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In Vitro and **In Vivo** Evaluations of Compounds Against Representative Viruses from Seven Virus Families. L.E. Holland*, G.A. Arnett, L.V. Brando, M.G. Hollingshead, L. Westbrook, G.J. Williams, and W.M. Shannon, Southern Research Institute, Birmingham, AL 35255 USA; and J.W. Huggins, M.A. Ussery, and P.G. Canonico, U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, MD 21701 USA.

We have been screening compounds for selective antiviral activity in ten **in vitro** and four **in vivo** virus systems. Challenge viruses include representatives of the Poxviridae (Vaccinia Virus), Adenoviridae (Adenovirus Type 2), Rhabdoviridae (Vesicular Stomatitis Virus), Bunyaviridae (Punta Toro Virus, Sandfly Fever Virus, Hantaan Virus), Arenaviridae (Pichinde), Togaviridae (Venezuelan Equine Encephalomyelitis Virus), and Flaviviridae (Yellow Fever Virus, Japanese Encephalitis Virus) groups. Over 900 compounds have been screened using a CPE-inhibition assay in most of these **in vitro** models. Several compounds having much greater antiviral activity than the positive control compounds Ribavirin and Selenazole have been identified for each virus system. Active leads from the **in vitro** screen have been further evaluated **in vivo** in various murine and hamster models. (Supported by USAMRIID Contract No. DAMD17-86-C-6013.)

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Establishment of screening system for antiviral substances
- on Hantaan virus as target -

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The screening system was developed for determination of antiviral activities from natural, synthetic substances or antibiotics. The target virus was Hantaan virus which causes rather severe hemorrhagic fever with renal syndrome (HFRS) in eastern Asian countries, espically in Korea, Peoples' Republic of China, far eastern part of USSR. The method forms the keynote was plaque reduction test. Introducing the technique for plaque formation with the virus, the virus infected cells were continued to culture using the media supplemented with various substances in different concentrations. After several days for incubation, the plaques were tested by immunoenzyme plaque assay. Further tests were carried out for the substances create remarkable reduction of plaque formation. Among these tests, the syntheses for RNA, DNA and proteins by host cells were checked to know whether the inhibition of viral multiplication was occured by selective toxicity or done by cytohoxicity.

None of the remarkable substances were found so far. However, several interesting substances from herbs were selected and are receiving careful study.