User Guide

Qexp-Aqua Shrimp 4-Disease Detection Kit – Multi 2

(HPV, MBV, IHHNV, DIV)

Research Use Only

A. Sample Collection and Lysis

Determine the appropriate sampling method based on the shrimp sizes specified in the provided table:

Shrimp size	Sampling Type	Sampling Count
< 1cm	Whole shrimp	3 shrimp
1cm-2cm	Shrimp head	3 shrimp head
2cm-5cm	Hepatopancreas	1 hepatopancreas
5cm-10cm	Hepatopancreas	½ hepatopancreas
>10cm	Hepatopancreas	¼ hepatopancreas

Hepatopancreas Sample:

1. Carefully extract the hepatopancreas (HP) from the shrimp using tweezers and place it into a 1.5 mL tube.
2. Homogenize the tissue with a grinding rod*.
3. Take a new 0.2 mL PCR tube and add 90 µL of DNA Lysis Buffer.
4. Transfer 3 µL of the homogenized HP tissue into the PCR tube and mix the lysate by pipetting.
5. Incubate the lysate at 95°C for 15 minutes, then cool it to room temperature.
6. Transfer 10 µL lysate into a new PCR tube, add 90 µL nuclease-free water, and gently mix by vortex or pipetting **(0.1X lysate sample)**.

*You could also use an alternate tool to grind the tissue and release the nucleic acid.

Shrimp Larvae Sample:

1. Take 3 shrimp larvae (<1 cm) or shrimp heads (1-2 cm) into a 1.5 mL tube.
2. Homogenize the shrimp larvae with a grinding rod*.
3. Add 400 µL of DNA Lysis Buffer into the tube and rinse the grinding rod*.
4. Mix lysate by pipetting, then transfer 90 µL lysate into a 0.2 mL PCR tube.
5. Incubate the lysate at 95°C for 15 minutes, then cool it to room temperature.
6. Transfer 10 µL lysate to a new PCR tube, add 90 µL nuclease-free water, and gently mix by vortex or pipetting **(0.1X lysate sample)**.

*You could also use an alternate tool to grind the tissue and release the nucleic acid.

B. Direct PCR Mix Preparation

1. Prepare Direct PCR Mix reagents as shown in the table below:

Component	Volume per sample (µL)	Volume for n samples plus 2 controls (µL)
Primer Mix-Multi 2	12	12 x (n+2)
Direct PCR PreMix	15	15 x (n+2)
TOTAL (µL)	27	27 x (n +2)

2. Transfer 27 µL Direct PCR Mix into each of the 0.2 mL PCR tubes after mixing it gently.

C. **PCR Process**

1. Add samples as shown in the table below:

Component	Volume per reaction		
	NTC	Positive control	sample
Direct PCR Mix	27	27	27
Nuclease-free water	3	-	-
Positive control	-	3	-
0.1X lysate sample	-	-	3
TOTAL (µL)	30	30	30

D. **PCR Program Set-up**

Step	Number of cycles	Temperature (℃)	Time
Activation	1	95	10 minutes
Denaturation	40	95	20 seconds
Annealing		62	20 seconds
Extension		72	25 seconds
Final Extension	1	72	5 minutes
Hold	1	14	hold

E. **Analysis and Results**

Using BiOptic *Qsep* series Bio-Fragment Analyzers to analyze the PCR amplicons under the conditions specified in the following table:

Cartridge	Method	Alignment Marker
S2	M-4-10-08-160	20-1K

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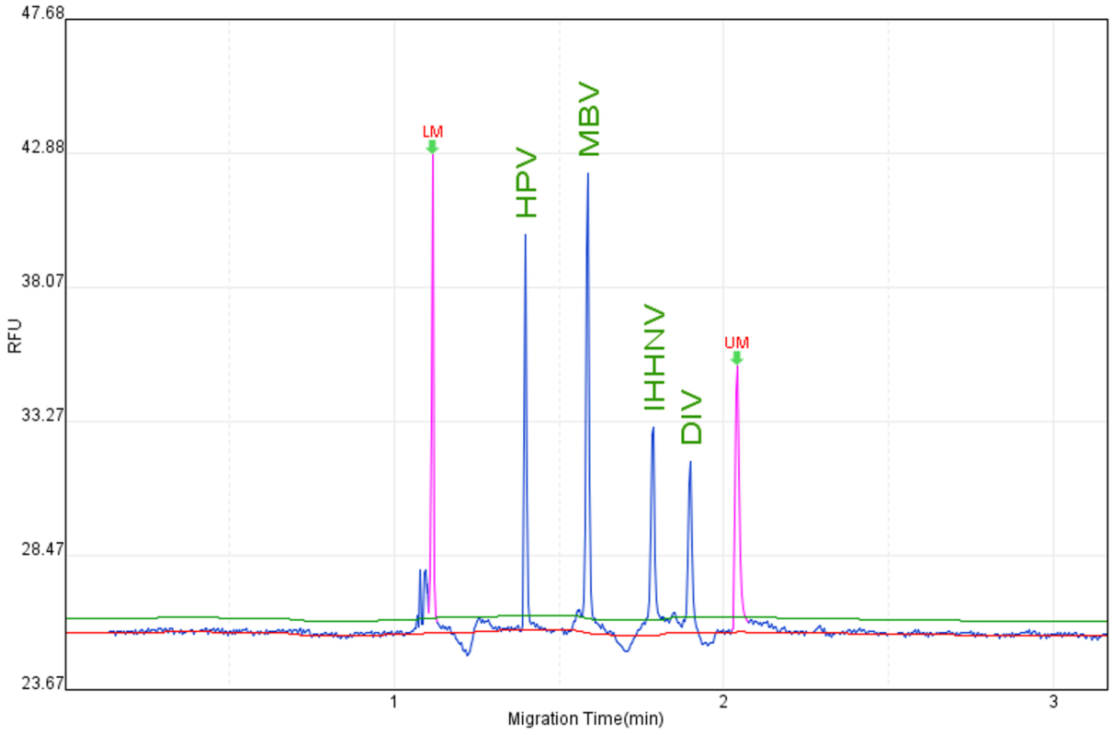
. The result is shown below:

	HPV	MBV	IHHNV	DIV
Target size	140 bps	230 bps	336 bps	457 bps