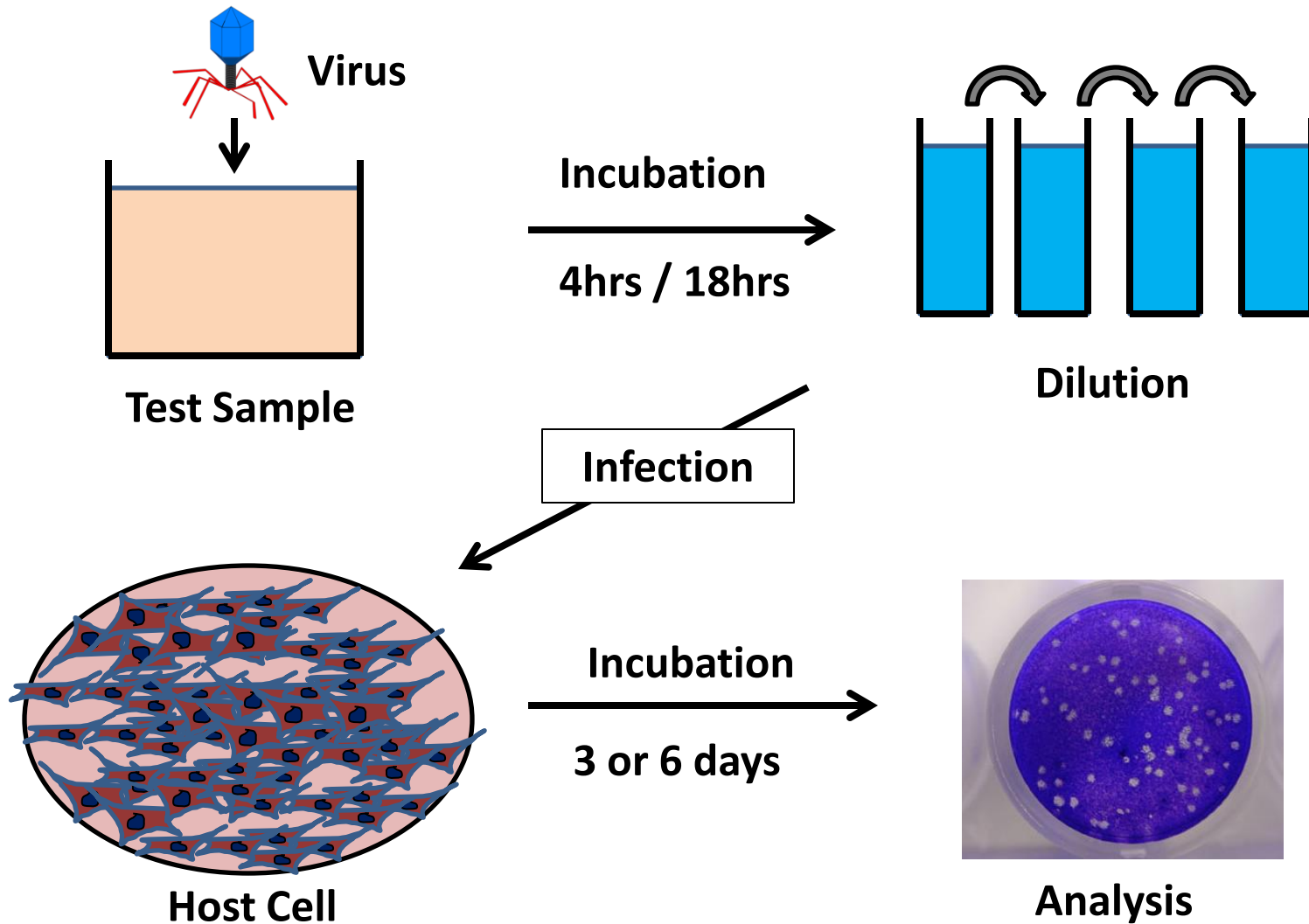




# Virucidal test

항바이러스, 살바이러스 효과 실험

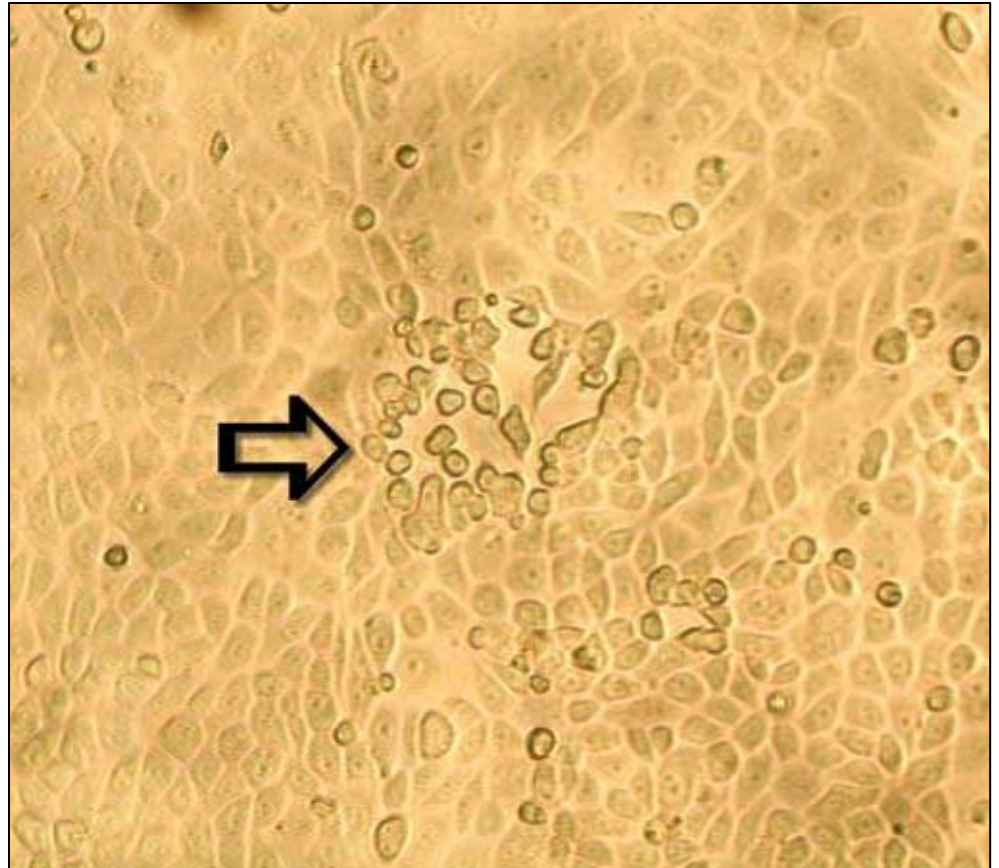
July 2017



