

## CLINICAL LABORATORY REFERENCE RANGES

## CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE	UNITS
Albumin	All	3.5-5.7	g/dL
Alpha 1 Anti-trypsin	All	84-218	mg/dL
Alpha Fetoprotein	Adult	≤9	ng/mL
Alkaline Phosphatase	All	36-125	U/L
ALT	All	7-52	U/L
Ammonia	All	27-90	μg/dL
Amylase	All	16-117	U/L
ANA	All	<1.0	Ratio
Anion Gap	All	3 – 16	mmol/L
Anticardiolipin IgA	All	<12.0	APL
Anticardiolipin IgG	All	< 20.0	GPL
Anticardiolipin IgM	All	< 20.0	MPL
Anti-thyroglobulin	All	0.0 – 39.0	IU/mL
AST	All	13-39	U/L
B12	All	180-914	pg/mL
Beta-2-microglobulin	All	0.6 – 2.4	mg/L
Beta hydroxy butyrate	All	0.02-0.27	mmol/L
Bilirubin, Direct	All	0.0-0.4	mg/dL
Bilirubin, Indirect	All	0.0-1.1	mg/dL
Bilirubin, Total	0 - 1 day	0.0-1.5	mg/dL
	1 - 2 days	0.2-7.2	
	3 - 5 days	0.2-10.3	
	6 days – 9 years	0.2-0.8	
	10 years - Adult	0.0-1.5	
BNP	Adult	<100	pg/mL
BNP, NT-Pro	< 75 years	15-125	pg/mL
	≥ 75 years	15-450	
BUN	All	7-25	mg/dL
C3	All	87-200	mg/dL
C4	All	19-52	mg/dL
CA 125	All	5.5-35.0	U/mL
CA 153	All	0.7-35.0	U/mL

**CLINICAL LABORATORY REFERENCE RANGES****CHEMISTRY**

<b>ASSAY</b>	<b>CATEGORY</b>	<b>REFERENCE RANGE</b>	<b>UNITS</b>
CA 199	All	1.4-37.0	U/mL

## CLINICAL LABORATORY REFERENCE RANGES

## CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE	UNITS	
Calcium	All	8.6-10.3	mg/dL	
Ceruloplasmin	All	180-580	mg/L	
Chloride	All	98 – 110	mmol/L	
Cholesterol	All	<200	mg/dL	
CK	All	30-233	U/L	
CKMB	All	0.6-6.3	ng/mL	
CMV IgG	All	Negative		
CMV IgM	All	Negative		
CO2	All	21-33	mmol/L	
Cortisol	All	AM	6.7-22.6	µg/dL
		PM	<10	
		ACTH Stimulation	Over twice (usually 3 to 5 times) basal values	
		Dexamethasone Suppression	Below basal (control) values for the screening, low-dose and high-dose tests	
Cortisol Stimulation	All	An increase in cortisol after stimulation by ACTH is normal. Blood cortisol after ACTH stimulation should be greater than 18 - 20 ug/dL, depending on the dose of cosyntropin used.		
		Samples from patients receiving prednisone or prednisolone should not be assayed for cortisol using this method due to high cross reactivity.		

CLINICAL LABORATORY REFERENCE RANGES

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ASSAY	CATEGORY	REFERENCE RANGE	UNITS
C-peptide	All	0.9-7.10	ng/mL
Creatinine	All	0.6-1.3	mg/dL
CRP	All	<10.0	mg/L
CRP, High Sensitivity	All	<10.0	mg/L
DHEAS	All	Females Age 18-21      51-321 21-30      18-391 31-40      23-266 41-50      19-231 51-60      8-188 61-70      12-133 > 71        7-177 Males Age 18-21      24-537 21-30      85-690 31-40      106-464 41-50      70-495 51-60      38-313 61-70      24-244 > 71        5-253	µg/dL
EBV IgG	All	Negative	
EBV IgM	All	Negative	
Estradiol	Males		pg/mL
	<47		
	Females		
	Mid Follicular Phase	27-122	
	Mid Luteal Phase	49-291	
	Peri-ovulatory Phase	95-433	
	Post Menopausal	<40	

