

**Selected Test Reference Ranges for  
Henry Ford Hospital  
Core & Microbiology Laboratories  
Pathology and Laboratory Medicine**

ANALYTE	REFERENCE RANGE	UNITS
<b>CHEMISTRY (BLOOD, SERUM)</b>		
Albumin	14 – 17 years: 3.2 – 4.5 18 – 59 years: 3.7 – 4.8 60 – 89 years: 3.2 – 4.6 ≥ 90 years: 2.9 – 4.5	g/dL
Alkaline Phosphatase	<15 years: 160-260 15-20 years: 50-180 >20 years: 40-140	IU/L
Alpha Fetoprotein	Male: < 8.1 Non-pregnant Female: < 8.1	ng/mL
Amylase	< 115	IU/L
Beta 2 Microglobulin	<60 years: <2.4 ≥60 years: <3.0	mg/dL
Bilirubin, Total	<1.2	mg/dL
Bilirubin, Direct	<0.3	mg/dL
BUN (Blood Urea Nitrogen)	10 – 25	mg/dL
CA-125	<49	U/mL
Calcium	8.2 – 10.2	mg/dL
Chloride	98 - 111	mmol/L
Carbon Dioxide	≥12 years: 21 – 35 <12 years: 18 – 27	mmol/L
Cholesterol, Total	<200	mg/dL
CPK (Creatine Phosphokinase)	Male < 250 Female < 178	IU/L
Complement C3	90 – 230	mg/dL
Complement C4	10 – 51	mg/dL
Cortisol	Morning: 4.3 - 22.4 Evening: 2.2 - 11.2	µg/dL
C-Reactive Protein	< 0.5	mg/dL
Creatinine	Female or Male, 0-23 months: <0.43 Female or Male, 2-7 years: <0.63 Female or Male, 8-12 years: <0.83 Female or Male, 13-17 years: <1.03 Female >18 years: <1.03 Male >18 years: <1.13	mg/dL
CTNI (Troponin I)	≤18	ng/mL
Digoxin	0.8 - 2.0	ng/mL

ANALYTE	REFERENCE RANGE	UNITS
Estradiol	Female Midcycle: 83 – 495 Female Luteal: 42 – 338 Female Follicular: 23 – 139 Female Postmenopausal: < 48 Male: < 53	pg/mL
Ferritin	Female: 11 - 307 Male: 24 - 336	ng/mL
Folate, Serum	>6.6	ng/mL
Folate, RBC	>280	
Free Light Chain, Kappa	12.5 - 51.5	mg/L
Free Light Chain, Lambda	8.4 - 38.7	mg/L
Free Light Chain Ratio (Kappa/Lambda)	0.88 - 1.91	
FSH	Pediatric < 8 years: 0.3 – 3.0 Pediatric > 8 years: 0.3 – 11.0 Female Follicular Phase: 3.8 – 8.8 Female Midcycle: 4.5 – 22.5 Female Luteal Phase: 1.8 – 5.1 Female Postmenopausal: 16.7 – 113.6 Male ≤ 20 years: 1.3 – 19.3 Male 9 – 19 years: 0.3 – 11.0 Male 1 – 8 years: 0.3 – 3.0 Male < 1 year: 0.2 – 4.1	mIU/mL
Gamma Glutamyl Transferase (GGT)	≥ 1 month: < 70 0-30 days: <270	IU/L
Glucose, Fasting	60 – 99	mg/dL
Glucose, Random	60 – 140	mg/dL
HCG, Quantitative	Male: < 10 Non-pregnant Female: < 10	mIU/mL
HDL Cholesterol	> 40	mg/dL
Hepatitis A Antibody, IgM	Negative	
Hepatitis A Antibody, Total	Negative	
Hepatitis B Surface Antigen	Negative	
Hepatitis B Surface Antibody	Negative	
Hepatitis B Core Antibody, Total	Negative	
Hepatitis C Antibody	Negative	
Immunoglobulin A	70 – 400	mg/dL
Immunoglobulin G	700 – 1600	mg/dL
Immunoglobulin M	40 – 230	mg/dL
Lactate (Lactic Acid)	Plasma: <2.1 Whole Blood: 0.4 – 1.8	mmol/L
LDH (Lactate dehydrogenase)	< 250	IU/L
LDL Cholesterol	< 130	mg/dL
LH (Leutinizing Hormone)	Female Mid-Follicular: 2.12 – 10.89 Female Midcycle: 19.18 – 103.03 Female Mid-Luteal: 1.20 – 12.86 Female Postmenopausal: 10.87 – 58.64 Male: 1.24 – 8.62	mIU/mL
Lipase	<82	IU/L
Magnesium	1.8 - 2.3	mg/dL