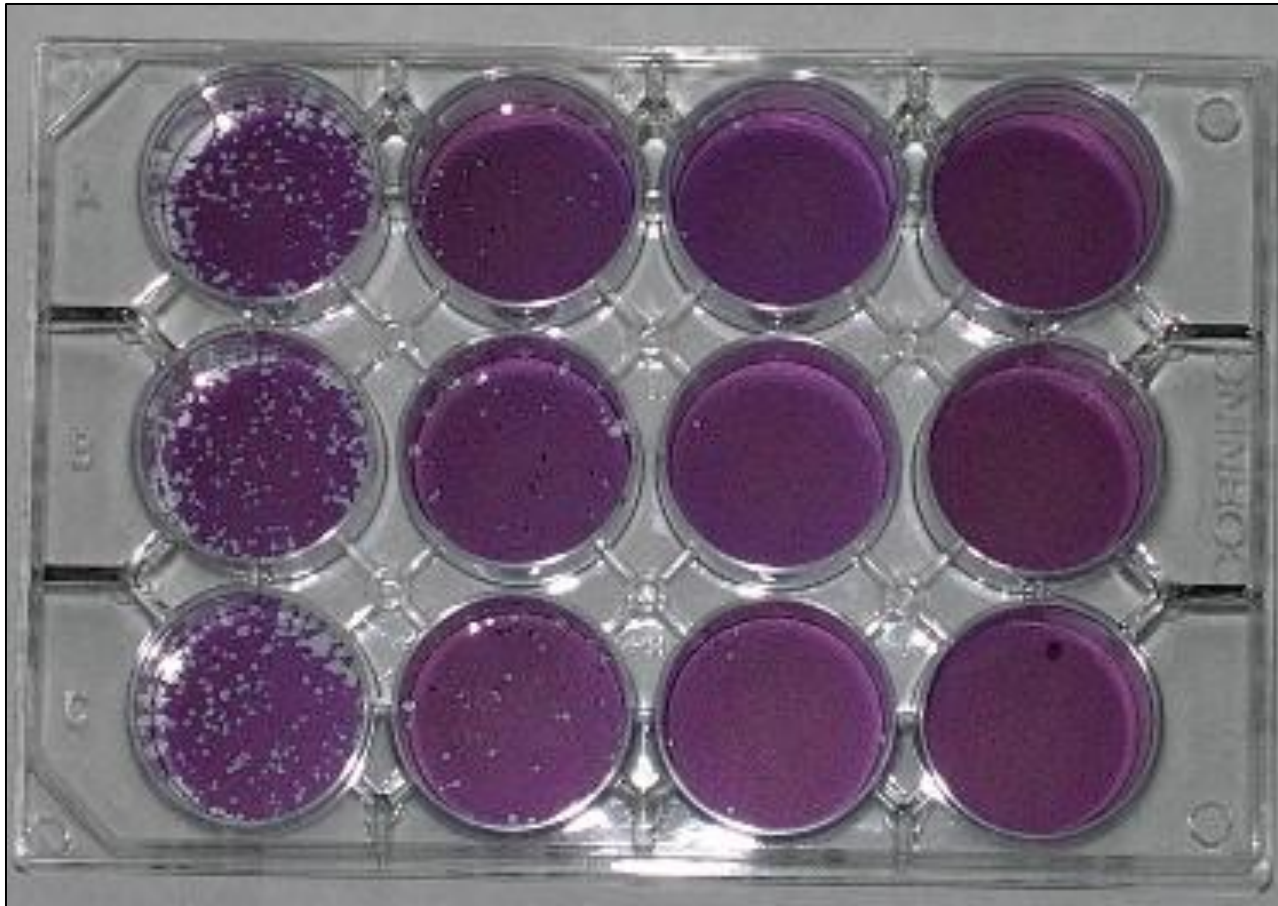
**The schematic procedure of virucidal test**

# Cytopathic Effect (CPE)

- Some viruses kill the cells in which they replicate, and infected cells may eventually detach from the cell culture plate.
- As more cells are infected, the changes become visible and are called cytopathic effects.