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ASSAY	CATEGORY	REFERENCE RANGE		UNITS
Ferritin	All	Male	Female	ng/mL
		23.9-336.2	11-306.8	
Folate	All	5.9-24.8		ng/mL
Free T3	All	2.0-3.6		pg/mL
Free T4	All	0.61 – 1.76		ng/dL
FSH	Males			mIU/mL
	1.27-19.26			
	Females			
	Mid Follicular Phase	3.85-8.78		
	Midcycle Peak	4.54-22.51		
	Mid Luteal Phase	1.79-5.12		
	Post Menopausal	16.74-113.59		
GGT	All	9-64		U/L
Glucose, serum/plasma	0 – 1 month	40 – 90		mg/dL
	2months – 6 years	74 – 127		
	>6 years	70-100		
Glucose, CSF	All	40 – 70		mg/dL
Glycohemoglobin	All	4.8 – 6.4		% (NGSP units)
Haptoglobin	All	44-215		mg/dL
HDL	All	≥60		mg/dL
HCG, Quant	Gestational Age (weeks)	Mean hCG		mIU/mL
	0.2 - 1	5-50		
	1-2	50-500		
	2-3	100-5,000		
	3-4	500-10,000		
	4-5	1,000-50,000		
	5-6	10,000-100,000		
	6-8	15,000-200,000		
	8-12	10,000-100,000		
HCG, Qualitative serum	Females	Negative		

## CLINICAL LABORATORY REFERENCE RANGES

## CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE	UNITS
Hepatitis A IgM	All	Negative	
Hepatitis A Total Antibody	All	Negative	
Hepatitis B Core Antibody	All	Negative	
Hepatitis B Core IgM	All	Negative	
Hepatitis B Surface Antibody	All	Negative	
Hepatitis B Surface Antigen	All	Negative	
Hepatitis C Antibody	All	Negative	
HIV 1 and 2 Antibody; p24 Antigen	All	Non Reactive	
Homocysteine	All	5.0 – 12.0	umol/L
IgA	All	82.0-453.0	mg/dL
IgE	All	1.31-165.3	IU/mL
IgG	All	751.0-1560 .0	mg/dL
IgM	All	46.0-304.0	mg/dL

CLINICAL LABORATORY REFERENCE RANGES

CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE	UNITS
Insulin	All	2.00 – 29.10	mIU/mL
Iron	All	50-212	µg/dL
Lactic Acid	All	0.5-2.2	mmol/L
LDH	All	110-270	U/L
LDL, calculated	All	<100	mg/dL
LDL, direct	All	75-193	mg/dL
LH	Males		mIU/mL
	1.24-8.62		
	Females		
	Mid Follicular Phase	2.12-10.89	
	Midcycle Peak	19.18-103.03	
	Mid Luteal Phase	1.20-12.86	
	Post menopausal	10.87-58.64	
Lipase	All	4-82	U/L
Magnesium	All	1.5-2.5	mg/dL
Microalbumin	All	0 - 17	mg/L
Microalbumin/ urine creatinine	All Normal	0-30	mg/g creat
	Microalbminuria	30-299	mg/g creat
	Clinical Albuminuria	>/=300	mg/g creat
Myoglobin	Adult	Male	Female
		17.4-105.7	14.3-65.8
NT-Pro BNP	< 75 years	15-125	
	≥ 75 years	15-450	
Osmolality - serum	All	278 - 305	mOsm/kg
Osmolality - urine	All	50 - 1200	mOsm/kg

## CLINICAL LABORATORY REFERENCE RANGES

## CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE	UNITS
Prealbumin	All	17-34	mg/dL
Phosphorus	All	2.1-4.7	mg/dL
Potassium	0 – 12 months	3.2-6.0	mmol/L
	1 year - 19 years	3.8-5.1	
	>19 years	3.5 – 5.3	
Progesterone	Males	0.14-2.06	
	Non-pregnant Females		
	Mid-Follicular Phase	0.31-1.52	
	Mid-Luteal Phase	5.16-18.56	
	Post Menopausal	<0.08-0.78	
	Pregnant Females		
	First Trimester	4.73-50.74	
	Second Trimester	19.41-45.30	
Prolactin	Males	2.6-13.1	ng/mL
	Females (<50 years)	3.3-26.7	
	Females (≥50 years)	2.7-19.6	
Protein, Total	<1 year	4.1 – 6.3	g/dL
	1 year - Adult	6.4-8.9	
Protein, CSF	<1 year	15-130	mg/dL
	≥ 1year-Adult	15-45	
PSA	All	0.0 – 4.0	ng/mL
PTH/IOPTH	All	12.0-88.0	pg/mL
Rheumatoid Factor	All	<14	IU/mL
RPR	All	Negative	
Sex Hormone Binding Globulin	Male	10-57	nmol/L
	Non-pregnant Females	18-144	



