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A Rapid Screening Method for Anti-HIV Compounds. S.A. Galpin, D.J. Jeffries, D. Kinchington, Department of Virology, St. Mary's Hospital Medical School, Norfolk Place, Paddington, London, W2 1PG.

It is essential to test a large number of anti-HIV compounds in cell systems with a fast, quantative assay. We have developed a screening system whereby culture fluid from cells infected with HIV and grown in the presence of potential drugs are assessed for antigen levels by an ELISA, together with a toxicity assay. This method has several advantages; the ELISA can be carried out in 3 hours and detectable levels of HIV-antigen are present 24 hours earlier than reverse transcriptase (RT). Using syncitia inhibition tests, only large differences in activity can be assessed, whereas with this method small quantative differences in activity are observed. Drugs with completely different modes of action can easily be tested in our assay. Data from assays of a range of different compounds are discussed.

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Differential Response of T-Lymphoblastoid Cell Lines to Infection with HIV and to Anti-Viral Drugs: Implications for Large-Scale Anti-HIV Drug Screening. O. Weislow*, R. Shoemaker**, R. Kiser*, D. Fine* and M. Boyd**. *Program Resources, Inc. and **Developmental Therapeutics Program, DCT, NCI-Frederick Cancer Research Facility, Frederick, MD 21701-1013.

We have utilized a colorimetric assay, based on the production of a colored formazan from a newly synthesized tetrazolium salt by viable cells, to develop a safe, rapid and quantitative measure of HIV cytopathology. A microculture assay was developed and test protocols established for large-scale screening of potential anti-viral compounds. A variety of T-lymphoblastoid cell lines have been evaluated for their capacity to reduce the tetrazolium to formazan, susceptibility to HIV-induced cytopathology and sensitivity to prototypical anti-HIV agents. In uninfected cells the level of formazan production, determined by optical density, differed only slightly from line to line and was linear over a broad range of cell concentrations. Viable cell counts and formazan production was reduced by infection of all target cells with cell-free virus or by incubation with chronically infected cells. However, significant differences were noted in virus sensitivities between lines. For some lines, the degree of drug-induced, antiviral activity also varied markedly. Castanospermine, for example, protects CEM cells, but poorly protects LDV-7 and has little activity in MT-2. These data suggest a panel of cell lines may be required to insure maximum sensitivity for detection of anti-viral agents in a large-scale primary screen. (Supported by NCI contract NO1-CO-74102.)