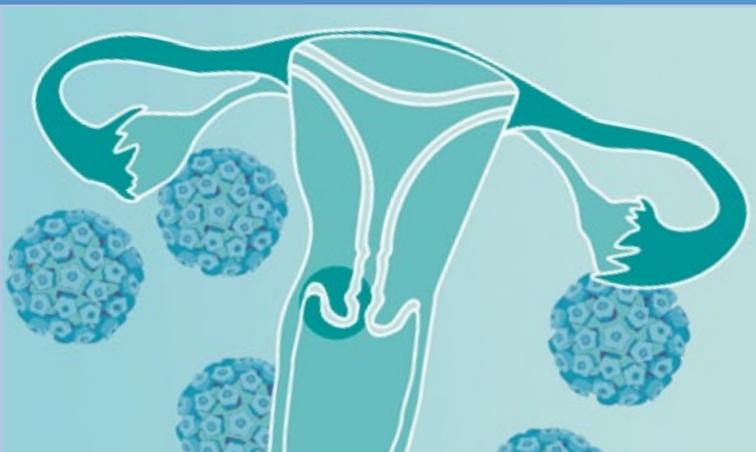
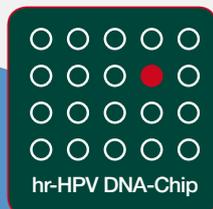
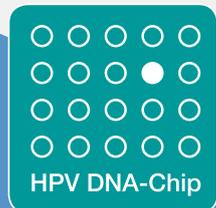


Laboratory
Information



Know for sure!

PapilloCheck[®] and PapilloCheck[®] high-risk HPV-Genotyping:
The Clear Edge in Early Detection
of Cervical Cancer.



PapilloCheck®			PapilloCheck® high-risk			
low-risk types		high-risk types			high-risk types	
6	11	16	18	31	16	18
40	42	33	35	39	31	33
43	44	45	51	52	35	39
		53	56	58	45	51
		59	66	68	52	56
		70	73	82	58	59
					66	68



PapilloCheck® HPV-Screening

Fast and reliable genotyping of up to 24 human papillomavirus types

Persistent infection with a carcinogenic human papillomavirus (HPV) is found in virtually all cases of cervical cancer¹⁻⁴. On the basis of the nearly absolute etiologic link between HPV and cervical cancer, testing for HPV is now considered in primary cervical cancer screening.

Cervical HPV types are classified into a high risk (hrHPV) and low risk (lrHPV) group, with respect to the risk of progression from mild dysplasia to cancer⁵. However, recent findings confirm that even within the high risk group, the relative risk for the development of cancer or cervical intraepithelial lesions (CIN) is dependent on the type. Therefore, it is important to have a fast and reliable diagnostic tool for the identification of HPV types in cervical samples to evaluate the risk potential of an HPV infection capable of triggering cervical cancer.

PapilloCheck® and PapilloCheck® high-risk are both microarray-based diagnostic tools for the simultaneous detection and identification of different panels of HPV types. The PapilloCheck® high-risk test kit is designed to meet the demands of primary cervical cancer screening by targeting 14 of the most carcinogenic hrHPV types. For screening strategies and applications where a wider spectrum of HPV types detectable is required, the approved PapilloCheck® is the perfect choice. PapilloCheck® is a test kit for the genotyping of 24 HPV types, including 18 hrHPV and 6 lrHPV types.

Due to the parallel identification of all types detectable, the PapilloCheck® result enables the characterisation of multiple infections, it can help to identify type-specific persistent HPV infections and it untangles the status of a patient in the course of HPV vaccination. Therefore, it has the potential to improve the classification of women according to their relative risk for developing cervical cancer and its high-grade precursor lesions.

Recently, PapilloCheck® was validated according international guidelines for HPV test requirements in cervical cancer screening and fulfilled demands regarding clinical sensitivity and specificity as well as reproducibility^{6,7}. Additionally, clinical studies confirm that PapilloCheck® is a robust HPV genotyping assay with the potential for high throughput of specimen in a clinical setting⁸.

PapilloCheck® guarantees

- Parallel detection and identification of human pathogenic HPV types
- Differentiation between single and multiple infections
- Classification according to the risk potential
- Integrated quality control system
- High clinical sensitivity and specificity
- Validated according international guidelines

¹ Zur Hausen H. (2002), Nat Rev Cancer, 2(5):342-50.

² Walboomers J. et al., (1999), J. Pathol. 189:12-19.

³ Bosch X. & Iftner T. (2005), NHSCSP Publication No. 22.

⁴ Burd EM. (2003), Clinical Microbiology Reviews, 16:1-17.

⁵ Muñoz et al., (2003), N. Engl. J Med, 348:518-527.

⁶ Meijer, C.J. et al. (2009), Int J Cancer. 124(3):516-20.

⁷ Hesselink, A.T. et al. (2010), J Clin Microbiol. 48(3):797-801.

