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Inhibitory Activity of Sulfated Polysaccharides Against Respiratory Syncytial Virus Infection *in vitro*

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Sulfated polysaccharides, such as dextran sulfate, are potent and selective inhibitors of the *in vitro* replication of human immunodeficiency virus, herpes simplex virus, cytomegalovirus, vesicular stomatitis virus and other enveloped viruses *in vitro*. We have now investigated the activity of different dextran sulfate samples prepared from dextran fractions with molecular weights of 1,000, 1,500, 3,400, 5,000, 10,000, 40,000 and 70,000 (Pfeifer & Langen, D-4047 Dormagen, FRG) against respiratory syncytial virus (RSV) infection of HeLa cells. All dextran sulfate samples inhibited virus-induced cytopathogenicity, as well as virus adsorption to the cells. Their virus-inhibitory effects increased with increasing molecular weight from 1,000 to 10,000, and levelled off if the molecular weight was further increased to 70,000. Dextran sulfate also suppressed RSV growth, as based on virus yield reduction, and this effect was additive to the effect shown by ribavirin.

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Efficacy Of Antivirals Against Different Ocular Adenoviral Serotypes In Vitro, and A New Organ Culture Method.

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There is no effective treatment for ocular adenoviral infections which occur in woldwide epidemics, cause significant patient morbidity, and produce large economic losses. We tested four antiviral agents: S-HPMPA, 2'-nor-cGMP, DHPG, & novobiocin in A549 human cell culture for activity against different ocular serotypes of adenovirus. Both S-HPMPA and 2'-nor-cGMP demonstrated inhibitory activity (ED50 = .10 to 7.2 ug/ml) against Ad 5, Ad 8, and Ad 19 serotypes.

We also developed an organ culture method that extended the host range of certain human adenoviral ocular isolates to the rabbit cornea. Rabbit corneas grown in organ culture were inoculated topically with 50 ul (5 X 105 pfu) of different adenoviral clinical ocular isolates: Ad 5 (n=4), Ad 7a (n=4), Ad 8 (n=11), and Ad 19 (n=1). Control wells (no cornea present) were inoculated in a similar fashion. Sample aliquots (0.6 ml.) were aspirated from all wells every 3 days for 3 weeks, and titrated on A549 cells. Four of 4 Ad 5 ocular isolates (100%) and 11 of 11 Ad 8 isolates (100%) demonstrated increasing viral titers which persisted over 17 days. Mean peak titers were 1.9 x 104 pfu/ml for Ad 5 isolates, and 3.9 x 103 pfu/ml for Ad 8 isolates respectively. Ad 7a and Ad 19 isolates failed to replicate. We conclude that extension of host range from humans to rabbit corneas was serotype-dependent, and the rabbit corneal organ culture is a promising new method for future antiviral studies.