SDU

# Test report

**Date: Dec. 16th 2020.**

**Assignment:**

Assessment of the effect of UV BENCH 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 5 and 10 seconds of exposure to UVC in the center of the UV BENCH.

**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:**

SARS-CoV-2 viral freezer stock is diluted x33 i prewarmed (37˚C) DMEM + 2% FBS (+Amp. B og PenStrep) and 120μL transferred to sterile quartz cuvette (Figure 1-3). The quartz cuvette is closed with lid and sealed with para film, followed by exposure to UV light in the UV BENCH for 10 and 20 seconds. 100μL treated viral suspension is transferred to an Eppendorf tube and mixed with 200μL DMEM +2% FBS to achieve a total of $10^2$ dilution relative to the stock. The 300μL is transferred to the cell culture and infection allowed for a one-hour time period while placed on a tipping table at 37˚C/5% $CO_2$.

**Results, UV BENCH: surviving virions relative to total treated virions:**

| Time period of exposure | 10 seconds | 20 seconds |
|---|---|---|
| Surviving virions | $0/6 \times 10^3$ | $0/6 \times 10^3$ |

**Conclusion: both exposure time periods inactivate virions to below the detection level, i.e. a >log3 or >99,9% reduction in active virions.**

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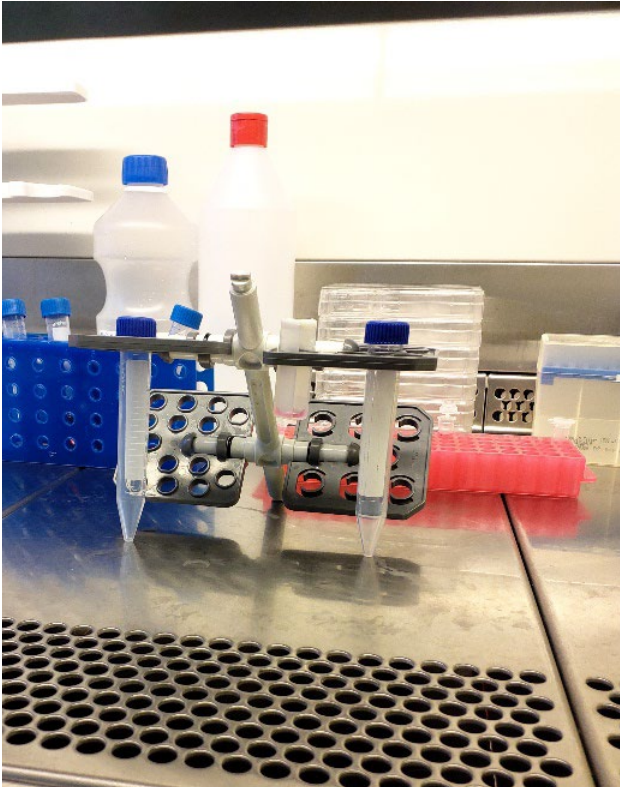


Figure 1. Experimental setup.

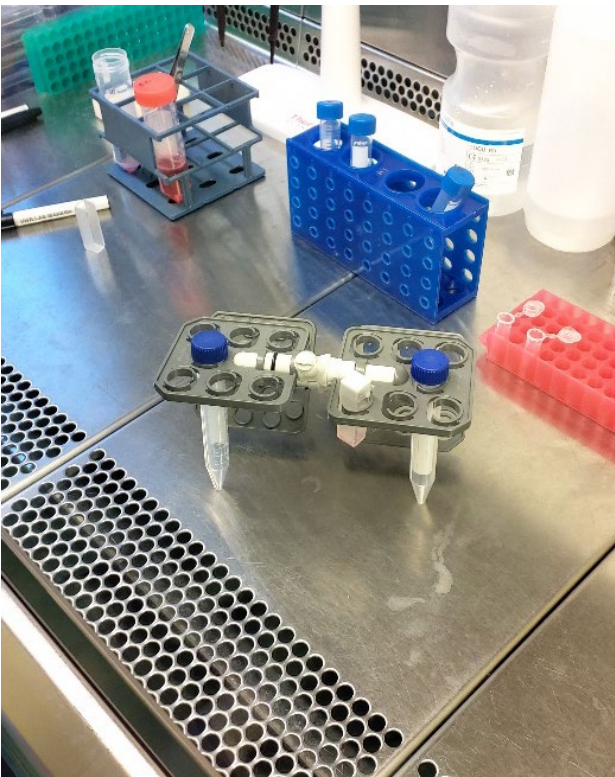


Figure 2. Experimental setup.

