

# COMPARISON OF PAPILOCHECK® (GREINER BIO-ONE) WITH THE HYBRID CAPTURE 2 (HC2, QIAGEN) AND AMPLICOR HPV TEST (ROCHE) FOR THE DETECTION OF HR-HPV IN GENITAL SAMPLES

Ben Vanmassenhove (1), Patrick Descheemaeker (2), Gudrun Alliet (1) (galliet@azdamaian.be)  
 (1) AZ Damiaan, Oostende; (2) AZ Sint-Jan, Brugge-Oostende, Belgium

## Background

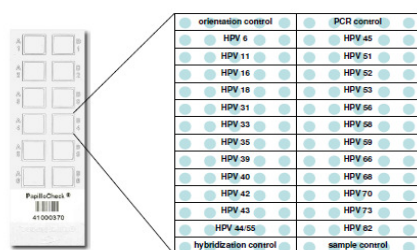
Persistent infection of the uterine cervix by the same type of high-risk human papillomavirus(es) (HR-HPV) is related with cervical cancer. Therefore it is not sufficient to detect HR-HPV in the cervical smear (HC2 and AMPLICOR HPV), but it becomes increasingly important to know which HR-HPV type(s) is/are present (PapilloCheck®). Furthermore not every HR-HPV type is equally carcinogenic.

## Aims

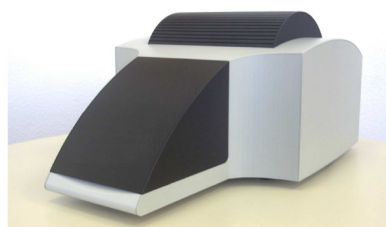
- To compare the agreement of HPV detection results obtained by using PapilloCheck®, AMPLICOR HPV Test and HC2.
- To assess the distribution of HPV types in our population.

## Material and methods

107 cervical samples collected in PreservCyt liquid media from patients with ASCUS, LSIL and HSIL were analysed by HC2. DNA was extracted using the MagNA Pure platform (Roche, DNA Isolation Kit I, High Performance protocol): 1 ml sample was first concentrated by centrifugation (20 min, 20 000 g). 800 µl supernatant was removed and the remaining 200 µl was used for extraction. Elution in 110 µl buffer. 5 µl DNA was used for the PapilloCheck® PCR and 50 µl for the AMPLICOR HPV Test.



**Fig. 1:** Layout of the PapilloCheck® DNA chip. Each of the 12 wells of a PapilloCheck® chip contains a microarray with 28 different probes arranged.



**Fig. 2:** The CheckScanner™ reads the PapilloCheck® DNA chip and the CheckReport™ software interprets the Signal to Noise Ratio (SNR) for each probe.

## Results

### Comparison of PapilloCheck® and HC2

	Positive HC2	Negative HC2	Total
Positive PapilloCheck®	31	2	33
Negative PapilloCheck®	4	67	71
Total	35	69	104*

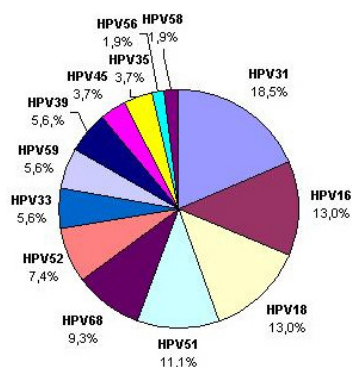
Agreement: 94,23%  
 Positive agreement: 88,57% - Negative agreement: 97,10%  
 Cohen's Kappa: 86,90% (76,7-97,1%)  
 \* 1 sample was excluded due to inhibition, 2 samples were excluded because HC2 gave a "gray zone" result.

### Comparison of PapilloCheck® and AMPLICOR Test

	Positive AMPLICOR HPV Test	Negative AMPLICOR HPV Test	Total
Positive PapilloCheck®	33	1	34
Negative PapilloCheck®	4	68	72
Total	37	69	106*

Agreement: 95,30%  
 Positive agreement: 89,19% - Negative agreement: 98,55%  
 Cohen's Kappa: 89,40% (80,4-95,3%)  
 \* 1 sample was excluded due to inhibition.

### Distribution of HPV types



- 13 different HR-HPV types were found: HPV31 (18,5%), HPV16/18 (each 13%), HPV51 (11,1%), HPV68 (9,3%), HPV52 (7,4%), HPV33/59/39 (each 5,6%), HPV45/35 (each 3,7%), HPV56/58 (each 1,9%).
- Multiple infections were present in 35% of the cases.
- 10 % of HR-HPV negative samples were positive for one or more LR-types.

## Conclusion

- There is a high agreement between PapilloCheck®, AMPLICOR HPV Test and HC2.
- PapilloCheck® can be used in the routine lab for typing en monitoring of High Risk HPV in cervical swabs.
- PapilloCheck® is an easy method with few hands-on time.