Herpes Simplex Antigens for Commercial Assay Development

The redevelopment of type-specific immunoassays for the detection and differentiation of HSV-1 and HSV-2 is based on the serologically distinct HSV-1 and HSV-2 glycoprotein G (gG-1 and gG-2). Meridian offers a complete panel of native and recombinant HSV antigens designed to meet the needs of new generation HSV multiplexed immunoassays.

Herpes simplex virus (HSV) types 1 and 2 are common infections worldwide. However, the majority of them remain undiagnosed because they are asymptomatic or unrecognized. HSV-1 is usually transmitted during childhood through contact with oral secretions (cold sores). Seroprevalence studies indicate about 60% of adults in the United States are infected this virus. In contrast, HSV-2 is usually spread by sexual contact (genital herpes) and consequently infection usually occurs later in life and the seroprevalence rates vary dramatically by geographic region. Both HSV-1 and HSV-2 establish a lifelong, latent infection in the nervous system, and many infected individuals are asymptomatic and undiagnosed, posing a significant risk for transmitting the virus. In addition, the acquisition of HSV-1 or HSV-2 toward the end of pregnancy carries a 30 to 50% risk of neonatal herpes with the potential for prenatal morbidity.

An accurate diagnosis of the HSV type is important for patient management, prognosis and control of potential transmission. Due to a high degree of genetic similarity between HSV-1 and HSV-2, most viral proteins induce a cross-reactive antibody response that hampers the discrimination between HSV-1 and -2 infections using serological approaches. However, since the discovery of the serologically distinct HSV viral envelope glycoproteins gG-1 (HSV-1) and gG-2 (HSV-2), new type-specific immunoassays have been developed that are capable of discriminating between HSV-1 and -2 infections.

**MERIDIAN HSV ANTIGENS**

**Herpes simplex virus-1 (HSV-1)**

- 7305 Native HSV-1 Antigen (Strain F) > 10% Viral Protein
- VTI520 rec. HSV-1 gG-1 Antigen (S. cerevisiae)

**Herpes simplex virus-2 (HSV-2)**

- 7705 Native HSV-2 Antigen (Strain G) > 10% Viral Protein
- EV9287 Native HSV-2 gG-2 Antigen
- VTI530 rec. HSV-2 gG-2 Antigen (S. cerevisiae)

**Genital Herpes — Initial Visits to Physicians’ Offices, United States, 1966 – 2012**

*SOURCE: IMS Health, Integrated Promotional Services™. IMS Health Report, 1966 – 2012. The relative standard errors for genital herpes estimates of more than 100,000 range from 18% to 30%.*
APPLICATIONS

Recommended for:
- IgG and IgM type-specific HSV-1 and HSV-2 assays
- Western blot assays

Meridian’s native herpes simplex virus (HSV) antigens are prepared from glycerine extractions of Vero cells infected with HSV (HSV-1 strain F, HSV-2 strain G) and inactivated via the purification process (infectivity is tested prior to release). HSV-1 (7305) and HSV-2 (7705) undergo partial purification to reduce host cell components whereas HSV-2 gG-2 (EV9287) is affinity purified. All three antigens demonstrate high sensitivity and low background in ELISA assays.

The recombinant HSV antigens are produced in *Saccharomyces cerevisiae* and purified by column chromatography. HSV-1 gG-1 (VTI520) represents the N-terminal region of glycoprotein gG from the HSV-1 Patton strain (190 a.a., Met1 - Asp190). The protein is fused with human superoxide dismutase (SOD) and has a total molecular weight of 50kDa (37.5kDa without SOD tag). HSV-2 gG-2 (VTI530) represents a unique sequence not present in HSV-1 (343-649 a.a., Leu343 - Asp649) from strain HG 52. The protein has been fused with human superoxide dismutase (SOD) and Western blot analysis demonstrates major immunoreactive bands between 50-75kDa.

TESTING DATA

HSV gG Antigen Reactivity

Western blot analysis of HSV-2 gG (VTI530) with HSV-1 and HSV-2 positive serum. No cross-reactivity to HSV-1 is observed.

ELISA QC – Midpoint titer comparisons against standard

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FOR RESEARCH OR FURTHER MANUFACTURING USE

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