 µg/dL  |                 |                 |               |
| Lactate.....                                      | 0.5-2.0 mEq/L   |                 |                 |               |
| Lactate dehydrogenase (LDH) .....                 | 45-90 U/L   |                 |                 |               |
| Luteinizing hormone .....                         | Female: follicular phase 1-18 mU/mL<br>luteal phase 0.4-20 mU/mL<br>midcycle 24-105 mU/mL<br>postmenopausal 15-62 mU/mL |                 |                 |               |
| Lipase.....                                       | 0-160 U/L   |                 |                 |               |
| Lipids  |   |                 |                 |               |
|   |   |                 |                 |               |
| Desirable   | Total Cholesterol   | LDL Cholesterol | HDL Cholesterol | Triglycerides |
| Desirable   | <200 mg/dL  | <130 mg/dL      | >60 mg/dL       | <150 mg/dL    |
| Borderline  | 200-239 mg/dL   | 130-159 mg/dL   | 35-60 mg/dL     | -             |
| Undesirable                                       | ≥240 mg/dL  | ≥160 mg/dL      | <35 mg/dL       | -             |
|   |   |                 |                 |               |
| Magnesium.....                                    | 1.5-2.0 mEq/L   |                 |                 |               |
| Parathyroid hormone.....                          | 11-54 pg/mL   |                 |                 |               |
| Phosphate .....                                   | 3.0-4.5 mg/dL   |                 |                 |               |
| Potassium.....                                    | 3.5-5.0 mEq/L   |                 |                 |               |
| Procalcitonin (PCT) .....                         | <0.05 µg/L  |                 |                 |               |
| Prolactin .....                                   | <20 ng/mL   |                 |                 |               |
| Protein   |   |                 |                 |               |
| Total .....                                       | 6.0-7.8 g/dL  |                 |                 |               |
| Albumin .....                                     | 3.5-5.5 g/dL  |                 |                 |               |
| Globulin .....                                    | 2.3-3.5 g/dL  |                 |                 |               |
| Sodium .....                                      | 136-145 mEq/L   |                 |                 |               |
| Thyroid-stimulating hormone.....                  | 0.5-5.0 µU/mL   |                 |                 |               |
| Thyroxine (T <sub>4</sub> ).....                  | 5-12 µg/dL  |                 |                 |               |
| Free thyroxine (T <sub>4</sub> ).....             | 0.9-2.1 ng/dL   |                 |                 |               |
| Total iron-binding capacity.....                  | 250-370 µg/dL   |                 |                 |               |

## REFERENCE RANGE

### **BLOOD, PLASMA, SERUM (continued)**

|  |                                      |
|--|--------------------------------------|
| Triiodothyronine (T <sub>3</sub> ).....                | 115-190 ng/dL                        |
| Free triiodothyronine (T <sub>3</sub> ).....           | 230-420 pg/dL                        |
| Triiodothyronine (T <sub>3</sub> ), resin uptake ..... | 25-35%                               |
| Troponins  |                                      |
| Conventional troponin I.....                           | 0-0.04 ng/mL                         |
| Conventional troponin T.....                           | 0-0.01 ng/mL                         |
| High-sensitivity troponin I .....                      | Male: 0-20 ng/L<br>Female: 0-15 ng/L |
| High-sensitivity troponin T .....                      | 0-14 ng/L                            |
| Urea nitrogen (BUN).....                               | 7-18 mg/dL                           |
| Uric acid, .....                                       | 3.0-8.2 mg/dL                        |
| Vitamin B <sub>12</sub> .....                          | 200-600 pg/mL                        |

### **CEREBROSPINAL FLUID**

|                       |                           |
|-----------------------|---------------------------|
| Cell count .....      | 0-5 cells/mm <sup>3</sup> |
| Chloride .....        | 118-132 mEq/L             |
| Gamma globulin .....  | 3-12% total proteins      |
| Glucose .....         | 40-70 mg/dL               |
| Opening pressure..... | 70-180 mmH <sub>2</sub> O |
| Protein, total .....  | <40 mg/dL                 |

### **SYNOVIAL FLUID**

|                         |                       |
|-------------------------|-----------------------|
| Appearance .....        | Clear, light yellow   |
| Glucose .....           | Nearly equal to serum |
| PMNs.....               | <25%                  |
| Red blood cells .....   | 0/ $\mu$ L            |
| White blood cells ..... | <200/ $\mu$ L         |
| Viscosity .....         | High                  |

### **HEMATOLOGIC**

|  |  |
|--|--|
| Red blood cell count.....                        | Male: 4.3-5.9 million/mm <sup>3</sup><br>Female: 3.5-5.5 million/mm <sup>3</sup> |
| Red blood cell distribution width .....          | 11.5-14.5%   |
| Erythrocyte sedimentation rate (Westergren)..... | Male: 0-15 mm/hr<br>Female: 0-20 mm/hr   |
| Hematocrit.....                                  | Male: 41-53%<br>Female: 36-46%   |
| Hemoglobin .....                                 | Male: 13.5-17.5 g/dL<br>Female: 12.0-16.0 g/dL                                   |
| White blood cell count and differential          |  |
| White blood cell count .....                     | 4500-11,000/mm <sup>3</sup>  |
| Segmented neutrophils.....                       | 54-62% (2430-6820/mm <sup>3</sup> )  |
| Bands .....                                      | 3-5% (135-550/mm <sup>3</sup> )  |
| Eosinophils .....                                | 1-3% (45-330/mm <sup>3</sup> )   |
| Basophils .....                                  | 0-0.75% (0-83/mm <sup>3</sup> )  |
| Lymphocytes .....                                | 25-33% (1125-3630/mm <sup>3</sup> )  |
| Monocytes .....                                  | 3-7% (135-770/mm <sup>3</sup> )  |
| Mean corpuscular hemoglobin .....                | 25.4-34.6 pg/cell  |
| Mean corpuscular hemoglobin concentration .....  | 32-36 g/dL   |
| Mean corpuscular volume .....                    | 80-100 $\mu$ m <sup>3</sup>  |
| Partial thromboplastin time .....                | 25-40 seconds  |
| Platelet count.....                              | 150,000-400,000/mm <sup>3</sup>  |
| Prothrombin time .....                           | 11-15 seconds  |
| International normalized ratio (INR).....        | 1  |
| Reticulocyte count .....                         | 0.5-1.5% of red cells  |
| Thrombin time .....                              | 7-12 seconds   |

### **SWEAT**

|                |             |
|----------------|-------------|
| Chloride ..... | 0-35 mmol/L |
|----------------|-------------|

### **URINE**

|                            |  |
|----------------------------|--|
| Creatinine clearance ..... | Male: 97-137 mL/min<br>Female: 88-128 mL/min |
| Sodium .....               | 60-260 mEq/24 hr                             |
| Specific gravity .....     | 1.002-1.028                                  |
| Protein.....               | Male: 0-60 mg/day<br>Female: 0-90 mg/day     |