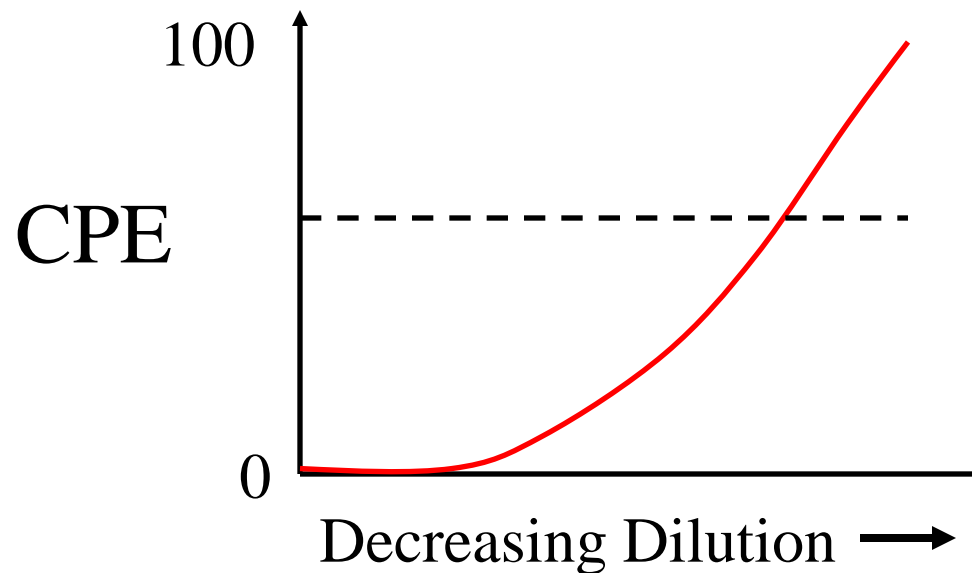
# Quantification of CPE



- Cell Culture Infectious Dose 50 (CCID<sub>50</sub>): a measure of virulence of virus

# CCID<sub>50</sub> Procedure

- Count wells exhibiting CPE
- Calculate using the dilution factors to get infection rates of zero to 100 percent



# Virucidal test

- 1) Virus:**
  - Zika (MR766 Uganda);**
  - Influenza A/Duck/MN/1525/81 (H5N1)**
- 2) Cells: MDCK cells for influenza and Vero 76 cells for Zika.**
- 3) Cytopathic effect (CPE) :**
  - on day 3 for H5N1 and day 6 for Zika virus.**
- 4) The Reed-Muench method :**
  - 50% cell culture infectious dose (CCID50)**
  - log reduction value (LRV)**

# Zika (MR766 Uganda)

**Table 1.** Virucidal efficacy of Puriton against Zika virus after 4 or 18 hrs liquid-liquid contact at  $22 \pm 2^{\circ}\text{C}$

	Contact time (hr)	90% Puriton	50% Puriton	70% Ethanol	Water
<sup>a</sup> CCID <sub>50</sub> per 100 $\mu\text{L}$	4	$0.7 \pm 0.0^{***}$	$0.7 \pm 0.0^{***}$	$0.8 \pm 0.2^{***}$	$5.0 \pm 0.00$
Log reduction value	4	>4.3	>4.3	4.2	n/a
<sup>a</sup> CCID <sub>50</sub> per 100 $\mu\text{L}$	18	<sup>b</sup> <0.7***	$0.7 \pm 0.0^{***}$	<sup>b</sup> <0.7***	$5.2 \pm 0.3$
Log reduction value	18	>4.5	4.5	>4.5	n/a

