

T- and B-Cell Quantitation and Lymphocyte Proliferation to Mitogens Panel

Reporting Title: T-Cell with Mitogen Panel

Performing Location: Rochester

#### **Specimen Requirements:**

Send specimens Sunday through Thursday only. Specimens must arrive within 24 hours of draw and by 10 a.m. on Friday. Draw and package specimens as close to shipping time as possible. Ship specimen priority overnight in an Ambient Mailer-Critical Specimens Only (Supply T668).

Date and time of draw and ordering physician's name and phone number are required.

For serial monitoring, we recommend that specimen draws be performed at the same time of day.

Two separate specimens are required.

Specimen Type: EDTA whole blood Container/Tube: Lavender top (EDTA)

Specimen Volume: 3 mL

Collection Instructions: Send specimen in original tube. Do not aliquot.

Specimen Type: Sodium heparin whole blood Container/Tube: Green top (sodium heparin)

Specimen Volume: <3 months: 1 mL 3 months-5 years: 2 mL 6-18 years: 3 mL >18 years: 10 mL

Collection Instructions: Send specimen in original tube. Do not aliquot.

Specimen Type	Temperature	Time
WB Sodium Heparin	Ambient	48 hours
Whole Blood EDTA	Ambient	48 hours

#### **Result Codes:**

Result ID	Reporting Name	Туре	Unit	LOINC®
9336	T-and B-Cell QN by Flow Cytometry(TBBS_)	Alphanumeric		In Process
	Also used by tests: TBNY, TBBS			
3321	CD45 Lymph Count, Flow	Numeric	thou/mcL	27071-0
	Also used by tests: CD4NY, TCD4, TBNY, 800295	,		



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Result ID	Reporting Name	Туре	Unit	LOINC®
3316	% CD3 (T Cells)	Numeric	%	8124-0
	Also used by tests: CD4NY, TCD4, TBNY, 800295	5,		
3318	% CD19 (B Cells)	Numeric	%	8117-4
	Also used by tests: TBNY, 800295, TBBS			
4054	% CD16+CD56 (NK cells)	Numeric	%	18267-5
	Also used by tests: TBBS, TBNY, 800295			
3319	% CD4 (Helper Cells)	Numeric	%	8128-1
	Also used by tests: TBBS, TCD4, CD4NY, TBNY, 800295			
3320	% CD8 (Supp'r Cells)	Numeric	%	8138-0
	Also used by tests: 800295, TCD4, CD4NY, TBNY TBBS	,		
3322	CD3 (T Cells)	Numeric	cells/mcL	8122-4
	Also used by tests: TCD4, 800295, CD4NY, TBNY TBBS	,		
3324	CD19 (B Cells)	Numeric	cells/mcL	8116-6
	Also used by tests: 800295, TBNY, TBBS			
4055	CD16+CD56 (NK cells)	Numeric	cells/mcL	20402-4
	Also used by tests: 800295, TBNY, TBBS			
3325	CD4 (Helper Cells)	Numeric	cells/mcL	8127-3
	Also used by tests: TCD4, 800295, CD4NY, TBNY TBBS	,		
3326	CD8 (Supp'r Cells)	Numeric	cells/mcL	8137-2
	Also used by tests: TCD4, 800295, CD4NY, TBNY TBBS	,		
3327	H/S Ratio	Numeric		8129-9
	Also used by tests: TCD4, 800295, CD4NY, TBNY TBBS	,		
6657	Comment	Alphanumeric		48767-8
	Also used by tests: 800295, TBBS, TBNY			
32317	Interpretation	Alphanumeric		69052-9
	Also used by tests: LPMGF			



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Result ID	Reporting Name	Туре	Unit	LOINC®
32318	Viab of Lymphs at Day 0	Numeric	%	In Process
	Also used by tests: LPMGF			
32321	Max Prolif of PWM as % CD45	Alphanumeric	%	In Process
	Also used by tests: LPMGF			
32322	Max Prolif of PWM as % CD3	Alphanumeric	%	In Process
	Also used by tests: LPMGF			
32323	Max Prolif of PWM as % CD19	Alphanumeric	%	In Process
	Also used by tests: LPMGF			
32319	Max Prolif of PHA as % CD45	Alphanumeric	%	In Process
	Also used by tests: LPMGF			
32320	Max Prolif of PHA as % CD3	Alphanumeric	%	57741-1
	Also used by tests: LPMGF			
32324	Mitogen Comment	Alphanumeric		48767-8
	Also used by tests: LPMGF			

### **Components:**

Test ID	Reporting Name	CPT Units	CPT Code	Always Performed	Orderable Separately
Billing only	Absolute CD4/CD8 Count	1	86360		
TBBS	T- and B-Cell QN by Flow Cytometry		Profile	Yes	Yes
LPMGF	Lymphocyte Proliferation, Mitogens	1	86353	Yes	Yes

### **Reference Values:**

T- AND B-CELL QUANTIATION BY FLOW CYTOMETRY

T AND B SURFACE MARKER

% T Cells (CD3)

