IMMUNOSCIENCES LAB, INC.
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LOS ANGELES, CA 90035
TEL: (310) 657-1077 FAX: (310) 657-1053
E-MAIL: immunsci@gmail.com

REFERRING PHYSICIAN

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RESEARCH
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PATIENT NAME: SAMPLE, REPORT

AGE: 38Y SEX:

ACCESSION NO.	D.O.B.	COLLECTION DATE	LOG-IN DATE	TEST DATE	REPORT DATE
AAAAA	08/11/1984	04/17/2023	04/18/2023	04/18/2023	04/18/2023

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
LONG COVID PANEL				
IgG SARS-COV-2		1.50	<0.9	INDEX
RESULTS REPORTED AS 0.91-1.09 ARE CONSIDERED EQUIVOCAL.				
IgG EPSTEIN-BARR VCA	0.50		<0.9	ISR
IgM EPSTEIN-BARR VCA	0.50		<0.9	ISR
IgG EARLY ANTIGEN	0.50		<0.9	ISR
IgG EB NUCLEAR ANTIGEN	0.50		<0.9	ISR
IgM EB NUCLEAR ANTIGEN	0.50		<0.9	INDEX

RESULTS REPORTED AS 0.91-1.09 ARE CONSIDERED EQUIVOCAL.
RESULTS GREATER THAN OR EQUAL TO 1.10 ARE CONSIDERED POSITIVE.

Patients EBV Status

AB	Susceptible	Primary EBV	Convalescent (3 mo.)	Past	Reactivated
VCA-IgM	-	+	+ or -	-	-
VCA-IgG	-	+	+	+	+
EA-D	-	-	+	-	+
EBNA-IgG	-	-	+ or -	+	+
EBNA-IgM	-	+	+ or -	-	+

* * * * * * * * * * *

[ ] Test results may indicate no viral infection.

[ ] Test results may indicate past viral infection.

[ ] Test results may indicate on-going viral infection.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
IgG HHV-6 (HERPES TYPE-6)	1.50		<37.00	EU
RESULTS REPORTED AS <8 EU ARE CONSIDERED WITHIN THE LOWER LIMIT OF DETECTION AND FROM 8-37 ARE CONSIDERED NEGATIVE. RESULTS >37 MAY INDICATE AN IMMUNE RESPONSE AGAINST HERPES TYPE-6.				
IgM HHV-6 (HERPES TYPE-6)	1.50		<24.00	EU
RESULTS REPORTED AS <8 EU ARE CONSIDERED WITHIN THE LOWER LIMIT OF DETECTION AND FROM 8-24 ARE CONSIDERED NEGATIVE. RESULTS >24 MAY INDICATE AN IMMUNE RESPONSE AGAINST HERPES TYPE-6.				
ANTI-NUCLEAR ANTIBODY	<1:40		<1:40	TITER
RESULTS REPORTED AS <1:40 ARE CONSIDERED NEGATIVE; GREATER THAN OR EQUAL TO 1:40 ARE CONSIDERED POSITIVE. ***TEST PERFORMED BY LABORATORY MEDICINE*** 9301 WILSHIRE BLVD., SUITE 305 BEVERLY HILLS, CA 90210				
EXTRACTABLE NUCLEAR Ag	1.50		<20.00	UNITS
RESULTS REPORTED AS 20-39 ARE CONSIDERED WEAK POSITIVE. RESULTS REPORTED AS 40-80 ARE CONSIDERED MEDIUM POSITIVE. RESULTS REPORTED AS >80 ARE CONSIDERED STRONG POSITIVE.				
ANTI DOUBLE STRANDED DNA	1.50		<30.00	IU/mL
RESULTS REPORTED AS 30-75 IU/mL ARE CONSIDERED EQUIVOCAL.				
RHEUMATOID FACTOR IgM	1.50		<6.0	UNITS
RESULTS REPORTED AS >6.0 ARE CONSIDERED POSITIVE.				
C1Q TOTAL IMMUNE COMPLEX	2.00		<4.4	Ug Eq/m
RESULTS REPORTED AS 4.4-<10.8 Ug Eq/mL ARE CONSIDERED EQUIVOCAL.				
ACTIN/SMOOTH MUSCLE IgG	0.80		<20	UNITS