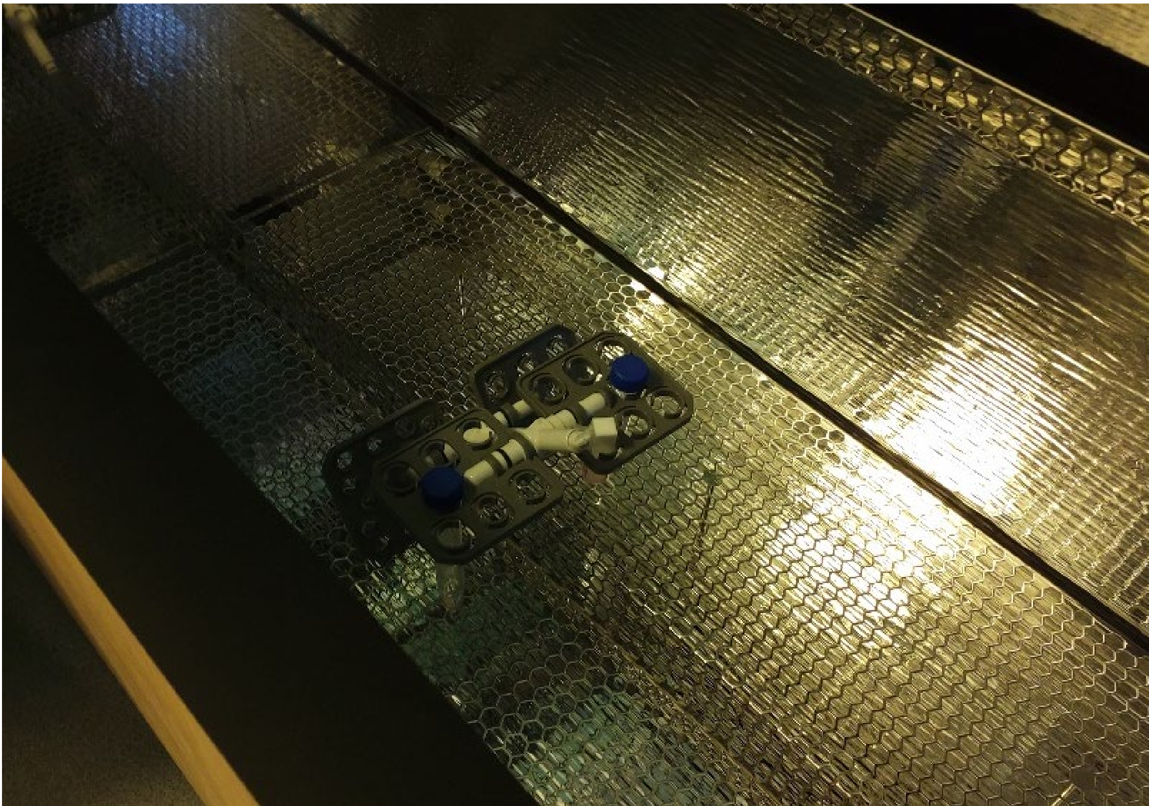


Figure 3. Experimental setup.

