

**Centers for Disease Control and Prevention  
Model Performance Evaluation Program  
T-Lymphocyte Immunophenotyping  
(TLI)**

**Figures and Table Used for the Analysis  
of Participant Laboratory Results  
for the October 2001 Shipment**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
Public Health Practice Program Office  
Division of Laboratory Systems  
Atlanta, Georgia 30341-3717**



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**Report of the October 2001 T-Lymphocyte Immunophenotyping (TLI) Results  
Provided by Participant Laboratories in the Model Performance Evaluation Program,  
Centers for Disease Control and Prevention (CDC).**

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**Centers for Disease Control and Prevention (CDC)  
Model Performance Evaluation Program  
for T-Lymphocyte Immunophenotyping (TLI)**

**Donor Identification for October 2001 TLI Shipment Specimens**

<b>Panel Letter</b>	<b>Participant Laboratory Vial Label</b>	<b>CDC Donor Number</b>	<b>Donor Information (HIV-1<sup>a</sup> status)</b>
A	A1	03	HIV-1 Antibody-Negative
	A2, A4	04	HIV-1 Antibody-Positive
	A3	02	HIV-1 Antibody-Negative
	A5	01	HIV-1 Antibody-Positive
B	B1	01	HIV-1 Antibody-Positive
	B2, B3	05	HIV-1 Antibody-Positive
	B4	02	HIV-1 Antibody-Negative
	B5	03	HIV-1 Antibody-Negative
C	C1	10	HIV-1 Antibody-Negative
	C2	06	HIV-1 Antibody-Negative
	C3, C4	07	HIV-1 Antibody-Positive
	C5	08	HIV-1 Antibody-Positive
D	D1	08	HIV-1 Antibody-Positive
	D2, D5	09	HIV-1 Antibody-Positive
	D3	10	HIV-1 Antibody-Negative
	D4	06	HIV-1 Antibody-Negative

<sup>a</sup> Human immunodeficiency virus type 1

Figure 1. Primary classification of laboratories participating in the October 2001 shipment.