## CLINICAL LABORATORY REFERENCE RANGES

## CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE		UNITS
Sodium	All	135 – 146		mmol/L
T3	All	0.6-2.2		ng/mL
T4	All	4.6-11.5		µg/dL
Testosterone	Male	1.75-7.81		ng/mL
	Female	<0.75		
Thyroglobulin	All	1.6-59.9		ng/mL
TIBC	All	Male	Female	µg/dL
		261-462	265-497	
TP-PA	All	Negative		
Transferrin	All	203-362		mg/dL
TREPIA (Syphilis Screening)	All	Negative		
Triglyceride	All	<150		mg/dL
Troponin I	All	<0.04		ng/mL
TSH	All	0.34-5.60		uIU/mL
Uric Acid	All	3.8-8.7		mg/dL
Urine 24 Total Protein	All	50-80		mg/24hr
Urine 24 Creatinine	All	Male	Female	g/24hr
		1.00-2.00	0.80 - 1.80	
VZV	All	Negative		
Vitamin D	All	Vitamin D deficiency : <20 Vitamin D insufficiency: 21-29		ng/mL

## CLINICAL LABORATORY REFERENCE RANGES

## CHEMISTRY

ASSAY	CATEGORY	REFERENCE RANGE	UNITS
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\*\* The following comment is appended to all HCG Quantitative results: Values from different assay methods may vary. This assay is not approved for and should not be used to diagnose any condition unrelated to pregnancy.

For values between 5 and 25 for HCG Quantitative, the following comment will be reported on the patient report:

\*\*\* Values between 5 and 25 mIU/mL in women should be confirmed by repeat analysis in two to four days if clinically indicated.

**CLINICAL LABORATORY REFERENCE RANGES**

**BLOOD GAS**

ANALYTE	REFERENCE RANGE	SPECIMEN TYPE*	UNITS
*Adult values			
pH	7.350 - 7.450	AO / CP	None
	7.260 - 7.500	CB	
	7.320 - 7.420	V/MV	
pCO <sub>2</sub>	35 – 45	AO / CP	mmHg
	41 – 51	V/MV	
pO <sub>2</sub>	80 – 100	AO / CP	mmHg
	25 – 40	V/MV	
HCO <sub>3</sub>	22.0 - 26.0	AO / CP	mmol/L
	24.0 - 28.0	V/MV	
TCO <sub>2</sub>	23 - 27	AO / CP	mmol/L
	25 - 29	V/MV	
Base Excess	-5	AO	
CSAT	95.0 - 98.0	AO/CP	%
O <sub>2</sub> HB (O <sub>2</sub> Saturation)	95.0 - 98.0	AO	%
	40.0 - 70.0	V	
Calcium, Free	4.5-5.3	AO/CP/V/MV/S	mg/dL
Calcium, Ionized	1.0 – 1.4	DIALYSIS PORT	mg/dL
Sodium	136-146	ALL	mmol/L
Potassium	3.5 – 5.0	ALL	mmol/L
Hemoglobin	12.0 - 16.0 (Female)	AO / V/MV	g/dL
	14.0 - 18.0 (Male)		
Hematocrit	35 - 45 (Female)	AO / CP / V	%
	40 - 52 (Male)		
Carboxyhemoglobin	0 - 2.0 % normal	AO / WB	%
	0 - 8.0 % smokers		
Methemoglobin	0 – 1.5	AO / MV / V / CB	%
Reduced Hemoglobin	0 – 5.0	AO / MV / V / CB	%
Glucose	65 – 99	AO / MV / V / CB	mg/dL
Lactic Acid	0.5 – 2.2	AO/CB	mmol/L

SPECIMEN TYPE	
Code	Description
AO	Arterial
CP	Capillary
CB	Cord Blood
V	Venous
MV	Mixed Venous
WB	Whole Blood
S	Serum

**CLINICAL LABORATORY REFERENCE RANGES****ELECTROPHORESIS****HEMOGLOBIN ELECTROPHORESIS**

ASSAY	REFERENCE RANGE	UNIT
Hemoglobin A	96.0 - 99.0	%
Hemoglobin A2	0.0 - 3.5	%
Hemoglobin F	0.0 - 2.0	%

