

TEST DESCRIPTION OVERVIEW

TEST NAME	DESCRIPTION	TEST CODE	CPT CODE	ANTIGENS INVESTIGATED			
				T-Subset	B-Subset	NK-Subset	Other
ABSOLUTE T4	To monitor patient's individual T cell populations to infer cellular immune status. Panel is routinely used in determining therapeutic considerations for HIV+ patients.	AT4	86359 86360 88184 88185 88187	CD3 CD4 CD8			CD14 CD45
AUTOIMMUNE LYMPHOPROLIFERATIVE SYNDROME	Determines the presence of cellular phenotypes associated with ALPS by evaluating the presence of TCR alpha/beta - double negative T cells, referred as TCRab-DNTCs.	AILYMP	86359 86360 86355 86357 88184 88185 x 11 88188	CD3 CD4 CD8 TCRab B220	CD19 CD21 CD27 HLA-DR IgD	CD16 CD56	CD11b CD14 CD15 CD25 CD45
BRUTON'S TYROSINE KINASE	To evaluate the presence of X-Linked Agammaglobulinemia (XLA) by assessing Bruton's Tyrosine Kinase (BTK) expression in monocytes. In addition, the test evaluates heterozygosity status of carrier patients.	BTK	86359 86360 86355 86357 88184 88185 x 5 88188	CD3 CD4 CD8	CD19 BTK	CD16 CD56	CD11b CD14 CD15 CD45
COMMON VARIABLE IMMUNODEFICIENCY	Determines the presence of cellular phenotypes associated with common variable immunodeficiency (CVID) by evaluating naive/memory B cell markers and T & B cell activation markers.	CVID	86359 86360 86355 88184 88185 x 10 88188	CD3 CD4 CD8 CD45RA CD45RO	CD21 CD27 HLA-DR IgD		CD11b CD14 CD15 CD45 CD69
CYTOTOXICITY/APOPTOSIS ISOLATION) (PBMC)	Evaluates the cytotoxicity of NK cells and their ability to induce normal apoptotic target cell death. These results evaluate the perforin/granzyme pathway, which is defective in such diseases as hemophagocytic lymphohistiocytosis (HLH).	CYTAPO	86849 88187	Non-Applicable			
HYPER IGM	Evaluates both X-linked (CD40L) and autosomal recessive (CD40) hyper IgM. In addition, the test evaluates the heterozygosity status of carrier patients and subset evaluation.	HIGM	86359 86360 86355 86357 88184 88185 x 6 88187	CD3 CD4 CD8 CD40L (CD154)	CD19 CD40	CD16 CD56	CD11b CD14 CD15 CD45
MENDELIAN SUSCEPTIBILITY TO MYCOBACTERIAL DISEASES	To evaluate susceptibility to intracellular bacterial pathogens by assessing the IFN-γ and IL-12 signaling pathways via detection of STAT1 and 4 phosphorylation, respectively. Cell surface expression of IFN-γR/CD119 and IL-12R on monocytes and lymphocytes, respectively, is also determined by flow cytometry.	MSMD	86359 86360 86355 86357 88184 88185 x 17 88187 86353	CD3 CD4 CD8 CD45RA CD45RO	CD19 CD20 CD27 CD119 CD212	CD16 CD56	CD11b CD14 CD15 CD18 CD45 CD69 HLA-ABC HLA-DR TCRab pSTAT1 pSTAT4
NEUTROPHIL OXIDATIVE BURST	To aid in the detection of chronic granulomatous disease (CGD) and/or to define the presence of X-linked CGD carrier status. Using the neutrophil (PMN) cell population, the assay measures the capability of neutrophils to undergo oxidative metabolism to produce superoxide anion and hydrogen peroxide, as detected by oxidation of dihydrorhodamine (DHR). Patients with chronic granulomatous disease (CGD) are unable to oxidize DHR due to defects in oxidative metabolism.	NEUOXB	88184 88185 88187	Non-Applicable			
NEUTROPHIL PHAGOCYTOSIS	To evaluate phagocytic function of polymorphonuclear leukocytes (PMNs) or neutrophils. Independently assesses PMNs phagocytic ability towards gram (-), Escherichia coli, and gram (+), Staphylococcus aureus.	PHAGO	86344 x 2 88187	Non-Applicable			

