

# H. Sato LAB.

## [The Battle between Virus and Cells]

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Molecular Virology

<https://www.kailab.iis.u-tokyo.ac.jp>

### Morbillivirus

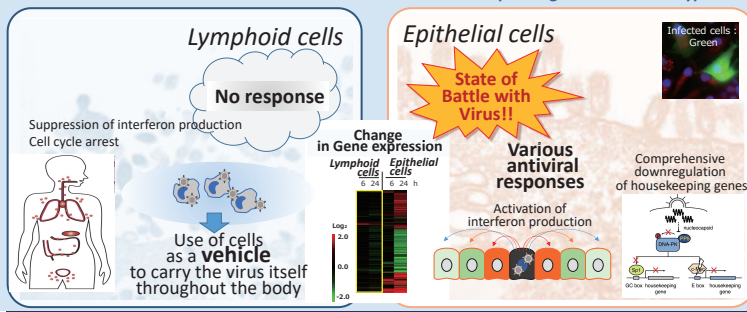
Measles virus (The cause of measles virus in humans)  
Canine distemper virus etc.

Causes serious and fatal symptoms when infected

### Aiming to elucidate the understanding of the battle between virus vs cells

Morbillivirus proteins are multifunctional.

Why does the Morbillivirus show a completely different post-infection response depending on the host cell types?



### Development of recombinant bivalent vaccine

#### Leishmaniasis

- Caused by Leishmania protozoan
- Infected 12 million people in 88 countries
- Vectored by sandflies
- Dogs are also a reservoir animal.
- Epidemiological studies have shown that a decrease in local canine leishmania also reduces human leishmania.



Canine distemper virus vaccine strain

Generate **Recombinant virus** carrying the Leishmania antigen gene

Vaccinate dogs with **Recombinant virus**

**Challenge** Leishmania protozoans to dogs

#### Leishmania Protozoan Challenge Experiment

**Non vaccination**



Leishmania forms ulcers

**Vaccination of recombinant virus**



Significantly reduced ulcers

**Recombinant virus is effective!**