Kit Part No: ASAY-ASY-0500

IT 1-2-3™ VIBE

Sample Purification Kit

Instruction Booklet

BIOFIRE DEFENSE

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IT *1-2-3*™ VIBE Sample Preparation Kit Instruction Booklet
Printed in the United States of America

ASAY-PRT-0511-05, 05/17

Contents

Abbreviations and Acronyms

BFDf	BioFire Defense
BMBL	Biosafety in Microbiological and Biomedical laboratories
BW	Biological Warfare
C	Celsius
DFU	Dry Filter Unit
DHHS	Department of Health and Human Services
DNA	Deoxyribonucleic acid
g	Gravity (= RCF)
LOD	Limit of Detection
mL	Milliliter
MSDS	Material Safety Data Sheet
PBS	Phosphate-buffered saline
RCF	Relative Centrifugal Force (= g)
RNA	Ribonucleic acid
µL	Microliter (0.000001 Liters)
VTM	Viral transport media

General Safety Precautions

Laboratory Procedures and Precautions

- To avoid contamination, we recommend using filter tips on pipettes when working with any liquid solution.
- A biosafety cabinet should be used when a potentially infectious material is used in procedures where there is potential for creating aerosols or splashes.
- When working with potentially harmful samples or chemicals, always wear the appropriate personal protective equipment (lab coat, gloves, and eye protection).
- Avoid exposure to any potentially infectious samples or harmful chemicals. Exposure can occur by inhalation, ingestion or skin absorption.
- For more information on kit components consult the appropriate MSDS provided by BioFire Defense.

Precautions

For general biosafety guidelines refer to *Biosafety in Microbiological and Biomedical laboratories (BMBL) 4th Edition*, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Institutes of Health, May 1999. Available from http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm

Handling of Biohazard Wastes

Use universal precautions when handling human blood and body fluids. Dispose of used reagent vials in accordance with good laboratory practices. Before disposal, waste from possible biohazardous samples should be inactivated using appropriate procedures.

For more information refer to DHHS (NIOSH) Publication No. 88-119 *Guidelines for Protecting the Safety and Health of Health Care Workers* (section 6, Hazardous Waste Disposal).

Introduction

IT *1-2-3* Sample Purification Kits

For a complete overview of matrices and kits, see the table at the end of this booklet.

BioFire Defense offers these other kits for purification of DNA and RNA:

- **IT 1-2-3 Platinum Path Sample Purification Kit**
  for magnetic bead purification of biological, environmental, and food samples
- **IT 1-2-3 FLOW Sample Purification Kits**
  for purification of blood, air, water, and food samples
- **IT 1-2-3 SWIPE Sample Purification Kit**
  for purification of nasal/pus and surface swabs, lymph node aspirates, live culture and powder samples
- **IT 1-2-3 SCOOP Sample Purification Kit**
  for purification of stool and soil samples
- **IT 1-2-3 VIBE Sample Purification Kit**
  for purification of sputum samples and RNA from blood, nasal, and throat swab samples
- **IT 1-2-3 DNA Sample Purification Kit**
  for purification of surface swab, powder, culture, and water/PBS samples

All kits contain protocols that are performed manually and have been simplified and clearly defined to reduce the risk of operator error. They have been designed to purify samples for analysis with BioFire Defense's R.A.P.I.D.® and JBAIDS detection systems.

The IT 1-2-3 SWIPE Kit is an upgraded version of the IT 1-2-3 RAPID DNA Purification Kit.

Purifying DNA or RNA

DNA and RNA are present in bacterial or viral pathogens that can be found in biological, environmental, or food samples. Such samples include nasal, nasopharyngeal, and environmental swabs; water; blood, etc. There are many inhibitors present in some samples that need to be removed with purification protocols for downstream sample analysis. Inhibitors include cellular debris, chemicals, enzymes, and other naturally occurring inhibitors that either degrade DNA or RNA or hinder downstream analysis. DNA and RNA extraction and purification from a complex sample is usually necessary before identification and/or quantification steps can be successfully performed. The protocols in this kit employ the steps described below.

