Research and Development for Universal Influenza Vaccine

Sumitomo Dainippon Pharma and National Institutes of Biomedical Innovation, Health and Nutrition Joint Research
Influenza

- Four pandemics in last 100 years
- 290,000-650,000 seasonal influenza-associated respiratory deaths worldwide annually (Lancet 2018)
Issues of current Flu vaccines

- Need annual selection, manufacture, and vaccination based on virologic forecasting
- Difficult for new strains of influenza
What is universal influenza vaccine?

Universal influenza vaccine is expected to actively induce antibody against rarely mutated region of antigen on various influenza virus.

- Potentially NOT need annual selection, manufacture, and vaccination based on virologic forecasting
- Potentially effective against new strains of influenza
Universal influenza vaccine in our project

Novel antigen
Post-fusion HA※
※Adachi Y. et al., Nature Commun 2019

- Protein derived from influenza virus
- Potent protection against mutated influenza viruses

Novel TLR7 adjuvant
DSP-0546LP

- Formulated TLR7 agonist
  TLR7 agonist: A substance activates TLR7, a toll-like receptor that triggers innate immune responses on sensing viral RNA
- High quality and long lasting immune responses and safety
  Stronger efficacy on cross-protective activity compared to conventional adjuvant in non-clinical study

- Contribution to the development of the universal influenza vaccine, which is described in the WHO strategy as an example of the goal to be achieved by 2030 in the Healthcare Policy and the Plan for Promotion of Medical Research and Development in Japan.
Aim of joint research

Expertise:
- Analysis using world class technology (next-generation flow cytometer)
- Vaccine adjuvant research

Role:
- Immunoassay development
- Exploring clinical biomarkers

Expertise:
- Research and Development for immunoadjuvant
- Global pharmaceutical R&D

Role:
- Novel adjuvant production (DSP-0546LP)
- Novel influenza antigen production (Post-fusion HA)
- Preclinical Clinical development

Initiatives for creating universal influenza vaccine with AMED support, by combining the both expertise