Institut Kesihatan dan Perubatan Komuniti
Institute of Health and Community Medicine

NOTE OF CERTIFICATION

DATE: 9 March 2020

This note serves to certify the following:

1. We have tested the solution ***Quantum-Ion*** under laboratory conditions and found that ***Quantum-Ion*** was 99.99% efficient in degrading the human coxsackievirus A6 (CVA-6) and viral RNA when exposed to direct contact with the virus.

Professor Dr David Perera
Director

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NOTE OF CERTIFICATION

DATE: 9 March 2020

This note serves to certify the following:

1. We have tested the solution ***Quantum-Ion*** under laboratory conditions and found that ***Quantum-Ion*** was 99.99% efficient in degrading the human coxsackievirus A16 (CVA-16) and viral RNA when exposed to direct contact with the virus.

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Final report: Evaluation of Quantum-Ion solution effects on Human enteroviruses CVA-6 and CVA-16

Experimental design

1. Experimental parameters:

Light source	White/visible light
Contact times	5, 60 minutes
Test virus	CVA-6, CVA-16
Virus infectious dose	10^5 pfu/ml

2. The following experimental conditions were evaluated in triplicate separately for both contact times:
   a) Virus + Solution II + white/visible light
   b) Virus + white/visible light
   c) Untreated positive control
   d) No virus (negative) control
3. All treatments were subjected to viral nucleotide extraction and a pan-Enterovirus RT-PCR assay (Romero & Rotbart, 1993) immediately after the exposure. The expected positive PCR product size is 154 bp.

Summary of pan-Enterovirus RT-PCR results

Virus	Experimental condition			
	Exposure: 5 min		Exposure: 60 min	
	Virus + Solution II + white/visible light	Virus + white/visible light	Virus + Solution II + white/visible light	Virus + white/visible light
CVA-6	Negative	Positive	Negative	Positive
CVA-16	Negative	Positive	Negative	Positive

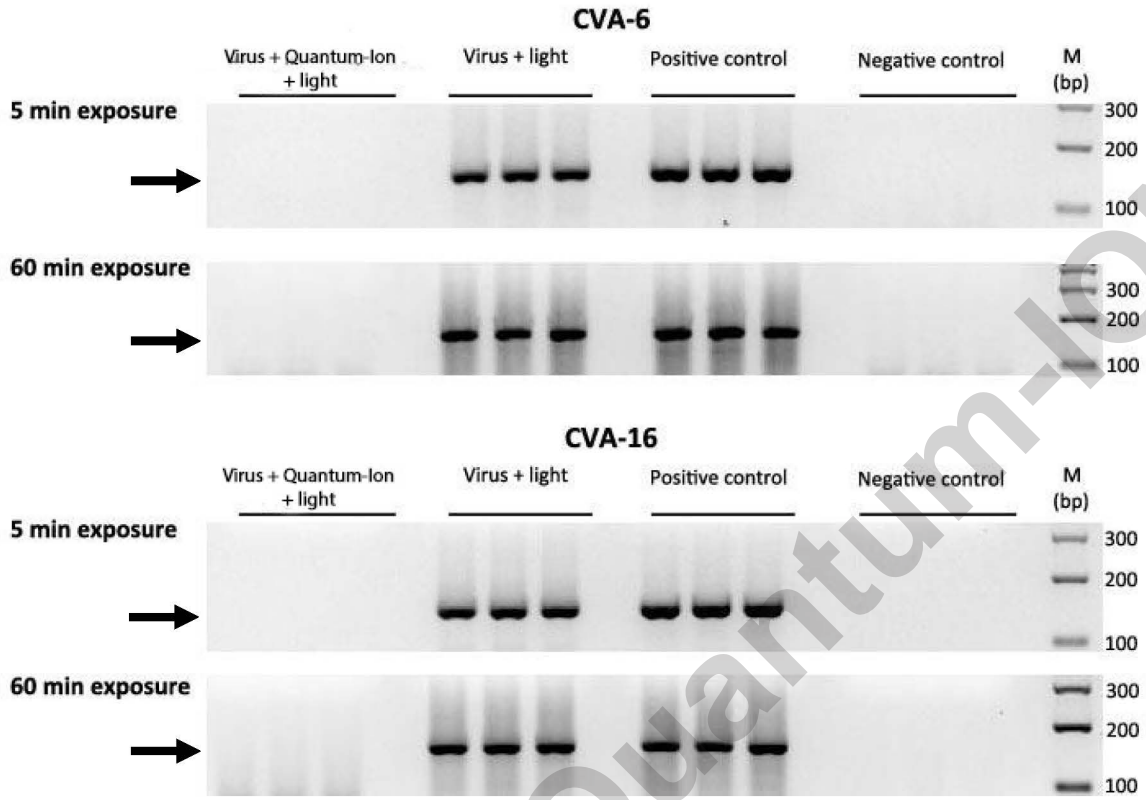
Conclusion

Quantum-Ion solution degrades CVA-6 and CVA-16 viruses and viral RNA under the experimental conditions evaluated.

References

1. Romero JR, Rotbart HA: PCR detection of the human enteroviruses. In *Diagnostic molecular microbiology: Principles and applications*. Edited by: Persing DH, Smith TF, Tenover FC and White TJ. Washington DC, American Society for Microbiology; 1993

Detailed results: Gel electrophoresis images



M, size marker. Arrow on the left denotes positive PCR amplicon

Report prepared by:

Date: 3 Mar 2020

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