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
RESULTS REPORTED AS 20.0-30.0 UNITS ARE CONSIDERED EQUIVOCAL				
ANTI-MITOCHONDRIAL	0.80		<0.9	INDEX

RESULTS REPORTED AS 0.91 - 1.09 ARE CONSIDERED EQUIVOCAL. RESULTS REPORTED AS GREATER THAN OR EQUAL TO 1.10 ARE CONSIDERED POSITIVE.

ADDITIONAL INFORMATION ABOUT SARS-COV-2

SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-COV-2) IS THE ETIOLOGICAL AGENT FOR CORONAVIRUS DISEASE 2019 (COVID-19), THE DISEASE THAT BECAME A MODERN PANDEMIC INFECTING AND KILLING MILLIONS OF PEOPLE WORLDWIDE. A SIGNIFICANT HETEROGENEITY IN IMMUNE RESPONSE AGAINST PATHOGENS, IN PARTICULAR, SARS-COV-2, EXISTS AMONG THE GENERAL POPULATION, AND THIS CAN RESULT IN DIFFERENT LEVELS OF ANTIBODY PRODUCTION.

DETECTION OF LOW OR HIGH LEVELS OF IgG ANTIBODY MADE AGAINST SARS-COV-2 SPIKE PROTEIN AND NUCLEOPROTEIN IN THE BLOOD IS THE MOST PRACTICAL APPROACH FOR THE ASSESSMENT OF AN INDIVIDUALS IMMUNE RESPONSE TO SARS-COV-2, INDICATING RECENT OR PRIOR RESPONSE TO SARS-COV-2 ANTIGENS. ELEVATIONS IN IgG ANTI-SARS-COV-2 ABOVE THE REFERENCE RANGES INDICATES EXPOSURE TO SARS-COV-2 OR VACCINATION.

A LOW LEVEL OF IgG AGAINST SARS-COV-2 ANTIGENS AFTER INFECTION WITH COVID-19 OR VACCINATION MAY INDICATE A LACK OF IMMUNE RESPONSE TO THE VIRAL ANTIGENS.

UNFORTUNATELY, A VERY SIGNIFICANT PERCENTAGE OF PATIENTS WITH MODERATE TO SEVERE COVID-19 DO NOT RECOVER COMPLETELY AND DEVELOP LONG COVID. ACCORDING TO THE CDC, LONG COVID IS DEFINED AS A RANGE OF NEW, RETURNING, OR ONGOING HEALTH PROBLEMS THAT PEOPLE CAN EXPERIENCE FOUR OR MORE WEEKS FOLLOWING THE INITIAL SARS-COV-2 INFECTION. THESE MAY INCLUDE SHORTNESS OF BREATH, FATIGUE, MEMORY LOSS, GI DISTRESS, ANOSMIA, AUTOIMMUNE REACTIVITIES, AND MORE.

THIS IS BECAUSE UNDER CERTAIN CONDITIONS A VIRAL INVADER MAY NOT BE COMPLETELY ELIMINATED BY THE HOST'S IMMUNE SYSTEM, AND REMAIN OR HIDE IN TISSUES, AND CAN BE REACTIVATED LATER. MOREOVER, IN ADDITION TO SARS-COV-2

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

PERSISTENCE, REACTIVATION OF EBV AND HHV-6 FROM THEIR LATENT PHASE CONTRIBUTES SIGNIFICANTLY TO THE SYMPTOMATOLOGIES OF LONG COVID. IF THESE FACTORS ARE NOT DETECTED AND MANAGED AT THE EARLY STAGE, THE OUTCOME MAY BE IMMUNE DISORDER, MULTI-TISSUE DAMAGE, AUTOIMMUNITY, AND EVEN NEUROAUTOIMMUNITY.