**PROTEIN ELECTROPHORESIS**

ASSAY	REFERENCE RANGE	UNIT
Kappa Free Light Chains- Serum	3.3-19.4	mg/L
Kappa Free Light Chains- Urine	0.39-15.10	mg/L
Lamda Free Light Chains- Serum	5.7-26.3	mg/L
Lamda Free Light Chains- Urine	0.81-10.10	mg/L

**SERUM PROTEIN ELECTROPHORESIS**

ASSAY	REFERENCE RANGE	UNIT
Albumin	3.70-4.90	g/dL
Alpha-1 globulins	0.20-0.40	g/dL
Alpha-2 globulins	0.50-1.00	g/dL
Beta globulins	0.60-1.00	g/dL
Gamma globulins	0.50-1.50	g/dL

## CLINICAL LABORATORY REFERENCE RANGES

## TOXICOLOGY

## THERAPEUTIC DRUG LEVELS

ASSAY	THERAPEUTIC	TOXIC LEVELS
Acetaminophen	10 – 30 ug/mL	>100 ug/mL
Carbamazepine	4 – 12 ug/mL	>= 20 ug/mL
Digoxin	0.8 – 2.0 ng/mL	>= 2.5 ng/mL
Gentamicin Peak	4-8 ug/mL	n/a
Gentamicin Trough	0.5-1.5 ug/mL	>2.5 ug/mL
Lithium	0.6 – 1.2 mmol/L	>= 1.5 mmol/L
Phenobarbital	15 – 40 ug/mL	>70 ug/mL
Phenytoin	10 – 20 ug/mL	>30 ug/mL
Salicylate	10 – 30 mg/dL	>= 30 mg/dL
Theophylline	10 – 20 ug/mL	> 30 ug/mL
Tobramycin Trough	1 – 2 ug/mL	>2.5 ug/mL
Valproic Acid	50 – 100 ug/mL	>= 150 ug/mL
Vancomycin Peak	n/a	n/a
Vancomycin Random	n/a	> 60 ug/mL
Bilirubin, Indirect	n/a	0.20-0.70
Vancomycin Trough	10-20 ug/mL	>25 ug/mL

## DRUG LEVELS

ASSAY	REFERENCE RANGE
Acetone	< 2.0
Cyclosporine	100-400 ng/mL
Ethyl Alcohol	<10 mg/dL
Ethylene Glycol	None Detected
Glycolic Acid	None Detected
Pentobarbital	None Detected
Tacrolimus	5.0-20.0 ng/mL
Volatiles	None Detected

**CLINICAL LABORATORY REFERENCE RANGES**

**HEMATOLOGY**

**ADULT CBC AND DIFFERENTIAL REFERENCE RANGES**

The reference ranges should be interpreted as up to and including the age specified in the title of each column

Parameter/Units of measurement	Male Reference Ranges				Female Reference Ranges			
	No Age	12y	18y	133y	No Age	12y	18y	133y
WBC/ 10 <sup>3</sup> /μL	3.8-10.8	4.5-13.5	4.5-13.0	3.8-10.8	3.8-10.8	4.5-13.5	4.5-13.0	3.8-10.8
RBC/ 10 <sup>6</sup> /μL	4.20-5.80	4.00-5.20	4.10-5.70	4.20-5.80	3.80-5.10	4.00-5.20	3.80-5.10	3.80-5.10
HGB/ g/dL	13.2-17.1	11.5-15.5	12.0-16.9	13.2-17.1	11.7-15.5	11.5-15.5	11.5-15.3	11.7-15.5
HCT/ %	38.5-50.0	35.0-45.0	36.0-49.0	38.5-50.0	35.0-45.0	35.0-45.0	34.0-46.0	35.0-45.0
MCV/ fL	80.0-100.0	77.0-95.0	78.0-98.0	80.0-100.0	80.0-100.0	77.0-95.0	78.0-98.0	80.0-100.0
MCH/ pg	27.0-33.0	25.0-33.0	25.0-35.0	27.0-33.0	27.0-33.0	25.0-33.0	25.0-35.0	27.0-33.0
MCHC/ g/dL	32.0-36.0	31.0-36.0	31.0-36.0	32.0-36.0	32.0-36.0	31.0-36.0	31.0-36.0	32.0-36.0
RDW/ %	11.0-15.0	11.0-15.0	11.0-15.0	11.0-15.0	11.0-15.0	11.0-15.0	11.0-15.0	11.0-15.0
PLT/ Thous/μL	140-400	140-400	140-400	140-400	140-400	140-400	140-400	140-400
MPV/ fL	7.5-11.5	7.5-11.5	7.5-11.5	7.5-11.5	7.5-11.5	7.5-11.5	7.5-11.5	7.5-11.5
NRBC /100 WBC's	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0
Neutrophil Bands %	0-9	0-4	0-4	0-9	0-9	0-4	0-4	0-9
Absolute Bands /uL	0-750	0-750	0-750	0-750	0-750	0-750	0-750	0-750
Neutrophil %	40-80	40-59	40-62	40-80	40-80	40-59	40-62	40-80
Absolute Neutrophils /uL	1500-7800	1500-8000	1800-8000	1500-7800	1500-7800	1500-1800	1800-8000	1500-7800
Lymphocyte %	15-45	38-46 (10Y)	15-45	15-45	15-45	38-46 (10y)	15-45	15-45
Absolute Lymphs /uL	850-3900	1500-6500	1200-5200	850-3900	850-3900	1500-6500	1200-5200	850-3900