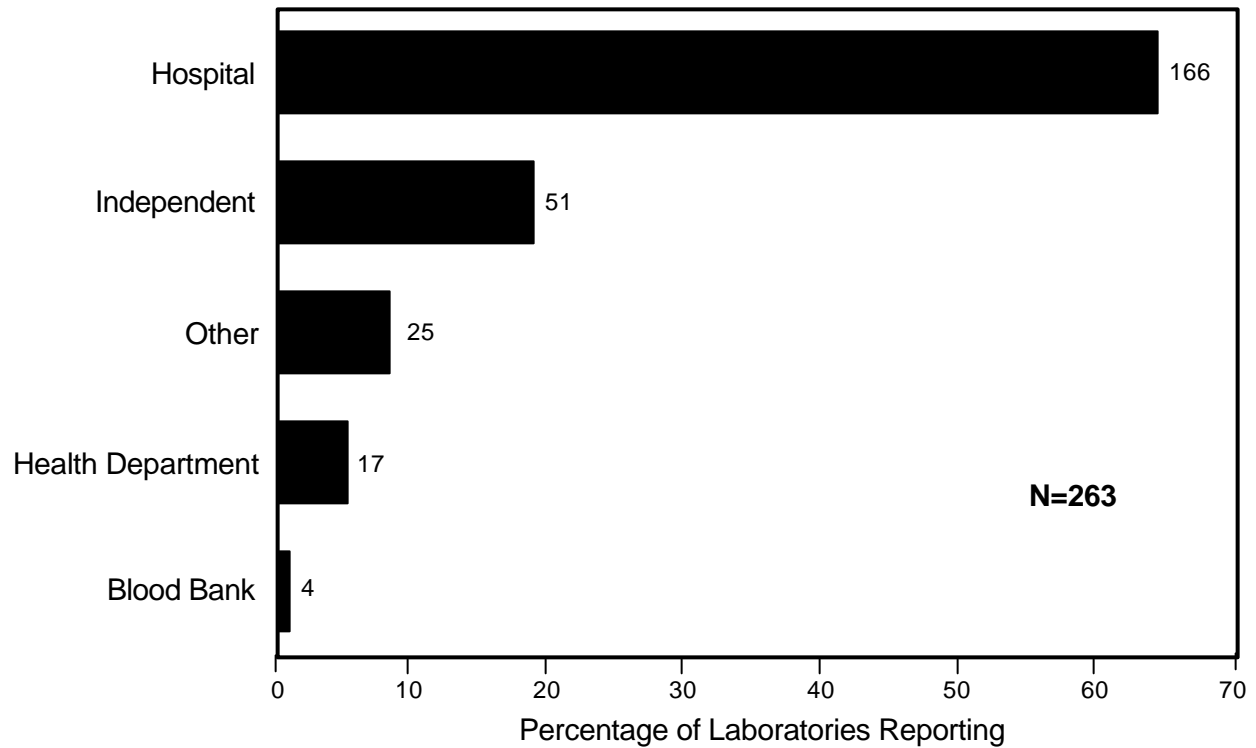


Figure 2. Methods used to prepare specimens for T-lymphocyte immunophenotyping, reported by participant laboratories to CDC for the October 2001 shipment.

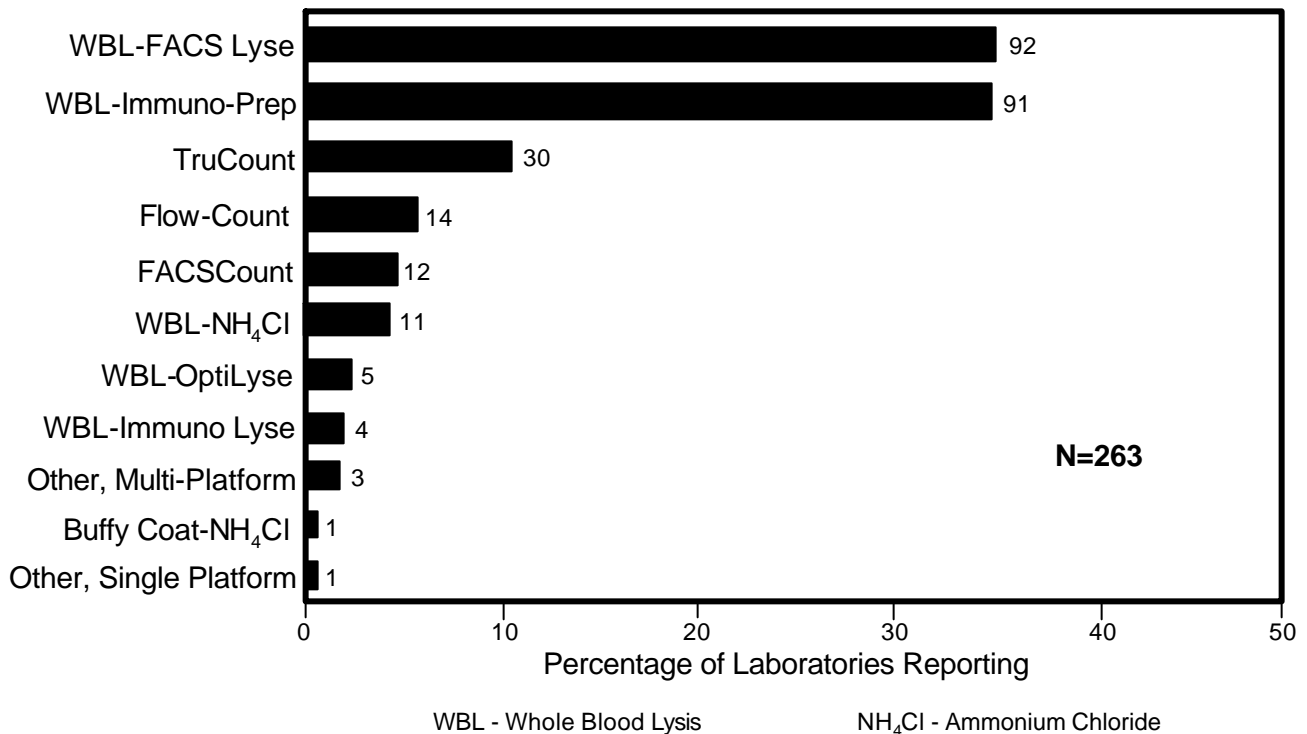


Figure 3. Methods used to fix specimens for T-lymphocyte immunophenotyping, reported by participant laboratories to CDC for the October 2001 shipment.

