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HHV-7 Elispot –

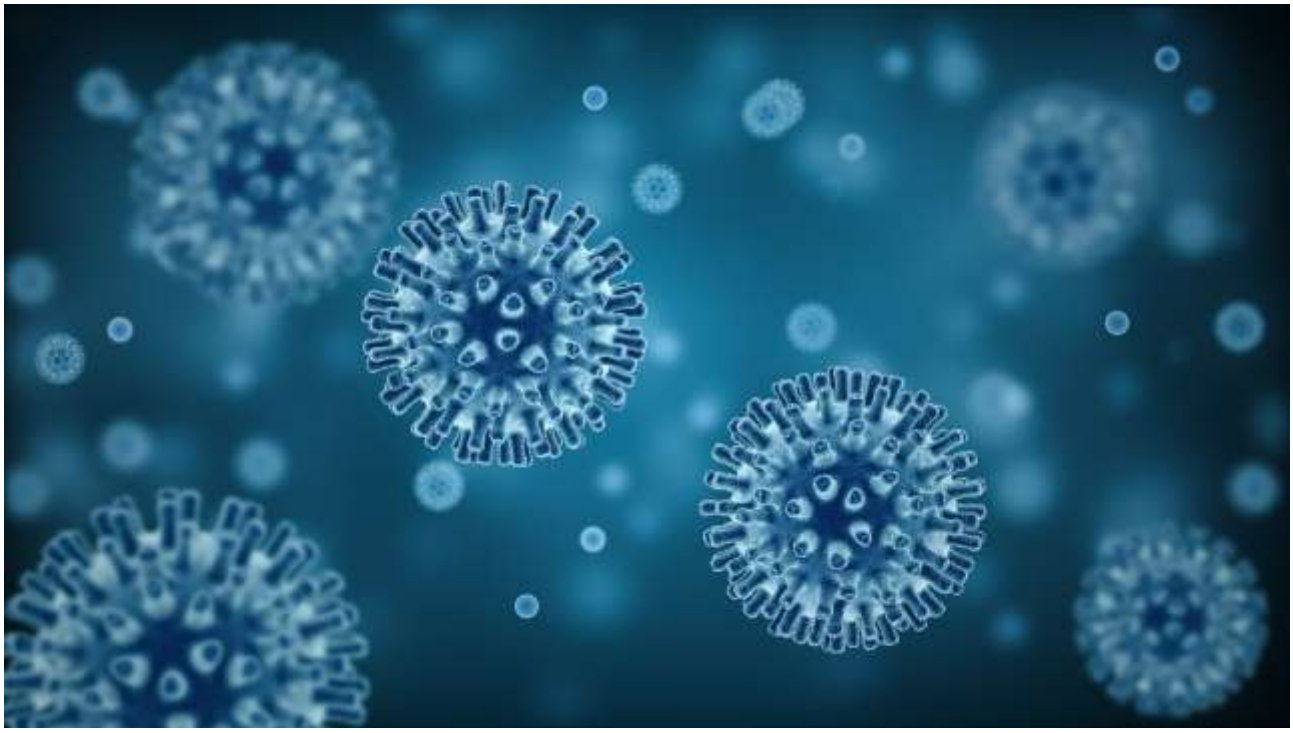
Humans Herpes Virus 7

Frenkel and colleagues first described the isolation of a previously unknown herpes virus from activated CD4+ T-lymphocytes of a healthy man, in 1990. It turned out to be immunological and microbiological so different, that it became part of the herpes virus family, Human Herpesvirus 7 (HHV-7)[1]. HHV-7 belongs to the group of β-herpesviridae[2] next to pathogens like HHV-6A, HHV-6B and CMV.

HHV-7 infections usually occur at a higher age than HHV-6 infections. The clinical manifestations of primary and reactivated HHV-7 infections were similar, except that seizures occurred more frequently in reactivated infections. HHV-7 DNA was detected in peripheral blood leukocytes and in saliva. HHV -7 was detected also, in Peripheral Blood Mononuclear Cell 67%, in the cervixes of infected women in late pregnancy. Furthermore, HHV-7 DNA was detected by PCR in neuronal tissue by primary brain tumors. The virus was detected also in urine and skin using PCR[3]. HHV-7 has a narrower tissue tropism than HHV-6. This virus infects CD4 T-Cells, epithelial cells in the salivary glands, cells in the lungs, skin, and neuronal tissue.

Transmissions of HHV-7 infections are possible through the birth canal, breast milk, saliva and allogeneic blood product or transplants. Primary HHV-7 infections may be asymptomatic or associated with fever or febrile seizures. Still it is a possible cause of a non-specific febrile disease with and without rash (Exantema subitum). HHV-7 is also related with neurological complications that occur next to febrile diseases, such as infectious seizures and temporary hemiplegia, febrile status epilepticus or clinical and laboratory signs of meningitis.

Associate HHV-7 infection maybe with viral exanthema in exanthema subitum, rubella-like infections, and infectious mononucleosis, with immune suppression, and neoplasia with Kaposi-Sarcoma[4, 5].



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The EliSpot is a single cell-based test and measures directly the number of activated T-cells due to their cytokine release. Therefore, the Elispot is a highly specific method with a high sensitivity and has long been used as the gold standard in vaccine development. It is also used for monitoring the immune status after transplantation, the progress of immune reactions as a result of immunization, desensitization, chronic infections and cancer.

- The EliSpot reflects the current activity of the pathogen in both chronic and acute infections with HHV-7
- The EliSpot is highly sensitive and can already detect a single T-cell reacting to HHV-7
- With detection limits of up to one cell in 100,000, the EliSpot is one of the most sensitive cellular test methods available
- The EliSpot is between 20 to 200 times more sensitive than an ordinary ELISA antibody test
- Through this the EliSpot is almost as sensitive as an RT-PCR (Real Time PCR) test, but it detects the pathogen protein instead of mRNA (messenger RNA)
- The EliSpot can be helpful in monitoring therapies. It should usually be negative 4 to 8 weeks after the end of an effective therapy

References:

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