

**T- AND B-CELL QBNK CELL QUANTITATION AND LYMPHOCYTE
ASSESSMENT OF T-CELL FUNCTION AND PROLIFERATION TO ANTIGENS
PANEL
#89737**

EXPLANATION: This new test contains two existing tests combined to assess T cell quantity and functional antigen responses

PROFILE INFORMATION:

| Unit Code | Reporting Name | Available Separately | Always Performed |
|-----------|------------------------------------|----------------------|------------------|
| 9336 | T- & B-Cell QN by Flow Cytometry | Yes | Yes |
| 8885 | Lymphocyte Proliferation, Antigens | Yes | Yes |

USEFUL FOR:

- Assessing antigen-specific T-cell responses and quantitating lymphocyte subsets in a single orderable test.
- This panel is most helpful when evaluating patients with immunodeficiencies, where quantitative decreases in T-cells can lead to reduced functional antigen responses.
- See Individual Unit Codes for additional information.

METHODOLOGY:

- 9336: Fluorescent Flow Cytometry
- 8885: Incorporation of radioactive nucleoside ([³H]-Thymidine) into cellular DNA

SPECIMEN REQUIREMENTS: **Two separate specimens are required** for this test-1 containing EDTA and 1 containing sodium heparin.

Specimens must arrive within 24 hours of draw and by 10 a.m. on Friday. Send specimens Sunday through Thursday only. Collect and package specimens as close to shipping time as possible. Ship specimens priority overnight.

Blood for #9336: Draw blood in a lavender-top (EDTA) tube(s), and send 4 mL of EDTA whole blood in original VACUTAINER(S). **Do not aliquot.** Forward promptly at ambient temperature. **Specimen cannot be frozen.**

Note: 1. **Draw date is required** on request form for processing.
2. For serial monitoring, draw specimen at the same time of day.

Blood for #8885: Draw blood in a green-top (sodium heparin) tube(s), and send 15 mL of sodium heparin whole blood in original VACUTAINER(S). (**Lithium heparin is not acceptable.**) **Do not aliquot.** Forward promptly at ambient temperature only.

NOTE: 1. **Draw date, draw time, and ordering physician name are required** on request form for processing.
2. For serial monitoring, draw specimen at the same time of day.

CAUTIONS:

- This assay is not used for diagnosing lymphocytic malignancies or evaluation of lymphocytosis of unknown etiology. In these situations, #3287 "Leukemia/Lymphoma Immunophenotyping by Flow Cytometry," which includes a hematopathology review, should be ordered.
- Nonreactive responses to recall antigens may occur in healthy, immunocompetent individuals if there has been no prior exposure to an antigen or if exposure has occurred in the remote past without subsequent reexposure (eg, nonreactive responses to *Candida albicans* and tetanus toxoid may occur in infants and older adults, respectively). Nonreactive responses may also occur in individuals treated with immunosuppressive drugs, (eg, systemic corticosteroids).
- Timing and consistency in timing of blood collection is critical when serially monitoring patients for lymphocyte subsets. See data under Clinical Information.
- Test specimens >24 hours old may give spurious results. Diminished results may be obtained in cultures that contain excess neutrophils or non viable cells.

LIST FEE:

"T- and B-Cell Quantitation by Flow Cytometry": \$399.60

"Lymphocyte Proliferation, Antigens, Blood": \$491.60

CPT CODE:

"T- and B-Cell Quantitation by Flow Cytometry"

86355/B cells, total count

86356/Total count, CD45

86357/Natural killer (NK) cells, total count

86359/T cells, total count

86360/Absolute CD4/CD8 count with ratio

"Lymphocyte Proliferation, Antigens, Blood"

86353

ANALYTIC TIME: 11 days

DAY(S) SET-UP:

"T- and B-Cell Quantitation by Flow Cytometry": Monday through Sunday; continuously to 2 p.m.

"Lymphocyte Proliferation, Antigens, Blood": Monday through Friday

REFERENCE VALUES: As the reference values for these tests are quite extensive, they have not been listed here. Please see the individual unit codes (9336 and 8885) within the test catalog for details.

QUESTIONS: Contact your Mayo Medical Laboratories' Regional Manager or
Shirley Pokorski, Mayo Medical Laboratories' Technologist Support
Telephone: 800-533-1710



