OS01-5 A novel ainti-influenza drug for treatment

◯Makoto YAMASHITA[1,2]
[1]Daiichi Sankyo Co. Ltd., [2]Biological Res. Labs.

Neuraminidase (NA) of influenza virus is essential for virus replication. We discovered a new potent NA inhibitor, laninamivir, which potently inhibited NA activities of various influenza viruses, including oseltamivir (Tamiflu®)-resistant viruses. Moreover, we found that octanoic acid-esterified laninamivir (CS-8958, a prodrug of laninamivir) worked as a long-acting neuraminidase inhibitor in vivo. That is, a single intranasal administration of CS-8958 demonstrated superior efficacy to repeated oral administrations of oseltamivir in animal infection models. Also, it was proved that a single inhalation of CS-8958 showed significantly better efficacy than the repeated oral dosing of oseltamivir in children, and showed non-inferiority to that in adults by the clinical studies. Finally, it is commercially available as Inavir® in Japan. The long action may be accounted for by the following two unique characteristics: long retention in respiratory organs in mice as laninamivir after an intranasal administration of CS-8958 and tight binding of laninamivir to virus NAs. The speculated mechanism of long retention of laninamivir converted from CS-8958 will be discussed in the symposium. Another unique character was the difficulty of laninamivir to generate resistant viruses both *in vitro* and *in vivo*. This data will also be presented. In Japan, 4 different NA inhibitors for anti-influenza drugs with different characteristics have been lined up, and this will give opportunities to select the most beneficial drug for both patients and clinicians.