Kit Part No: 3800

IT 1-2-3™ DNA
Sample Purification Kit

Instruction Booklet

BIOFIRE DEFENSE

Manufactured by
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IT 1-2-3™ DNA Sample Purification Kit Instruction Booklet
Printed in the United States of America

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Abbreviations and Acronyms

BFDf	BioFire Defense
BMBL	Biosafety in Microbiological and Biomedical laboratories
C	Celsius
DHHS	Department of Health and Human Services
DNA	Deoxyribonucleic acid
g	Gravity (= RCF)
mL	Milliliter
MSDS	Material Safety Data Sheet
PBS	Phosphate-buffered saline
RCF	Relative Centrifugal Force (= *g*)
RNA	Ribonucleic acid
µL	Microliter (0.000001 Liters)

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 SDS 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 (DHHS), 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 http://biofiredefense.com/sample-purification

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.

Purifying DNA

DNA is present in bacterial or viral pathogens that can be found in many samples. Purifying extracts DNA from a sample as well as separates cellular matter that may act as an inhibitor in the DNA amplification process. 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 hinder downstream analysis. The protocols in this kit employ the steps described below.

Sample purification involves four steps:

1. DNA 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.
2. DNA is **Bound** and concentrated on the filter (i.e. **Buffer 1**).
3. The DNA on the filter is **Washed** to remove inhibitors (i.e. **Buffer 2**).
4. The DNA is **Eluted** from the filter (i.e., **Buffer 3**).

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 DNA Sample Purification Kit for Surface Swab, Powder, Culture, and Water/PBS Samples

This kit and protocols are designed to purify DNA from bacteria or viruses in the following matrices:

Sample		DNA protocol
Biological	Culture	**X**
Environmental	Surface Swab	**X**
	Powder	**X**
	Water/PBS	**X**

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

Equipment Required	
• Microcentrifuge capable of spinning 1.5 mL tubes 7,200–16,000 x *g* • Disruptor Genie™ (SI-D237) [or Vortex-Genie® 2T (SI-T236) with Turbomix™ attachment] and adapter for 2.0 mL tubes (SI-0562) (Scientific Industries) OR Biospec Bead Beater	• Pipettors (Required range: 5–200 µL) and tips

IT 1-2-3 DNA Kit Contents	
• Sample Swabs for surface, powder and culture sampling (40) • Small Bead Tubes (40) • Small Spin Filters (40) • Small Receiver Tubes (120) • Small transfer pipets (for measuring 450 µL) (120)	• **Buffer 1**, 25 mL (binding buffer) • **Buffer 2**, 25 mL (wash buffer) • **Buffer 3**, 25 mL (elution buffer) • Instruction Booklet

Surface Swab Protocol (DNA)

This protocol is designed to purify DNA from pathogens present on surface swab samples.

Acceptable sample: Sample Swabs are included in the kit for surface swabbing. The swab sampling protocol is listed below. To maximize recovery of pathogens/ nucleic acid from the swab, the swab is broken into the tube for bead beating and purified.

Surface Swab Sampling:

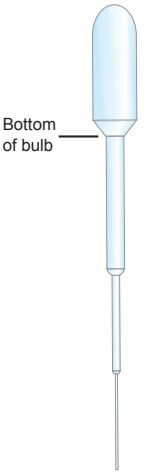
1. Wet a Sample Swab with liquid in a small bead tube.
2. Thoroughly wipe a 2-in. x 2-in. surface area with the swab.
3. Break the Sample Swab off in the bead tube at the swab breakpoint.

Lysis:

4. 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 min. with lid down to disrupt cells or viruses and release nucleic acids.

Bind filter:

5. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1** (binding buffer) to small bead tube containing bead beaten sample. Keep transfer pipet for next step.
6. Use same transfer pipet to transfer liquid from small bead tube to small spin filter (packaged in a small receiver tube), avoiding beads in the bead tube.
7. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
8. Manually transfer small spin filter to a new receiver tube (second) by hand. Discard old tube.



Wash filter:

9. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** (wash buffer) to small spin filter.
10. Centrifuge for 2 min. at maximum speed (min. 7,200 *g*).
11. Manually transfer small spin filter to a new Receiver tube (third). Discard old tube.
12. Centrifuge for 3 min. at maximum speed (min. 7,200 g) to remove residual ethanol.
13. Manually transfer small spin filter to a new receiver tube (fourth). Discard old tube.