Sample Purification involves four steps:

1. DNA/RNA is **Extracted** from the sample (e.g., cells or spores) through lysis. This is achieved by physical agitation and chemical disruption of the cells with bead-beating or heat (heat is adequate for RNA viruses).
2. DNA/RNA is **Bound** and concentrated on the filter (i.e., **Buffer 1**).
3. The DNA/RNA on the filter is **Washed** to remove inhibitors (i.e., **Buffer 2**).
4. The DNA/RNA is **Eluted** from the filter (i.e., **Buffer 3**).

Other steps are often added to increase total DNA/RNA recovered from various sample matrices. For example, a **protease** step is added to the blood protocol to break down unwanted proteins.

Inhibition Controls

Inhibition controls included in a test ensure that a given sample does not inhibit the downstream analysis and that a negative result is real. The Troubleshooting section describes what to do if an inhibition control shows that a sample is inhibited. Contact BFDf to see if inhibition controls are available for your assay.

Sample Purification Procedures

IT *1-2-3* VIBE Sample Purification Kit For Blood, Sputum, Nasal Swabs, and Nasopharyngeal and Throat Swabs

This kit and protocols are designed to purify deoxyribonucleic acids (DNA) or ribonucleic acids (RNA) present in the following matrices:

Sample		DNA protocol	RNA protocol
Biological	Blood		X
	Nasal swab		X
	Nasopharyngeal and throat swab		X
	Sputum	X	X

Approximate time to process up to 12 samples is 1–2 hours. Ambient temperature is defined as 18–30ºC.

Optimal Protocol Definition

Protocols with this symbol were optimized and verified for the detection of pathogens at low levels with the R.A.P.I.D. and JBAIDS detection systems.

Alternative Protocol Definition

Alternative protocols or tips given with this symbol have been tested, but not optimized, to add more flexibility for users. These protocols may not remove all inhibitors and may not achieve desired sensitivity.

Equipment Required

- Microcentrifuge capable of spinning 1.5 mL tubes 7,200–16,000 x *g* (RCF)
- Disruptor Genie® (SI-D237) or Vortex-Genie® 2T (SI-T236) with TurboMix™ attachment plus adapter for 2.0 mL tubes (SI-0562) (Scientific Industries).
- Pipettors (Required range: 20–800 µL) and tips
- Heat block for 1.5 mL tubes
- Refrigerator (2–8ºC) and freezer (non-frost-free, -20ºC)
- Centrifuge capable of spinning blood tubes 1,500 x *g* in a swinging-bucket rotor

IT *1-2-3* VIBE Kit Contents

- Small Dry Bead Tubes with beads (40)
- Small Spin Filters (40)
- Small Receiver Tubes (120)
- Small Transfer Pipets (for measuring 450 µL) (120)
- **Buffer 1A** (Binding Buffer, First Component)
- **Buffer 1B** (Binding Buffer, Second Component)
- **Buffer 1C** (Modified Wash Buffer)
- **Buffer 2** (Wash Buffer)
- **Buffer 3** (Elution Buffer)
- **VIBE Protease**, **to be stored at 2–8°C**. Protease is shipped separately.
- VIBE Instruction Booklet

Additional Items Needed

- **Carrier RNA,** provided in the IT *1-2-3* RNA Module (BFDf Part Number ASAY-ASY-0501)

For optional sputum pretreatment (see “Sputum Pretreatment” section)

- Snap n’ Digest™ (Scientific Device Laboratory #667)

Whole Blood Protocol (RNA)

This protocol is designed to purify RNA from viral pathogens present in whole blood. (The IT *1-2-3* FLOW Kit contains a protocol to purify DNA from bacteria and viruses in whole blood.) **Acceptable sample:** At least 2 mL whole blood collected with EDTA anti-coagulant, or 400 µL plasma, appropriately stored according to laboratory blood sample procedures (or at 2–8°C).