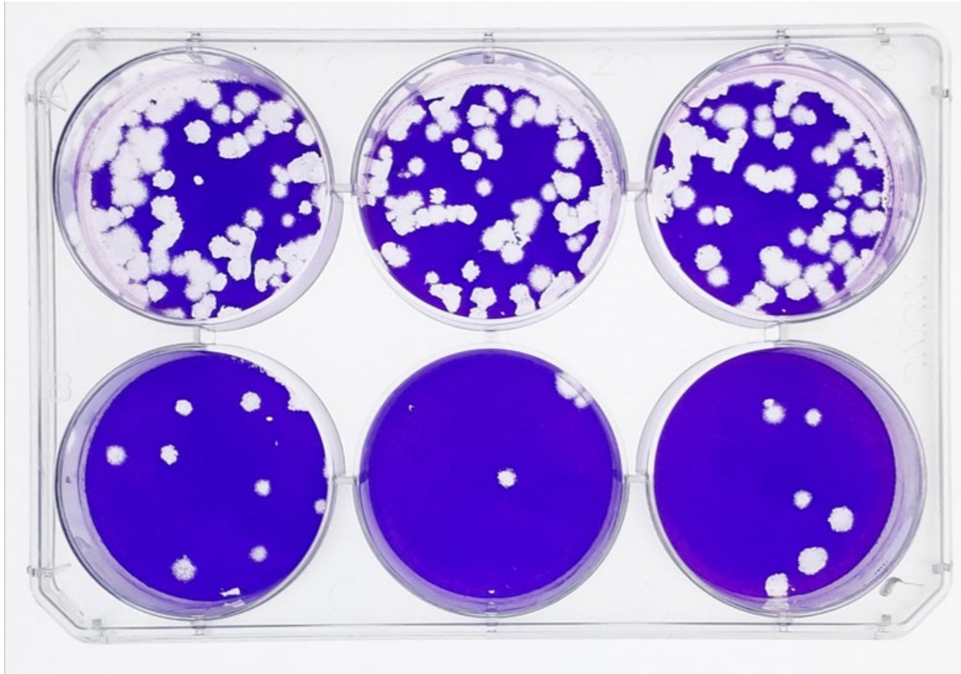
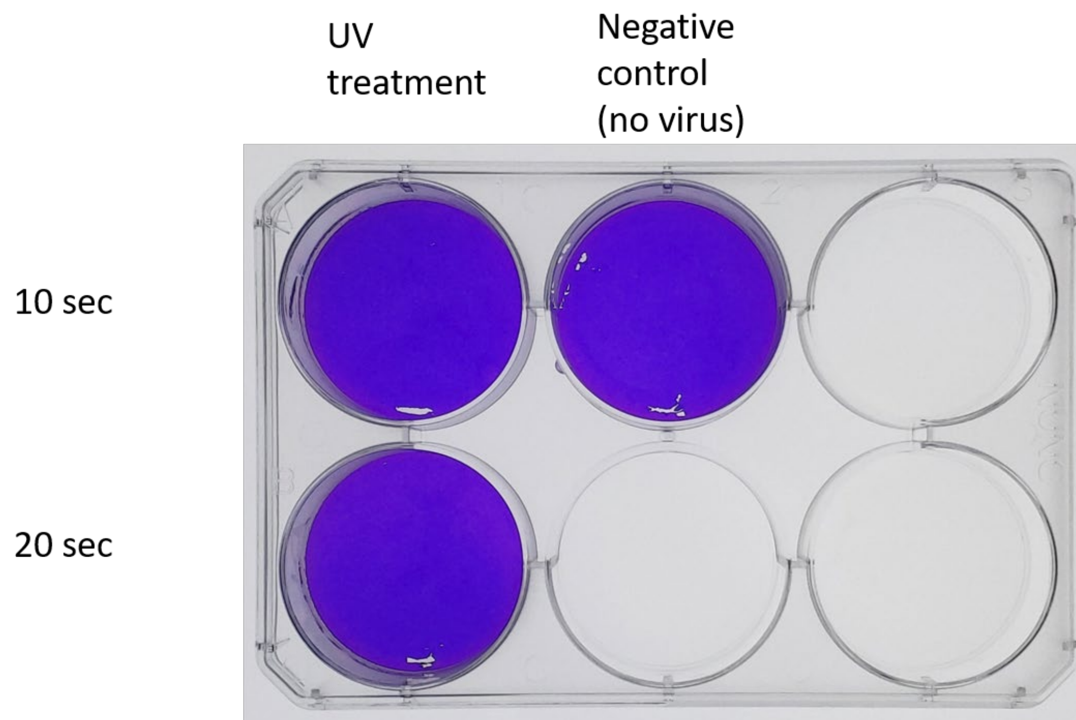


Figure 4. Plaque assay of untreated viral stock cultured in triplicates at $10^4$ dilution (top row) and $10^5$ dilution (bottom row). 300ul stock solution is added per well.




Figur 5. Plaque assay conducted with viral stock suspension exposed to UV treatment (UV BENCH). The suspension was diluted $10^2$ corresponding to $6 \times 10^3$ pfu/300 µL/well. No plaques could be detected.