Elute purified sample:

14. Use a pipettor set to 200 µL to add **Buffer 3** (elution buffer) to the spin filter.
15. Incubate for 2 min. at ambient temperature.
16. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
17. 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 small spin filter.
18. Incubate for 2 min. at ambient temperature.
19. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
20. Keep receiver tube (fourth) containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 min., it is recommended to store it at 2–8ºC and using 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.

Protocol Notes	
Shorter protocol	Steps 17–19 (re-elution) may be skipped if optimal sensitivity is not required.
No pipettor option	Steps 14 and 17 can be replaced with: “Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 3** (elution buffer) and repeat elution.” (If re-elution is necessary, the same transfer pipet must be used for both steps.) This option can be used if (1) optimal sensitivity is not required or (2) if using freeze-dried reagents without a reconstitution buffer that allows hydration of reagents with sample only.
Other swabs	If surface swabs are taken with a swab other than a Sample Swab, cut the head of the swab into the small bead tube.
Direct testing: Bead beat only	Some surface swab samples do not contain downstream inhibitors and can be tested directly after bead beating. In this case, follow the protocol through step 4 and proceed to downstream analysis. Inhibition controls can be used with this protocol.

Powder Protocol (DNA)

This protocol is designed to purify DNA from pathogens present in powder samples.
Acceptable sample: A small amount (~1 mg) of powder picked up with a Sample Swab (see sampling protocol below).

Powder Swab Sampling:

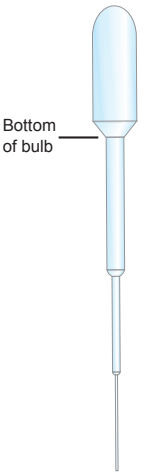
1. Wet a Sample Swab with liquid in a small bead tube.
2. Touch the powder with only the very tip of the moist swab.
   Note: Large quantities of powder can clog the filter in succeeding steps.
3. Break the Sample Swab off in the bead tube at the swab breakpoint.

Lysis:

4. 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 min. with lid down to disrupt cells or viruses and release nucleic acids.

Bind filter:

5. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1** (binding buffer) to small bead tube containing bead beaten sample. Keep transfer pipet for next step.
6. Use same transfer pipet to transfer liquid from small bead tube to small spin filter (packaged in a small receiver tube), avoiding beads in the bead tube.
7. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
8. Manually transfer small spin filter to a new receiver tube (second). Discard old tube.



Wash filter:

9. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** (wash buffer) to small spin filter.
10. Centrifuge for 2 min. at maximum speed (min. 7,200 *g*).
11. Manually transfer small spin filter to a new receiver tube (third). Discard old tube.
12. Centrifuge for 3 min. at maximum speed (min. 7,200 g) to remove residual ethanol.
13. Manually transfer small spin filter to a new receiver tube (fourth). Discard old tube.

Elute purified sample:

14. Use a pipettor set to 200 µL to add **Buffer 3** (elution buffer) to the spin filter.

15. Incubate for 2 min. at ambient temperature.
16. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
17. 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 small spin filter.
18. Incubate for 2 min. at ambient temperature.
19. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
20. Keep receiver tube (fourth) containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 min., it is recommended to store it at 2–8ºC and using 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.

Protocol Notes	
Shorter protocol	Steps 17–19 (re-elution) may be skipped if optimal sensitivity is not required.
No pipettor option	Steps 14 and 17 can be replaced with: "Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 3** (elution buffer) and repeat elution." (If re-elution is necessary, the same transfer pipet must be used for both steps.) This option can be used if (1) optimal sensitivity is not required or (2) if using freeze-dried reagents without a reconstitution buffer that allows hydration of reagents with sample only.
Direct testing: Bead beat only	Some powder samples do not contain downstream inhibitors and can be tested directly after bead beating. In this case, follow the protocol through step 4 and proceed to downstream analysis. With powder samples (usually highly concentrated) it is advisable to prepare a ten-fold dilution of the bead-beaten sample in a small receiver tube with **Buffer 3** (for example 40 µL sample plus 360 µL **Buffer 3**). Inhibition controls can be used with this protocol.

Culture Protocol (DNA)

Organisms cultured on solid (plates) or in liquid media generally produce highly concentrated samples. Sample volumes for this protocol are therefore small.

Acceptable sample: Bacterial cultures or viral cell culture with appropriate culture media.

1. **For plated colonies or plaques:** touch a Sample Swab to the colony or plaque and break off the swab at the breakpoint into a small bead tube.

