Book of Abstracts

Exploring nanoparticle approaches for *in vivo* delivery of a potent class of EV-A71 inhibitors

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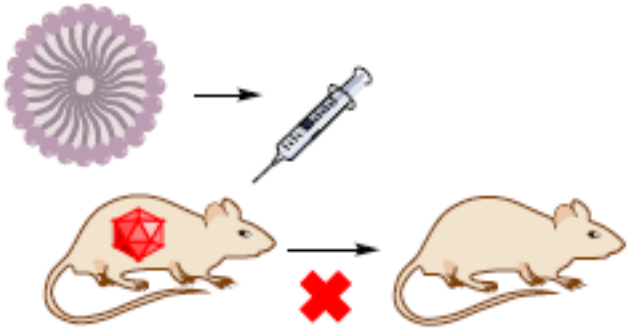
Enterovirus A71 (EV-A71), one of the main etiological agents of hand-foot-and-mouth disease (HFMD), is a picornavirus that generally affects children below the age of five. Although EV-A71 generally causes mild and self-limiting disease, some severe and life-threatening complications such as brain stem, encephalitis, meningitis, poliomyelitis-like paralysis and pulmonary edema may also occur.

Large EV71 outbreaks have principally been reported in the Asia-Pacific region and in China, however in Europe the number of EV-A71 outbreaks is increasing. For its pandemic potential and the lack of effective antiviral treatments, EV-A71 can be considered a public health threat worldwide, especially for young children.[1,2] EV-71 is highly contagious and is transmitted via fecal-oral route or via nasopharyngeal secretions. In general, the gastro-intestinal and/or the respiratory tract are primary site of replication, from which EV-A71 spread and infect other tissues and organs, such as the central nervous system (CNS).[3]

A family of potent inhibitors of EV-A71 has been recently reported in our research group.[4,5] One of the prototypes (**AL-470**) is a trimer with trypthophan (Trp) residues on the periphery. The final aim of this work is to explore nanotechnological approaches to deliver the Trp prototype into the gastro-intestinal and/or the respiratory tract to prevent or treat EV-A71 infection. With this aim we have studied the formation of nanosized aggregates with **AL-470** and its incorporation into two types of nanoparticles, iron oxide nanoparticles and solid lipid nanoparticles. We have studied their antiviral potency and *in vivo* distribution. Our final goal is to obtain at least one type of nanoparticle with a clear antiviral activity to be tested in clinical trials in further steps.



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