**CLINICAL LABORATORY REFERENCE RANGES**

**HEMATOLOGY**

**RETICULOCYTE COUNT**

	AGE	Ref Range	UNITS
<b>Reticulocyte Count</b>	All	0.5 - 2.0	%
	Infants (0-1 week)	2.0 - 6.0	%
<b>Immature Retic Fraction</b>	ALL	0.09 - 0.56	

	AGE	cells/uL	
		FEMALE	MALE
	<b>Absolute Retic Count</b>	3D	53000-370000
1W		0-51000	
1M		8000-84000	
2M		11000-180000	
3M		11000-160000	
1Y		9000-126000	
12Y		23000-92000	
17Y		24000-94000	
133Y		20000-80000	25000-90000

**CLINICAL LABORATORY REFERENCE RANGES**

**HEMATOLOGY**

**LAMELLAR BODY**

<b>RESULT</b>	<b>CATEGORY</b>
<15 K/UL	IMMATURE
15-50 K/UL	TRANSITIONAL
>50K/UL	MATURE

**SED RATE**

<b>AGE</b>	<b>MALE</b>	<b>FEMALE</b>
0-50 yrs.	0-15 mm/hr	0-20 mm/hr
>50 yrs.	0-20 mm/hr	0-30 mm/hr

**HANSEL STAIN FOR EOSINOPHILS**

<b>SPECIMEN</b>	<b>REFERENCE RANGE</b>
Urine	None Seen
Nasal	None Seen

## CLINICAL LABORATORY REFERENCE RANGES

## COAGULATION

ASSAY	REFERENCE RANGE	UNITS
PT	11.6-14.4	seconds
INR	0.9-1.1	
aPTT	24.3-33.1	seconds
aPTT-DTI	Therapeutic range for this agent should be 1.5-2.5 times the baseline normal aPTT.	
HPTT	90.0-130.0	seconds
Fibrinogen	239-419	mg/dL
Thrombin Time	15.0-20.0	seconds
Anti Xa- UFH	0.30-0.70	Units/mL
Anti Xa- LMWH	0.50-1.10	Units/mL
D-Dimer	<0.50	µg/mL FEU
F2	70-120	% Normal
F5	65-150	% Normal
F7	60-150	% Normal
F8	50-180	% Normal
F9	60-160	% Normal
F10	70-120	% Normal
F11	60-150	% Normal
F12	60-150	% Normal

## CLINICAL LABORATORY REFERENCE RANGES

## COAGULATION

ASSAY	REFERENCE RANGE	UNITS
F8 Inhibitor (Bethesda Titer)	0.0-0.5	Bethesda Units
Protein C Fx	70-130	%
Protein S Fx	Male= 77-143	%
	Female= 55-123	
Antithrombin III	80-120	%
vWF: Ag	50-160	%
vWF: Functional	50-170	%
APCR	>2.1	Ratio
Platelet Function: Aspirin	>550	ARU
Platelet Function: P2Y12	>208	PRU

## RAPID TEG

ANALYTE	REFERENCE RANGE	UNITS
R value	22-44	seconds
K value	34-138	seconds
Angle	64-80	degrees
MA	52-71	mm
LY30	n/a	