TEST DEFINITION

7/31/2009

MML NAME/ORDER CODE CROSS-REFERENCE
CODE NAME

89737 T & B CELL WITH ANTIGEN PANEL

MML MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PRINT NORMALS (# CODED) | PERFORM SITE * |
|-----------------|-----------|------|--|------------------|-------------------------|----------------|
| 89737 (PROFILE) | | | T & B CELL WITH ANTIGEN PANEL | | | |
| 9336 | 3/30/2009 | | T- & B-CELL QN BY FLOW CYTOMETRY | | | MCR |
| | | | TRANSPORT TEMP : AMBIENT <72 HOURS\REFRIG <72 HOURS OK\FROZEN NO | | | |
| | | | 9336 T- & B-CELL QN BY FLOW CYTOMETRY | | | |
| | | | - - - - - | | | |
| | | 3321 | CD45 LYMPH COUNT, FLOW | | | |
| | | | UNITS: THOU/UL | | | |
| | | | NO SEX | | | |
| | | | NO AGE : | | ; #NN3321 | |
| | | | 1D TO 17Y : 0.66-4.60 | | ; 0.66-4.60 | |
| | | | 18Y TO 55Y : 0.99-3.15 | | ; 0.99-3.15 | |
| | | | 56Y TO 150Y : 1.00-3.33 | | ; 1.00-3.33 | |
| | | | MALE | | | |
| | | | NO AGE : | | ; #NN3321 | |
| | | | 1D TO 17Y : 0.66-4.60 | | ; 0.66-4.60 | |
| | | | 18Y TO 55Y : 0.99-3.15 | | ; 0.99-3.15 | |
| | | | 56Y TO 150Y : 1.00-3.33 | | ; 1.00-3.33 | |
| | | | FEMALE | | | |
| | | | NO AGE : | | ; #NN3321 | |
| | | | 1D TO 17Y : 0.66-4.60 | | ; 0.66-4.60 | |
| | | | 18Y TO 55Y : 0.99-3.15 | | ; 0.99-3.15 | |
| | | | 56Y TO 150Y : 1.00-3.33 | | ; 1.00-3.33 | |
| | | | - - - - - | | | |
| | | 3316 | % CD3 (T CELLS) | | | |
| | | | UNITS: % | | | |
| | | | NO SEX | | | |
| | | | NO AGE : | | ; #N3316 | |

MML TEST SETUP INFORMATION

| MML ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PERFORM PRINT NORMALS (# CODED) | SITE * |
|----------------|-------------|------|------------------|------------------|---------------------------------|--------|
| 89737 | (CONTINUED) | | | | | |
| | | 3316 | % CD3 (T CELLS) | (CONTINUED) | | |
| | | | 1D TO 2M | : 53-84 | ; 53-84 | |
| | | | 3M TO 5M | : 51-77 | ; 51-77 | |
| | | | 6M TO 11M | : 49-76 | ; 49-76 | |
| | | | 12M TO 23M | : 53-75 | ; 53-75 | |
| | | | 24M TO 5Y | : 56-75 | ; 56-75 | |
| | | | 6Y TO 11Y | : 60-76 | ; 60-76 | |
| | | | 12Y TO 17Y | : 56-84 | ; 56-84 | |
| | | | 18Y TO 55Y | : 59-83 | ; 59-83 | |
| | | | 56Y TO 150Y | : 49-87 | ; 49-87 | |
| | | | MALE | | | |
| | | | NO AGE | : | ; #N3316 | |
| | | | 1D TO 2M | : 53-84 | ; 53-84 | |
| | | | 3M TO 5M | : 51-77 | ; 51-77 | |
| | | | 6M TO 11M | : 49-76 | ; 49-76 | |
| | | | 12M TO 23M | : 53-75 | ; 53-75 | |
| | | | 24M TO 5Y | : 56-75 | ; 56-75 | |
| | | | 6Y TO 11Y | : 60-76 | ; 60-76 | |
| | | | 12Y TO 17Y | : 56-84 | ; 56-84 | |
| | | | 18Y TO 55Y | : 59-83 | ; 59-83 | |
| | | | 56Y TO 150Y | : 49-87 | ; 49-87 | |
| | | | FEMALE | | | |
| | | | NO AGE | : | ; #N3316 | |
| | | | 1D TO 2M | : 53-84 | ; 53-84 | |
| | | | 3M TO 5M | : 51-77 | ; 51-77 | |
| | | | 6M TO 11M | : 49-76 | ; 49-76 | |
| | | | 12M TO 23M | : 53-75 | ; 53-75 | |
| | | | 24M TO 5Y | : 56-75 | ; 56-75 | |
| | | | 6Y TO 11Y | : 60-76 | ; 60-76 | |
| | | | 12Y TO 17Y | : 56-84 | ; 56-84 | |
| | | | 18Y TO 55Y | : 59-83 | ; 59-83 | |
| | | | 56Y TO 150Y | : 49-87 | ; 49-87 | |
| | | 3318 | % CD19 (B CELLS) | | | |
| | | | UNITS: % | | | |
| | | | NO SEX | | | |
| | | | NO AGE | : | ; #N3318 | |
| | | | 1D TO 2M | : 6-32 | ; 6-32 | |
| | | | 3M TO 5M | : 11-41 | ; 11-41 | |
| | | | 6M TO 11M | : 14-37 | ; 14-37 | |
| | | | 12M TO 23M | : 16-35 | ; 16-35 | |
| | | | 24M TO 5Y | : 14-33 | ; 14-33 | |
| | | | 6Y TO 11Y | : 13-27 | ; 13-27 | |
| | | | 12Y TO 17Y | : 6-23 | ; 6-23 | |
| | | | 18Y TO 55Y | : 6-22 | ; 6-22 | |
| | | | 56Y TO 150Y | : 3-20 | ; 3-20 | |

