

Alpha-Complementation Viral Fusion Assay

Inventors:

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Applications:

Antiviral Drug Discovery, Infection

A rapid and quantitative assay to detect HIV and other viral mediated fusion to screen for inhibitors

Entry is an attractive and promising step in HIV-1 replication to target with small molecules. Unlike current drugs that act mainly at reverse transcription or virus maturation, entry inhibitors protect cells from becoming infected and do not need to penetrate the cell. HIV-1 entry is mediated by the interaction of the viral glycoprotein with CD4 and either of the CC chemokine receptors, CCR5 or CXCR4. Current methods for high throughput screening for coreceptor antagonists have advantages and disadvantages. These assays include ligand-receptor competition assays, or cell based assays for cell-cell fusion, virus entry, or single cycle reporter virus infection. None of the assays directly measures the fusion event, but rather measure a secondary result of fusion. As a result, they pick up numerous false positives that act on irrelevant targets. The alpha complementation fusion assay described in the invention provides a means to directly detect envelope glycoprotein-mediated fusion. Moreover, the assay is much simpler and more rapid than any other method. Also, importantly, the assay does not use live virus and therefore can be performed without biohazard containment. The assay is done in 96 well microtiter plates and is easily adaptable to 384 or 1024 well format. The assay is scalable and easily adapted to high throughput screening. In addition, the assay can be adapted to any enveloped virus.

References:

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