

## Session 1: 15:40 – 15:55

# Preclinical trial of COVID-19 vaccine in cynomolgus macaques in Thailand: Opportunity and challenge



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### Short CV

**Dr. Malaivijitnond** has researched on distribution, morphology, ecology, genetics, behavior and physiology of macaque monkeys in Southeast Asia, China and India.

Based on the vast knowledge on non-human primates gained both from the laboratory and field studies, she has established the first and the only National Primate Research Center of Thailand and is the current director.

She serves many academic and public services such as a council member and treasurer of the Asia and Oceania Society of Comparative Endocrinology (AOSCE; 2013-2017, 2017-2021), council member (members at large for Asia and Australia) of the International Federation of Comparative Endocrinological Societies (IFCES; 2014-2018, 2018-2022), and the first vice president of Federation of the Asia and Oceanian of Physiological Societies (FAOPS; 2019-2023). She is also the founder and permanent council member of the Open Biodiversity and Health Big Data Alliance (BHBD; 2018-present) under the International Union of Biological Sciences (IUBS).

She was awarded the National Outstanding Researcher Award in 2017 and the Senior Research Scholar in 2019 by the National Research Council of Thailand.

### Abstract

Since the COVID-19 disease was first identified in Wuhan, China in December 2019, Thailand is the first country that made the confirmation of the case outside China on 13 January 2020.

Henceforth, the plan for COVID-19 vaccine development was initiated in February 2020 before WHO declared COVID-19 a pandemic in March 2020.

Three types of vaccine (mRNA, DNA and plant-based protein subunit) were produced and tested in cynomolgus monkeys at the National Primate Research Center of Thailand, Chulalongkorn University (NPRCT-CU) for immune response and safety, and elicited the positive results. They have been proceeding to the Clinical Trial Phase I/II.

Later, the reliable scientific information in SARS-CoV-2 infected laboratory animals is essential to assure the efficacy of the vaccine before the Clinical Trial Phase III. Among many animal models, two species of macaques; rhesus (*Macaca mulatta*) and cynomolgus (*cynos*; *M. fascicularis*), are prone to be infected with SARS-CoV-2 and show pathological symptoms similar to that of humans, thus the shortage of monkey supply is an urgent issue for vaccine testing across the globe.

Thailand is in the habitat range of these two macaque species and the human-cynos conflicts occur in many interface areas. Thus, the NPRCT-CU was granted the permit from the government to catch and use free-ranging macaques for breeding and research.

Recently, NPRCT-CU is approved for ABSL3 module installation for SARS-CoV-2 challenge test in cynos. Though we have no experience on this system, we are learning from our alliances in USA and Japan.