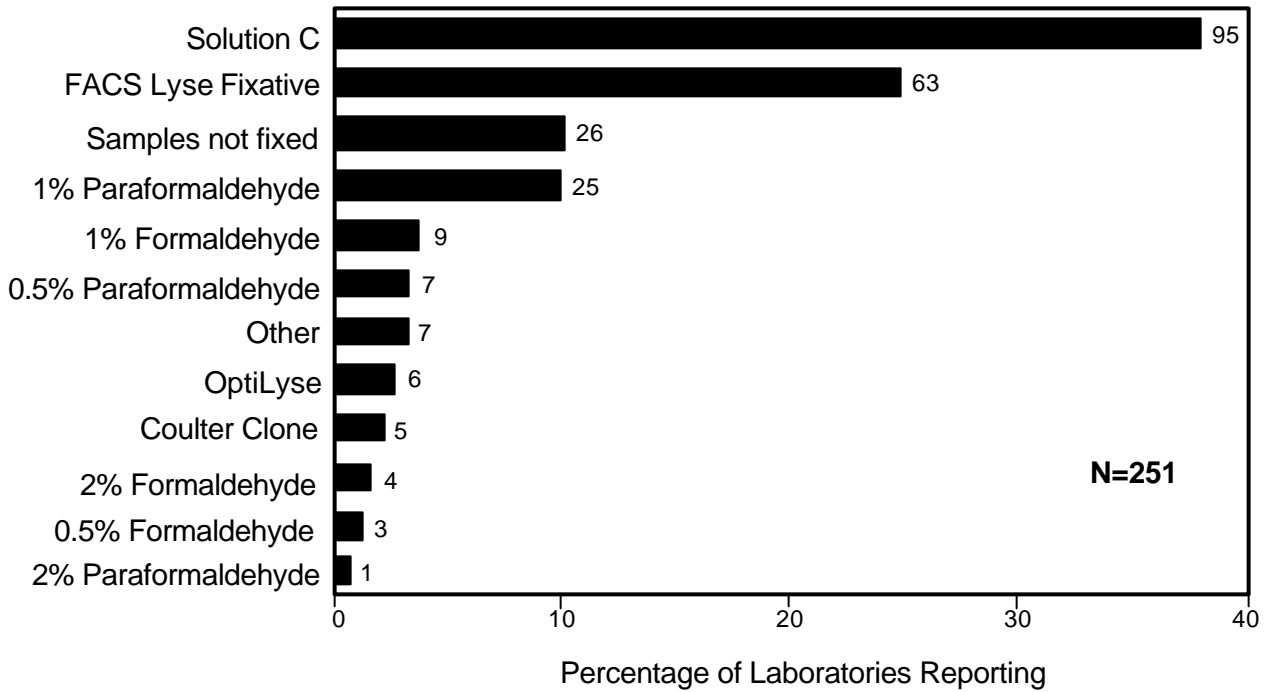


Figure 4. Types of flow cytometers used for T-lymphocyte immunophenotyping, reported by participant laboratories to CDC for the October 2001 shipment.