Spin whole blood to plasma:

A. Centrifuge at least 2 mL whole blood for 10 minutes at 1,500 x *g*.
B. Remove 400 µL plasma with a pipettor from the clear top layer of the spun blood.

Preparation:

1. Add 400 µL plasma to a small dry bead tube with a pipettor. Label the tube.
2. Use pipettor to add 600 µL **Buffer 1A** to the same small dry bead tube.
3. Use pipettor to add 20 µL **VIBE Protease** to the same tube.
4. Use pipettor to add 30 µL **Carrier RNA** to the same tube. Cap tube.
5. Invert the tube to mix.

Viral Lysis:

6. Place tube in heat block set to 65°C (60–70°C) and incubate for 10 minutes.

   Note: When this step is complete, turn heat block up to 90ºC for step 24.

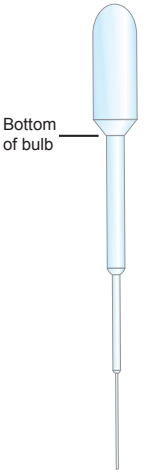
Bind filter:

7. Add 300 µL **Buffer 1B** to tube with heated sample using pipettor. Cap tube.
8. Invert the tube to mix.
9. Label a small spin filter with sample name.
10. Filter load #1: Load small spin filter with sample from bead tube using a small transfer pipet so that filter basket is full and cap can close. Set transfer pipet in bead tube to use for next filter load.
11. Centrifuge for 1 minute at maximum speed (minimum 7,200 x *g*).
12. Pour off flow-through into waste container.
13. Filter load #2: Load the spin filter with the rest of the sample from the bead tube using the small transfer pipet set in the tube in step 10.

    Note: Ensure the sample gets loaded into the correct spin filter during the second load.
14. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
15. Manually transfer spin filter to a new receiver tube (second). Discard old tube.

Wash filter:

16. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1C** to spin filter.
17. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
18. Pour off flow-through into waste container.
19. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** to spin filter.
20. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
21. Manually transfer spin filter to a new receiver tube (third). Discard old tube.
22. Dry spin: Centrifuge for 3 minutes at maximum speed (minimum 7,200 *g*).
23. Manually transfer spin filter to a new receiver tube (fourth). Discard old tube.
24. To remove residual ethanol, incubate the uncapped tube, with the spin filter inside, for 5 minutes in a dry heat block set to 88–95ºC.



Elute purified sample:

25. Use a pipettor set to 100 µL to add **Buffer 3** to the spin filter.
26. Incubate for 2 minutes at ambient temperature.
27. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
28. To enhance the recovery of nucleic acids, use the pipettor set to 100 µL and repeat elution by pipetting the eluate (spin-through) from the bottom of the receiver tube back onto the spin filter.
29. Incubate for 2 minutes at ambient temperature.
30. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
31. Keep receiver tube containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 minutes, store it at 2–8ºC and use it for downstream analysis within 4 hours. If testing does not occur within 4–8 hours, sensitivity may be affected due to degradation of target template.

Shorter protocol	Steps 28–30 (re-elution) may be skipped if optimal sensitivity is not required.
Serum samples	This protocol (after spin to plasma step) can also be used for serum, but plasma must be purified for optimal sensitivity.

Nasal Swab Protocol (RNA)

This protocol describes how to purify RNA from viruses in a nasal swab sample. (The IT *1-2-3* SWIPE Kit contains a protocol to purify DNA from bacteria and viruses in nasal swab samples.)
Acceptable sample: Nasal sample on a swab and stored in a dry tube (Copan 168C rayon swab with twisted wire or equivalent is recommended).
Note: Calcium alginate swabs with aluminum shafts should not be used.

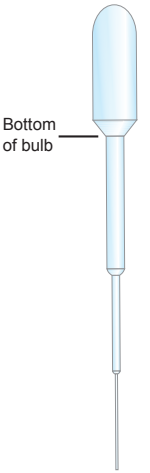
Preparation:

1. Use pipettor to add 400 µL **Buffer 1A** to a small dry bead tube.
2. Use pipettor to add 20 µL **VIBE Protease** to the same tube.
3. Use pipettor to add 30 µL **Carrier RNA** to the same tube.
4. Remove swab from its tube. With provided swab snippers, cut off the end of the swab into bead tube containing the above liquids approximately ¼ inch above the head. Cap tube.
5. Discard the remaining part of the swab.
6. Clean Snippers with alcohol wipe.