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PERFORIN GRANZYME	Determines the presence of intracellular perforin, granzyme A, and granzyme B expression within cytotoxic lymphocytes and/or natural killer cell populations. Deficient expression is associated with a number of human diseases, such as hemophagocytic lymphohistiocytosis.	PERGRA	86359 86360 86355 86357 88184 88185 x 5 88187	CD3 CD4 CD8	CD19	CD8 CD56	CD11b CD14 CD15 CD45 GranzymeA GranzymeB Perforin
PRIMARY IMMUNODEFICIENCY 1	Monitors patient's individual T, B, and NK cell populations to infer cellular and humoral immune status. With the use of the myeloid markers, NK/NKT subsets, and CD4/CD8 ratio, the test provides a general evaluation for cellular immune dysfunction.	PID1	86359 86360 86355 86357 88184 88185 x 4 88187	CD3 CD4 CD8	CD19	CD16 CD56	CD11b CD14 CD15 CD45
PRIMARY IMMUNODEFICIENCY 2	Provides additional screening of individual T, B, and NK cell populations to infer cellular immune dysfunction; furthermore, the test aids in the assessment for additional functional analysis. The test provides a general evaluation of the myeloid lineage, as well as, determines the presence of LAD I and II.	PID2	86359 86360 86355 86357 88184 88185 x 13 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19 CD20 CD27	CD16 CD56	CD11b CD14 CD15 CD18 CD45 CD69 HLA- ABC HLA- DR TCRab
SEVERE COMBINED IMMUNODEFICIENCY	Provides newborn screening of individual T, B, and NK cell populations to determine the presence of severe combined immunodeficiency.	SCID	86359 86360 86355 86357 88184 88185 88187	CD3 CD4 CD8 CD45RO	CD19	CD56	CD45
T CELL ACTIVATION	Evaluates T cell activation by demonstrating upregulation of CD25 and CD69 expression.	TCACT	86359 86360 86355 86357 88184 88185 x 6 88187	CD3 CD4 CD8	CD19	CD16 CD56	CD11b CD14 CD15 CD18 CD25 CD45 CD69
T CELL INTERLEUKIN PROLIFERATION (PBMC ISOLATION)	To determine immunocompetence status. Inability of lymphocytes to proliferate in response to CD3 is a sign of impaired cell-mediated proliferation; in addition, the assay evaluates for the presence of cytokine deficiency.	TINTL	86353 88187	CD4 CD8			
T CELL MITOGEN PROLIFERATION (PBMC ISOLATION)	Determines general immunocompetence status. Inability of lymphocytes to proliferate upon mitogen stimulation is a sign of impaired cell-mediated immunity. This test further delineates the proliferative capacity of T cell subsets.	TMITO	86353 88187	CD4 CD8			
T HELPER IL17 (PBMC ISOLATION)	Evaluates IL-17 production in CD4+ T helper cells. Deficient expression is associated with hyper IgE syndrome (HIES)/Job's Syndrome	THIL17	86359 86360 86355 86357 88184 88185 x 6 88188	CD3 CD4 CD8	CD19	CD16 CD56	CD11b CD14 CD15 CD45 IFNg IL17a
TOLL - LIKE RECEPTOR	Evaluates patients with recurrent infections and suspected of having genetic defects within the innate immune system.	TLREC	88184 86353 83520 88187				CD14
T REGULATORY - FOXP3 (PBMC ISOLATION)	To evaluate the presence of X-Linked Immunodysregulation Polyendocrinopathy and Enteropathy (IPEX) by assessing for T regulatory cells.	TREG	86359 86360 86355 86357 88184 88185 x 6 88188	CD3 CD4 CD8 CD25 CD127	CD19	CD16 CD56	CD11b CD14 CD15 CD45

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WISKOTT-ALDRICH SYNDROME PROTEIN	To evaluate the presence of Wiskott-Aldrich syndrome (WAS) by assessing for intracellular WAS protein (WASP) expression in T, B, and NK cells.	WASP	86359 86360 86355 86357 88184 88185 x 14 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19 CD20 CD27 WASP	CD16 CD56	CD11b CD14 CD15 CD18 CD45 CD69 HLA- ABC HLA- DR TCRab
X - LINKED LYMPHOPROLIFERATIVE SYNDROME	Determines the presence of cellular phenotypes associated with X-Linked Lymphoproliferative syndrome. Deficient expression of SAP and XIAP in lymphocytes is associated with XLP type 1 or XLP type2; respectively.	XLP	86359 86360 86355 86357 88184 88185 x 15 88188	CD3 CD4 CD8 CD45RA CD45RO	CD19 CD20 CD27	CD16 CD56	CD11b CD14 CD15 CD18 CD45 CD69 HLA- ABC HLA- DR TCRab SAP XIAP

Effective: 11/2010