

## **Development of a Western Blot Assay for Detection of Antibodies against HSV Using Purified HSV Virions Prepared by Sucrose Density Gradient**

\*<sup>1,2</sup> Zahra Meshkat, <sup>1</sup>Mohammad Hassan Roostae, <sup>1</sup>Hoorieh Soleimanjahi

### **Abstract**

#### **Objective(s)**

Herpes simplex viruses (HSVs) have widespread and ubiquitous prevalence in the human population and they have received a great deal of attention due to the range of diseases, they caused as a result of an infection. It seems that the fast and reliable diagnostic methods are needed for detecting the herpes simplex virus type 1 (HSV1) antibodies especially in patients with HSV encephalitis, immunocompromised people, and neonatal infections. The aim of this study was designing a Western blotting method for HSV1 antibody detection, using the purified virus by sucrose density gradient centrifugation procedure.

#### **Materials and Methods**

The most reliable method for HSV detection is virus neutralization test but it needs cell culture preparation, high expertise, as well as the high amounts of serum samples. Considering the difficulties of this method, we tried to run a new one for HSV antibody detection by propagating the viruses and then purify them by sucrose density gradient centrifugation method. The purified viruses used as antigens in Western blotting assay.

#### **Results**

Diluted sera (1:100, and 1:200 dilutions) used in Western blotting and two-fold dilutions of the sera applied in virus neutralization test. Five of twenty seven samples were negative in Western blotting and the same results obtained in virus neutralization test. Comparing with our gold standard, the sensitivity and specificity of the developed assay were both 100%.

#### **Conclusion**

Our results show that the designed method is a reliable method for replacing the virus neutralization test in diagnostic laboratories. It can also, be used for confirming the ELISA results.

**Keywords:** Density gradient centrifugation, Herpes simplex virus type 1, Virus neutralization test, Western blotting

---

*1-Department of Virology, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran*

*2-Microbiology and Virology Research Center and Women Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*

\* Corresponding author: Tel: +98-511-8012453, Fax: +98-511-8409612, email: meshkatz1@mums.ac.ir