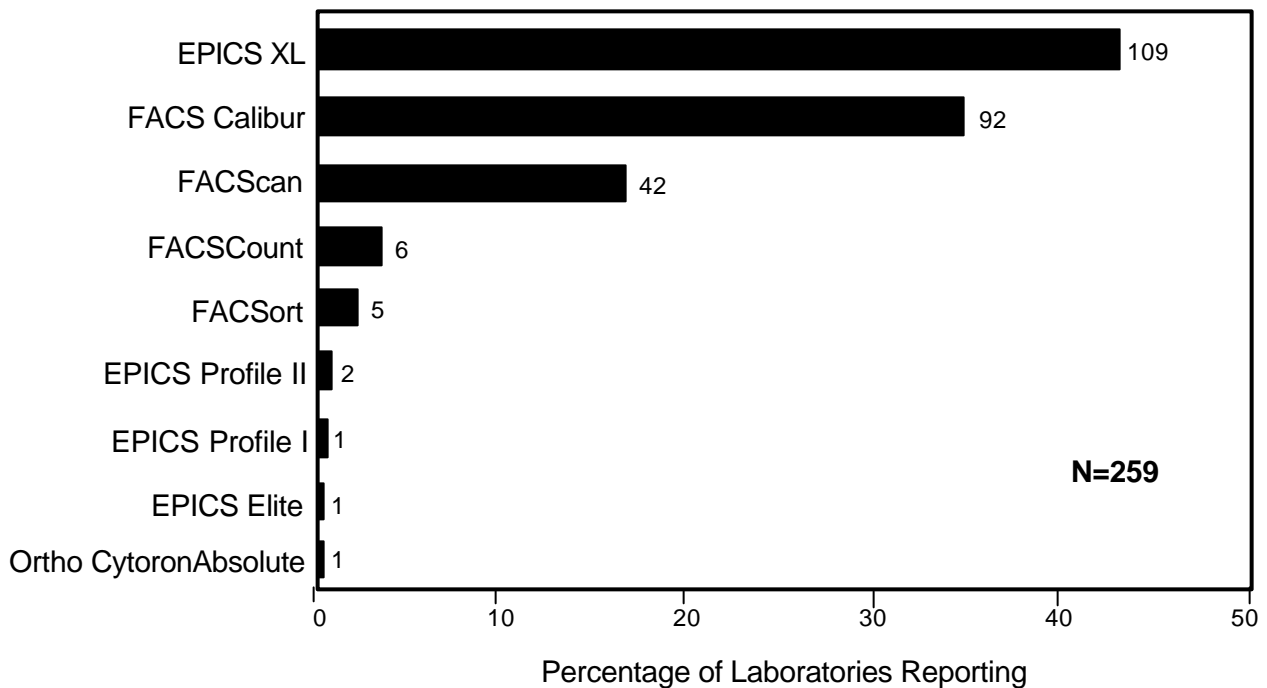
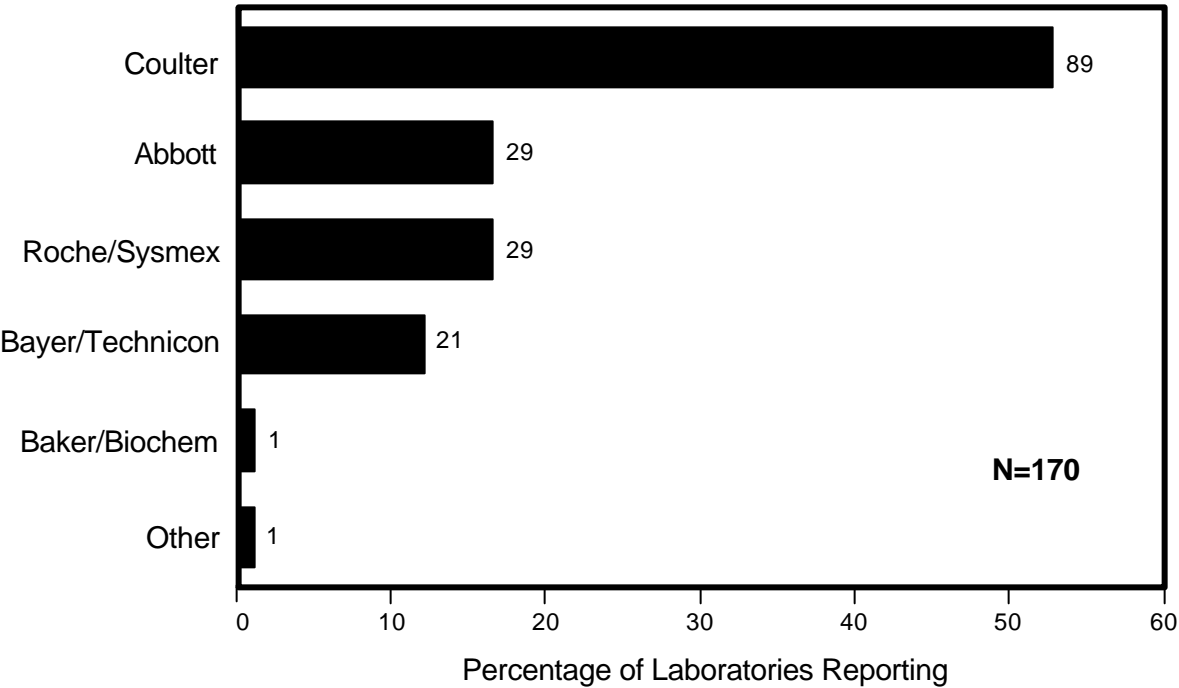


Figure 5. Types of hematology instruments used for T-lymphocyte immunophenotyping, reported by participant laboratories to CDC for the October 2001 shipment.