REFERENCES

HALPERT G, SHOENFELD Y. SARS-COV-2, THE AUTOIMMUNE VIRUS. AUTOIMMUNE REVIEWS, 2020.DOI: 10.1016/J.AUTREV.2020.2020.102 695.

VOJDANI A, VOJDANI E, KHARRAZIAN D. REACTION OF HUMAN MONOCLONAL ANTIBODIES IN SARS-COV-2 PROTEINS WITH TISSUE ANTIGENS: IMPLICATIONS FOR AUTOIMMUNE DISEASES. FRONTIERS IN IMMUNOLOGY, JANUARY 2021. DOI: 10.3389/FIMMU.2020.61789.

VOJDANI A, ET AL. PERSISTENT SARS-COV-2 INFECTION, EBV, HHV-6 AND OTHER FACTORS MAY CONTRIBUTE TO INFLAMMATION AND AUTOIMMUNITY IN LONG COVID. VIRUSES, 2023, 15:400.DOI: 10339 0/V15020400.

ROJAS M, ET AL. AUTOIMMUNITY IS A HALLMARK OF POST-COVID SYNDROME. J TRANSL MED, 2022, 20:129.

PHETSOUPHANH C, ET AL. IMMUNOLOGICAL DYSFUNCTION PERSISTS FOR 8 MONTHS FOLLOWING INITIAL MILD-TO-MODERATE SARS-COV-2 INFECTION. NAT IMMUNOL, 2022, 23:210-216.

LINO K, ET AL. PRESENCE AND CLINICAL IMPACT OF HUMAN HERPESVIRUS-6 INFECTION IN PATIENTS WITH MODERATE TO CRITICAL CORONAVIRUS DISEASE-19. J MED VIROL, 2022, 94:1212-1216.

PEREZ-PEREZ S, ET AL. ANTI-HUMAN HERPESVIRUS 6 A/B ANTIBODIES TITERS CORRELATE WITH MULTIPLE SCLEROSIS-ASSOCIATED RETROVIRUS ENVELOPE EXPRESSION. FRONT IMMUNOL, 2021, 12:798003.

GOLD JE, ET AL. INVESTIGATION OF LONG COVID PREVALENCE AND ITS RELATIONSHIP TO EPSTEIN-BARR VIRUS REACTIVATION.PATHOGEN S, 2021, 10:763.

BALANDRAUD N, ROUDIER J. EPSTEIN-BARR VIRUS AND RHEUMATOID ARTHRITIS. JT BONE SPINE, 2018, 85:165-170.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

DROSOS AA, PELECHAS E, VOIULGARI PV. LONG COVID FROM RHEUMATOLOGY PERSPECTIVE: A SINGLE MIMICKER OR PROMOTER OF AUTOIMMUNITY? CLIN RHEUMATOL, 2022, 41:957-958.

SAPKOTA HR, NUNE A. LONG COVID FROM RHEUMATOLOGY PERSPECTIVE -A NARRATIVE REVIEW. CLIN RHEUMATOL, 2022, 41:337-348.

ADDITIONAL INFORMATION ABOUT EBV INFECTION

EPSTEIN-BARR VIRUS (EBV) OR HERPES TYPE 4 IS A UBIQUITOUS HUMAN VIRUS THAT INFECTS ALMOST ALL HUMANS DURING THIER LIFTIME. EBV IN CHILDREN AND IN SOME ADULTS CAUSES THE INFECTION CALLED MONONUCLEOSIS, WHICH RESULTS IN THE PRODUCTION FIRST OF IgM AND THEN IgG ANTIBODIES AGAINST VIRAL CAPSID ANTIGEN (EBV-VCA). FOLLOWING THE ACUTE PHASE, THE VIRUS PERSISTS MAINLY IN THE EPITHELIAL CELLS AND B LYMPHOCYTES FOR THE REST OF THE AFFLICTED PERSONS LIFE.