Viral Lysis:

7. Place bead tubes into 2 mL tube holder on the Disruptor Genie (or Vortex-Genie with TurboMix) and Bead Beat on the highest setting for **1** minute with lid down to disrupt cells or viruses and release nucleic acids.
8. Place tube in heat block set to 65°C (60–70°C) and incubate for 10 minutes.

   Note: When this step is complete, turn heat block up to 90ºC for step 21.
9. Pulse centrifuge tube for 5 seconds to eliminate foam.



Bind filter:

10. Add 200 µL **Buffer 1B** to bead tube with heated sample and invert to mix.
11. Load a small spin filter with sample from bead tube with a small transfer pipet.
12. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
13. Manually transfer small spin filter to a new receiver tube (second). Discard old tube.

Wash filter:

14. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1C** to spin filter.
15. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*). Pour off flow-through into waste container.
16. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** to spin filter.
17. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
18. Manually transfer spin filter to a new receiver tube (third). Discard old tube.
19. Dry spin: Centrifuge for 3 minutes at maximum speed (minimum 7,200 x *g*).
20. Manually transfer spin filter to a new receiver tube (fourth). Discard old tube.
21. To remove residual ethanol, incubate the uncapped tube with the spin filter inside, for 5 minutes in a dry heat block set to 88–95ºC.

Elute purified sample:

22. Using a pipettor set to 100 µL, add **Buffer 3** to the spin filter.
23. Incubate for 2 minutes at ambient temperature.
24. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
25. To enhance the recovery of nucleic acids, use the pipettor set to 100 µL and repeat elution by pipetting the eluate (spin-through) from the bottom of the receiver tube back onto the spin filter.
26. Incubate for 2 minutes at ambient temperature.
27. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
28. Keep receiver tube containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 minutes, store it at 2–8ºC and use it for downstream analysis within 4 hours. If testing does not occur within 4–8 hours, sensitivity may be affected due to degradation of target template.

Shorter protocol	Steps 25–27 (re-elution) may be skipped if optimal sensitivity is not required.
DNA and RNA from same sample	The RNA protocol given here for nasal swab samples can be used to purify both DNA and RNA from the same sample. Increase bead beating time in step 7 to 5 minutes and increase elution volume in step 22 and 25 to 200 µL of Buffer 3. Optimal sensitivity is not guaranteed for DNA detection using this RNA protocol.

Nasopharyngeal Swab and Throat Swab (RNA)

This protocol is designed to purify RNA from viral pathogens present in nasopharyngeal and throat swab samples stored in viral transport media (VTM).

Acceptable Sample: Nasopharyngeal swab (NPS) sample or throat swab sample stored in viral transport media (VTM). (Collection products used for internal studies, or equivalent, are recommended: Copan 168C rayon swab for NPS samples; Hardy Diagnostics HD25806 polyester swab for throat samples; and Remel Microtest M4-RT VTM.)

Note: Calcium alginate swabs with aluminum shafts should not be used.

Preparation:

Note: Turn on heat block set to 65(60-70)°C

1. Use pipettor to add 600 µL **Buffer 1A** to a small dry bead tube.
2. Use pipettor to add 20 µL **VIBE Protease** to the same tube.
3. Use pipettor to add 30 µL **Carrier RNA** to the same tube.
4. Vortex swab in VTM for 5 seconds.
5. Add 400 µL VTM sample to aforementioned bead tube. Cap tube.
6. Invert the tube to mix.

Viral Lysis:

7. Place tube in heat block set to 65°C (60–70°C) and incubate for 10 minutes.

Note: When this step is complete, turn heat block up to 90°C for step 25.

