

**CLINICAL IMMUNODIAGNOSTIC AND RESEARCH LAB**

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A Jeffrey Modell Diagnostic Center for Primary Immunodeficiency

**TEST DESCRIPTION OVERVIEW**

TEST NAME	DESCRIPTION	TEST CODE	CPT CODE(S)	ANTIGENS INVESTIGATED			
				<u>T-Subsets</u>	<u>B-Subsets</u>	<u>NK-Subsets</u>	<u>Other</u>
<b>ABSOLUTE AT4</b>	To monitor patient's individual CD4 and CD8 T cell populations. Panel is routinely used in determining therapeutic considerations for HIV+ patients.	<b>AT4</b>	88184-TC 88185 x4-TC 86359-TC 88187	CD3 CD4 CD8			CD14 CD45
<b>AUTOIMMUNE LYMPHOPROLIFERATIVE SYNDROME</b>	Evaluates the presence of TCR alpha/beta positive –CD4 and CD8 double negative T cells, referred to as TCRab-DNTCs.	<b>AILYMP</b>	88184-TC 88185 x13-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 B220 TCRab TCRgd	CD19 CD21 CD27 IgD	CD16 CD56	CD14 CD45
<b>BRUTON'S TYROSINE KINASE</b>	Evaluates the presence of Bruton's Tyrosine Kinase (BTK) expression in monocytes and B cells.	<b>BTK</b>	88184-TC 88185 x8-TC 86355-TC 86359-TC 88187	CD3 CD4 CD8	CD19 BTK	CD16 CD56	CD14 CD45
<b>COMMON VARIABLE IMMUNODEFICIENCY</b>	Evaluates lymphocyte subpopulations, T cell memory and activation status, and B cells naïve/memory/switched memory status based on IgD and CD27 expression.	<b>CVID</b>	88184-TC 88185 x13-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19 CD21 CD27 IgD	CD16 CD56	CD14 CD45 HLA-DR
<b>CYTOKINE-IBD (PBMC ISOLATION)</b>	Determines the ability of IL-10 to inhibit LPS induced IL-6 cytokine production, a STAT3 dependent event. Useful to test IL10 receptor function and STAT3 function (HyperIgE)	<b>CYTIBD</b>	86353 x4-TC 83520-TC				IL-6
<b>FUNCTIONAL ASPLENIA/HOWELL-JOLLY BOBY DETECTION</b>	Screening test to aid in the diagnosis of splenic dysfunction by analyzing mature erythrocytes to detect the presence of micronuclei (Howell-Jolly Bodies) by staining with propidium iodide	<b>FAHJB</b>	88184-TC 88185x2-TC 88187				CD45 CD61 CD71
<b>CYTOTOXICITY/APOPTOSIS (PBMC ISOLATION)</b>	Evaluates NK cell cytotoxicity by measuring apoptosis of tumor cells. Abnormal in hemophagocytic lymphohistiocytosis.	<b>CYTAPO</b>	86352-TC 88184-TC 88185x3-TC 88187	CD3		CD56 CD16 CD107a	
<b>HYPER IGM</b>	Evaluates the expression of CD40L on activated CD4 cells, and CD40 expression. Can be used to evaluate carrier status.	<b>HIGM</b>	88184-TC 88185 x10-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD154 CD40-Fc	CD19 CD40	CD16 CD56	CD14 CD15
<b>MENDELIAN SUSCEPTIBILITY TO MYCOBACTERIAL DISEASES</b>	Evaluates expression of INF gamma and IL12 receptors (CD119 and CD212), as well as responsiveness of cells to IFN gamma and IL12 by measuring phospho-STAT1 and phospho-STAT4, respectively. We also measure LPS/IFNγ induced IL12 production.	<b>MSMD</b>	86353-TC 88184-TC 88185 x15-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19	CD16 CD56 CD212	CD14 CD45 HLA-DR CD119 IL-12 pSTAT1 pSTAT4

