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REFERRING PHYSICIAN

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 RESEARCH  
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PATIENT NAME

SAMPLE, REPORT

AGE SEX

37Y F

ACCESSION NO.

D.O.B.

COLLECTION DATE

LOG-IN DATE

TEST DATE

REPORT DATE

AAAA34

08/11/1984

11/5/2021

12/21/2021

12/21/2021

12/21/2021

TEST

RESULTS  
 NORMAL ABNORMAL

REFERENCE  
 RANGE

UNITS

VIRAL PANEL PREMIER

TEST	RESULTS	REFERENCE RANGE	UNITS
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

INTERPRETATIONS OF SEROLOGIC PATTERNS IN EBV INFECTION

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.
- \* \* \* \* \*

EPSTEIN-BARR VIRUS (EBV) OR HERPES TYPE 4 IS A UBIQUITOUS HUMAN VIRUS THAT INFECTS ALMOST ALL HUMANS DURING THIER LIFETIME. EBV IN CHILDREN AND IN SOME ADULTS CAUSES THE

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UNITS

INFECTION CALLED MONONUCLEOSIS, WHICH RESULTS IN THE PRODUCTION FIRST OF IgM AND THEN IgG ANITBODIES 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 DISORDEWRS, 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 DISEASE LOCI, WITH EBNA2 IMPLICATED IN AUTOIMMUNITY. NATURE GENETICS, 50:699-707, 2018.

IgG AND IgM REPORTED AS 0.91-1.09 ARE CONSIDERED EQUIVOCAL.

TEST	RESULTS	REFERENCE RANGE	UNITS
IgG CYTOMEGALOVIRUS	0.50	<0.9	ISR
IgM CYTOMEGALOVIRUS	0.50	<0.9	ISR

IgG AND IgM RESULTS REPORTED AS 0.9-1.09 ARE CONSIDERED EQUIVOCAL.

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IgG HSV 1+2 (HERPES 1+2)

0.50

<16.0

EU/mL

RESULTS REPORTED AS <16 ARE CONSIDERED NEGATIVE; 16-19.9 ARE CONSIDERED EQUIVOCAL; EQUAL TO OR GREATER THAN 20 INDICATE PREVIOUS IMMUNOLOGIC EXPOSURE AND IMMUNOLOGICAL EXPERIENCE TO HSV 1 AND/OR HSV 2.

IgM HSV 1+2 (HERPES 1+2)

0.50

<0.9

INDEX

RESULTS REPORTED AS < 0.9 ARE CONSIDERED NEGATIVE; 0.9-1.09 ARE CONSIDERED EQUIVOCAL; EQUAL TO OR GREATER THAN 1.1 ARE CONSIDERED POSITIVE.

IgG HHV-6 (HERPES TYPE-6)

0.50

<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 6.

IgM HHV-6 (HERPES TYPE-6)

0.50

<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 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 OLFACATORY 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

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TEST	RESULTS		REFERENCE RANGE	UNITS
	NORMAL	ABNORMAL		

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 ENCEPHALOMYELITIS (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 REACTIVITY.

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.

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

IgG VARICELLA-ZOSTER	0.50	<0.9	ISR
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RESULTS REPORTED AS <0.9 ARE CONSIDERED NON-IMMUNE, BETWEEN 0.9-1.09 ARE CONSIDERED EQUIVOCAL AND EQUAL TO OR GREATER THAN 1.0 ARE CONSIDERED IMMUNE.

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

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