

## Lababstract September 2012

### ***Epstein-Barr Virus (EBV) Serology – VCA IgG, VCA IgM, EA IgG, EBNA IgG***

#### **Change in testing methodology**

To Health Care Providers:

Effective September 2012, the Public Health Ontario Laboratories (PHOL) will replace its current enzyme immunoassay (EIA) test for the qualitative detection of EBV VCA IgG, EBV VCA IgM, EBV EA IgG and EBV EBNA IgG antibodies to *Epstein-Barr virus* (EBV) in human serum with a qualitative chemiluminescent immunoassay (CLIA) test.

#### **Background Information:**

*Epstein-Barr Virus* (EBV) is a common human virus, that infects 95% of individuals in developed countries by forty years of age. Symptoms of primary EBV infection range from asymptomatic to those of infectious mononucleosis (which include fever, lymphadenopathy and sore throat).

In patients with suspected primary EBV infection, the Monospot (heterophile antibody) test should be performed. This test is available through many community and hospital laboratories. The Monospot test is not offered at the PHOL. If the Monospot test is negative and EBV infection is still suspected, then EBV-specific serology can be performed by the PHOL. Interpretation of EBV serological tests is complex and is best conducted in conjunction with clinical findings.

#### **Specimen collection requirements and test ordering**

Human serum is acceptable for testing. Whole blood should be allowed to clot. Serum separator tubes (SST) are acceptable with the gel sedimented. Haemolysed, icteric, lipemic or microbially contaminated sera are not recommended for testing.

Specimens received for EBV Serology will be tested for:

- 1) EBV Viral Capsid Antigen IgG (VCA IgG)
- 2) EBV Early Antigen IgG (EA)
- 3) EBV Nuclear Antigen IgG (EBNA)

Testing for EBV Viral Capsid Antigen IgM (VCA IgM) will be conducted under the following circumstances:

- 1) Upon request by the ordering physician
- 2) Children under 5 years of age

Please include date of birth and any relevant clinical signs, symptoms and history.

#### **Turnaround time**

Results will be available within 5 working days of receipt of the specimen at PHOL.

## Epstein-Barr virus serology – Change in testing methodology (Continued)

Although many different results are possible, the table below provides the interpretation for some of the most common results:

Marker	Result	Interpretation
VCA IgM VCA IgG EA IgG EBNA IgG	Reactive Non Reactive Non Reactive Non Reactive	Compatible with possible recent EBV infection The results should be interpreted in the context of the clinical signs and symptoms
VCA IgG EA IgG EBNA IgG	Reactive Non Reactive Non Reactive	
VCA IgG EA IgG EBNA IgG	Non Reactive Non Reactive Reactive	Compatible with possible EBV infection The results should be interpreted in the context of the clinical signs and symptoms
VCA IgG EA IgG EBNA IgG	Non Reactive Reactive Non Reactive	
VCA IgG EA IgG EBNA IgG	Reactive Reactive Reactive	Compatible with EBV infection, possibly reactivation or past infection The results should be interpreted in the context of the clinical signs and symptoms
VCA IgG EA IgG EBNA IgG	Reactive Non Reactive Reactive	Compatible with past EBV infection The results should be interpreted in the context of the clinical signs and symptoms
VCA IgG EA IgG EBNA IgG	Non Reactive Non Reactive Non Reactive	No laboratory evidence of recent/past EBV infection
2 markers	Indeterminate	EBV serology results inconclusive. Please submit a follow-up specimen if clinically indicated.

### Sensitivity and Specificity

Based on data provided by the assay manufacturer, the diagnostic sensitivity and specificity for each of the EBV serologic tests is as follows:

	Sensitivity	Specificity
EBV Viral Capsid Antigen IgM (VCA IgM)	97.83%	99.22%
EBV Viral Capsid Antigen IgG (VCA IgG)	98.54%	96.19%
EBV Early Antigen IgG (EA)	95.35%	99.64%
EBV Nuclear Antigen IgG (EBNA)	98.84%	97.61%

### For further information:

- Call the Customer Service Centre at 416 235 6556 (in Toronto) or toll free at 1 877 604 4567
- The current version of the PHL General Test Requisition form is available at <http://www.oahpp.ca/resources/requisitions.html>
- To view our Lababstracts, visit <http://www.oahpp.ca/resources/lababstracts.html>
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