## Explanation of Results Table

In the following results table, please note the following terms:

<b>Cell Marker</b>	The cell surface marker of interest. All results for this surface marker are shown regardless of the monoclonal antibody combination used for their determination: CD45 - results from 2-color CD45/CD14 CD14 - results from 2-color CD45/CD14 CD4 - combined results from 2-color CD3/CD4; 3-color CD45/CD3/CD4, CD3/CD4/CD8; and 4-color CD45/CD3/CD4/CD8 CD8 - combined results from 2-color CD3/CD8; 3-color CD45/CD3/CD8, CD3/CD4/CD8; and 4-color CD45/CD3/CD4/CD8 CD19 - combined results from 2-color CD3/CD19; 3-color CD45/CD3/CD19, CD3/CD19/CD56, CD3/CD19/CD16, CD3/CD19/CD56+16; and 4-color CD45/CD3/CD19/CD56, CD45/CD3/CD19/CD56+16 CD56+16 - combined results from 2-color CD3/CD56+16; 3-color CD45/CD3/CD56+16, CD3/CD19/CD56+16; and 4-color CD45/CD3/CD19/CD56+16 CD3 average combined results from 2-color CD3 average; 3-color CD3 average; and 4-color CD3 average CD56 - results from 2-color CD3/CD56; 3-color CD45/CD14/CD56, CD3/CD19/CD56; and 4-color CD45/CD3/CD19/CD56 CD16 - results from 2-color CD3/CD16 and 3-color CD3/CD19/CD16
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**Percentage Results** The 95% confidence ranges are shown along with the number of reported results within, above, and below the established confidence range (see accompanying written analysis for the method of establishing the confidence range). **Note:** Due to a limited number of reported results for CD56 and CD16, no 95% confidence range was established for these markers. The ranges shown are the maximum and minimum values reported for these cell markers.

**Absolute Counts** The results within, above, and below the 95% confidence ranges for the specified cell-marker specific absolute count derived either by multi-platform (flow cytometer/hematology analyzer) or single-platform (single instrument or alternate technique) methods.

**Hematology Results** The 95% confidence ranges, the number of results within, above, and below the confidence ranges are listed for the following hematology parameters: white blood cell count (WBC), percent lymphocytes, absolute lymphocyte count.

## Participant Laboratory Results for the October 2001 Shipment

### Donor Number 1 - Donor Status: HIV-antibody Positive

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	85 - 100	34		
	< 85	1		
CD14	> 2	1		
	0 - 2	33		
	< 0	0		
CD4	> 5	7	> 24	7
	0 - 5	119	0 - 24	103
	< 0	0	< 0	0
CD8	> 85	0	> 565	6
	67 - 85	120	136 - 565	101
	< 67	6	< 136	1
CD19	> 4	2		
	1 - 4	100		
	< 1	0		
CD56+16	> 11	2		
	5 - 11	62		
	< 5	1		
CD3 Average	> 93	1		
	83 - 93	109		
	< 83	6		
CD56	3 - 7	36		
CD16	4 - 6	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 2,385	4
	1,738 - 2,385	73
	< 1,738	4
% Lymphs	> 38	4
	11 - 38	76
	< 11	1
Absolute Lymphs	> 781	4
	221 - 781	75
	< 221	3

### Donor Number 2 - Donor Status: HIV-antibody Negative

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	93 - 100	35		
	< 93	0		
CD14	> 2	0		
	0 - 2	34		
	< 0	0		
CD4	> 51	4	> 1,982	7
	43 - 51	118	997 - 1,982	100
	< 43	4	< 997	3
CD8	> 20	5	> 795	7
	16 - 20	121	353 - 795	99
	< 16	0	< 353	2
CD19	> 19	1		
	15 - 19	97		
	< 15	4		
CD56+16	> 19	0		
	12 - 19	61		
	< 12	4		
CD3 Average	> 73	4		
	63 - 73	111		
	< 63	1		
CD56	6 - 16	36		
CD16	8 - 15	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 10,307	2
	8,902 - 10,307	74
	< 8,902	5
% Lymphs	> 42	6
	23 - 42	73
	< 23	2
Absolute Lymphs	> 4,174	6
	2,157 - 4,174	72
	< 2,157	4



