

H. Sato LAB.

[The Battle between Virus and Cells]

Department of Mechanical and Biofunctional Systems

Molecular Virology



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

Morbillivirus

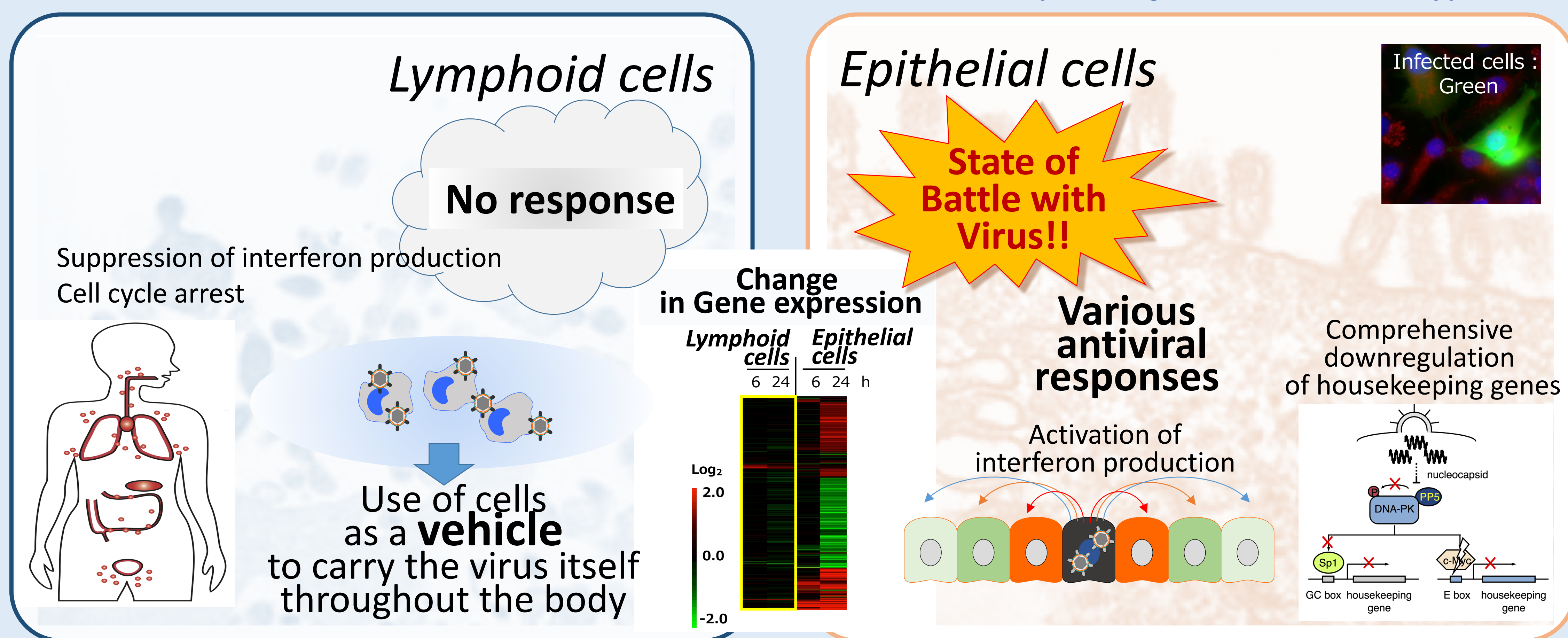
Measles virus (The cause of measles virus in humans)
Canine distemper virus etc.

Causes serious and fatal symptoms
when infected

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

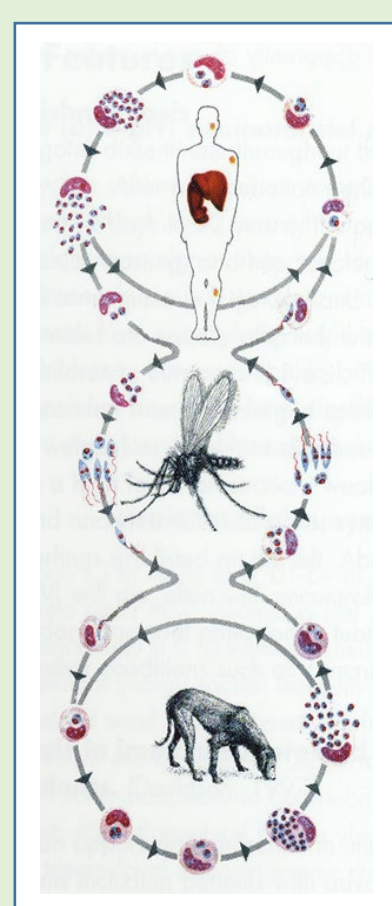
Morbillivirus proteins are multifunctional.

Why does the Mobilivirus 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

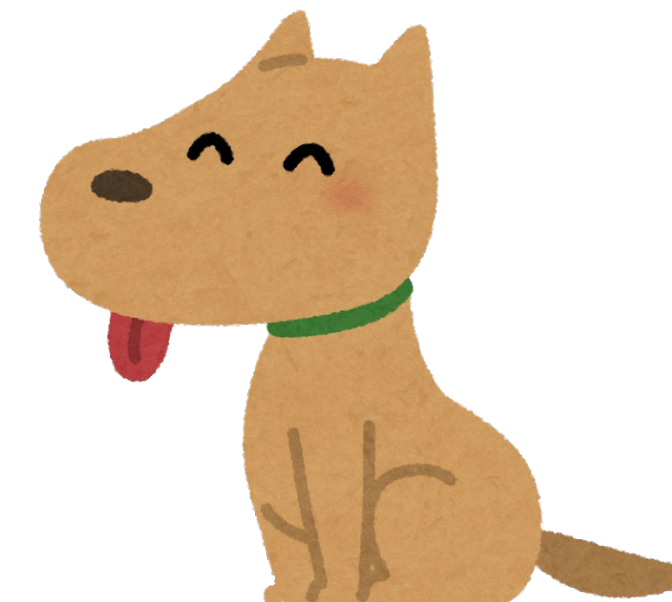
Leishmania Protozoan Challenge Experiment

Non vaccination



Leishmania forms ulcers.

Vaccination of recombinant virus



Significantly reduced ulcers

Recombinant virus is effective!