

Coptek - Lab Test Report

Delta B.17.617.2 and Wuhan WA-1

Project Summary

Coptek has partnered with the ImPaKT Centre to conduct viral titer reduction studies with SARS-CoV-2, Wuhan and Delta strains, after exposure to the Coptek copper-containing material. Results show that SARS-CoV-2 (WA-1) exposure to the Coptek material for 5 minutes results in a 2 log (99%) reduction in viral titres. Experiments with the Delta variant of SARS-CoV-2 demonstrated that exposure to the Coptek material after 5 minutes reduced viral titres by 4 logs or (99.99%).

Experimental Method

Coptek material preparation

The Coptek material was provided to ImPaKT rolled onto black plastic cylinders for testing. The Coptek material was pliable and opaque. To prepare material for testing, the top side was disinfected with 70% EtOH with a 5 min contact time inside a sterile biosafety cabinet (BSC). The material was cut into ~0.5x0.5cm squares and placed in a 1.5ml tube.

SARS-CoV-2 preparation and Coptek Treatment

The SARS-CoV-2 virus stock at a titer of $10^{5.8}$ TCID₅₀/ml was used for these studies. A volume of 850ul of the viral stock was added to a 1.5ml tube containing the square of Coptek material in the tube. The tube containing the virus and Coptek material was placed on a tube rotator for set incubation times of 30s, 1min, 5min, 30min, 1hr. A stainless steel and untreated control were maintained. At each time point 100ul of supernatant was collected. Viral supernatants were diluted 10-fold to reduce any confounding cellular toxicity from prolonged exposure to the Coptek material. Treated supernatants were titred onto 15,000 Vero E6 cells in 96 well flat bottom plates to quantitate viral titer reduction as a result of exposure to Coptek material.

Results

In Table 1, after 5 minutes of exposure to Coptek material, viral titers were reduced by 2-logs (WA-1) and 3-logs (Delta) corresponding to 99% and 99.99% reduction in infectious virus. At 60 minutes of exposure, the Wuhan strain was reduced by an additional 1-log resulting in a 99.9% reduction. Longer incubations with Coptek did not produce any additional antiviral activity towards the Delta variant. Untreated and stainless steel controls did not have any significant effects on viral titres.

Table 1. Coptek Viral Titer Reduction Results

Wuhan Strain (WA-1)			
EXP. Time	Titre	Titre Reduction v. control	%Reduction
30s	10 ⁵	0	0
1MIN	10 ⁵	0	0
5MIN	10 ³	2	99%
30MIN	10 ³	2	99%
60MIN	10 ²	3	99.9%

Delta Variant (B.1.617.2)			
EXP. Time	Titre	Titre Reduction v. control	%Reduction
30s	10 ⁵	0	0
1MIN	10 ⁵	0	0
5MIN	10 ³	4	99.99%
30MIN	10 ³	4	99.99%
60MIN	10 ²	4	99.99%

Supplementary material

List of study materials:

- Coptek material for testing
- Stainless Steel
- SARS-CoV-2 (TCID₅₀/ml 10^{5.8}), Wuhan WA-1, Delta B.17.617.2
- VERO E6 cell line (*Cercopithecus aethiops*, kidney)
- Dulbecco's Modified Eagle media supplemented with 10% or 2% fetal bovine serum
- Polypropylene 1.5ml tubes
- 96-well flat bottom plates
- Tube rotator
- EVOS M7000 Microscope