UNDER A VARIETY OF CONDITIONS THAT NEGATIVELY AFFECT THE IMMUNE SYSTEM, REACTIVATION OF EBV CAN OCCUR, RESULTING IN THE EXPRESSION OF EARLY ANTIGEN (EBV-EA) AND THE PRODUCTION OF ANTIBODY AGAINST EA.

EPSTEIN-BARR NUCLEAR ANTIGEN (EBNA) IS ANOTHER ANTIGEN THAT INDUCES THE PRODUCTION AND PROLIFERATION OF B CELLS, WHICH ARE RESPONSIBLE FOR THE GENERATION OF ANTIBODIES IN THE BODY.THIS IS WHY EBV IS ASSOCIATED WITH DIFFERENT PROLIFERATIVE AND AUTOIMMUNE DISORDERS, INCLUDING LYMPHOMAS, RHEUMATOID ARTHRITIS, GRAVES DISEASE, HASHIMOTOS DISEASE, LUPUS, MULTIPLE SCLEROSIS (MS), INFLAMMATORY BOWEL DISEASE, CELIAC DISEASE, TYPE 1 DIABETES, AND SJOGRENS SYNDROME. THE ELEVATION OF IgM ANBTIBODY AGAINST EBV ANTIGENS MAY INDICATE ONGOING VIRAL INFECTION OR VIRAL REACTIVATION. IN THE CASE OF VERY HIGH LEVELS OF IgG ANTIBODY AGAINST EBV ANTIGENS, IF THESE ANTIGENS MANAGE TO BIND TO SELF-TISSUE ANTIGENS DUE TO CROSS-REACTIVITY, THE RESULT MAY BE AUTOIMMUNE REACTIVITY.

REFERENCES

HOUEN G, TRIER NH. EPSTEIN-BARR VIRUS AND SYSTEMIC AUTO-IMMUNE DISEASES. FRONTIERS IN IMMUNOLOGY, JANUARY 2021. DOI:103389/FIMMU.2020.587380.

HARLEY JB ET AL. TRANSCRIPTION FACTORS OPERATE ACROSS

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SAMPLE, REPORT	38Y	

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

DISEASE LOCI, WITH EBNA2 IMPLICATED IN AUTOIMMUNITY. NATURE GENETICS, 50:699-707, 2018.

ADDITIONAL INFORMATION ABOUT HHV-6

HUMAN HERPESVIRUS TYPE 6 (HHV-6) TYPE A AND TYPE B ARE NEUROTROPHIC VIRUSES THAT CAUSE THE COMMON CHILDHOOD DISEASE KNOWN AS ROSEOLA. BY AGE 3, 90-100% OF HUMANS ARE INFECTED BY HHV-6 VIA THE NASAL CAVITY. THE OLFACTORY PATHWAY IS THE MAJOR ROUTE OF ENTRY INTO THE NERVOUS SYSTEM. THE VIRUS PERSISTS IN A VARIETY OF CELLS, INCLUDING GLIAL CELLS, FOR THE REST OF THE AFFLICTED PERSONS LIFE. IMMUNE REACTION AGAINST HHV-6 RESULTS IN THE PRODUCTION OF BOTH IgM AND IgG ANTIBODIES.