⁸ Jones J. et al. (2009), J Clin Virol. 45(2): 100-4.

Working schedule for PapilloCheck®

HPV genotyping within 5 hours



1 Sample Collection

Cervical smear

Sample collection of cervical smears with the PapilloCheck® Collection Kit or other validated liquid based cytology (LBC) sample collection devices and media (not included).



2 DNA Extraction

Duration: 60 – 90 min

Extraction of viral and human genomic DNA from human cervical samples using the oCheck® DNA Extraction Kit or other validated manual or automated DNA extraction procedures (not included).



3 PCR

Duration: 185 min

A PCR reaction is used to amplify a fragment of the viral E1 gene. An implemented control system monitors the presence of human sample material. PCR carry-over contamination can be prevented by using the dUTP/ Uracil-DNA Glycosylase (UNG) system. All reagents for the PCR reaction are supplied with the kit except the enzymes (*Taq*-Polymerase, UNG).



4 Hybridisation

Duration: 15 min

Hybridisation and fluorescent labelling of PCR products is performed in a water vapour saturated atmosphere at room temperature, using the oCheck® Hybridisation Chamber (Cat.-No. 447 070). All reagents necessary are supplied with the kit.



Cat.-No.	465 060	505 060
Description	PapilloCheck® genotyping of 24 pathogenic HPV	PapilloCheck® high-risk genotyping of 14 carcinogenic hrHPV
Platform	HTA™Slide 12	HTA™Slide 12
Content	test kit for 60 reactions	test kit for 60 reactions



5 Washing

Duration: 2 min

Three rapid and stringent washing steps performed at room temperature and 50°C remove unbound DNA from the PapilloCheck® chip. All reagents necessary are supplied with the kit. For the convenient washing procedure the oCheck® Washboxes (Cat.-No. 447 020) are used.



6 Scanning

Duration: 10 min

The PapilloCheck® chip is scanned using the CheckScanner™ (Cat.-No. 862 070), a two-colour laser microarray scanner with excitation wavelengths of 532 nm and 635 nm. Functions of the scanner are monitored with the CheckScanner™ VerificationKit (Cat.-No. 862 030).



7 Evaluation

Duration: 5 min

The easy to use CheckReport™ Software (Cat.-No. 862 080 and 862 081/862 088) automatically evaluates all on-chip controls and HPV-specific signals and generates a HPV report. Results are converted into user-friendly graphics and tables.

Cat.-No.	465 075	515 070
Description	PapilloCheck® Collection Kit	oCheck® DNA Extraction Kit Single Column Preparation
Content	50 samples	50 preps



Fast and reliable genotyping of up to 24 types

At a glance: PapilloCheck® and PapilloCheck® high-risk

PapilloCheck® and PapilloCheck® **high-risk** are microarray-based assays for the detection and identification of up to 24 different HPV types in human cervical samples. Both tests are based on the detection and genotyping of a fragment of the viral E1 gene. After the extraction of viral and human genomic DNA from a cervical smear, a 350 bp fragment of the E1 gene is amplified in the presence of a set of HPV-specific primers by polymerase chain reaction (PCR). To avoid false negative results, a fragment of the human “house keeping gene” ADAT1 (Adenosine deaminase, tRNA-specific1) is amplified in the same reaction to monitor the presence of human sample material. In addition, the PapilloCheck® PCR MasterMixes contain dUTP. Consequently, potential carry-over contaminations from previous PCR reactions can be eliminated via UNG treatment.

The amplification products are then hybridised to the on-chip controls and HPV-specific DNA-probes attached to the DNA-chip surface. Every DNA-chip contains 12 DNA-microarrays allowing the simultaneous analysis of 12 cervical samples. During hybridisation, the bound DNA is also fluorescently labelled and unbound DNA is removed in the subsequent washing steps.

Finally, the PapilloCheck® DNA-chip is automatically scanned, analysed and evaluated using the CheckScanner™ and CheckReport™ Software, respectively.

Additional features of the innovative software allow automatic sample tracking, report generation and data collection. Scanning up to 4 DNA-chips enables a flexible throughput of up to 48 analyses in parallel.

The innovative design of the PapilloCheck® DNA-chip incorporates several control systems which monitor all critical steps of the assay and chip processing, e.g. DNA extraction, PCR and hybridisation, as well as spot homogeneity and printing quality. Thus, false negative and false positive results are virtually excluded rendering the analysis highly reliable.

PapilloCheck® and PapilloCheck® high-risk

- Complete kits with DNA-chips and solutions for HPV genotyping of 60 samples
- Simultaneous genotyping of either 14 or 24 different HPV types
- Comprehensive on-chip controls
- Automatic scanning, evaluation, data collection and report generation with the CheckScanner™ and CheckReport™ Software
- Validated according international guidelines for HPV test requirements in cervical cancer screening
- In the EU certified in-vitro diagnostic (CE-IVD)



For further information, please visit our website www.gbo.com/bioscience or contact us:

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