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Assessment of Melt Blown Fiber with Antiviral Coating Against SARS-CoV-2

Letter Report

FOR

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1. Results Summary

The objective for project 311664.01.001 was to determine if melt blown fiber with antiviral coating has the ability to inhibit the growth of SARS-CoV-2 *in vitro*. MRIGlobal utilized the USA-WA1/2020 strain of the virus, acquired from BEI Resources (NR-52281). This was propagated in Vero E6 cells (ATCC CRL-1586); these cells were also used for the neutralization assay. Vero E6 cells were cultured in growth media consisting of Dulbecco's Modified Eagle Medium/F12 supplemented with 5% FBS (Fetal Bovine Serum), and PSN (penicillin, streptomycin, and neomycin).

The Vero E6 cells were plated on 96-well plates the day before the assay and were allowed to grow to ~ 60%-70% confluence. On the day of the assay, melt blown fiber coupons were inoculated with 200 µl of virus stock and allowed to sit for 30 or 120 minutes in a biosafety cabinet. When either 30 or 120 minutes passed, 2 ml of DMEM/F12 media was added to coupons and lightly scraped with a cell scraper to aid in viral resuspension. Samples were added to an empty 96-well plate and diluted 1:10 down the plate in DMEM/F12. These dilutions were then transferred to a plate of Vero cells with media removed. After at least 15 minutes, DMEM/F12 supplemented with FBS was added to cells to feed them for the next 5 days. This incubation period of at least 15 minutes is to allow the virus to adsorb to cells without interference from FBS. Cytotoxicity controls of the test articles without virus added were also performed. The assay was executed in five replicates for each condition.

Table 1. Results of *in vitro* Neutralization of SARS-CoV-2 with coated melt blown fiber.

Sample Name	Time of Contact (minutes)	TCID50	Log10 TCID50	Average TCID50	Average Log10 TCID50	Log Reduction to Virus Controls	Percent Log Reduction
X30-1	30	31.62	1.50	31.62	1.50	3.33	99.95%
X30-2	30	31.62	1.50				
X30-3	30	31.62	1.50				
C30-1	30	50118.72	4.70	75376.66	4.83		
C30-2	30	125892.54	5.10				
C30-3	30	50118.72	4.70				