<b>NEUTROPHIL PHENOTYPE and FUNCTION (formerly NEUTROPHIL OXIDATIVE BURST, NEUOXB)</b>	Evaluates the ability of neutrophils to generate an oxidative burst using dihydrorhodamine (DHR). Patients with chronic granulomatous disease (CGD) are defective in this response. We also evaluate PMN surface marker expression for CD15 and CD18.	<b>NPF</b>	88184-TC 88185x2-TC 88187				CD15 CD18 CD45
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<b>PERFORIN GRANZYME</b>	Determines the presence of intracellular perforin and granzyme B within natural killer cells.	<b>PERGRA</b>	88184-TC 88185 x9-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8	CD19	CD56 CD16	CD14 CD45 Granzyme B Perforin
<b>PRIMARY IMMUNODEFICIENCY 1</b>	Evaluates lymphocyte subpopulations(T, B, NK)	<b>PID1</b>	88184-TC 88185 x7-TC 86355-TC 86359-TC 88187	CD3 CD4 CD8	CD19	CD16 CD56	CD14 CD45
<b>PRIMARY IMMUNODEFICIENCY 2</b>	Evaluates lymphocyte subpopulations(T, B, NK). Also evaluates memory status of CD4 lymphocytes, activation status of CD4 and CD8 cells.	<b>PID2</b>	88184-TC 88185 x10-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19	CD16 CD56	CD14 CD45 HLA-DR
<b>T CELL INTERLEUKIN PROLIFERATION (PBMC ISOLATION)</b>	Evaluates the proliferative capacity of T cells in response to CD3 and CD3/28 activation, IL2, IL7 and IL15.	<b>TINTL</b>	86353-TC 88187	CD4 CD8			
<b>T CELL MITOGEN PROLIFERATION (PBMC ISOLATION)</b>	Evaluates the proliferative capacity of lymphocytes to PHA, ConA, and CD3 with or without IL2.	<b>TMITO</b>	86353-TC 88187	CD4 CD8			
<b>T HELPER IL17 (PBMC ISOLATION)</b>	Evaluates IL-17 production in CD4+ T helper cells. Deficient expression is associated with hyper IgE syndrome (HIES)/Job's Syndrome  <b>NOTE: <u>NOT</u> to be collected on patients &lt; 1 year of age</b>	<b>THIL17</b>	86353-TC 88184-TC 88185 x9-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8	CD19	CD16 CD56	CD14 CD45 IFN-γ IL-17
<b>TOLL-LIKE RECEPTOR/XIAP</b>	Evaluates ability of monocytes to respond to LPS and MDP. Defective response can be seen in IRAK4/MyD88 and XIAP deficiency, respectively.	<b>TLREC/ XIAP</b>	83520-TC 86352-TC 88184-TC 88187				CD14 TNFα
<b>STAT GAIN-OF-FUNCTION</b>	Screening assay to determine if mutations in the STAT1 gene are potentially functional.	<b>SGOF</b>	88184-TC 88185 x13-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19	CD16 CD56	CD14 CD45 HLA-DR pSTAT1 CD126 CD130

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<b>T REGULATORY –FOXP3 (PBMC ISOLATION)</b>	Evaluates lymphocyte subpopulations and the presence of Foxp3+ T regulatory cells.	<b>TREG</b>	88184-TC 88185 x12-TC 86355-TC 86359-TC 88188	<u><b>T-</b></u> <u><b>Subsets</b></u> CD3 CD4 CD8 CD45RA CD45RO CD25 FoxP3	<u><b>B-</b></u> <u><b>Subsets</b></u> CD19	<u><b>Nk-</b></u> <u><b>Subsets</b></u> CD16 CD56	<u><b>Other</b></u> CD14 CD45 HLA-DR
<b>X-LINKED LYPHOPROLIFERATIVE SYNDROME (PBMC ISOLATION)</b>	Determines the presence of SAP and XIAP expression in lymphocytes to evaluate for XLP type 1 and type 2, respectively.	<b>XLP</b>	88184-TC 88185 x12-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19	CD16 CD56	CD14 CD45 HLA-DR SAP XIAP
<b>LIPOPOLYSACCHARIDE-RESPONSIVE BEIGE-LIKE ANCHOR PROTEIN</b>	Determines LRBA expression by lymphocytes. In addition, we evaluate FOXP3 expression as well as CTLA4.	<b>LRBA</b>	88184-TC 88185 x12-TC 86355-TC 86359-TC 88188	CD3 CD4 CD8 CD45RA CD45RO CD25 FoxP3	CD19	CD16 CD56	CD14 CD45 HLA-DR CTLA4 LRBA