Test report

Date: Dec. 16th 2020.

Assignment:

Assessment of the effect of UV BARx1 against SARS-CoV-2 viability

Attendees:

Assoc. Prof. PhD Thomas Emil Andersen, Research Assistant BSc Ditte Sandfelt Tornby, Biomedical Scientist MSc Line Bang.

Time period for test work:

Dec.10th-15th 2020.

Task description:

Single measurements of the viability of SARS-CoV-2 after 2, 4 and 8 seconds exposure at distances of 50 and 100mm.

Day one: Culturing of host cells (VERO C1008 [Vero 76, clone E6, Vero E6] (ATCC® CRL-1586™).

Day two: Preparation of experiment, irradiation of test specimens, infection of VERO E6 cells and establishment of plaque assay.

Day five: Termination of plaque assay, collection of data.

Protocol:

$2x10^6$ pfu/mL SARS-CoV-2 stock is diluted to 10^2 i prewarmed (37˚C) DMEM 2% (+Amp. B og PenStrep). 400µL is transferred to the center of a sterile 6-well microtiter plate and exposed to UV BARx1 UV-light for 2, 4 og 8 seconds at distances 50 og 100mm (Figure 1-3). All treatments were conducted separatedly in time and space. 300µL of treated viral suspension is transferred to 6-well plate with 24h confluent VERO E6 cell cultures, incubated for 1h on tipping table at 37˚C/5% CO_2, agar overlayed and plaque assay established.

Results, UV BARx1: surviving virions relative to total treated virions:

distance\exposure time	2 seconds	4 seconds	8 seconds
50mm	$0/6 \times 10^3$	$0/6 \times 10^3$	$0/6 \times 10^3$
100mm	$0/6 \times 10^3$	$0/6 \times 10^3$	$0/6 \times 10^3$

Conclusion: virions are inactivated at all exposure times/distances to below the detection level, i.e. a >log3 or >99,9% reduction in active virions.

University of Southern Denmark
Campusvej 55
DK-5230 Odense M
Denmark
T +45 6550 1000
www.sdu.dk

Figures:

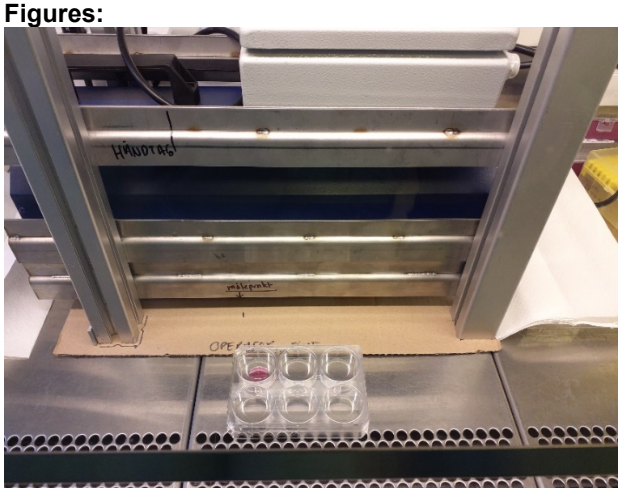

Figure 1. Experimental setup.

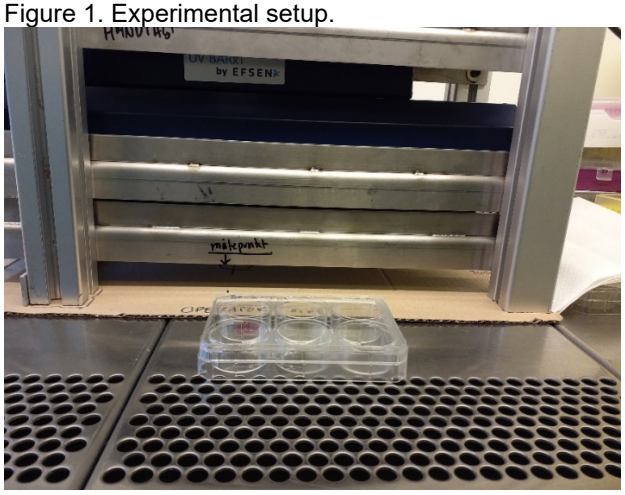

Figure 2. Experimental setup.

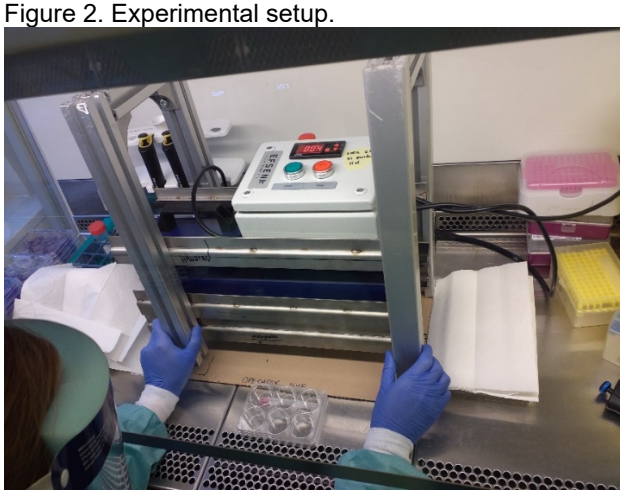

Figure 3. Experimental setup.