MALE
 NO AGE : ; #N3318
 1D TO 2M : 6-32 ; 6-32
 3M TO 5M : 11-41 ; 11-41

MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PERFORM PRINT NORMALS (# CODED) | SITE * |
|------------|-------------|------|------------------------------|------------------|---------------------------------|--------|
| 89737 | (CONTINUED) | | | | | |
| | | 3318 | % CD19 (B CELLS) (CONTINUED) | | | |
| | | | 6M TO 11M | : 14-37 | ; 14-37 | |
| | | | 12M TO 23M | : 16-35 | ; 16-35 | |
| | | | 24M TO 5Y | : 14-33 | ; 14-33 | |
| | | | 6Y TO 11Y | : 13-27 | ; 13-27 | |
| | | | 12Y TO 17Y | : 6-23 | ; 6-23 | |
| | | | 18Y TO 55Y | : 6-22 | ; 6-22 | |
| | | | 56Y TO 150Y | : 3-20 | ; 3-20 | |
| | | | FEMALE | | | |
| | | | NO AGE | : ; #N3318 | | |
| | | | 1D TO 2M | : 6-32 | ; 6-32 | |
| | | | 3M TO 5M | : 11-41 | ; 11-41 | |
| | | | 6M TO 11M | : 14-37 | ; 14-37 | |
| | | | 12M TO 23M | : 16-35 | ; 16-35 | |
| | | | 24M TO 5Y | : 14-33 | ; 14-33 | |
| | | | 6Y TO 11Y | : 13-27 | ; 13-27 | |
| | | | 12Y TO 17Y | : 6-23 | ; 6-23 | |
| | | | 18Y TO 55Y | : 6-22 | ; 6-22 | |
| | | | 56Y TO 150Y | : 3-20 | ; 3-20 | |
| | | 4054 | % CD16+CD56 (NK CELLS) | | | |
| | | | UNITS: % | | | |
| | | | NO SEX | | | |
| | | | NO AGE | : ; #N4054 | | |
| | | | 1D TO 2M | : 4-18 | ; 4-18 | |
| | | | 3M TO 5M | : 3-14 | ; 3-14 | |
| | | | 6M TO 23M | : 3-15 | ; 3-15 | |
| | | | 24M TO 11Y | : 4-17 | ; 4-17 | |
| | | | 12Y TO 17Y | : 3-22 | ; 3-22 | |
| | | | 18Y TO 55Y | : 6-27 | ; 6-27 | |
| | | | 56Y TO 150Y | : 6-35 | ; 6-35 | |
| | | | MALE | | | |
| | | | NO AGE | : ; #N4054 | | |
| | | | 1D TO 2M | : 4-18 | ; 4-18 | |
| | | | 3M TO 5M | : 3-14 | ; 3-14 | |
| | | | 6M TO 23M | : 3-15 | ; 3-15 | |
| | | | 24M TO 11Y | : 4-17 | ; 4-17 | |
| | | | 12Y TO 17Y | : 3-22 | ; 3-22 | |
| | | | 18Y TO 55Y | : 6-27 | ; 6-27 | |
| | | | 56Y TO 150Y | : 6-35 | ; 6-35 | |
| | | | FEMALE | | | |

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NO AGE      : ; #N4054
1D TO 2M   : 4-18 ; 4-18
3M TO 5M   : 3-14 ; 3-14
6M TO 23M  : 3-15 ; 3-15
24M TO 11Y : 4-17 ; 4-17
12Y TO 17Y : 3-22 ; 3-22
18Y TO 55Y : 6-27 ; 6-27
56Y TO 150Y : 6-35 ; 6-35

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MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PERFORM PRINT NORMALS (# CODED) | SITE * |
|------------|-------------|------|----------------------|------------------|---------------------------------|--------|
| 89737 | (CONTINUED) | | | | | |
| | | 3319 | % CD4 (HELPER CELLS) | | | |
| | | | UNITS: % | | | |
| | | | NO SEX | | | |
| | | | NO AGE | | | #N3319 |
| | | | 1D TO 2M | 35-64 | | 35-64 |
| | | | 3M TO 5M | 35-56 | | 35-56 |
| | | | 6M TO 11M | 31-56 | | 31-56 |
| | | | 12M TO 23M | 32-51 | | 32-51 |
| | | | 24M TO 5Y | 28-47 | | 28-47 |
| | | | 6Y TO 11Y | 31-47 | | 31-47 |
| | | | 12Y TO 17Y | 31-52 | | 31-52 |
| | | | 18Y TO 55Y | 31-59 | | 31-59 |
| | | | 56Y TO 150Y | 32-67 | | 32-67 |
| | | | MALE | | | |
| | | | NO AGE | | | #N3319 |
| | | | 1D TO 2M | 35-64 | | 35-64 |
| | | | 3M TO 5M | 35-56 | | 35-56 |
| | | | 6M TO 11M | 31-56 | | 31-56 |
| | | | 12M TO 23M | 32-51 | | 32-51 |
| | | | 24M TO 5Y | 28-47 | | 28-47 |
| | | | 6Y TO 11Y | 31-47 | | 31-47 |
| | | | 12Y TO 17Y | 31-52 | | 31-52 |
| | | | 18Y TO 55Y | 31-59 | | 31-59 |
| | | | 56Y TO 150Y | 32-67 | | 32-67 |
| | | | FEMALE | | | |
| | | | NO AGE | | | #N3319 |
| | | | 1D TO 2M | 35-64 | | 35-64 |
| | | | 3M TO 5M | 35-56 | | 35-56 |
| | | | 6M TO 11M | 31-56 | | 31-56 |
| | | | 12M TO 23M | 32-51 | | 32-51 |
| | | | 24M TO 5Y | 28-47 | | 28-47 |
| | | | 6Y TO 11Y | 31-47 | | 31-47 |
| | | | 12Y TO 17Y | 31-52 | | 31-52 |
| | | | 18Y TO 55Y | 31-59 | | 31-59 |
| | | | 56Y TO 150Y | 32-67 | | 32-67 |