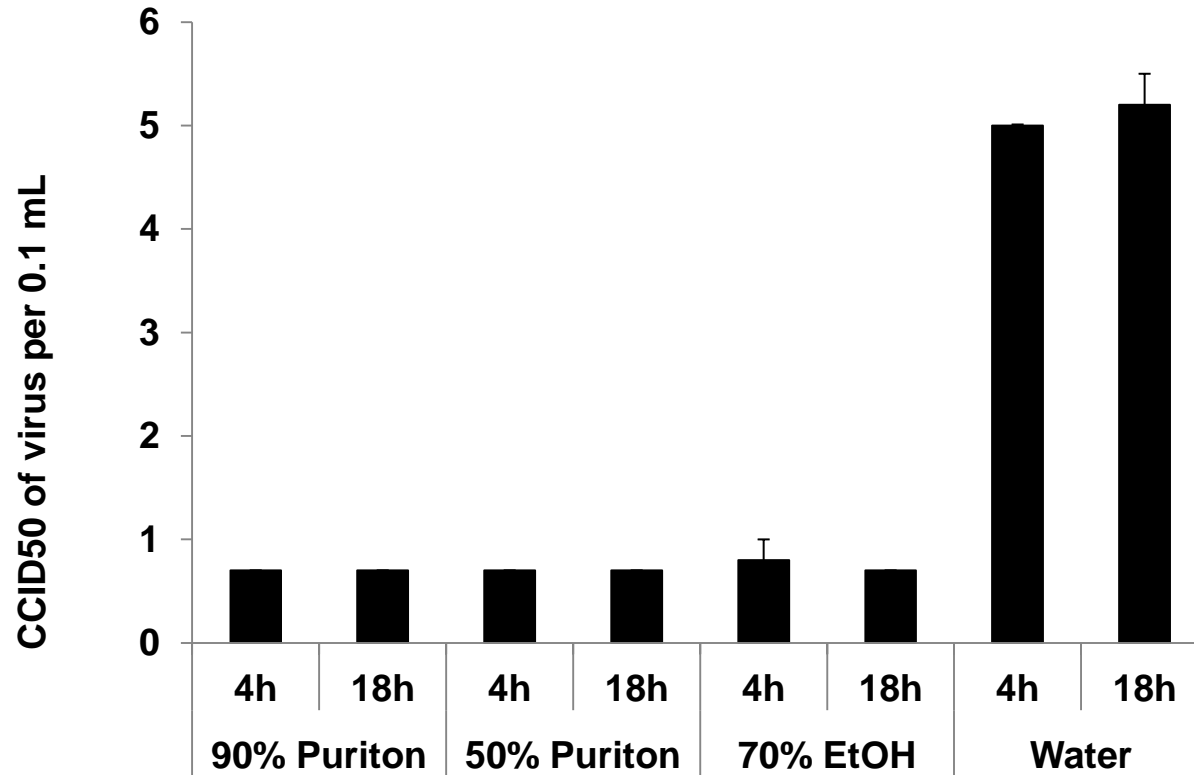
<sup>a</sup> Log<sub>10</sub> CCID<sub>50</sub> of virus per 0.1 mL, average of 3 replicates  $\pm$  standard deviation

<sup>b</sup> For statistical analysis “<” signs were ignored.

\*\*\*P < 0.001 by one-way ANOVA and Dunnett post-test compared with untreated virus control (water)

# Zika (MR766 Uganda)

## Zika virus





# Influenza A/Duck/MN/1525/81 (H5N1)

**Table 2.** Virucidal efficacy of Puriton against Influenza A(H5N1) virus after 4 or 18 hrs liquid-liquid contact at  $22 \pm 2^{\circ}\text{C}$

	Contact time (hr)	90% Puriton	50% Puriton	70% Ethanol	Water
<sup>a</sup> CCID <sub>50</sub> per 100 $\mu\text{L}$	4	<sup>b</sup> <0.7***	$1.9 \pm 0.5$ ***	<sup>b</sup> <0.7***	$4.5 \pm 0.2$
Log reduction value	4	>3.8	2.6	>3.8	n/a
<sup>a</sup> CCID <sub>50</sub> per 100 $\mu\text{L}$	18	<sup>b</sup> <0.7***	<0.7***	<sup>b</sup> <0.7***	$4.1 \pm 0.4$
Log reduction value	18	>3.4	>3.4	>3.4	n/a

