

Johns Hopkins Department of Pathology Core Laboratory Reference Ranges

March, 2024

Hematology	Reference Values	Units
WBC	4.50-11.00	K/cu mm
Band neutrophils	2-6	%
Lymphocytes	24-44	%
Monocytes	2-11	%
Eosinophils	1-4	%
Basophils	0-2	%
RBC	M: 4.5-5.9; F 4.0-5.2	M/CU MM
Hemoglobin	M: 13.9-16.3; F: 12.0-15.0	g/dL
Hemoglobin A1C	<5.7	%
Hematocrit	M: 41.0-53.0; F: 36.0-46.0	%
Absolute Retic	24.1- 87.7	K/cu mm
Retic %	>6 mths: 0.5 - 1.8	%
Polys (Segmented Neutrophils)	31-76	%
Neutrophils	40.0-70.0	%
MCH	Adults: 26.0 -34.0	pg
MCHC	2 yrs - Adults: 31.0 -37.0	g/dL
Mean Corpuscular Vol (MCV)	80.0-100.0	fL
Mean platelet volume (MPV)	9.2-12.7	fL
RDW	Birth through Adult: 11.5 -14.5	%
Absolute Neutrophils	1.50-7.80	K/cu mm
Absolute Lymphocytes	1.1-4.8	K/cu mm
Absolute Eosinophils	0.12-0.3	K/cu mm
Absolute Monocytes	0.1-1.2	K/cu mm
Platelet Count	150-350	K/cu mm
Morphology	normocytic normchromic	
Immature Gran Number	0.0-0.05	K/cu mm
Nucleated RBC Number	0.0-0.01	K/cu mm
INR	0.9-1.1	
PT	9.3-11.7	seconds
PTT	23.1-30.9	seconds
Fibrinogen	170.0-422.0	mg/dL

Urinalysis	Reference Values	
Specific Gravity **	1.003-1.030	**
pH **	4.6-8.0	**
Urobilinogen	≤ 1.0 mg/dL	**
Leukocyte esterase	Negative	**
Glucose **	negative	**
Protein **	negative	**
Bilirubin **	negative	**
Ketones **	negative; trace	**
Nitrite **	negative	**
Occult Blood **	negative	**

Microscopic	-	-
RBC *	0-5	#/HPF
WBC *	0-5	#/HPF
Eosinophil	None	#/HPF
Squamous epithelial *	Any number	#/HPF
Transitional cells *	None	#/HPF
Renal Epithelial *	None	#/HPF
Bacteria *	few to none	#/HPF
Casts *	0-3 hyaline	#/LPF
Crystals *	few	#/HPF

Body Fluids	Reference Values	Units
Differentials, Other Cells:		
Cell Count:		
RBC	<100	cu/mm
WBC	<500	cu/mm
Differential: polymorphonuclear	<25	%
CSF		
Differential		
WBC	0-5	cu/mm
Mononuclear cells	0-5	%