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3320 % CD8 (SUPP'R CELLS)
 UNITS: %
 NO SEX
 NO AGE : ; #N3320
 1D TO 2M : 12-28 ; 12-28
 3M TO 5M : 12-23 ; 12-23
 6M TO 11M : 12-24 ; 12-24
 12M TO 23M : 14-30 ; 14-30
 24M TO 5Y : 16-30 ; 16-30
 6Y TO 17Y : 18-35 ; 18-35
 18Y TO 55Y : 12-38 ; 12-38
 56Y TO 150Y : 8-40 ; 8-40
 MALE
 NO AGE : ; #N3320

MML MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PERFORM PRINT NORMALS (# CODED) | SITE * |
|---------------|-------------|----|-------|------------------|------------------------------------|--------|
|---------------|-------------|----|-------|------------------|------------------------------------|--------|

89737 (CONTINUED)

3320 % CD8 (SUPP'R CELLS) (CONTINUED)
 1D TO 2M : 12-28 ; 12-28
 3M TO 5M : 12-23 ; 12-23
 6M TO 11M : 12-24 ; 12-24
 12M TO 23M : 14-30 ; 14-30
 24M TO 5Y : 16-30 ; 16-30
 6Y TO 17Y : 18-35 ; 18-35
 18Y TO 55Y : 12-38 ; 12-38
 56Y TO 150Y : 8-40 ; 8-40
 FEMALE
 NO AGE : ; #N3320
 1D TO 2M : 12-28 ; 12-28
 3M TO 5M : 12-23 ; 12-23
 6M TO 11M : 12-24 ; 12-24
 12M TO 23M : 14-30 ; 14-30
 24M TO 5Y : 16-30 ; 16-30
 6Y TO 17Y : 18-35 ; 18-35
 18Y TO 55Y : 12-38 ; 12-38
 56Y TO 150Y : 8-40 ; 8-40

3322 CD3 (T CELLS)
 UNITS: CELLS/UL
 NO SEX
 NO AGE : ; #N3322
 1D TO 2M : 2500-5500 ; 2500-5500
 3M TO 5M : 2500-5600 ; 2500-5600
 6M TO 11M : 1900-5900 ; 1900-5900
 12M TO 23M : 2100-6200 ; 2100-6200
 24M TO 5Y : 1400-3700 ; 1400-3700
 6Y TO 11Y : 1200-2600 ; 1200-2600
 12Y TO 17Y : 1000-2200 ; 1000-2200

18Y TO 55Y : 677-2383 ; 677-2383
 56Y TO 150Y : 617-2254 ; 617-2254
 MALE
 No AGE : ; #N3322
 1D TO 2M : 2500-5500 ; 2500-5500
 3M TO 5M : 2500-5600 ; 2500-5600
 6M TO 11M : 1900-5900 ; 1900-5900
 12M TO 23M : 2100-6200 ; 2100-6200
 24M TO 5Y : 1400-3700 ; 1400-3700
 6Y TO 11Y : 1200-2600 ; 1200-2600
 12Y TO 17Y : 1000-2200 ; 1000-2200
 18Y TO 55Y : 677-2383 ; 677-2383
 56Y TO 150Y : 617-2254 ; 617-2254
 FEMALE
 No AGE : ; #N3322
 1D TO 2M : 2500-5500 ; 2500-5500
 3M TO 5M : 2500-5600 ; 2500-5600
 6M TO 11M : 1900-5900 ; 1900-5900
 12M TO 23M : 2100-6200 ; 2100-6200

MML MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PRINT NORMALS (# CODED) | PERFORM SITE * |
|------------|-------------|------|-----------------|------------------|-------------------------|----------------|
| 89737 | (CONTINUED) | | | | | |
| | | 3322 | CD3 (T CELLS) | (CONTINUED) | | |
| | | | 24M TO 5Y | : 1400-3700 | ; 1400-3700 | |
| | | | 6Y TO 11Y | : 1200-2600 | ; 1200-2600 | |
| | | | 12Y TO 17Y | : 1000-2200 | ; 1000-2200 | |
| | | | 18Y TO 55Y | : 677-2383 | ; 677-2383 | |
| | | | 56Y TO 150Y | : 617-2254 | ; 617-2254 | |
| | | 3324 | CD19 (B CELLS) | | | |
| | | | UNITS: CELLS/UL | | | |
| | | | NO SEX | | | |
| | | | No AGE | : ; #N3324 | | |
| | | | 1D TO 2M | : 300-2000 | ; 300-2000 | |
| | | | 3M TO 5M | : 430-3000 | ; 430-3000 | |
| | | | 6M TO 11M | : 610-2600 | ; 610-2600 | |
| | | | 12M TO 23M | : 720-2600 | ; 720-2600 | |
| | | | 24M TO 5Y | : 390-1400 | ; 390-1400 | |
| | | | 6Y TO 11Y | : 270-860 | ; 270-860 | |
| | | | 12Y TO 17Y | : 110-570 | ; 110-570 | |
| | | | 18Y TO 55Y | : 99-527 | ; 99-527 | |
| | | | 56Y TO 150Y | : 31-409 | ; 31-409 | |
| | | | MALE | | | |
| | | | No AGE | : ; #N3324 | | |
| | | | 1D TO 2M | : 300-2000 | ; 300-2000 | |
| | | | 3M TO 5M | : 430-3000 | ; 430-3000 | |
| | | | 6M TO 11M | : 610-2600 | ; 610-2600 | |
| | | | 12M TO 23M | : 720-2600 | ; 720-2600 | |