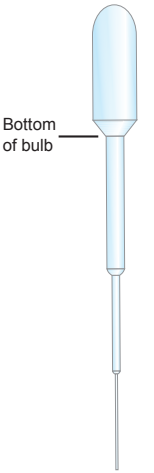
   For liquid culture: dip a Sample Swab in culture media, allow it to soak for 3-5 seconds and break off the swab at the breakpoint in a small bead tube. (Alternatively, pipette 40–50 µL of the liquid culture directly into a bead tube.)

Lysis:

2. 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 min. with lid down to disrupt cells or viruses and release nucleic acids.

Bind filter:

3. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1** (binding buffer) to small bead tube containing bead beaten sample. Keep transfer pipet for next step.
4. Use same transfer pipet to transfer liquid from small bead tube to small spin filter (packaged in a small receiver tube), avoiding beads in the bead tube.
5. Centrifuge for 2 min. at maximum speed (min. 7,200 *g*).
6. Manually transfer small spin filter to a new receiver tube (second). Discard old tube.



Wash filter:

7. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** (wash buffer) to small spin filter.
8. Centrifuge for 2 min. at maximum speed (min. 7,200 *g*).
9. Manually transfer small spin filter to a new receiver tube (third). Discard old tube.
10. Centrifuge for 3 min. at maximum speed (min. 7,200 *g*) to remove residual ethanol.
11. Manually transfer small spin filter to a new receiver tube (fourth). Discard old tube.

Elute purified sample:

12. Use a pipettor set to 200 µL to add **Buffer 3** (elution buffer) to the spin filter.

13. Incubate for 2 min. at ambient temperature.
14. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
15. 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 small spin filter.
16. Incubate for 2 min. at ambient temperature.
17. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
18. Keep receiver tube (fourth) containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 min., it is recommended to store it at 2–8ºC and using 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.

Protocol Notes	
Shorter protocol	Steps 15–17 (re-elution) may be skipped if optimal sensitivity is not required.
No pipettor option	Steps 12 and 15 can be replaced with: "Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 3** (elution buffer) and repeat elution." (If re-elution is necessary, the same transfer pipet must be used for both steps.) This option can be used if (1) optimal sensitivity is not required or (2) if using freeze-dried reagents without a reconstitution buffer that allows hydration of reagents with sample only.
Direct testing: Bead beat only	Some bacterial colonies can be tested directly after bead beating. Follow the protocol through step 2 and immediately before testing: 1. Add 5 µL of the bead-beaten sample to a small receiver tube. 2. Add 500 µL **Buffer 3** and proceed with downstream analysis. Use of inhibition controls with this protocol is recommended.

Water/PBS Protocol (DNA)

Acceptable sample: Water or PBS (with or without Triton X-100).

1. Pipette 100 µL Water or PBS into a small bead tube (alternatively, for 40 µL, dip a Sample Swab into the liquid, allow it to soak for 3-5 seconds and break off the swab at the breakpoint into a small bead tube).

Lysis:

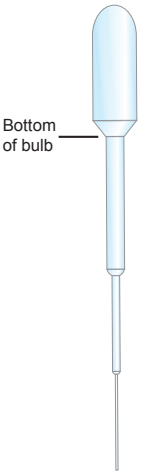
2. Place bead tubes into 2 mL tube holder on the Disruptor Genie (or Vortex-Genie with Turbomix) and bead beat on the highest setting for 5 min. with lid down to disrupt cells or viruses and release nucleic acids.

Bind filter:

3. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 1** (binding buffer) to small bead tube containing bead beaten sample. Keep transfer pipet for next step.
4. Use same transfer pipet to transfer liquid from small bead tube to small spin filter (packaged in a small receiver tube), avoiding beads in the bead tube.
5. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
6. Manually transfer small spin filter to a new receiver tube (second). Discard old tube.

Wash filter:

7. Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 2** (wash buffer) to small spin filter.
8. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
9. Manually transfer small spin filter to a new receiver tube (third). Discard old tube.
10. Centrifuge for 3 min. at maximum speed (min. 7,200 g) to remove residual ethanol.
11. Manually transfer small spin filter to a new receiver tube (fourth). Discard old tube.



Elute purified sample:

12. Use a pipettor set to 200 µL to add **Buffer 3** (elution buffer) to the spin filter.
13. Incubate for 2 min. at ambient temperature.
14. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
15. 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 small spin filter.
16. Incubate for 2 min. at ambient temperature.
17. Centrifuge for 2 min. at maximum speed (min. 7,200 g).
18. Keep receiver tube (fourth) containing the purified sample and test as soon as possible.