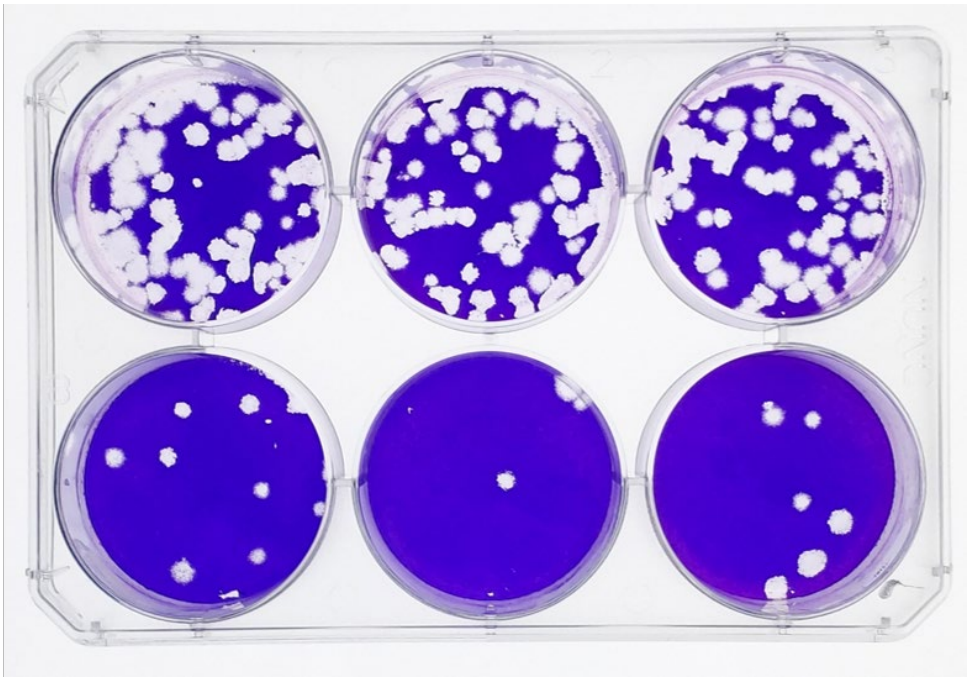

Figure 4. Plaque assay of untreated viral stock cultured in triplicates at 10^4 dilution (top row) and 10^5 dilution (bottom row). 300ul stock solution is added per well.

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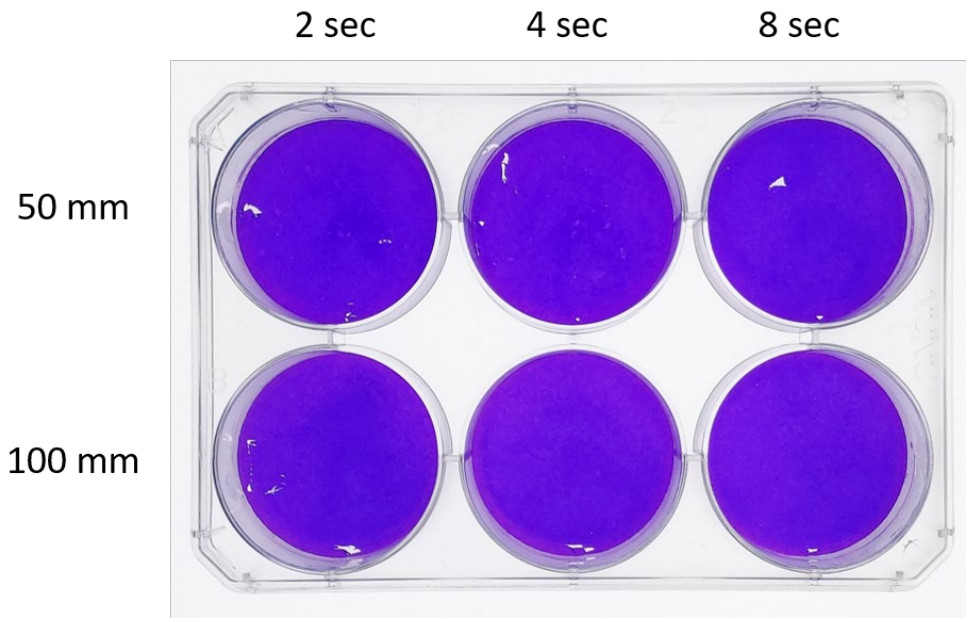

Figure 5. Plaque assay conducted with viral suspensions exposed to UV treatment (UV BARx1). The viral suspension was diluted 10^2 prior to treatment corresponding to 6 x 10^3 pfu/300 µL/brønd. No plaques i.e. viable virions could be dtected upon treatment-meaning >log3 or >99,9% reduction i viable virions.

Thomas Emil Andersen
Senior Researcher, Assoc. Prof., Ph.D.
Dept. of Clinical Microbiology
Odense University Hospital
J.B. Winsløws Vej 21, 2.
DK-5000 Odense C
Phone: +45 21 26 16 34