24M TO 5Y : 390-1400 ; 390-1400
 6Y TO 11Y : 270-860 ; 270-860
 12Y TO 17Y : 110-570 ; 110-570
 18Y TO 55Y : 99-527 ; 99-527
 56Y TO 150Y : 31-409 ; 31-409

FEMALE

No AGE : ; #N3324
 1D TO 2M : 300-2000 ; 300-2000
 3M TO 5M : 430-3000 ; 430-3000
 6M TO 11M : 610-2600 ; 610-2600
 12M TO 23M : 720-2600 ; 720-2600
 24M TO 5Y : 390-1400 ; 390-1400
 6Y TO 11Y : 270-860 ; 270-860
 12Y TO 17Y : 110-570 ; 110-570
 18Y TO 55Y : 99-527 ; 99-527
 56Y TO 150Y : 31-409 ; 31-409

4055 CD16+CD56 (NK CELLS)

UNITS: CELLS/UL

NO SEX

No AGE : ; #N4055
 1D TO 2M : 170-1100 ; 170-1100
 3M TO 5M : 170-830 ; 170-830
 6M TO 11M : 160-950 ; 160-950

MML MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PRINT NORMALS (# CODED) | PERFORM SITE * |
|---------------|-------------|----|-------|------------------|-------------------------|-------------------|
|---------------|-------------|----|-------|------------------|-------------------------|-------------------|

89737 (CONTINUED)

4055 CD16+CD56 (NK CELLS) (CONTINUED)

12M TO 23M : 180-920 ; 180-920
 24M TO 5Y : 130-720 ; 130-720
 6Y TO 11Y : 100-480 ; 100-480
 12Y TO 17Y : 70-480 ; 70-480
 18Y TO 55Y : 101-678 ; 101-678
 56Y TO 150Y : 110-657 ; 110-657

MALE

No AGE : ; #N4055
 1D TO 2M : 170-1100 ; 170-1100
 3M TO 5M : 170-830 ; 170-830
 6M TO 11M : 160-950 ; 160-950
 12M TO 23M : 180-920 ; 180-920
 24M TO 5Y : 130-720 ; 130-720
 6Y TO 11Y : 100-480 ; 100-480
 12Y TO 17Y : 70-480 ; 70-480
 18Y TO 55Y : 101-678 ; 101-678
 56Y TO 150Y : 110-657 ; 110-657

FEMALE

No AGE : ; #N4055
 1D TO 2M : 170-1100 ; 170-1100

3M TO 5M : 170-830 ; 170-830
 6M TO 11M : 160-950 ; 160-950
 12M TO 23M : 180-920 ; 180-920
 24M TO 5Y : 130-720 ; 130-720
 6Y TO 11Y : 100-480 ; 100-480
 12Y TO 17Y : 70-480 ; 70-480
 18Y TO 55Y : 101-678 ; 101-678
 56Y TO 150Y : 110-657 ; 110-657

3325 CD4 (HELPER CELLS)

UNITS: CELLS/UL

NO SEX

No AGE : ; #N3325
 1D TO 2M : 1600-4000 ; 1600-4000
 3M TO 5M : 1800-4000 ; 1800-4000
 6M TO 11M : 1400-4300 ; 1400-4300
 12M TO 23M : 1300-3400 ; 1300-3400
 24M TO 5Y : 700-2200 ; 700-2200
 6Y TO 11Y : 650-1500 ; 650-1500
 12Y TO 17Y : 530-1300 ; 530-1300
 18Y TO 55Y : 424-1509 ; 424-1509
 56Y TO 150Y : 430-1513 ; 430-1513

MALE

No AGE : ; #N3325
 1D TO 2M : 1600-4000 ; 1600-4000
 3M TO 5M : 1800-4000 ; 1800-4000
 6M TO 11M : 1400-4300 ; 1400-4300
 12M TO 23M : 1300-3400 ; 1300-3400
 24M TO 5Y : 700-2200 ; 700-2200

MML MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PERFORM PRINT NORMALS (# CODED) | SITE * |
|---------------|-------------|----|-------|------------------|------------------------------------|--------|
|---------------|-------------|----|-------|------------------|------------------------------------|--------|

89737 (CONTINUED)

3325 CD4 (HELPER CELLS) (CONTINUED)
 6Y TO 11Y : 650-1500 ; 650-1500
 12Y TO 17Y : 530-1300 ; 530-1300
 18Y TO 55Y : 424-1509 ; 424-1509
 56Y TO 150Y : 430-1513 ; 430-1513
 FEMALE
 No AGE : ; #N3325
 1D TO 2M : 1600-4000 ; 1600-4000
 3M TO 5M : 1800-4000 ; 1800-4000
 6M TO 11M : 1400-4300 ; 1400-4300
 12M TO 23M : 1300-3400 ; 1300-3400
 24M TO 5Y : 700-2200 ; 700-2200
 6Y TO 11Y : 650-1500 ; 650-1500
 12Y TO 17Y : 530-1300 ; 530-1300
 18Y TO 55Y : 424-1509 ; 424-1509
 56Y TO 150Y : 430-1513 ; 430-1513