0-2 months: 53-84%\* 3-5 months: 51-77%\*

6-11 months: 49-76%\* 12-23 months: 53-75%\* 2-5 years: 56-75%\*

6-11 years: 60-76%\* 12-17 years: 56-84%\* 18-55 years: 59-83% >55 years: 49-87%



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% B Cells (CD19)
0-2 months: 6-32%\*
3-5 months: 11-41%\*
6-11 months: 14-37%\*
12-23 months: 16-35%\*
2-5 years: 14-33%\*
6-11 years: 13-27%\*
12-17 years: 6-23%\*
18-55 years: 6-22%

#### % Natural Killer (CD16+CD56)

0-2 months: 4-18%\*
3-5 months: 3-14%\*
6-23 months: 3-15%\*
2-11 years: 4-17%\*
12-17 years: 3-22%\*
18-55 years: 6-27%
>55 years: 6-35%

>55 years: 3-20%

% Helper Cells (CD4) 0-2 months: 35-64%\* 3-5 months: 35-56%\* 6-11 months: 31-56%\* 12-23 months: 32-51%\* 2-5 years: 28-47%\* 6-11 years: 31-47%\*

12-17 years: 31-52%\* 18-55 years: 31-59% >55 years: 32-67%

### % Suppressor Cells (CD8)

0-2 months: 12-28%\*
3-5 months: 12-23%\*
6-11 months: 12-24%\*
12-23 months: 14-30%\*
2-5 years: 16-30%\*
6-17 years: 18-35%\*
18-55 years: 12-38%
>55 years: 8-40%

### **ABSOLUTE COUNTS**

CD45 Lymph Count, Flow 0-17 years: 0.66-4.60 thou/mcL 18-55 years: 0.99-3.15 thou/mcL >55 years: 1.00-3.33 thou/mcL

T Cells (CD3)

0-2 months: 2,500-5,500 cells/mcL\* 3-5 months: 2,500-5,600 cells/mcL\*



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6-11 months: 1,900-5,900 cells/mcL\*
12-23 months: 2,100-6,200 cells/mcL\*
2-5 years: 1,400-3,700 cells/mcL\*
6-11 years: 1,200-2,600 cells/mcL\*
12-17 years: 1,000-2,200 cells/mcL\*
18-55 years: 677-2,383 cells/mcL
>55 years: 617-2,254 cells/mcL

### B Cells (CD19)

0-2 months: 300-2,000 cells/mcL\*
3-5 months: 430-3,000 cells/mcL\*
6-11 months: 610-2,600 cells/mcL\*
12-23 months: 720-2,600 cells/mcL\*
2-5 years: 390-1,400 cells/mcL\*
6-11 years: 270-860 cells/mcL\*
12-17 years: 110-570 cells/mcL\*
18-55 years: 99-527 cells/mcL
>55 years: 31-409 cells/mcL

Natural Killer (CD16+CD56)
0-2 months: 170-1,100 cells/mcL\*
3-5 months: 170-830 cells/mcL\*
6-11 months: 160-950 cells/mcL\*
12-23 months: 180-920 cells/mcL\*
2-5 years: 130-720 cells/mcL\*
6-11 years: 100-480 cells/mcL\*

6-11 years: 100-480 cells/mcL\* 12-17 years: 70-480 cells/mcL\* 18-55 years: 101-678 cells/mcL >55 years: 110-657 cells/mcL

#### Helper Cells (CD4)

0-2 months: 1,600-4,000 cells/mcL\*
3-5 months: 1,800-4,000 cells/mcL\*
6-11 months: 1,400-4,300 cells/mcL\*
12-23 months: 1,300-3,400 cells/mcL\*
2-5 years: 700-2,200 cells/mcL\*
6-11 years: 650-1,500 cells/mcL\*
12-17 years: 530-1,300 cells/mcL\*
18-55 years: 424-1,509 cells/mcL
>55 years: 430-1,513 cells/mcL

#### Suppressor Cells (CD8)

0-2 months: 560-1,700 cells/mcL\*
3-5 months: 590-1,600 cells/mcL\*
6-11 months: 500-1,700 cells/mcL\*
12-23 months: 620-2,000 cells/mcL\*
2-5 years: 490-1,300 cells/mcL\*
6-11 years: 370-1,100 cells/mcL\*
12-17 years: 330-920 cells/mcL\*
18-55 years: 169-955 cells/mcL
>55 years: 101-839 cells/mcL



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LYMPHOCYTE RATIO H/S ratio: > or =1.0

\*Shearer WT, Rosenblatt HM, Gelman RS, et al: Lymphocyte subsets in healthy children from birth through 18 years of age: The Pediatric AIDS Clinical Trials Group P1009 study. J Allergy Clin Immunol 2003;112(5):973-980

#### LYMPHOCYTE PROLIFERATION TO MITOGENS

Viability of lymphocytes at day 0: > or =75.0% Maximum proliferation of phytohemagglutinin as % CD45: > or =49.9% Maximum proliferation of phytohemagglutinin as % CD3: > or =58.5% Maximum proliferation of pokeweed mitogen as % CD45: > or =4.5% Maximum proliferation of pokeweed mitogen as % CD3: > or =3.5% Maximum proliferation of pokeweed mitogen as % CD19: > or =3.9%