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[The Battle between Virus and Cells]
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Molecular Virology

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?

Lymphoid cells
No response
Suppression of interferon production
Cell cycle arrest
Use of cells as a vehicle to carry the virus itself throughout the body

Epithelial cells
Various antiviral responses
Activation of interferon production
Comprehensive downregulation of housekeeping genes

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 leishmaniasis also reduces human leishmaniasis.

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
Vaccination of recombinant virus
Leishmania forms ulcers. Significantly reduced ulcers
Recombinant virus is effective!