Bind Filter:

8. Add 300 µL **Buffer 1B** to tube with heated sample using pipettor. Cap tube.
9. Invert the tube to mix.
10. Label a small spin filter with sample name.
11. Filter load #1: Load small spin filter with sample from bead tube using a small transfer pipet so that filter basket is full and cap can close. Set transfer pipet in bead tube to use for next filter load.
12. Centrifuge for 2 minutes at maximum speed (minimum 7200 x *g*).
13. Pour off flow-through into waste container.
14. Filter load #2: Load the spin filter with the rest of the sample from the bead tube using the small transfer pipet placed in the tube in step 10.

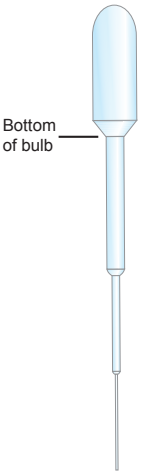
Note: Ensure the sample gets loaded into the correct spin filter during the second

load.

15. Centrifuge for 2 minutes at maximum speed (minimum 7200 x *g*).
16. Manually transfer spin filter to a new receiver tube (second). Discard old tube.

Wash Filter:

17. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1C** to spin filter.
18. Centrifuge for 2 minutes at maximum speed (minimum 7200 x *g*).
19. Pour off flow-through into waste container.
20. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** to spin filter.
21. Centrifuge for 2 minutes at maximum speed (minimum 7200 x *g*).
22. Manually transfer spin filter to a new receiver tube (third). Discard old tube.
23. Dry spin: Centrifuge for 3 minutes at maximum speed (minimum 7200 x *g*).
24. Manually transfer spin filter to a new receiver tube (fourth). Discard old tube.
25. To remove residual ethanol, incubate the uncapped tube, with the spin filter inside, for 5 minutes in a dry heat block set to 88–95°C.



Elute purified sample:

26. Use a pipettor to add 200 µL **Buffer 3** to the spin filter.
27. Incubate for 2 minutes at ambient temperature.
28. Centrifuge for 2 minutes at maximum speed (minimum 7200 x *g*).
29. To enhance recovery of nucleic acids, use pipettor set to 200 µL and repeat elution by pipetting the eluate (spin-through) from the bottom of the receiver tube back onto the spin filter.
30. Incubate for 2 minutes at ambient temperature.
31. Centrifuge for 2 minutes at maximum speed (minimum 7200 x *g*).
32. Keep receiver tube containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 minutes, store it at 2–8°C and use it for downstream analysis within 4 hours. If testing does not occur within 4–8 hours, sensitivity may be affected due to degradation of target template.

Sputum Protocol (DNA/RNA)

This protocol is designed to purify DNA and RNA from pathogens in sputum.
Acceptable sample: 0.5 mL liquid sputum.

Note: Before purification, sputum samples being tested for *in vitro* diagnostic applications of bacteria or DNA viruses must be pretreated as described in the "Sputum Pretreatment" section following this section.

WARNING: Do not use the pretreatment procedure when testing for RNA viruses.

Preparation:

1. Use pipettor to add 800 µL **Buffer 1A** to a small dry bead tube.
2. Use pipettor to add 20 µL **VIBE Protease** to the same tube.
3. Use pipettor to add 30 µL **Carrier RNA** to the same tube. Cap tube.
4. Add 400 µL sputum to tube with a pipettor. Try to remove a liquid portion of the sputum. (May need to cut the pipette tip in order to pipette viscous sputum). (**Note:** if less than 400 µL sputum is available, bring the remainder of the volume up with **Buffer 3**).
5. Label the tube and invert to mix. Proceed immediately to next step.

Lysis:

6. Place bead tubes into 2 mL tube holder on the Disruptor Genie (or Vortex-Genie with TurboMix) and bead beat on the highest setting for 5 minutes with lid down to disrupt cells or viruses and release nucleic acids.
7. Place tube in heat block set to 65 (60–70) °C and incubate for **15** minutes. Remove tube and invert to mix every 5 minutes during incubation.