HHV-6 A REACTIVATION DOCUMENTED BY IgM ANTIBODY ELEVATION HAS BEEN SHOWN TO ALTER MITOCHONDRIAL FRAGMENTATION IN PATIENTS WITH CHRONIC FATIGUE SYNDROME OR MYALGIC ENCEPHALOMYELITIS. HHV-6 B IS LINKED TO SEVERAL AUTOIMMUNE AND NEURODEGENERATIVE DISORDERS VIA MOLECULAR MIMICRY AND OTHER MECHANISMS. THESE INCLUDE MS, GUILLAIN-BARRE SYNDROME, LUPUS, SJOGRENS SYNDROME, HASHIMOTOS THYROIDITIS, ALZHEIMERS DISEASE, PARKINSONS DISEASE, EPILEPSY, AND ENCEPHALITIS, INCLUDING MYALGIC ENCEPHALLOMYELITIS (ME/CFS). IN THE PRESENCE OF SIGNIFICANT ELEVATIONS IN IgG ANTIBODY AGAINST ANTIGENS OF HHV-6 TYPE A OR TYPE B, THE BINDING OF THESE IgG ANTIBODIES TO HUMAN TISSUE ANTIGENS MAY RESULT IN AUTOIMMUNE REACTTIVITY.

REFERENCES

BROCCOLO F, FUCETTI L, CECCHERINI-NELLI L. POSSIBLE ROLE OF HUMAN HERPESVIRUS 6 AS A TRIGGER OF AUTOIMMUNE DISEASE. SCIENTIFIC WORLD JOURNAL, 2013; 2013:867389. DOI: 10.1155/2013/867389.

SEPULVEDA N ET AL. MYALGIC ENCEPHALOMYELITIS/CHRONIC FATIGUE SYNDROME AS A HYPER-REGULATED IMMUNE SYSTEM DRIVEN BY AN INTERPLAY BETWEEN REGULATORY T CELLS AND CHRONIC HUMAN HERPESVIRUS INFECTIONS. FRONTIERS IN IMMUNOLOGY, NOVEMBER 2019. DOI: 10.3389/FIMMU.2019.02684.

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The performance characteristics of the HHV-6 Antibody tests were established through validation by Immunosciences Lab., Inc. It has not been cleared or approved by the US Food and Drug Administration. Immunosciences Lab., Inc.

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

is regulated under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) as qualified to perform high complexity clinical testing.

ADDITIONAL INFORMATION ABOUT AUTOIMMUNE PANEL

High titers of ANA may be seen in patients with rheumatoid arthritis, scleroderma, discoid lupus, necrotizing vasculitis, Sjogrens syndrome and mixed connective tissue disease.
=
Autoantibodies against ENAs occur in a large number of patients with system rheumatic diseases.
=
Antibodies to dsDNA occur in approximately 60-70% of SLE patients and there is considerable evidence to implicate immune complexes containing anti-dsDNA and DNA in the pathogenesis of SLE. Low levels of anti-dsDNA antibodies may occur in other rheumatic diseases.
=
RF is present in about 4% of the general population, in 75% of adult patients with the highest incidence in patients over 65 years of age, and in nearly all people with Sjogrens. Increased titers may accompany acute immune responses particularly viral infections.
=
High levels of C1Q binding immune complexes are detected in patients with active humoral immune response to infectious agents and other environmental factors. Very significant elevations of immune complexes were reported in cancer patients and their level correlated with the stage of the disease.
=
Anti-actin antibodies are found in 52-85% of patients with AIH or chronic active hepatitis (CAH) and in 22% of patients with primary biliary cirrhosis (PBC).
=
Anti-Mitochondrial antibodies (AMA) are detected in patients with primary biliary cirrhosis (PBC). Since the presence of AMA can precede the development of symptomatic disease, the ability to identify the presence of markers for PBC can contribute to earlier diagnosis and treatment, and may slow the progression of the disease.

* * LIMITATIONS * *

*The presence of these antibodies alone is not indicative of any condition or disease. Test results should be used in

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TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

conjunction with pertinent clinical data.

*Specimens received as hemolytic, lipemic, bacterially contaminated, or heat inactivated, are rejected for analysis.

Gopal KR
4/26/23

Gopal Krishnan, PhD,HCLD (ABB), Lab Director

Aresta Vojdani 4-24-23

A.Vojdani, PhD,CLS, Tech Dir