These represent HFH lab's reference ranges for predominantly adult males and non-pregnant females. These are specific to the methodology, appear on all printed reports and represent the reference ranges upon which clinical decisions should be based.  
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ANALYTE	REFERENCE RANGE	UNITS
Osmolality	280 - 300	mOs/kg
Phosphorus	≥ 13 years: 2.5 – 4.5 0-12 years: 4.5 – 6.5	mg/dL
Progesterone	Female < 14 years: <0.3 Female Follicular < 1.5 Female Luteal: 5.2 – 18.6 Female Postmenopausal: < 0.8 Male < 14 years: <0.3 Male ≥ 15 years: < 2.0	ng/mL
Protein Electrophoresis & Immunofixation, Serum (SPE & IFIX; Adult)	Albumin 55.8% - 66.1% Alpha 1 Globulins 2.9% - 4.9% Alpha 2 Globulins 5.1% - 8.5% Beta Globulins 8.4% - 13.1% Gammaglobulins 11.1% - 18.8%  Albumin 3.73 – 5.65 Alpha1 Globulins 0.13 – 0.45 Alpha 2 Globulins 0.37 – 0.93 Beta Globulins 0.69 – 1.29 Gammaglobulins 0.58 – 1.50 Monoclonal Protein (IFIX) Absent / Negative	% Total % Total % Total % Total % Total  g/dL g/dL g/dL g/dL g/dL g/dL (if +)
Protein Electrophoresis & Immunofixation, Urine (UPE & IFIX; Adult)	Albumin Absent / Negative Alpha1 Globulins Absent / Negative Alpha 2 Globulins Absent / Negative Beta Globulins Absent / Negative Gammaglobulins Absent / Negative Monoclonal Protein (IFIX) Absent / Negative	g/dL g/dL g/dL g/dL g/dL g/dL (if +)
Potassium	3.5 - 5.0	mmol/L
Prolactin	Male: <13.1 Female: <27.0	ng/mL
Protein, Total	6.0 – 8.3	g/dL
PSA (Prostate Specific Antigen)	< 4.0	ng/mL
Sodium	135 – 145	mmol/L
SGOT (AST)	< 35	IU/L
SGPT (ALT)	< 52	IU/L
T3, Total	87 – 178 (adult)	ng/dL
T4, Total	6.1 – 12.2 (adult)	µg/dL
T3, Free	2.5 – 3.9 (adult)	pg/mL
T4, Free	0.61 – 1.44 (adult)	ng/dL
Testosterone	Male: 175 - 781 Female: < 75	ng/dL
Triglyceride	40 – 200	mg/dL
TSH	0.45 – 5.33	µIU/mL
Uric Acid	Male (adult): 2.5 – 7.5 Female (adult): 1.5 – 6.5	mg/dL

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ANALYTE	REFERENCE RANGE	UNITS
Vitamin B-12	Normal: 180 - 810	pg/mL
<b>CHEMISTRY (URINE)</b>	<b>ADULT REFERENCE RANGE</b>	<b>UNITS</b>
Creatinine Clearance, 24 Hours	80 - 120	mL/min
Osmolality, Random	250 - 1200	mOsm/kg
Protein, Total, 24 hours	< 0.2	g/vol
<b>URINALYSIS</b>	<b>ADULT REFERENCE RANGE</b>	<b>UNITS</b>
pH	5.0 – 8.0	
Specific Gravity	1.005 – 1.030	
Blood	Negative	
Bilirubin	Negative	
Glucose	Negative	mg/dL
Ketones	Negative	mg/dL
Protein	Negative	mg/dL
RBC	< 3	/HPF
WBC	< 10	/HPF
Casts	No reference range	
Crystals	No reference range	
Epithelial Cells	No reference range	
Pregnancy Test, Urine	Negative/not pregnant	
<b>HEMATOLOGY</b>	<b>ADULT REFERENCE RANGE</b>	<b>UNITS</b>
WBC (White Blood Cells)	3.8 - 10.6	K/ $\mu$ L
RBC (Red Blood Cells)	Male: 4.40 - 6.00 Female: 4.15 - 5.55	M/ $\mu$ L
Hemoglobin	Male: 13.5 - 17.0 Female: 12.0 - 15.0	g/dL
Hematocrit	Male: 41 - 53 Female: 36 - 46	%
MCV	80 - 100	fl
MCH	26 - 34	pg
MCHC	31 - 37	g/dl
RDW	< 14.5	%
Platelet Count	150 - 450	K/ $\mu$ L
Lymphocyte Percent	No reference range	%
Monocyte Percent	No reference range	%
Eosinophil Percent	No reference range	%
Basophil Percent	No reference range	%
Neutrophil Percent	No reference range	%
Bands (Manual Differential Only)	Absent	K/uL
Blasts (Manual Differential Only)	Absent	
Absolute Lymphocytes	1.10 - 4.00	K/ $\mu$ L
Absolute Monocytes	0.00 - 0.80	K/ $\mu$ L
Absolute Eosinophils	0.00 - 0.70	K/ $\mu$ L
Absolute Basophils	0.00 - 0.20	K/ $\mu$ L
Absolute Neutrophils	1.80 - 7.70	K/ $\mu$ L
Sedimentation Rate (iSED method)	Male < 50 years: <15 Male $\geq$ 50 years: <20 Female < 50 years: <20 Female $\geq$ 50 years: <30	mm/hr

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ANALYTE	REFERENCE RANGE	UNITS
Reticulocyte Count	Percent: 0.5 - 1.5 Absolute: 20.7 - 83.2	% K/ $\mu$ L
<b>COAGULATION</b>	<b>ADULT REFERENCE RANGE</b>	<b>UNITS</b>
Fibrinogen	200 – 450	mg/dL
Prothrombin Time	11.5 - 14.5	Seconds
INR	Usual Intensity Therapeutic Range: 2.0 - 3.0 High Intensity Therapeutic Range: 2.5 - 3.5 Common Critical Value: $\geq$ 5.0	
APTT	22 - 36	Seconds
<b>SEROLOGY</b>	<b>ADULT REFERENCE RANGE</b>	<b>UNITS</b>
Cytomegalovirus (CMV) Antibody, IgG	< 1.0	ELISA UNITS
Cytomegalovirus (CMV) Antibody, IgM	Negative	
HIV1/2, Elisa Screen	Nonreactive	
RPR	Nonreactive	
VDRL, CSF	Nonreactive	

Approved by:

  
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