The Role of Suramin as an Antiviral Reagent: W. S. Mason, D. J. Petcu, L. Coates, C. Aldrich and J. M. Taylor, Fox Chase Cancer Center, Philadelphia, PA 19111, U.S.A.

Others have reported that suramin is an inhibitor, in vitro, of the reverse transcriptases of retroviruses and hepadnaviruses. We have further investigated the effects of this drug on infection of chicken embryo fibroblasts by Rous sarcoma virus (RSV), of duck hepatocytes by duck hepatitis B virus (DHBV), and of woodchuck hepatocytes by hepatitis delta virus (HDV). These viruses differ in the involvement of reverse transcription in their life cycles. RSV requires reverse transcriptase solely for provirus formation. DHBV requires reverse transcriptase for production of progeny viral-DNA genomes. HDV appears to infect cells and produce new viral RNA without the involvement of a DNA intermediate. Despite these differences, suramin blocked infection by all three viruses. However, suramin was unable to block reverse transcription in hepatocytes already infected with DHBV and was not able to block infection when added a few hours after addition of RSV to chicken embryo fibroblasts, at a time preceding synthesis of linear or circular intermediates in provirus formation. Taken together, the results show first, that suramin fails to inhibit reverse transcription within infected cells and, second, and of possibly greater interest, that suramin efficiently blocked the uptake and/or uncoating in each of three virus-host systems. The antiviral activity of suramin appears, therefore, to be associated with the lysosomotropic property of this drug.

Effect of 2-Acetylpyridine Thiosemicarbazone on Host Range Mutants of Herpes Simplex Virus Type 1 Lacking Ribonucleotide Reductase Activity. S.R. Turk, C. Shipman, Jr., D.J. Goldstein, and S.K. Weller. The University of Michigan, Ann Arbor, MI USA and The University of Connecticut, Farmington, CT USA

2-Acetylpyridine thiosemicarbazone (2-APTSC) and many of its derivatives are potent inhibitors of the *in vitro* and *in vivo* replication of herpes simplex virus type 1 (HSV-1). It has been postulated that the antiviral mode-of-action of these compounds involves the potent and selective inhibition of the HSV-1-encoded ribonucleotide reductase. Recently, however, HSV-1 reductase mutants were isolated and characterized, revealing that the viral reductase is nonessential for virus growth in dividing cells (Goldstein and Weller, *J. Virol.* **62**: 196-205, 1988). In the current study we have examined the effects of 2-APTSC on the replication of two of these mutants (ICP6Δ and hrR3) and on the parent (KOS) strain of HSV-1. In plaque reduction assays the three strains possessed similar sensitivities to 2-APTSC (I_{50} concentrations ranged from 1-10 μM). The KOS and hrR3 strains also were examined in a titer reduction assay. Not only were the strains again equally sensitive to the compound, but inhibition of either strain was relatively unaffected by increasing multiplicity of infection. When examined in a cutaneous herpes guinea pig model the two mutants were at least as virulent as the parent strain in producing lesions. These results suggest that in the absence of expression of the viral ribonucleotide reductase, the surrogate cellular enzyme now serves as the target for 2-acetylyridine thiosemicarbazone.