AstraArt HPV (14 Strains) qPCR Kit

PRINCIPLE

AstraArt HPV (14 Strains) qPCR Kit is a real-time polymerase chain reaction assay for the qualitative detection of high-risk human papillomavirus (HPV) DNA (HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68) and identification of HPV 16,18,45 types in the biological sample. The assay is a combination of the latest advanced buffer chemistry, PCR enhancers and stabilizers along with hot-start Taq polymerase, dNTPs and MgCl2. This assay has been designed for highly reproducible, accurate results in the presence of inhibitors, making it ideal for detection of lowest copy numbers of HPV DNA.
Nucleic acid obtained from samples collected will be amplified with primer probe designed towards **Early Protein Gene of Target DNA and EIC control gene.**

PACKAGE CONTENTS

Description	Specification	Quantity 100 tests
qPCR Master Mix	qPCR amplification Mix	1000$\mu\ell$ x 1 tube
Primer Mix	Target specific Primer Probe mix	1000$\mu\ell$ x 1 tube
Positive Control (PC)	Positive Control	500$\mu\ell$ x 1tube
Negative control (NC)	No Template Control	1000$\mu\ell$ x 1 tube
Catalogue Number	AG/HPV/24/01	

STORAGE &STABILITY

- All the reagents should be stored at -20 ℃. Use the reagents within 30 days once opened.
- Completely thaw the reagents before use. Avoid repeated freeze/thaw cycles for reagents.

SAMPLE REQUIREMENTS

- Specimens collected for HPV DNA investigation should be refrigerated (2 to 8°C) or frozen (-20°C or lower) within one hour after collection.
- If transport exceeds 7 days for the sample to be tested, specimens should be stored at -20°C or lower.
- Longer term specimen storage (>60 days from collection) is recommended at -70°C
- It is ideal to carry out extraction protocol with fresh samples.
- Repeated freezing and thawing should be avoided.
- Transport the specimens at a temperature between 2 to 8°C.

SAMPLE COLLECTION

- Biological samples can be collected.
- Follow universal precautions. All specimens should be considered as potentially infectious and handled accordingly.
- Ensure that a suitable lab coat, disposable gloves and protective goggles are worn when handling specimens and kit reagents.

ASSAY PROCEDURE:

Nucleic acid is isolated from the sample using Nucleic acid extraction system and is amplified using the AstraArt HPV (14 Strains) qPCR Kit on the Real-time PCR Instrument system. In the process, the probe anneals a specific target sequence located between the forward and reverse primers. During the extension phase of the PCR cycle, the 5' nuclease activity of Taq polymerase degrades the probe, causing the reporter dye to separate from the quencher dye, generating a fluorescent signal. With each cycle, additional reporter dye molecules are cleaved from their respective probes, increasing the fluorescence intensity. Fluorescence intensity is monitored at each PCR cycle by the Real-time PCR Instrument system.

a. Preparation of Real-time PCR reagents: Briefly Centrifuge all the reagents. Prepare the reagents according to the table below. The final volume is calculated by multiplying the number of samples by the volume of each component in Table 1 accordingly.

Table 1: Components of Master mix:

Components	
qPCR Master Mix	10$\mu\ell$
Primer Mix	10$\mu\ell$
Total Volume	**20$\mu\ell$**

b. Mix the reaction master mix and spin-down briefly. Aliquot 20$\mu\ell$ of the master mix into each well of 96-well plate and add 10$\mu\ell$ of the sample DNA/Negative control/Positive control accordingly. Seal the plate and spin-down briefly. Run the Protocol immediately on the Real-time PCR instrument with following cycling conditions in Table 2.

Table 2: Cycling Conditions:

Steps	Temperature °C	Time	Cycle
1	95	15 minutes	**1**
2	95	5 seconds	**5**
3	63	10 seconds	
4	67	10 seconds	
5	95	5 seconds	**40**
6	63*	10 seconds	
7	67	10 seconds	
DNA of HPV 16 in HEX/VIC/Yellow channel, HPV 18 – ROX/Orange channel, HPV 31, 33, 35, 39, 51, 52, 56, 58, 59, 66, 68 – Cy5/Red channel, HPV 45 – Cy5.5/Crimson channel, Endogenous Internal Control (EIC) – FAM/Green channel. *Fluorescence measured at 63° C.			

Note: Please select "None" in both Passive reference and Quencher.

c. Interpretation of Results:

Interpret the values for unknown samples based on the observations as described in the following table. ≤38 Ct of unknown samples should be considered for result interpretation. The lower limit of detection (LOD) of AstraArt HPV (14 Strains) qPCR Kit is defined as 5 copies/reaction.

Table 3: Evaluation of control point analysis results:

Checkpoint	Controlled Analysis stage	The value of "Ct" by	
		FAM/Green	HEX/VIC/Yellow, ROX/Orange, Cy5/Red, Cy5.5/Crimson
NEC	DNA extraction	+/–	–
NC	PCR	–	–
PC	PCR	+	+

Table 4: Conclusion:

Sample result	The value of "Ct" by				
	FAM/Green (EIC)	HEX/VIC/Yellow	ROX/Orange	Cy5/Red	Cy5.5/Crimson
HPV 16 Positive	+/–	+	+/–	+/–	+/–
HPV 18 Positive	+/–	+/–	+	+/–	+/–
HPV 31, 33, 35, 39, 51, 52, 56, 58, 59, 66, 68 Positive	+/–	+/–	+/–	+	+/–
HPV 45 Positive	+/–	+/–	+/–	+/–	+
Negative	+	–	–	–	–
Invalid	–	–	–	–	–

LIMITATION OF THE PROCEDURE:

1. AstraArt HPV (14 Strains) qPCR Kit is used for qualitative detection of HPV DNA from specimens.
2. The specimen to be tested shall be collected, processed, stored, and transported in accordance with the conditions specified in the instructions. Inappropriate specimen preparation and operation may lead to inaccurate results.
3. Extraction and amplification of nucleic acid from samples must be performed according to the specified methods listed in this procedure.
4. The kit has been validated for the following Real-Time PCR instruments: CFX96™ Deep Well Real-Time PCR Detection System (Bio-Rad), CFX96™ Deep Well Dx System (Bio-Rad), CFX96™ Real-Time PCR Detection System (BioRad), CFX96™ Dx System (Bio-Rad), CFX96 Touch Real-Time PCR Detection System (Bio-Rad), QuantStudio Real-Time PCR system (Applied Biosystems).

WARNING & PRECAUTIONS:

- Do not use the product if there is evidence of leakage.
- Adhere to standard procedures and published protocols for sample collection, processing, and disposal.

SYMBOLS:


Do not use if package is damaged


CE mark of Conformity


Refer to the instructions

ISO

GMP

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