Potential treatment for 'pink eye' epidemic

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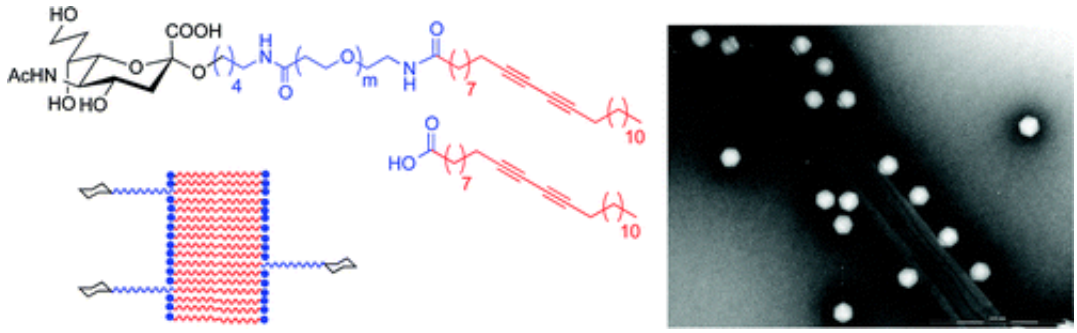

Scientists are reporting discovery of a potential new drug for epidemic keratoconjunctivitis (EKC) -- sometimes called "pink eye" -- a highly infectious eye disease that may occur in 15 million to 20 million people annually in the United States alone. Their report describing an innovative new "molecular wipe" that sweeps up viruses responsible for EKC appears in ACS's *Journal of Medicinal Chemistry.*

Ulf Ellervik and colleagues note that there is no approved treatment for EKC, which is caused by viruses from the same family responsible for the common cold. EKC affects the cornea, the clear, dome-shaped tissue that forms the outer layer of the eye. It causes redness, pain, tearing, and may reduce visions for months. "Patients are usually recommended to stay home from work or school, resulting in substantial economic losses ," the scientists write.

They describe discovery of a potential new drug that sweeps up the viruses responsible for EKC, preventing the viruses from binding to and infecting the cornea. The drug removes viruses already in the eye and new viruses that are forming. In doing so, it would relieve symptoms, speed up healing (potentially avoiding impaired vision, and reduce and the risk of infecting the patient's other eye or spreading the infection within families, schools and work places, the scientists suggested.

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More information: Molecular Wipes: Application to Epidemic Keratoconjuctivitis, J. Med. Chem., Article ASAP. DOI: 10.1021/jm200545m

Abstract

Epidemic keratoconjunctivitis (EKC) is a severe disease of the eye, caused by members of the Adenoviridae (Ad) family, with symptoms such as keratitis, conjunctivitis, pain, edema, and reduced vision that may last for months or years. There are no vaccines or antiviral drugs available to prevent or treat EKC. It was found previously that EKC-causing Ads use sialic acid as a cellular receptor and demonstrated that soluble, sialic acid-containing molecules can prevent infection. In this study, multivalent sialic acid constructs based on 10,12-pentacosadiynoic acid (PDA) have been synthesized, and these constructs are shown to be efficient inhibitors of Ad binding (IC50 = 0.9 μM) and Ad infectivity (IC50 = 0.7 μM). The mechanism of action is to aggregate virus particles and thereby prevent them from binding to ocular cells. Such formulations may be used for topical treatment of adenovirus-caused EKC.