

# Evaluation of the Copan flocced swab with UTM-RT medium for antigen detection of HSV, direct immunofluorescence of RSV and viral culture of HSV.

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## Objectives:

In this study, the nylon-flocced swab with UTM-RT medium (UTM, 395C), was compared with the Copan virus transport system (VTS, 147C) for viral culture of HSV-1. For antigen detection of HSV-1 and RSV the UTM was compared with the liquid Amies medium (eSwab, 480CE).

## Methods:

### Culture of HSV-1:

The UTM and VTS swab were inoculated with 100µL of a serially diluted PCR-confirmed HSV-1 positive culture and preserved respectively at room temperature or 4°C for 2 hours. The cell lines A549 and MRC-5 were inoculated and controlled daily for the cytopathogenic effect (CPE) of HSV-1. The serial dilutions were also directly used as growth control.

### Antigen detection of HSV-1 and RSV:

The UTM and eSwab were inoculated with 100µL of a serially diluted PCR-confirmed HSV-1 positive culture. A smear of the flocced swab immersed in the liquid medium was stained using standard procedures. Also, 500 µl of the cell suspensions of both swabs was centrifuged, washed and resuspended in PBS. Twenty microliters of this final suspension was stained using standard procedures.

## Results:

### Culture of HSV-1:

The MRC-5 and A549 cell lines inoculated with UTM swab showed a HSV specific CPE as soon as the positive control (Figure). The A549 cell line in combination with the UTM sample showed the best result also for the highest dilutions: after 6 days an obvious CPE of HSV was detected.

### Antigen detection of HSV-1 and RSV:

The concentrated cell suspension of both the UTM and eSwab used for antigen detection of HSV and RSV showed more positive cells and a stronger fluorescent signal as compared to the smears. In the later samples (even for the highest concentrations) hardly any positive cells could be detected. No significant differences were found between UTM and eSwab.

Figure 1: Time to positivity (TTP) of an HSV-1 culture on the A549 cell line

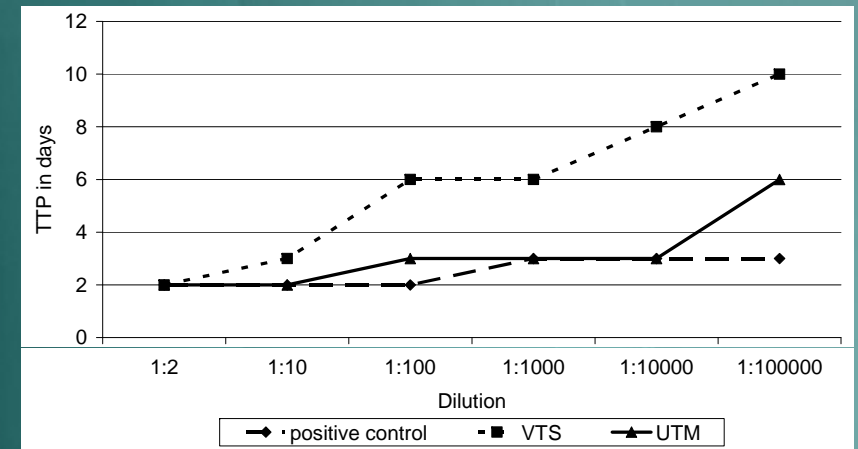
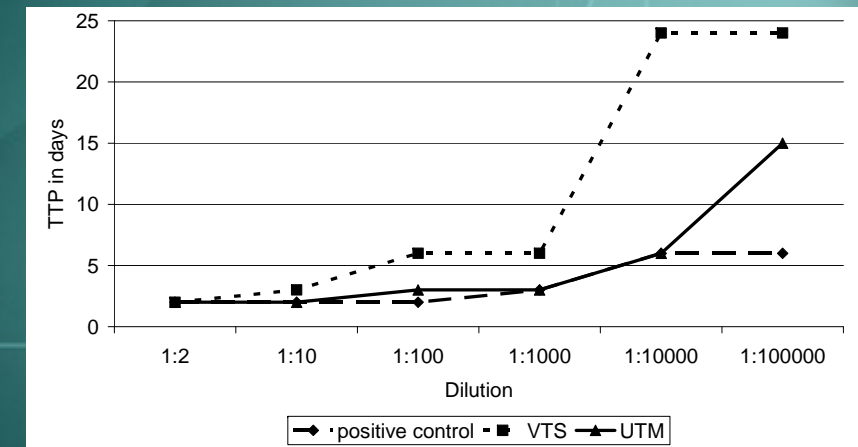


Figure 2: TTP of an HSV-1 culture on the MRC-5 cell line



## Conclusion:

- The use of the flocced swab with UTM-RT medium to collect samples for viral culture will enhance the sensitivity of viral culture for HSV-1.
  - The concentrated cell suspension showed more positive cells and a stronger fluorescent signal as compared to the smears.
- When no viral culture is requested, viral antigen detection of HSV and RSV should preferably be performed on eSwab medium.