   Note: When this step is complete, turn heat block up to 90 ºC for step 21.
8. Pulse centrifuge tube for 5 seconds to eliminate foam.

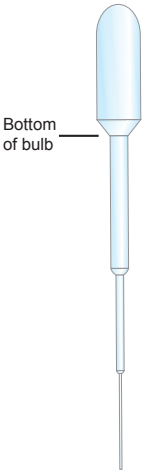
Bind filter:

9. Add 400 µL **Buffer 1B** to tube with heated sample using pipettor. Cap tube.
10. Invert the tube to mix.
11. Label a small spin filter with sample name.
12. Filter load #1: Load small spin filter with sample from bead tube using a small transfer pipet so that filter basket is full and cap can close. Set transfer pipet in bead tube to use for next filter load.
13. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
14. Pour off flow-through into waste container.
15. Repeat steps 12–14 two more times for Filter loads #2 and #3.

    Note: Ensure the sample gets loaded into the correct spin filter during each load.
16. Manually transfer spin filter to a new receiver tube (second). Discard old tube.

Wash filter:

17. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1C** to spin filter.
18. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
19. Pour off flow-through into waste container.
20. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** to spin filter.
21. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
22. Manually transfer spin filter to a new receiver tube (third). Discard old tube.
23. Dry spin: Centrifuge for 3 minutes at maximum speed (minimum 7,200 x *g*).
24. Manually transfer spin filter to a new receiver tube (fourth). Discard old tube.
25. To remove residual ethanol, incubate the uncapped tube, with the spin filter inside, for 5 minutes in a dry heat block set to 88–95ºC.



Elute purified sample:

26. Use a pipettor set to 200 µL to add **Buffer 3** to the spin filter.
27. Incubate for 2 minutes at ambient temperature.
28. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
29. To enhance the recovery of nucleic acids, use the pipettor set to 200 µL and repeat elution by pipetting the eluate (spin-through) from the bottom of the receiver tube back onto the spin filter.
30. Incubate for 2 minutes at ambient temperature.
31. Centrifuge for 2 minutes at maximum speed (minimum 7,200 x *g*).
32. Keep receiver tube containing the purified sample, label and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 minutes, store it at 2–8ºC and use it for downstream analysis within 4 hours. If testing does not occur within 4–8 hours, sensitivity may be affected due to degradation of target template.

Shorter protocol	Steps 29–31 (re-elution) may be skipped if optimal sensitivity is not required.

Sputum Pretreatment (*for DNA only*)

Note: This pretreatment option is to be used only with the DNA protocol.

To prevent clogging of the spin column, sputum samples are pretreated with a 2X concentration of Snap n' Digest before purification. Instructions for the pretreatment are provided below.

1. Preparation of Snap n' Digest.

   a. Discard approximately 35 mL (1/2 of the total volume) of buffer contained in the Snap n' Digest bottle.

   b. With the cap loose, break the ampule inside by squeezing the bottle and mix gently. Once prepared the solution can be used for up to 1 week when stored at room temperature (18–28ºC).

2. Transfer 300 µL of sputum from the specimen container and place in a small dry bead tube provided in the VIBE kit.

Note: Cutting the end off the pipette tip can aid in pipetting viscous sputum specimens.

3. Add 150 µL of Snap n' Digest, cap tube, and mix by inversion.

4. Incubate at room temperature for approximately 30 min. Mix by inverting or vortexing every 5 to 10 min. The sputum sample should be completely liquefied after this digestion period. If not, digest for another 15 min. with periodic mixing.

After the specimen is digested, continue sample purification according to the Sputum (DNA) protocol described in the VIBE product instructions, but omit step 4.

Troubleshooting

Symptom	Resolution
Spin Filter Clogging	If the small spin filter clogs, follow protocol up to the addition of **Buffer 2**. Before adding **Buffer 2**, pour liquid off of the top of the filter and continue with the protocol.
Inhibited Sample	Sometimes unknown inhibitors of down stream analysis are not adequately removed from a purified sample. If amplification does not occur as expected or an inhibition control shows inhibitors are present, perform a ten-fold dilution of that sample in Reagent Grade Water or Buffer 3. A ten-fold dilution is usually adequate to remove the effects of the inhibitors, however sensitivity is decreased. **Note**: If inhibition controls are used, refer to the reagent product insert for specific directions.