3326 CD8 (SUPP'R CELLS)

UNITS: CELLS/UL

NO SEX

| | | | |
|-------------|---|----------|------------|
| No AGE | : | | ; #N3326 |
| 1D TO 2M | : | 560-1700 | ; 560-1700 |
| 3M TO 5M | : | 590-1600 | ; 590-1600 |
| 6M TO 11M | : | 500-1700 | ; 500-1700 |
| 12M TO 23M | : | 620-2000 | ; 620-2000 |
| 24M TO 5Y | : | 490-1300 | ; 490-1300 |
| 6Y TO 11Y | : | 370-1100 | ; 370-1100 |
| 12Y TO 17Y | : | 330-920 | ; 330-920 |
| 18Y TO 55Y | : | 169-955 | ; 169-955 |
| 56Y TO 150Y | : | 101-839 | ; 101-839 |

MALE

| | | | |
|-------------|---|----------|------------|
| No AGE | : | | ; #N3326 |
| 1D TO 2M | : | 560-1700 | ; 560-1700 |
| 3M TO 5M | : | 590-1600 | ; 590-1600 |
| 6M TO 11M | : | 500-1700 | ; 500-1700 |
| 12M TO 23M | : | 620-2000 | ; 620-2000 |
| 24M TO 5Y | : | 490-1300 | ; 490-1300 |
| 6Y TO 11Y | : | 370-1100 | ; 370-1100 |
| 12Y TO 17Y | : | 330-920 | ; 330-920 |
| 18Y TO 55Y | : | 169-955 | ; 169-955 |
| 56Y TO 150Y | : | 101-839 | ; 101-839 |

FEMALE

| | | | |
|------------|---|----------|------------|
| No AGE | : | | ; #N3326 |
| 1D TO 2M | : | 560-1700 | ; 560-1700 |
| 3M TO 5M | : | 590-1600 | ; 590-1600 |
| 6M TO 11M | : | 500-1700 | ; 500-1700 |
| 12M TO 23M | : | 620-2000 | ; 620-2000 |
| 24M TO 5Y | : | 490-1300 | ; 490-1300 |
| 6Y TO 11Y | : | 370-1100 | ; 370-1100 |
| 12Y TO 17Y | : | 330-920 | ; 330-920 |

MML MML TEST SETUP INFORMATION

| ORDER | EFF | TC | TITLE | CHECKING NORMALS | PERFORM | PRINT NORMALS (# CODED) | SITE * |
|-------|-------------|------|--------------------------------|------------------|---------|-------------------------|--------|
| CODE | DATE | | | | | | |
| 89737 | (CONTINUED) | | | | | | |
| | | 3326 | CD8 (SUPP'R CELLS) (CONTINUED) | | | | |
| | | | 18Y TO 55Y | : 169-955 | | ; 169-955 | |
| | | | 56Y TO 150Y | : 101-839 | | ; 101-839 | |
| | | 3327 | H/S RATIO | | | | |
| | | | NO SEX | | | | |
| | | | ALL AGES | : 1.0- | | ; >=1.0 | |
| | | | MALE | | | | |
| | | | ALL AGES | : 1.0- | | ; >=1.0 | |
| | | | FEMALE | | | | |
| | | | ALL AGES | : 1.0- | | ; >=1.0 | |

6657 COMMENT

EXPECT RESULTS OF FORM : THE RESULT IS LIMITED TO 40 CHARACTERS.

8885 1/15/2009 LYMPHOCYTE PROLIFERATION, ANTIGENS MCR
TRANSPORT TEMP : AMBIENT <48 HOURS\REFRIG NO\FROZEN NO

8885 LYMPHOCYTE PROLIFERATION, ANTIGENS
NO SEX
ALL AGES : ; NARRATIVE REPORT
MALE
ALL AGES : ; NARRATIVE REPORT
FEMALE
ALL AGES : ; NARRATIVE REPORT

29531 CANDIDA ALBICANS, DILUTION 1
UNITS: S.I.

29532 CANDIDA ALBICANS, DILUTION 2
UNITS: S.I.

29533 CANDIDA ALBICANS, DILUTION 3
UNITS: S.I.

29534 CANDIDA ALBICANS, DILUTION 4
UNITS: S.I.

26523 INTERPRETATION CANDIDA ALBICANS
NO SEX
ALL AGES : ; #N8885
MALE
ALL AGES : ; #N8885
FEMALE
ALL AGES : ; #N8885

TEST CODE ALWAYS MESSAGE - [Z8885D]
Z8885D CANDIDA ALBICAN DILUTIONS USED:
1.0 MCG/ML
5.0 MCG/ML
10.0 MCG/ML
20.0 MCG/ML

MML MML TEST SETUP INFORMATION

| ORDER CODE | EFF DATE | TC | TITLE | CHECKING NORMALS | PERFORM PRINT NORMALS (# CODED) | SITE * |
|------------|----------|----|-------|------------------|---------------------------------|--------|
|------------|----------|----|-------|------------------|---------------------------------|--------|

89737 (CONTINUED)