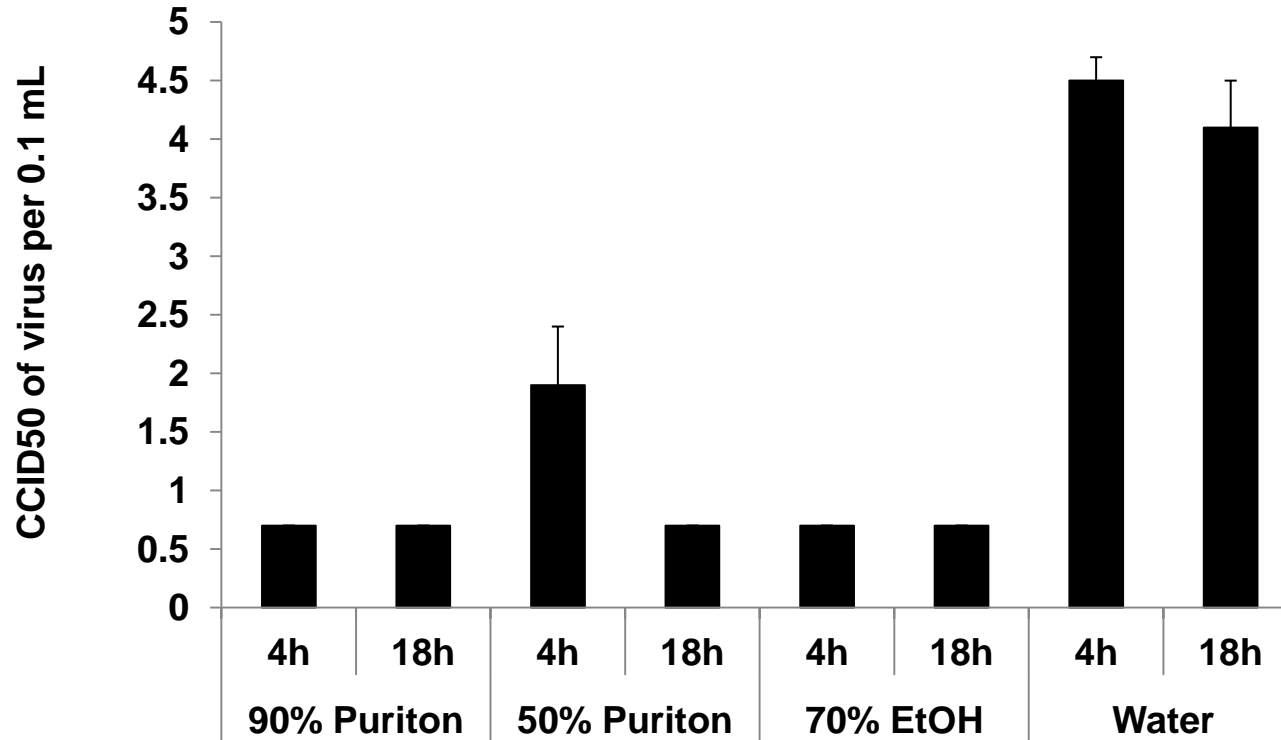
<sup>a</sup> Log<sub>10</sub> CCID<sub>50</sub> of virus per 0.1 mL, average of 3 replicates  $\pm$  standard deviation

<sup>b</sup> For statistical analysis “<” signs were ignored.

\*\*\*P < 0.001 by one-way ANOVA and Dunnett post-test compared with untreated virus control (water)

# Influenza A/Duck/MN/1525/81 (H5N1)

## Influenza A (H5N1) Virus



# Summary

- 1) Puriton 의 90% 와 50%에 지카 바이러스 (Zika virus)를 4시간, 18 시간 동안 Incubation 한 결과 모두에서 지카 바이러스를 죽이는 효과가 있음.
- 2) 조류 독감바이러스 (Influenza A (H5N1) 의 경우는 puriton 90% 에서 4시간, 18 시간 동안 Incubation 한 모두에서 바이러스를 죽이는 효과가 있음.
- 3) Puriton 50%에 조류 독감바이러스 (Influenza A (H5N1)를 18 시간 동안 둔 경우에도 바이러스를 죽이는 효과가 있음.
- 4) Puriton 50%에 조류 독감바이러스 를 4시간 둔 경우도 바이러스를 죽이는 효과가 있으나 18시간 동안 둔 경우보다 약간 작은 효과를 보임
- 5) Puriton은 지카 바이러스 (Zika virus)와 조류 독감바이러스(Influenza A (H5N1) 모두에 바이러스를 죽이는 효과가 있음.

**End**