## Participant Laboratory Results for the October 2001 Shipment

### Donor Number 3 - Donor Status: HIV-antibody Negative

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	95 - 100	36		
	< 95	0		
CD14	> 2	0		
	0 - 2	35		
	< 0	0		
CD4	> 55	5	> 1,503	3
	48 - 55	120	1,001 - 1,503	106
	< 48	3	< 1,001	3
CD8	> 32	3	> 866	2
	27 - 32	121	552 - 866	105
	< 27	4	< 552	3
CD19	> 14	1		
	10 - 14	99		
	< 10	4		
CD56+16	> 4	3		
	1 - 4	64		
	< 1	0		
CD3 Average	> 88	1		
	82 - 88	113		
	< 82	4		
CD56	1 - 12	36		
CD16	1 - 3	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 7,053	2
	6,104 - 7,053	75
	< 6,104	5
% Lymphs	> 44	5
	31 - 44	75
	< 31	2
Absolute Lymphs	> 2,950	3
	1,979 - 2,950	76
	< 1,979	4

### Donor Number 4 - Donor Status: HIV-antibody Positive

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	96 - 100	35		
	< 96	1		
CD14	> 2	0		
	0 - 2	36		
	< 0	0		
CD4	> 40	5	> 1,135	2
	35 - 40	123	531 - 1,135	105
	< 35	2	< 531	3
CD8	> 62	3	> 1,615	3
	45 - 62	122	731 - 1,615	103
	< 45	5	< 731	2
CD19	> 7	0		
	2 - 7	108		
	< 2	0		
CD56+16	> 12	0		
	7 - 12	56		
	< 7	2		
CD3 Average	> 89	3		
	81 - 89	117		
	< 81	4		
CD56	1 - 9	44		
CD16	9 - 11	6		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 7,011	0
	2,951 - 7,011	86
	< 2,951	0
% Lymphs	> 57	7
	34 - 57	77
	< 34	2
Absolute Lymphs	> 3,080	3
	1,316 - 3,080	81
	< 1,316	4

## Participant Laboratory Results for the October 2001 Shipment

### Donor Number 5 - Donor Status: HIV-antibody Positive

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	94 - 100	36		
	< 94	0		
CD14	> 1	1		
	0 - 1	33		
	< 0	0		
CD4	> 36	1	> 1,122	8
	31 - 36	119	707 - 1,122	102
	< 31	4	< 707	2
CD8	> 53	5	> 1,667	9
	46 - 53	119	1,052 - 1,667	97
	< 46	0	< 1,052	4
CD19	> 16	0		
	10 - 16	93		
	< 10	4		
CD56+16	> 7	2		
	2 - 7	69		
	< 2	2		
CD3 Average	> 85	3		
	79 - 85	102		
	< 79	5		
CD56	0 - 8	28		
CD16	9 - 11	2		

#### Hematology Results

Hematology Parameter	Range	No.
WBC	> 5,524	2
	4,630 - 5,524	68
	< 4,630	6
% Lymphs	> 63	4
	48 - 63	72
	< 48	0
Absolute Lymphs	> 3,311	4
	2,388 - 3,311	70
	< 2,388	2

### Donor Number 6 - Donor Status: HIV-antibody Negative

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	95 - 100	35		
	< 95	1		
CD14	> 3	2		
	0 - 3	33		
	< 0	0		
CD4	> 50	2	> 1,182	6
	42 - 50	117	663 - 1,182	93
	< 42	5	< 663	1
CD8	> 30	6	> 691	7
	25 - 30	117	395 - 691	90
	< 25	1	< 395	3
CD19	> 17	1		
	10 - 17	95		
	< 10	3		
CD56+16	> 10	2		
	5 - 10	65		
	< 5	0		
CD3 Average	> 83	2		
	74 - 83	108		
	< 74	1		
CD56	1 - 8	30		
CD16	7 - 8	4		

#### Hematology Results

Hematology Parameter	Range	No.
WBC	> 6,142	4
	5,111 - 6,142	71
	< 5,111	3
% Lymphs	> 44	6
	27 - 44	70
	< 27	1
Absolute Lymphs	> 2,512	6
	1,497 - 2,512	70
	< 1,497	2