*all tests performed by urinalysis microscopic

**all tests performed by urinalysis dipstick

Chemistry (serum)	Reference Values	Units
Sodium	135-148	mmol/L
Potassium ***	3.5-5.1	mmol/L
Chloride ***	96-109	mmol/L
CO2	21-31	mmol/L
Glucose (Fasting) ***	71-99	mg/dL
BUN	7.0-22.0	mg/dL
Creatinine ***	M: 0.6-1.3; F: 0.5-1.2	mg/dL
Calcium ***	8.4-10.5	mg/dL
Total Protein	6.0-8.2	g/dL
Albumin	3.5-5.3	g/dL
Bilirubin, Total	0.0-1.2	mg/dL
AST	M: 0-37; F: 0-31	U/L
ALT	M: 0-40; F: 0-31	U/L
Alkaline Phosphatase ***	30-120	U/L
Amylase	28-100	U/L
Bilirubin, Direct	0.0- 0.4	mg/dL
C-Reactive Protein	0 - 0.5	mg/dL
Creatine Kinase	M: 24-195; F:24-170	U/L
Gamma Glutamyl Transferase	M: 12-55; F: 8 -51	U/L
LDH	M: 118-273; F: 122-220	U/L
Lipase	16-63	U/L
Magnesium	1.6-2.4	mg/dL
Phosphorus ***	2.7-4.5	mg/dL
Uric Acid ***	M: 3.5-7.2; F: 2.4-6.4	mg/dL
Cholesterol ***	0-200	mg/dL
Triglycerides ***	0-150	mg/dL
LDL ***	0-130	mg/dL
HDL	>40	mg/dL
Non-HDL Cholesterol ***	30 mg/dL higher than target LDL-Cholesterol	mg/dL
Beta-Hydroxybutyrate (BHB)	0.00-0.27	mmol/L
Iron ***	M, 16 to 70 years: 65-170 F, 16 years to 70 years: 50-170	ug/dL
Ferritin	M: 30-400; F: 13-150	ng/mL
Transferrin	200-400	mg/dL
Cystatin C	0.61-1.03	mg/L
Apolipoprotein B	0-90	mg/dL
Lactate	0.5-2.0	mmol/L
Ammonia	0-32	umol/L
C-Reactive Protein, High Sensitivity	Relative risk of cardiovascular disease: Low risk: <1.0 Average risk: 1.0-3.0 High risk: >3.0	mg/L
Estimated Glomerular filtration rate (eGFR)	Adults 18 yrs or older	> 60ml/min/1.73sqm

Urine Chemistry		
Albumin to Creatinine Ratio, Urine	0-20	mgAlb/gCr

*** Further Age Specific Reference ranges are available in the Test Directory

Chemistry (serum)	Reference Values	Units
TSH	0.5-4.5	mIU/mL
FT4	0.8-1.8	ng/dL
T4	4.5-11.5	mcg/dL
FT3	2.0-4.9	pg/mL
T3	0.80-2.00	ng/mL
Cortisol	7am - 9am: 4.6 - 23.4 4pm - 6pm: 2.7 - 15.9	mcg/dL
PSA	0.0-4.0	ng/mL
HS-Troponin I	Female: ≤ 12 Male: ≤ 20	ng/L
	Unspecified: ≤ 18	ng/L
CK-MB	0.0-7.0	ug/L
NT-ProBNP	<75 years: <5-125 ≥75 years: <5-450	pg/mL

FLOW CYTOMETRY		
CD8%	Percent %	Absolute cu/mm
0-3 mo.	12-28	-
3-6 mo.	12-23	-
6-12 mo.	12-24	-
1-2 yrs.	14-30	-
2-6 yrs.	16-30	-
6-12 yrs.	18-35	-
12-18 yrs.	18-35	-
18-23 yrs.	10-39	-
> 23 yrs.	10-36	735-1904
CD4%		
0-3 mo.	35-64	1600-4000
3-6 mo.	35-56	1800-4000
6-12 mo.	31-56	1400-4300
1-2 yrs.	32-51	1300-3400
2-6 yrs.	28-47	700-2200
6-12 yrs.	31-47	650-1500
12-18 yrs.	31-52	530-1300
18-23 yrs.	28-57	300-1400
> 23 yrs.	32-68	458-1344
CD3%		
0-3 mo.	53-84	-
3-6 mo.	51-77	-
6-12 mo.	49-76	-
1-2 yrs.	53-75	-
2-6 yrs.	56-75	-
6-12 yrs.	60-76	-
12-18 yrs.	56-84	-
18-23 yrs.	55-83	-
> 23 yrs.	51-91	735-1904
CD34 (Blood)	<0.01-0.07	-
CD34 (Bone Marrow)	0.38-1.82	-

Aaron Tobian

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Reviewed and Approved :

Aaron Tobian, MD., Ph.D.
CLIA Lab Director, Department of Pathology
Johns Hopkins Hospital