**CLINICAL LABORATORY REFERENCE RANGES**

**URINALYSIS**

MACROSCOPIC		MICROSCOPIC	
Color	Yellow, Straw	WBC	0-5/hpf (0-3, 3-5)
Appearance	Clear	RBC	0-3/hpf
pH	5.0-8.0	SQEP	0-5/hpf (0-3, 0-5)
Specific Gravity	1.005-1.035	TREP	0-5/hpf (0-3, 3-5)
Urobilinogen	0.2-1.0 E.U./dL	REEP	0-3/hpf
Glucose	Negative	BACT	None seen
Bilirubin	Negative	YEAST	None seen
Ketones	Negative	Trichomonas	None seen
Occult Blood	Negative	Hyaline Casts	0-2/ lpf
Protein	Negative	Casts (other than Hyaline)	0-0
Nitrite	Negative	CaOx, Triple Phos, Uric acid	None seen, Few/hpf
Leukocyte Esterase	Negative	Other crystals	None seen

CRYSTALS	
Acid pH	Alkaline pH
Amorphous Urates	Amorphous Phosphates
Uric Acid	Triple Phosphates
Acid Urates	Ammonium Biurate
Monosodium or Sodium Urates	Calcium Phosphate
Calcium Oxalate	Calcium Carbonate

**CLINICAL LABORATORY REFERENCE RANGES**

**AUTOMATED BODY FLUID CELL COUNT**

<b>Fluid Type</b>	<b>WBC (cells/uL)</b>	<b>RBC (cells/uL)</b>
Abdominal	n/a	n/a
Ascites	n/a	n/a
CSF: 0-1 month	0-30	0-10
CSF: 31d-4y	0-20	0-10
CSF: 5y-15y	0-10	0-10
CSF: 16y –999y	0-5	0-10
Pericardial	n/a	n/a
Peritoneal	n/a	n/a
Pleural	n/a	n/a

**LAMELLAR BODY**

<b>RESULT</b>	<b>CATEGORY</b>
<15 K/UL	IMMATURE
15-50 K/UL	TRANSITIONAL
>50K/UL	MATURE

**HCG (Urine)**

<b>RESULT</b>
Negative

## CLINICAL LABORATORY REFERENCE RANGES

## MICROBIOLOGY

ASSAY	SPECIMEN TYPE	REFERENCE RANGE
Anaerobic Culture	Swab, Fluid, or Tissue	No anaerobic growth at 5 days
AFB Culture	Any specimen except swabs	No growth at 6 weeks
Blood Culture	1 set of aerobic and anaerobic bottles	No growth at 5 days
Body Fluids	Sterile Body fluid	No growth at 5 days
Cath tip Culture	Cath tip, excluding foleys	No growth at 4 days
CSF Cultures	CSF	No growth at 5 days
Cryptococcal Antigen	CSF or Serum	Negative
Dialysis water Cultures	Dialysis waters	No growth at 48 hours
Eye Cultures	Swab or pre-inoculated plates	No growth at 72 hours
Fecal Leukocytes	Stool Sample- No preservative	Negative
Fungus Culture	Any specimen	No growth at 4 weeks
Fungal culture-Dermatophyte	Hair, skin or nails	No growth at 4 weeks
Gonococcus cultures	Eye, Rectal, throat eswab or charcoal swab	No growth at 72 hours
Giardia/Crypto Antigen	Stool in 10% formalin – Pink container	Negative
Legionella Culture	Respiratory, Tissue, routine or Sterile body fluid	No growth at 7 days
Legionella Urinary Antigen	Urine	Negative
Lower Respiratory Culture	Sputum, BAL, BW	Normal Respiratory Flora
Respiratory Syncytial Virus	NP wash / NP swab	Negative



## CLINICAL LABORATORY REFERENCE RANGES

## MICROBIOLOGY

ASSAY	SPECIMEN TYPE	REFERENCE RANGE
Routine, aspirates, Tissue Culture	Swab, Fluid, or Tissue	No growth at 3 days
Spore Strip Cultures	Attest vials or Spordii strips	Satisfactory
Staph aureus Screen / Surveillance	Nares	No Staph aureus or MRSA at 24 hours
Stool Cultures	Stool in a C&S vial – orange container	No growth of Salmonella, Shigella, Campylobacter, Aeromonas, Pleisomonas, E. coli 0157
STEC - Shigatoxin testing	Stool in a C&S vial – orange container	No Shiga toxin detected
Strep A Screen	Throat Swab	Negative
Strep pneumo Antigen	Urine or CSF	Negative
Throat Cultures	Throat Swab	No Gp A Strep, Normal oral flora
Transfusion Rxn Cultures	Blood bag	No growth at 7 days
Urine Culture	Urine cup or boric acid preservative tubes	No growth at 48 hours
Yeast Culture	Throat, Vaginal, Mouth, Stool, or Cath tips	No growth at 2 weeks