Storage and downstream analysis:

If the purified sample will not be tested within 30 min., it is recommended to store it at 2–8ºC and using 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.

Protocol Notes	
Shorter protocol	Steps 15-17 (re-elution) may be skipped if optimal sensitivity is not required.
No pipettor option	Steps 12 and 15 can be replaced with: "Use a small transfer pipet (fill to bottom of bulb) to add 450 µL **Buffer 3** (elution buffer) and repeat elution." (If re-elution is necessary, the same transfer pipet must be used for both steps.) This option can be used if (1) optimal sensitivity is not required or (2) if using freeze-dried reagents without a reconstitution buffer that allows hydration of reagents with sample only.
Direct testing: Bead beat only	Some samples do not contain downstream inhibitors and can be tested directly after bead beating. In this case, follow the protocol through step 2 and proceed to downstream analysis. To dilute out inhibitors, prepare a ten-fold dilution of the bead-beaten sample in a small receiver tube with **Buffer 3** (for example 40 µL sample plus 360 µL **Buffer 3**). Inhibition controls can be used with this protocol.

Original IT 1-2-3 Protocol

Surface Swab / Culture Protocol (DNA)

Part 1: Gathering and Disruption of Microorganisms in Sample

1. Dip swab in a bead tube and make sure the swab is wet with lysis buffer.
2. Swab the affected area with the damp swab (i.e., swab surface).
3. Place the swab into the bead tube and snap off the swab stick end, leaving the swab in the tube.

   (ALTERNATIVELY; if you are using cultured samples, add 20 µL to bead tube)
4. Screw on cap tight.
5. Place bead tube in the bead beater for the specified amount of time.

Bead Beating Settings		
	Speed	**Time**
Vortex Genie 2	Maximum	5 Minutes
BioSpec	42 (4200 rpm)	12 (120 Sec.)

Part 2: Binding DNA to Filter

6. Set the P-1000 pipette to 350 µL. Pipette 350 µL of **Buffer 1** into the bead tube containing the swab stick end. Centrifuge briefly.
7. Using the P-1000 pipette set at 350 µL and a clean tip, draw out as much of the liquid sample from the bead tube without drawing out any of the beads and place the liquid sample into the top of the filter-receiver assembly (it is not necessary to remove all the liquid sample from the tube). Repeat if necessary.
8. Close the cap on the filter-receiver assembly. Centrifuge 1–2 min. or until all liquid has been pulled into the bottom receiver tube.
9. Open the lid and remove the filter. Close the lid of the receiver tube. Discard the receiver tube with its contents. (DNA is captured in the filter).
10. Place the filter into a new receiver tube.

Part 3: Wash Filter – DNA Cleanup

11. Set the P-1000 pipette to 550 µL. Pipette 550 µL of **Buffer 2** into the filter-receiver assembly.

12. Close assembly lid and spin in centrifuge for 1–2 min. or until all of the liquid is in the bottom of the receiver tube.
13. Open the lid and remove the filter. Close the lid of the receiver tube. Discard the receiver tube with its contents.
14. Place the filter into a new receiver tube and centrifuge for **3 min.**.

Note: This step is very important because the residual ethanol in **Buffer 2** can hinder your PCR reaction. It is critical that all of **Buffer 2** is removed from the filter.

15. Open the lid and remove the filter. Close the lid of the receiver tube. Discard the receiver tube with its contents.

Part 4: DNA Elution

16. Place the filter into a new receiver tube.
17. Set the P-1000 pipette to 400 µL. Pipette 400 µL of **Buffer 3*** into the filter-receiver assembly.
18. Close the lid of the assembly and let it sit at room temperature for 2 min.
19. Close assembly lid. Centrifuge for 1–2 min. or until all of the liquid is in the bottom of the receiver tube.

    Keep the receiver tube containing the DNA. Discard the filter.
20. Close the lid of the receiver tube. Label and date the tube containing the sample DNA. Carefully store DNA after use at 4ºC to -20ºC. This is the DNA that will be used for PCR analysis.

    *For a more concentrated DNA sample, add 100 µL instead 400 µL of **Buffer 3** to the filter-receiver assembly. If using less than 400 µL, add 1 part sample to 1 part water (or reconstitution buffer if required) to a Freeze-dried reagent vial.

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 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 and VIBE 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-0082