29525 TETANUS TOXOID, DILUTION 1
UNITS: S.I.

29526 TETANUS TOXOID, DILUTION 2

UNITS: S.I.
 - - - - -
 29527 TETANUS TOXOID, DILUTION 3
 UNITS: S.I.
 - - - - -
 29528 TETANUS TOXOID, DILUTION 4
 UNITS: S.I.
 - - - - -
 26528 INTERPRETATION TETANUS TOXOID
 NO SEX
 ALL AGES : ; #N8885
 MALE
 ALL AGES : ; #N8885
 FEMALE
 ALL AGES : ; #N8885
 TEST CODE ALWAYS MESSAGE - [Z8885E]
 Z8885E TETANUS TOXOID DILUTIONS USED:
 0.5 MCG/ML
 1.0 MCG/ML
 2.5 MCG/ML
 5.0 MCG/ML
 - - - - -

 *PERFORMING SITE LEGEND

=====

| | | | |
|-----|--|---------------|----------------------------------|
| MCR | MAYO CLINIC DPT OF LAB MED & PATHOLOGY | LAB DIRECTOR: | FRANKLIN R. COCKERILL, III, M.D. |
| | 200 FIRST STREET SW | | |
| | ROCHESTER, MN 55905 | | |

=====

MML MESSAGES USED AS NORMALS

| CODE | TEXT |
|-------|---|
| ----- | ----- |
| N3316 | 53-84 (0-2 MO) 51-77 (3-5 MO) 49-76 (6-11 MO) 53-75 (12-23 MO) 56-75 (2-5 Y) 60-76 (6-11 Y) 56-84 (12-17 Y) 59-83 (18-55 Y) 49-87 (>55 Y) |
| ----- | |
| N3318 | 6-32 (0-2 MO) 11-41 (3-5 MO) 14-37 (6-11 MO) 16-35 (12-23 MO) 14-33 (2-5 Y) 13-27 (6-11 Y) 6-23 (12-17 Y) |

6-22 (18-55 Y)
3-20 (>55 Y)

N3319 35-64 (0-2 MO)
 35-56 (3-5 MO)
 31-56 (6-11 MO)
 32-51 (12-23 MO)
 28-47 (2-5 Y)
 31-47 (6-11 Y)
 31-52 (12-17 Y)
 31-59 (18-55 Y)
 32-67 (>55 Y)

N3320 12-28 (0-2 MO)
 12-23 (3-5 MO)
 12-24 (6-11 MO)
 14-30 (12-23 MO)
 16-30 (2-5 Y)
 18-35 (6-17 Y)
 12-38 (18-55 Y)
 8-40 (>55 Y)

N3322 2500-5500 (0-2 MO)
 2500-5600 (3-5 MO)
 1900-5900 (6-11 MO)
 2100-6200 (12-23 MO)
 1400-3700 (2-5 Y)
 1200-2600 (6-11 Y)
 1000-2200 (12-17 Y)
 677-2383 (18-55 Y)
 617-2254 (>55 Y)

N3324 300-2000 (0-2 MO)
 430-3000 (3-5 MO)
 610-2600 (6-11 MO)
 720-2600 (12-23 MO)
 390-1400 (2-5 Y)
 270-860 (6-11 Y)
 110-570 (12-17 Y)
 99-527 (18-55 Y)
 31-409 (>55 Y)

N3325 1600-4000 (0-2 MO)
 1800-4000 (3-5 MO)
 1400-4300 (6-11 MO)
 1300-3400 (12-23 MO)
 700-2200 (2-5 Y)
 650-1500 (6-11 Y)
 530-1300 (12-17 Y)
 424-1509 (18-55 Y)
 430-1513 (>55 Y)

N3326 560-1700 (0-2 MO)
 590-1600 (3-5 MO)
 500-1700 (6-11 MO)
 620-2000 (12-23 MO)
 490-1300 (2-5 Y)
 370-1100 (6-11 Y)
 330-920 (12-17 Y)
 169-955 (18-55 Y)
 101-839 (>55 Y)

N4054 4-18 (0-2 MO)
 3-14 (3-5 MO)
 3-15 (6-23 MO)
 4-17 (2-11 Y)
 3-22 (12-17 Y)
 6-27 (18-55 Y)
 6-35 (>55 Y)

N4055 170-1100 (0-2 MO)
 170-830 (3-5 MO)
 160-950 (6-11 MO)
 180-920 (12-23 MO)
 130-720 (2-5 Y)
 100-480 (6-11 Y)
 70-480 (12-17 Y)
 101-678 (18-55 Y)
 110-657 (>55 Y)

N8885 >3: REACTIVE (POSITIVE)
 <=3: NON-REACTIVE (NEGATIVE)

ALL LYMPHOCYTE PROLIFERATION,
ANTIGENS ASSAYS REPORTED HAVE
A CELL VIABILITY OF >85%.

