HeiQ Viroblock

Sendai virus contact kill time testing

May 2020

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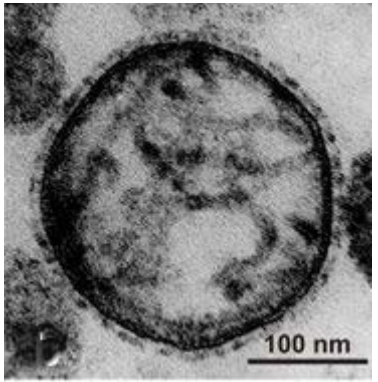
Method

Virus & quantification

- Sendai virus * (part of the *Paramyxoviridae* family) is an enveloped virus with a spherical shape of approx. 150 to 200 nm.
- Sendai virus can be readily grown in the laboratory using the chorioallantoic cavity of embryonated chicken eggs and also other established tissue culture cell lines.
- In the method described here a recombinant Sendai virus (rSeV-Luc) was modified with a firefly luciferase gene [1] to enable rapid quantitative evaluation of virus viability through expression of the fluorescent marker as an alternative to conventional plaque assay and TCID50 methods.



Electron microscope image of sendai virus [2]

* Also known as Murine respirovirus

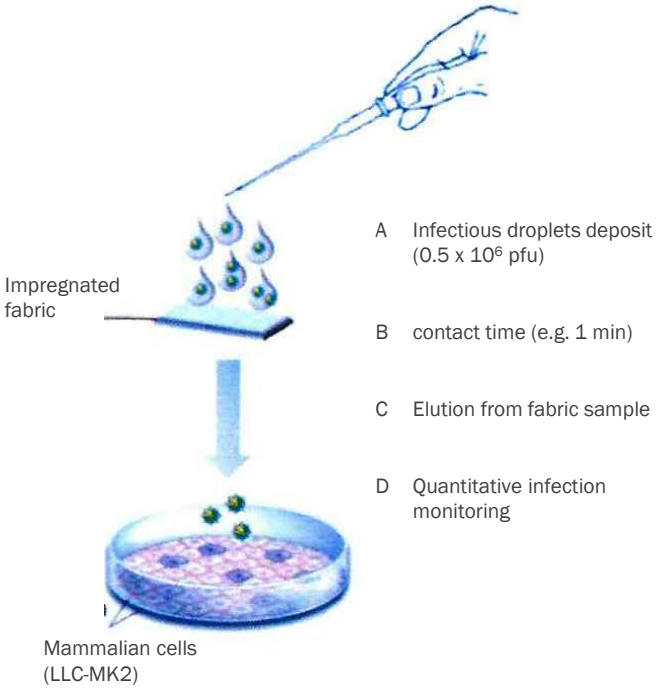
[1] Hasan, M.K., Kato, A., Shioda, T., Sakai, Y., Yu, D. and Nagai, Y., 1997. Creation of an infectious recombinant Sendai virus expressing the firefly luciferase gene from the 3'proximal first locus. Journal of General Virology, 78(11), pp.2813-2820.

[2] https://en.wikipedia.org/wiki/File:Electron_microscopy_of_Sendai_virus.png

Method

Textile test method

- The purpose of method is to evaluate the rate of kill for a treated textile against viruses
- An aliquot of luciferase modified Sendai virus (SeV-Luc) is added to the textile sample
- The aliquot is allowed to contact the fabric for a specified time (e.g. 1, 2, 5 or 10 minutes)
- After the exposure time the viral material is eluted* from the fabric sample and assayed quantitatively for presence of infectious virus.
- The eluate is directly applied onto LLC-MK2 cells for a 1-hour viral adsorption period at 33°C. DMEM is then removed, cells washed once and fresh DMEM is added to the cells which are then incubated for 24 hours at 37°C.
- DMEM is removed after the 24 hours, LLC-MK2 cells are lysed and total luciferase activity (indicating infectivity) is determined using the Steady-Glo® Luciferase Assay System (Promega) coupled to luminometer monitoring

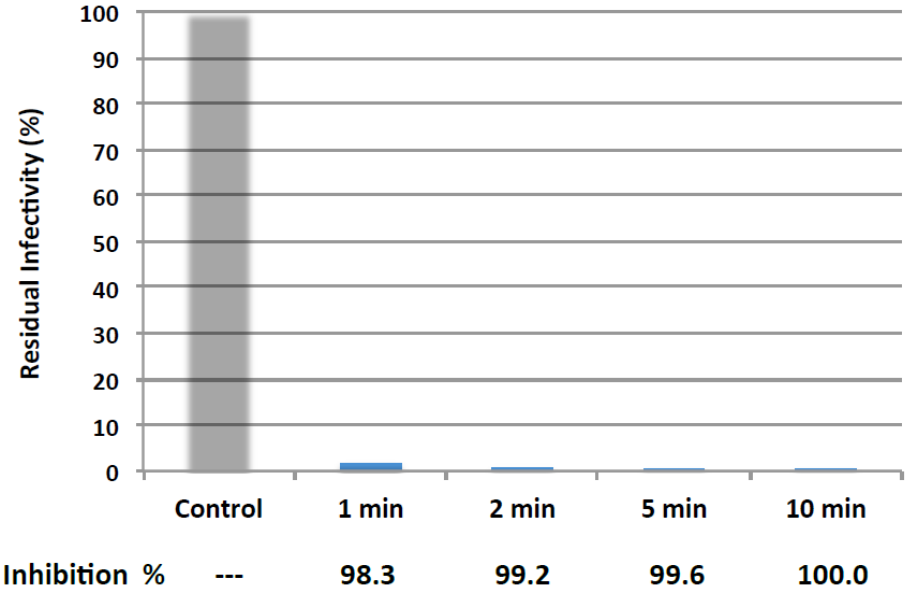


* Using Dulbecco's Modified Eagle's Medium (DMEM)

Results

- Non-woven fabric treated with HeiQ Viroblock
- Residual virus infectivity tested according to a modified AATCC 100 method (Sendai virus)

Sample	Non-woven treated with HeiQ Viroblock
Test virus	Sendai virus (SeV-Luc)
Method basis	Modified ISO 20743
Contact time	1, 2, 5 or 10 minutes
Elution process	2ml tissue culture medium
Host cells	LLC-MK2
Infection monitoring	Luciferase assay (24hr post-infection)



- Rapid anti-viral effect demonstrated within 2 to 5 minutes

Differentiate.
Innovate.

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