

OS01-4 Host receptor glycans recognized with influenza viruses

○Kazuya HIDARI^{1,2}, Hiroki YOSHINO^{1,2}, Yohei MINAMIJIMA^{1,2}, Takashi YAMANAKA³,
Masanori MURANAKA³, Makoto OGATA⁴, Takeomi MURATA⁴, Taichi USUI⁴, Takashi SUZUKI^{1,2}

¹Univ. Shizuoka, Grad. Sch. of Pharm. Sci., ²Global COE, ³JRA Equ. Res. Inst., ⁴Shizuoka Univ. Facul. Agri.

Sialoglycans expressed on the host cell surface are critical determinants for interspecies transmission and epidemics in a specific host. Influenza viruses infect host cells through binding of hemagglutinins to sialoglycans as receptors. To control interspecies transmission of influenza viruses, it is important to elucidate the molecular mechanisms of the interaction between influenza viruses with carbohydrate receptors expressed on host cells.

Up to date, specific carbohydrate determinants are dominantly recognized by avian and human viruses, such as Neu5Ac α 2-3nLc4 and Neu5Ac α 2-6nLc4, respectively. In addition, histochemical experiments using lectins specific for sialic acid linkages demonstrated that the characteristic distribution of sialoglycans is associated with avian to human viral transmission. However, receptor molecules with high affinity for humans and other species have yet to be defined in host cells.

Recently we synthesized, characterized, and applied new glycopolymers carrying multivalent sialic-acid containing oligosaccharides for *in vitro* and *in vivo* investigation of the molecular mechanisms virus recognition. We found that influenza viruses isolated from distinct species recognize not only specific linkages of sialic acids but also core carbohydrate structures. In this presentation, specific carbohydrate recognition of influenza viruses will be discussed from the point of view concerning HA structures.