## Participant Laboratory Results for the October 2001 Shipment

### Donor Number 7 - Donor Status: HIV-antibody Positive

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	92 - 100	44		
	< 92	2		
CD14	> 6	4		
	0 - 6	40		
	< 0	0		
CD4	> 48	2	> 787	8
	39 - 48	116	352 - 787	90
	< 39	2	< 352	0
CD8	> 33	7	> 550	8
	26 - 33	112	233 - 550	90
	< 26	1	< 233	0
CD19	> 15	5		
	9 - 15	89		
	< 9	0		
CD56+16	> 21	1		
	5 - 21	56		
	< 5	2		
CD3 Average	> 83	3		
	68 - 83	106		
	< 68	1		
CD56	5 - 82	35		
CD16	9 - 12	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 6,541	3
	4,518 - 6,541	74
	< 4,518	3
% Lymphs	> 32	9
	16 - 32	71
	< 16	0
Absolute Lymphs	> 1,868	8
	822 - 1,868	72
	< 822	0

### Donor Number 8 - Donor Status: HIV-antibody Positive

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	90 - 100	33		
	< 90	2		
CD14	> 3	2		
	0 - 3	32		
	< 0	0		
CD4	> 5	4	> 28	11
	0 - 5	117	0 - 28	88
	< 0	0	< 0	0
CD8	> 68	4	> 683	6
	52 - 68	113	239 - 683	92
	< 52	4	< 239	1
CD19	> 18	1		
	7 - 18	90		
	< 7	5		
CD56+16	> 18	1		
	8 - 18	63		
	< 8	1		
CD3 Average	> 82	5		
	66 - 82	104		
	< 66	0		
CD56	3 - 12	29		
CD16	7 - 15	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 4,666	0
	2,750 - 4,666	71
	< 2,750	5
% Lymphs	> 30	7
	12 - 30	68
	< 12	0
Absolute Lymphs	> 1,182	6
	389 - 1,182	70
	< 389	0

# Participant Laboratory Results for the October 2001 Shipment

## Donor Number 9 - Donor Status: HIV-antibody Positive

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	97 - 100	24		
	< 97	2		
CD14	> 1	2		
	0 - 1	24		
	< 0	0		
CD4	> 41	1	> 1,760	6
	34 - 41	123	1,163 - 1,760	94
	< 34	2	< 1,163	2
CD8	> 44	4	> 1,947	6
	39 - 44	118	1,288 - 1,947	92
	< 39	4	< 1,288	4
CD19	> 19	0		
	12 - 19	95		
	< 12	7		
CD56+16	> 5	3		
	2 - 5	69		
	< 2	0		
CD3 Average	> 85	0		
	76 - 85	110		
	< 76	0		
CD56	0 - 3	26		
CD16	2 - 3	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 8,682	1
	7,519 - 8,682	70
	< 7,519	3
% Lymphs	> 56	6
	41 - 56	65
	< 41	1
Absolute Lymphs	> 4,638	6
	3,268 - 4,638	67
	< 3,268	1

## Donor Number 10 - Donor Status: HIV-antibody Negative

Cell Marker	Percentage Results		Absolute Counts	
	Range	No.	Range	No.
CD45	> 100	0		
	96 - 100	33		
	< 96	3		
CD14	> 2	2		
	0 - 2	33		
	< 0	0		
CD4	> 51	4	> 1,575	4
	43 - 51	117	1,005 - 1,575	96
	< 43	3	< 1,005	0
CD8	> 38	4	> 1,124	4
	32 - 38	119	777 - 1,124	93
	< 32	1	< 777	3
CD19	> 9	4		
	6 - 9	93		
	< 6	2		
CD56+16	> 17	4		
	8 - 17	62		
	< 8	1		
CD3 Average	> 86	4		
	75 - 86	103		
	< 75	4		
CD56	1 - 15	30		
CD16	12 - 13	4		

### Hematology Results

Hematology Parameter	Range	No.
WBC	> 8,620	1
	7,074 - 8,620	72
	< 7,074	5
% Lymphs	> 41	5
	29 - 41	72
	< 29	0
Absolute Lymphs	> 3,300	4
	2,224 - 3,300	73
	< 2,224	1