
# Kaoru TAKEUCHI

Faculty of Medicine

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## Theme

●Environmental Microbiology


**Keyword** : VLP vaccine, Influenza universal vaccine, Paramyxoviruses


## Highlight

**Major Scientific Interests of the Group**

The aim of our group is to understand the host-pathogen interactions. We are analyzing molecular mechanism of the pathogenicity of paramyxoviruses. We are also interested in applied science. We are developing edible vaccines using virus-like particles (empty virion without genome) of small non-enveloped viruses produced in plants.

**Projects for Regular Students in Doctoral or Master's Programs**

1) Manipulation of negative-stranded viruses
2) Generation of edible vaccines

**Study Programs for Short Stay Students (one week – one trimester)**

1) Rescue of recombinant virus from cloned cDNA
2) Expression of virus proteins in *E. coli*.

## Applications and Prospects

●Our goal is making VLP vaccines and influenza universal vaccines for human and animal use.

## Literature, intellectual property, work


●Takeuchi K, Nagata N, Kato SI, Ami Y, Suzaki Y, Suzuki Y, Sato Y, Tsunetsugu-Yokota Y, Mori K, Van Nguyen N, Kimura H, Nagata K. Wild-type measles virus with the hemagglutinin protein of the Edmonston vaccine strain retains wild-type tropism in macaques. J Virol. 2012; 86:3027-3037. (corresponding author)

●Kubota M, Takeuchi K, Watanabe S, Ohno S, Matsuoka R, Kohda D, Nakakita SI, Hiramatsu H, Suzuki Y,Nakayama T, Terada T, Shimizu K, Shimizu N, Shiroishi M, Yanagi Y, Hashiguchi T. Trisaccharide containing α2,3-linked sialic acid is a receptor for mumps virus. Proc Natl Acad Sci U S A. 2016; 113(41):11579-11584.(corresponding author)

●Takada M, Matsuura R, Kokuho T, Tsuboi T, Kameyama KI, Takeuchi K. Reciprocal complementation of bovine parainfluenza virus type 3 lacking either the membrane or fusion gene. J Virol Methods. 2017, 249:25-30.(corresponding author)