Ordering Information

Sample Purification Kits and Supplies

Item	Contents	Part No.
IT 1-2-3 DNA Sample Purification Kit	Sample Purification and Extraction Kit for minimally trained technicians to extract DNA from environmental sources	3800
IT 1-2-3 SWIPE Sample Purification Kit*	Sample Purification Kit for purification of nasal swab, surface swab, live culture and powder samples	ASAY-ASY-0005
IT 1-2-3 FLOW Sample Purification Kit*†	Sample Purification Kit for purification of blood, air, water, food and body fluid samples	ASAY-ASY-0004
IT 1-2-3 VIBE Sample Purification Kit	Sample Purification Kit for purification of sputum samples and RNA from blood and nasal swab samples	ASAY-ASY-0500
IT 1-2-3 SCOOP Sample Purification Kit	Sample Purification Kit for purification of stool and soil samples	ASAY-ASY-0502
IT 1-2-3 QFLOW DNA Sample Purification Kit*	Sample Purification Kit for purification of blood, air, water, food and body fluid samples	ASAY-ASY-0503
IT 1-2-3 QFLOW RNA Sample Purification Kit	Sample Purification Kit for purification of blood, air, water, food and body fluid samples	ASAY-ASY-0504
IT 1-2-3 Platinum Path Sample Purification Kit	Sample Purification Kit for magnetic bead purification of biological, environmental, and food samples	ASAY-ASY-0120
IT 1-2-3 RNA Module	An accessory to the SWIPE, FLOW, VIBE, and QFLOW^{DNA} purification kits and contains items for the purification of RNA	ASAY-ASY-0501
Filtered Blender Bags	1 Bag of 10 (Brinkmann)	ASAY-ASY-0060
PBS packets	Phosphate Buffered Saline, pH 7.4 PBS powder, 10 packets per box (each packet makes 1 L PBS) (Sigma-Aldrich)	ASAY-ASY-0061
Triton X-100	100 mL Triton (Sigma-Aldrich)	ASAY-ASY-0062
Stool Collection Vials (Cary Blair)	Box of 20 (PROTOCOL-Fisher)	ASAY-ASY-0063
Stool Concentrator Filters	Box of 30 (PARAPAK, Meridian Diagnostics))	ASAY-ASY-0064

*These purification kits require the RNA Module (ASAY-ASY-0501) for some preparation applications.
†Large bead tube adapter (P/N PREP-ASY-0001) is required for this kit, but not included.

Sample Type			FLOW	SWIPE	VIBE	SCOOP	Platinum Path	RNA Module
Biological	Whole Blood	DNA	X				X	
		RNA			X		X	X
	Nasal/Pus Swabs	DNA		X			X	
		RNA			X		X	X
	Culture	DNA		X			X	
		RNA		X			X	X
	Sputum	DNA			X		X	X
		RNA			X		X	X
	Stool	DNA				X	X	
	Gastric Wash	DNA	X				X	
	Lymph Node Aspirates	DNA		X			X	
	Cerebral Spinal Fluid	DNA					X	
	Cerebral Spinal Fluid	RNA					X	
	Nasopharyngeal Swab and Throat Swab	RNA					X	
Environmental	Air (PBS)	DNA	X	→			X	
		RNA	X	→			X	X
	Surface Swabs	DNA		X			X	
		RNA		X			X	X
	Powder	DNA		X			X	
		RNA		X			X	X
	Water	DNA	X	→			X	
	Soil	DNA				X	X	
Food	Milk	DNA	X				X	
	Mixed Greens	DNA	X				X	
	Ground Beef	DNA	X				X	
	Tuna Salad	DNA	X					

→ = Alternative protocols

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For additional information regarding our products and applications, please contact our Customer Service Department at BioFire Defense.

ASAY-PRT-0511