NN3321 0.66-4.60 (0-17 Y)
 0.99-3.15 (18-55 Y)
 1.00-3.33 (>55 Y)

TOTAL OF 12 NORMALS CODES

*** END OF REPORT ***



LABORATORY SERVICE REPORT

1-800-533-1710

| | | | | | | |
|--|-------------------------|------------------------------------|-------------|---|----------|-------------------------|
| PATIENT NAME TESTING, SHANNON | | PATIENT NUMBER | | AGE 32 | SEX M | ACCESSION # G9132316 |
| ORDERING PHYSICIAN | | CLIENT ORDER # | | | | ACCOUNT # LIAISONS |
| COLLECTION 07/21/09 11:27 A | RECEIVED | REPORT PRINTED 07/31/09 01:38 P | | SPECIMEN INFORMATION DATE OF BIRTH: 10/15/1976 | | |
| DATE TIME | DATE TIME | DATE | TIME | | | |
| Test Client Attn: Mayo Liaisons 200 First Street SW Rochester, MN 55905 507-284-8202 | | | | | | |

| TEST REQUESTED | HI LO | REF RANGE | PERFORM SITE * |
|---|----------|-----------|----------------|
| T & B Cell with Antigen Panel | | | |
| Candida albicans, Dilution 1 | <1.0 | S.I. | MCR |
| Candida albicans, Dilution 2 | 1.2 | S.I. | MCR |
| Candida albicans, Dilution 3 | 1.9 | S.I. | MCR |
| Candida albicans, Dilution 4 | 2.4 | S.I. | MCR |
| Interpretation Candida albicans | | | MCR |
| -- EXPECTED VALUES -- | | | |
| >3: Reactive (Positive) | | | |
| <=3: Non-reactive (Negative) | | | |
| All Lymphocyte Proliferation, Antigens assays reported have a cell viability of >85%. | | | |
| Candida Albican dilutions used: | | | |
| 1.0 mcg/mL | | | |
| 5.0 mcg/mL | | | |
| 10.0 mcg/mL | | | |
| 20.0 mcg/mL | | | |
| Tetanus toxoid, Dilution 1 | 1.7 | S.I. | MCR |
| Tetanus toxoid, Dilution 2 | 1.8 | S.I. | MCR |
| Tetanus toxoid, Dilution 3 | 1.9 | S.I. | MCR |
| Tetanus toxoid, Dilution 4 | 1.3 | S.I. | MCR |

* Perform Site Legend on last page of report

| | | |
|----------------------------------|-----------------------|--|
| PATIENT NAME TESTING, SHANNON | ORDER STATUS Final | COLLECTION DATE AND TIME 07/21/09 11:27 A |
|----------------------------------|-----------------------|--|

Specimen receipt and report times are in CST/CDT

REPRINT

Page 1 of 2



LABORATORY SERVICE REPORT

1-800-533-1710

| | | | | | | |
|--|----------|------------------------------------|------|---|----------|-------------------------|
| PATIENT NAME TESTING, SHANNON | | PATIENT NUMBER | | AGE 32 | SEX M | ACCESSION # G9132316 |
| ORDERING PHYSICIAN | | CLIENT ORDER # | | | | ACCOUNT # LIAISONS |
| COLLECTION 07/21/09 11:27 A | RECEIVED | REPORT PRINTED 07/31/09 01:38 P | | SPECIMEN INFORMATION DATE OF BIRTH: 10/15/1976 | | |
| DATE | TIME | DATE | TIME | DATE | TIME | |
| Test Client Attn: Mayo Liaisons 200 First Street SW Rochester, MN 55905 507-284-8202 | | | | | | |

| TEST REQUESTED | HI LO | REF RANGE | PERFORM SITE * |
|---|-------------|----------------|----------------------|
| Interpretation Tetanus toxoid | | | MCR |
| -- EXPECTED VALUES -- | | | |
| >3: Reactive (Positive) | | | |
| <=3: Non-reactive (Negative) | | | |
| All Lymphocyte Proliferation, Antigens assays reported have a cell viability of >85%. | | | |
| Tetanus Toxoid dilutions used: | | | |
| 0.5 mcg/mL | | | |
| 1.0 mcg/mL | | | |
| 2.5 mcg/mL | | | |
| 5.0 mcg/mL | | | |
| CD45 Lymph Count, | 2.62 | thou/uL | 0.99-3.15 MCR |
| Flow | | | |
| % CD3 (T Cells) | 82 | % | 59-83 MCR |
| % CD19 (B Cells) | 6 | % | 6-22 MCR |
| % CD16+CD56 (NK cells) | 11 | % | 6-27 MCR |
| % CD4 (Helper Cells) L | 27 | % | 31-59 MCR |
| % CD8 (Supp'r Cells) H | 56 | % | 12-38 MCR |
| CD3 (T Cells) | 2148 | cells/uL | 677-2383 MCR |
| CD19 (B Cells) | 168 | cells/uL | 99-527 MCR |
| CD16+CD56 (NK cells) | 281 | cells/uL | 101-678 MCR |
| CD4 (Helper Cells) | 713 | cells/uL | 424-1509 MCR |
| CD8 (Supp'r Cells) H | 1466 | cells/uL | 169-955 MCR |
| H/S Ratio L | 0.49 | | >=1.0 MCR |

* PERFORMING SITE

| | |
|---|--|
| MCR Mayo Clinic Dpt of Lab Med & Pathology 200 First Street SW Rochester, MN 55905 | Lab Director: Franklin R. Cockerill, III, M.D. |
|---|--|

| | | |
|----------------------------------|-----------------------|--|
| PATIENT NAME TESTING, SHANNON | ORDER STATUS Final | COLLECTION DATE AND TIME 07/21/09 11:27 A |
|----------------------------------|-----------------------|--|

Specimen receipt and report times are in CST/CDT

REPRINT

Page 2 of 2