



Procedure	Result	Units	Ref Interval	Accession	Collected	Received	Reported/Verified
% CD2	92 H	%	[73-91]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD2	2601 H	cells/uL	[700-2,600]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% CD3	88 H	%	[62-87]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD3	2401 H	cells/uL	[570-2,400]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% CD4	65 H	%	[32-64]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD4	1801 H	cells/uL	[430-1,800]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% CD8	47 H	%	[15-46]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD8	1201 H	cells/uL	[210-1,200]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
CD4:CD8 Ratio	1.38	ratio	[0.80-3.90]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% Natural Killer Cells	27 H	%	[4-26]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute Natural Killer Cells	471 H	cells/uL	[78-470]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% CD19	24 H	%	[6-23]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD19	611 H	cells/uL	[91-610]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% CD45RA	72 H	%	[28-71]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD45RA	871 H	cells/uL	[150-870]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% CD45RO	73 H	%	[28-72]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute CD45RO	1051 H	cells/uL	[190-1,050]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
% HLA-DR	25 H	%	[8-24]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Absolute HLA-DR	641 H	cells/uL	[100-640]	17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27
Lymphocyte Subset Panel 7 Information	See Note			17-348-900144	14-Dec-17 10:58:00	14-Dec-17 10:58:00	14-Dec-17 11:02:27

14-Dec-17 10:58:00 Lymphocyte Subset Panel 7 Information:  
 INTERPRETIVE INFORMATION: Lymphocyte Subset 7,  
 Congenital Immunodeficiencies

This profile screens for inherited immunodeficiencies. The CD4 cells are Helper T-cells expressing both CD3 and CD4. The CD8 cells are Cytotoxic T-cells expressing both CD3 and CD8. The B-cells express CD19 but not CD3. The NK-cells express either CD16 or CD56 (or both) but not CD3. CD3, CD4, CD8, CD19 and NK-cell percentages are reported as a percent of total lymphocytes. The CD45RA cells express both CD4 and "naive" CD45RA antigens while CD45RO cells express both CD4 and CD45RO "memory" antigens. CD45RA and CD45RO percentages are reported as a percent of total CD4 cells. Primary immune deficiencies that show phenotypic abnormalities include X-linked hypogammaglobulinemia, DiGeorge syndrome, bare lymphocyte syndrome, and severe combined immunodeficiency disease (SCID).

X-linked hypogammaglobulinemia (X-linked agammaglobulinemia, Bruton's agammaglobulinemia) is caused by defective B-cell maturation secondary to mutations in the BTK (Bruton/B-cell tyrosine kinase) gene. T-cells (CD2, CD3) are normal or increased in number, and the CD4:CD8 ratio is normal or decreased. Most of the CD4 cells express the CD45RA antigen characteristic of naive rather than memory cells. B-cells (CD19, HLA-DR) are severely decreased or absent in the peripheral blood.

X-linked hypogammaglobulinemia can be distinguished from transient hypogammaglobulinemia of infancy by the absence of B-cells. Transient hypogammaglobulinemia of infancy results from delayed capacity for immunoglobulin synthesis and spontaneously resolves with age.

\* Abnormal, # = Corrected, C = Critical, f = Footnote, H = High, L = Low, t = Interpretive Text, @ = Reference Lab

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Thymic aplasia (congenital thymic aplasia, DiGeorge syndrome) results in impaired T-cell maturation and function. B-cells (CD19, HLA-DR) and NK-cells (CD16/CD56) are normal but T-cells (CD2, CD3) are usually decreased with an elevated CD4:CD8 ratio. The clinical course is variable, ranging from "partial DiGeorge syndrome" to cases that resemble SCID.

SCID has multiple genetic causes, including mutations in the gamma chain of the interleukin 2 receptor and the purine degradation enzymes, adenosine deaminase, and nucleoside phosphorylase. In adenosine deaminase deficiency, both B-cells (CD19, HLA-DR) and T-cells (CD2, CD3) are decreased in the peripheral blood. In other forms of SCID, the lymphopenia is not as severe, but the lymphocyte count is usually less than 1,000/uL even though B-cells (CD19, HLA-DR) may be normal or increased. In contrast to thymic aplasia, any T-cells present may have an immature phenotype.

Major histocompatibility complex class II deficiency, bare lymphocyte syndrome, is caused by defective transcription of HLA class II genes; B-cells (CD19) and T-cells (CD2, CD3) are present in normal numbers, but HLA-DR is absent. The CD4+ cells are usually CD45RA+.

Common variable immunodeficiency (CVID) describes a heterogeneous group of disorders with defective antibody formation. B-cells (CD19, HLA-DR) and T-cells (CD2, CD3) are usually normal in number, although B-cells may be decreased when CVID occurs concurrently with systemic lupus erythematosus. The CD4:CD8 ratio may be normal or decreased.

Wiskott-Aldrich syndrome includes immunodeficiency with thrombocytopenia and eczema. Lymphopenia is usually present with a progressive decline in T-cells numbers. The CD4:CD8 ratio is normal. The gene is X-linked and encodes the Wiskott-Aldrich syndrome protein.

Immunophenotyping is generally not useful in characterizing selective IgA deficiency, IgG subclass deficiencies, the hyper IgM syndrome, or hyperimmunoglobulin E syndrome (Job syndrome).

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement A: [aruplab.com/CS](http://aruplab.com/CS)