



August 5, 2022

**Cetylpyridinium chloride hydrate (CPC)
confirmed to have an action of inactivating SARS-CoV-2
variants**

Taisho Pharmaceutical Co., Ltd. [Head office: Toshima-ku, Tokyo, President: Shigeru Uehara] (hereinafter, Taisho Pharmaceutical) has announced that, in an *in vitro* study (test-tube experiment) conducted through research contracted to Professor Daisuke Hayasaka and Associate Professor Hiroshi Shimoda at the Laboratory of Veterinary Microbiology, Joint Faculty of Veterinary Medicine, Yamaguchi University, they have confirmed that exposure to the antimicrobial cetylpyridinium chloride hydrate (CPC) at concentrations of $\geq 0.0125\%$ for 30 seconds causes $\geq 99\%$ inactivation of SARS-CoV-2 variants (Omicron variants).

The details of the research are explained below.

**Action of cetylpyridinium chloride hydrate (CPC) in
inactivating SARS-CoV-2 variants (Omicron variants)**

Currently, SARS-CoV-2 variants (Omicron variants) continue to be dominant worldwide and are the mainstream of infection.*¹

Once infected with SARS-CoV-2, a variety of symptoms may occur not only during the infectious period, but also as sequelae after recovery. Coughing has reportedly been a common symptom of sequelae in the Omicron variants.*² There is an increasing need to enhance awareness of prevention and implement infection measures.

<Research results>

In the *in vitro* study conducted through contracted research by Taisho Pharmaceutical and Yamaguchi University, the action of CPC in inactivating SARS-CoV-2 (Omicron variant BA.2; TY40-385) was evaluated. The SARS-CoV-2 variant solution and CPC solution were mixed in a 1:9 ratio and left for 10 seconds, 30 seconds, 1 minute, 3 minutes, and 5 minutes to allow the action to occur, and the extent to which the infectious virus decreased was assessed. The results confirmed that exposure to CPC at concentrations of $\geq 0.0125\%$ inactivates (causes loss of infectivity) $\geq 99\%$ of SARS-CoV-2 variants (Table 1).

Table 1 Inactivation rate of SARS-CoV-2 variants by CPC (%)

CPC concentration (%)	Duration of action				
	10 seconds	30 seconds	1 minute	3 minutes	5 minutes
0.3	>99.17	>99.86	>99.86	>99.86	>99.86
0.0125	>97.67	>99.98	>99.98	>99.98	>99.98

* Virus titer at 0 seconds: 7.65×10^5 pfu/mL

<Use of the evidence and future perspectives>

CPC is known to exert an antimicrobial action by destroying the bacterial cell membrane consisting of a lipid bilayer. Since the envelope of SARS-CoV-2 has a lipid bilayer structure, it is likely that CPC inactivates SARS-CoV-2 by destroying the envelope.

The prevalence of the BA.5 variant, a subvariant of the Omicron variant, has been reported in Japan and overseas, but these mutant viruses have similar envelopes.

Taisho Pharmaceutical will continue to pursue research into the novel actions of CPC.

*1 National Institute of Infectious Diseases. SARS-CoV-2 mutant strains that may increase infectivity and alter antigenicity (19th report)

*2 The 88th Tokyo Metropolitan Government COVID-19 monitoring meeting document (May 26, 2022)

[Reference] News release announced on October 25, 2021

“Cetylpyridinium chloride hydrate (CPC) confirmed to have an action inactivating SARS-CoV-2”

(<https://www.taisho.co.jp/company/news/2021/20211025000848.html>)