Virucidal Activity of Puriton vs SARS-CoV-2 Virus (COVID-19)

Sponsor	UCI Medical Center
Sponsor Contact:	Jai Kim
Report Date:	May 4, 2020
Viruses Tested:	SARS-CoV-2 (COVID-19)
Cell Line:	Vero 76
Incubation:	1 hour room temperature
Compounds Tested:	Puriton
Experiment #:	SARS2-071

Study Director:

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Procedure

SARS-CoV-2 (COVID-19) stocks were prepared by growing virus in Vero 76 cells using test media of MEM with 2% FBS and 50 µg/mL gentamicin.

Test compound was received from the sponsor in liquid Form. The compound was tested at concentrations of 90% and 70% by adding virus stock directly to sample in triplicate tubes for each concentration. Media only was added to one tube of each prepared concentration to serve as toxicity and neutralization controls. Ethanol (50%) was tested in parallel as a positive control and water only to serve as virus controls.

Solution and virus were incubated at room temperature for 1 hour. The solution was then neutralized by a 1/10 dilution in MEM with 10% FBS and 50 µg/mL gentamicin to each sample. Neutralized samples for each concentration were pooled and serially diluted using eight log dilutions in test medium. Each dilution was added to 4 wells of a 96-well plate with 80-100% confluent Vero 76 cells. The toxicity controls were added to an additional 4 wells and 2 wells each were infected with virus to serve as neutralization controls, ensuring that residual sample in the titer assay plated did not inhibit growth and detection of surviving virus. All plates were incubated at 37±2°C, 5% CO_2.

On day 5 post-infection plates were scored for presence or absence of viral cytopathic effect (CPE). The Reed-Muench method was used to determine end-point titers (50% cell culture infectious dose, $CCID_{50}$) of the samples, and the log reduction value (LRV) of the compound compared to the negative (water) control was calculated.

Results

Virus titers and LRV For Puriton against SARS-CoV-2 (COVID-19) are shown in Table 1. Virus in control samples was 3.5 $\log_{10}$ CCID50 per 0.1 mL.

Puriton was an effective virucidal after a 1-hour incubation with SARS-CoV-2 (COVID-19), reducing virus by >2.8 $\log_{10}$ CCID50 (>99.8%). Positive control and neutralization controls performed as expected.

Table 1. Virucidal efficacy of Puriton against SARS-CoV-2 (COVID-19) after 1-hour incubation with virus at 22 ± 2°C.

	[a]$CCID_{50}$ /mL	[b]LRV
90% Puriton	<0.7	>2.8
70% Puriton	<0.7	>2.8
Ethanol	<0.7	>2.8
Virus Control	3.5	N/A

[a] Log_{10} $CCID_{50}$ of virus per mL

[b] LRV (log reduction value) is the reduction of virus compared to the virus control

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