

## Viral integration detection kit

*Bioworld Consulting Laboratories, LLC releases a newly developed kit for detection and quantitation of the state of the viral genome in virally infected cells or cell lines.*

Human herpes viruses can exist in the host cells in episomal (EBV), integrated (EBV, HHV-6, HHV-7) or replicative form. Until now, to identify whether the viral genome is present in integrated or episomal form either Gardella gels or metaphase chromosome (FISH) analysis was done. However both methods are cumbersome and have inherited problems which could lead to distorted data.

In Gardella gels cellular lysis and deproteinization are probably incomplete such that part of the linear and episomal copies stay noncovalently associated with the chromosomal DNA and cellular debris present in the wells. Moreover, the high DNA concentration in the wells after lysis leads to nonspecific hybridization. The high number of viral genome copies in most EBV-positive BL cell lines has, for technical reasons, prevented a systematic search for viral integration in BL cells. Therefore, for most BL cell lines, direct evidence for or against viral integration is still missing.

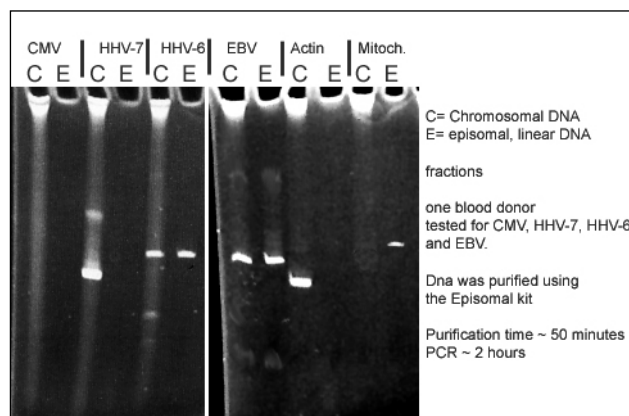
Metaphase chromosome analysis using FISH also have its problems. Episomal copies of viral DNA is associated with the metaphase chromosomes and to differentiate between integrated genomes and episomal is depend on the interpretation of the observer.

To study viral integration in diverse cell populations, such as cells present in peripheral blood, where perhaps only 1% or less of the cells contains viral genome, was almost impossible with any of the above techniques until now.

**Bioworld Consulting Laboratories** developed a simple PCR based method for rapid identification and quantitation of integrated and non-integrated (episomal or linear) forms of viral genome in cell lines or cells present in bodily fluids. In cells containing both integrated and non-integrated viral genomes the ratio between the two forms can be easily quantitated.

Performances of the kits have been tested on EBV genome positive cell lines (Namalva, Raji, Daudi, Jiyoe, B95-8) HHV-6 genome positive cell lines (HSB-ML, HSB-F). Performances have been also tested on samples of blood, bone marrow, spinal fluid. The method allows detection of integrated or episomal form of viral genome down to one hundred viral copies per assay.

Kits are available for **EBV** (cat # EPE-E209), **HHV-6** (cat# EPH-H610) and **HHV-7** (cat# EPS-H720) and are under development for **CMV**, **HHV-8** and the other herpesvirus.



Example of the results from a blood donor tested for the state of viral genomes in the peripheral blood cells (PBL). The resulting PCR data was analyzed by real time PCR which allows quantitation and also run on a 8% PAGE for visualization of the PCR products. The blood was analyzed for the presence of CMV, HHV-7, HHV-6 and EBV. The control PCR product Actin and Mitochondrial amplification indicates that separation of the chromosomal DNA (C) and free DNA (E) was working. The result indicates that this donor has integrated form of HHV-7 and HHV-6 and EBV exist in integrated and non-integrated form in the PBL.

The kits will be available in June 2007 for Research use only not for use in diagnostics.

**For further information and availability contact us at [info@bioworldantibody.com](mailto:info@bioworldantibody.com)**