
NOTE OF CERTIFICATION

DATE: 11 February 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 enterovirus A71 (EV-A71) and viral RNA when exposed to direct contact with the virus.



Professor Dr David Perera
Director



Final report: Evaluation of Quantum-Ion solution II

Experimental design

1. Experimental parameters:

Light source	White/visible light
Contact times	5, 60 minutes
Test virus	EV-A71
Virus infectious dose	10^5 pfu/ml

2. The following experimental conditions would be evaluated in triplicate separately for both contact times:

- Virus + Solution II + white/visible light [mixture ratio 3:1 (solution:virus, v/v)]
- Virus + white/visible light
- Untreated positive control
- No virus (negative) control

3. All treatments would be subjected to viral nucleotide extraction and RT-PCR (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
EV-A71	Negative	Positive	Negative	Positive

Conclusion

Quantum-Ion solution II degrades the virus and viral RNA under the experimental conditions evaluated.

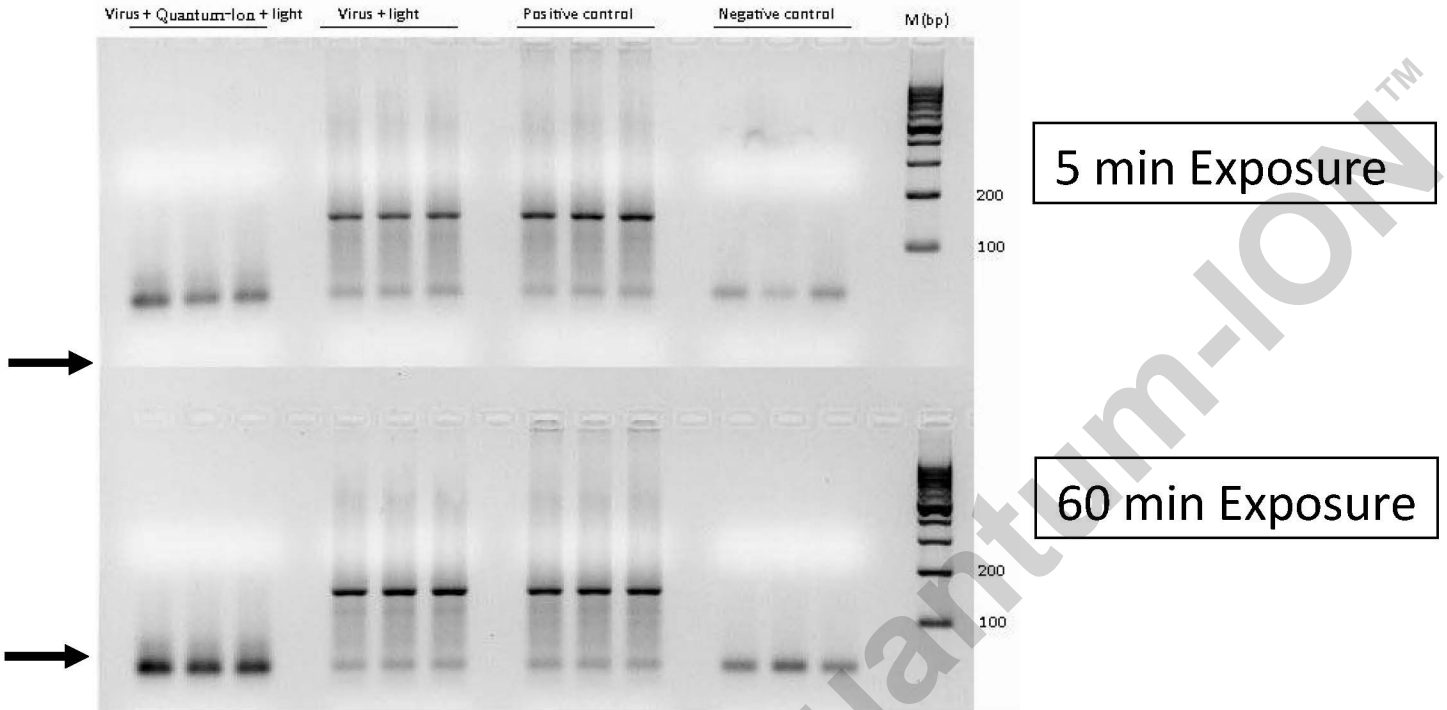
References

- 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

Date: 05 Feb 2020

Report prepared by:



Prof. Dr. David Perera
Director
Institute of Health & Community Medicine
Universiti Malaysia Sarawak

