

Savannah Lyle
Junior Division Microbiology
Vitamin C: A Potential Treatment For Cold Sores?

Vitamin C has long been claimed to have antiviral effects, particularly pertaining to the common cold. Vitamin E has been proved to reduce the severity of cold sores on mice. This series of experiments was designed to test the effects of two different dosages of vitamin C on three separate Herpes Simplex Virus type one (HSV-1) infected host cell cultures with the hypothesis that vitamin C will reduce the infectivity of the virus in vitro. The three types of cell cultures utilized were MRC-5 (human lung), PRK (primary rabbit kidney), and ELVIS, a HSV testing system. The latter is a proprietary diagnostic test for HSV. The viral infectivity in the primary cell cultures was quantified by visualizing the cytopathic effects, which are morphologic changes in the host cells induced by viral infection. The infectivity of HSV-1 in the ELVIS cultures was determined by quantifying the number of infected cells (blue-stained). The results proved the hypothesis correct. High dose vitamin C showed less cytopathic effects in the HSV-1 infected PRK and MRC-5 cell cultures. The ELVIS cultures with vitamin C solution showed considerably less infected cells than the positive control. One cannot be sure that the in vitro effects can be extrapolated to the effects in vivo. However, the results provide evidence to suggest that vitamin C may inhibit or retard the rate of viral proliferation. Further research can determine whether the reduced viral infectivity is due to the antioxidant properties or the acidity of vitamin C.