## CLINICAL LABORATORY REFERENCE RANGES

## MOLECULAR DIAGNOSTICS

ASSAY	SPECIMEN TYPE	REFERENCE RANGE	UNITS
Chlamydia trachomatis, PCR	All Swab, urine, Thin Prep	Negative	
Neisseria gonorrhoea PCR	All Swab, urine, Thin Prep	Negative	
C Diff DNA	Liquid or soft stool	Negative	
CMV Qual, PCR	Plasma, CSF, BAL, Urine	Not Detected	
CMV Quant, PCR	Plasma	n/a	IU/ mL and Log of IU/mL
HBV Quant, PCR	Positive HBV Patient, Serum or Plasma	n/a	IU/ mL and Log of IU/mL
HCV Qual, PCR	Serum or Plasma	Not Detected	
HCV Quant, PCR	Positive HCV patient, Serum or Plasma	n/a	IU/ mL and Log of IU/mL
HCV Genotyping	Positive HCV patient, Serum or Plasma	n/a	1,1a,1b,2a,2b/c,3,4,5,6
HIV Quant, PCR	Positive HIV patient, plasma	n/a	Copies/ml and Log copies/mL
Influenza, PCR	Nasopharyngeal swab or wash	Negative	
Respiratory Viral panel, PCR	NP swab, BAL	Negative	
Strep A DNA probe	Throat swab	Negative	
Strep B DNA probe	Vaginal/Rectal swab	Negative	
Bacterial Vaginosis DNA	Affirm VPIII vaginal swab	Negative for Trichomonas, Gardnerella, and Candida	
Factor V Leiden/Factor 2 DNA gene mutations		Normal	
Enterovirus PCR	CSF	Negative	
HPV High Risk with 16/18 genotyping	Thin Prep, cervical and anal	Negative	

## Daniel Drake Center

ANALYTE	SAMPLE TYPE	REFERENCE RANGE	REPORTABLE RANGES AMR
pH	arterial	7.35-7.45	6.69 – 7.91
	venous	7.32-7.42	
pCO <sub>2</sub> (mmHg)	arterial	35-45	17.0 - 111
	venous	41-51	
pO <sub>2</sub> (mmHg)	arterial	80-100	17.0 - 701
	capillary	80-100	
	venous	25-45	
*HCO <sub>3</sub> (mmol/L)	arterial	22-26	1-85
	venous	24-28	
**TCO <sub>2</sub> (mmol/L)	arterial	23-27	5-50
	venous	25-29	
*BE	arterial	(-2)-(+3)	-30 – (+30)
*O <sub>2</sub> Sat (%)	arterial	95-98	0-100
	venous	70-76	
Na <sup>+</sup> (mmol/L)		135-146	103 - 169
K <sup>+</sup> (mmol/L)		3.5-5.3	2.2 – 7.1
Chloride (mmol/L)		98-110	67 - 118
*Anion Gap		10-20	-10 – (+99)
Glucose (mg/dL)		65-99	37 - 649
	Neonate < 4 weeks old	40-90	
BUN (mg/dL)		7-25	5 - 100
Creatinine (mg/dL)	Male	0.5-1.3	0.4-17.7
	Female	0.5 – 1.2	
iCa <sup>++</sup> (mg/dL)		4.5-5.3	1.2 – 8.8
cTnI (ng/mL)		0-0.05	0-30.00
BNP pg/mL		0.0 – 99.9	15-3600

\* Calculated

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ANALYTE	REFERENCE RANGE
White Blood Cell Count (WBC)	3.8-10.8      10 <sup>3</sup> /uL
Granulocyte %	40.0-85.0      %
Absolute Gran.	1500-9200      /uL
Lymphocyte and Monocyte %	15.0-57.0      %
Absolute Lymph/Mono	1050-4850      / uL
Platelet Count	140-400      10 <sup>3</sup> /uL
Hemoglobin	Male = 13.22-17.1      g/dL Female = 11.7-15.5      g/dL
INR	0.8 - 1.4