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**1. IDENTIFICATION**

**Product Identification**

Product Name Human Apoptosis Signaling Pathway Array C1  
Catalog Number AAH-APOSIG-1

**Kit Components**

**Usage**

This product is furnished for LABORATORY RESEARCH USE ONLY. Not for diagnostic or therapeutic use.

**Supplier Identification**

Company RayBiotech, Inc.  
3607 Parkway Lane, Suite 100  
Norcross, GA 30092  
USA  
Telephone 1-888-494-8555 (Toll Free); 770-729-2992  
Fax 770-206-2393  
Website [www.RayBiotech.com](http://www.RayBiotech.com)  
Email [info@raybiotech.com](mailto:info@raybiotech.com)

**Emergency Telephone Number**

Emergency Phone # 1-888-494-8555

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**2. HAZARDS IDENTIFICATION**

**Hazardous Ingredients**

1. The 2X Cell Lysis Buffer contains Triton-X-100.
2. The Protease Inhibitor Cocktail Set I contains AEBSF, Leupeptin, and Ethylenediaminetetraacetic acid (EDTA).
3. The Phosphatase Inhibitor Set II contains Sodium Fluoride, Sodium Molybdate, and Sodium Orthovanadate.

**OSHA/HCS status**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture**

Triton-X-100 (Lysis Buffer): Skin Corr./Irrit. 1A (H314); Acute Oral Toxicity  
AEBSF (protease inhibitor set I): Acute Toxicity  
Leupeptin (protease inhibitor set I): Acute Toxicity  
Ethylenediaminetetraacetic acid (EDTA) (protease inhibitor set I): Serious eye irritation  
Sodium Fluoride (phosphatase inhibitor set II): Acute Toxicity  
Sodium Molybdate (phosphatase inhibitor set II): Acute Toxicity  
Sodium Orthovanadate (phosphatase inhibitor set II): Acute Toxicity

**GHS Label Elements**

Hazard Pictograms



Signal Word/s

Warning

Hazard Statements	<p>Triton-X-100 (Lysis Buffer): Causes skin irritation (H315); Causes serious eye irritation (H319); Harmful if swallowed (H302)</p> <p>AEBSF (protease inhibitor set I): Harmful if swallowed; Irritating to eyes and skin.</p> <p>Leupeptin (protease inhibitor set I): Harmful if swallowed or inhaled; Irritating to eyes and skin.</p> <p>Ethylenediaminetetraacetic acid (EDTA) (protease inhibitor set I): Harmful if swallowed or inhaled; Irritating to eyes.</p> <p>Sodium Fluoride (phosphatase inhibitor set II): Harmful if swallowed; Irritating to eyes and skin.</p> <p>Sodium Molybdate (phosphatase inhibitor set II): Irritating to eyes.</p> <p>Sodium Orthovanadate (phosphatase inhibitor set II): Harmful if swallowed; Irritating to skin.</p>
Response	<p>IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.</p> <p>EYE CONTACT: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>SKIN CONTACT: Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>INHALATION: Move to an outside area and breath fresh air. Clear the nose by blowing.</p>
Storage	Not applicable.
Disposal	Not applicable.
<b>Hazards not otherwise classified</b>	
None known.	

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### CAS Numbers/other identifiers

<u>Ingredient Name</u>	<u>%</u>	<u>CAS Number</u>
Triton-X-100	1-3	9002-93-1
AEBSF	1-3	30827-99-7
Leupeptin	1-5	103476-89-7
Ethylenediaminetetraacetic acid (EDTA)	0.1-1	60-00-4
Sodium Fluoride	0.1-1	7681-49-4
Sodium Molybdate	1-5	7631-95-0
Sodium Orthovanadate	1-5	13721-39-6

### 4. FIRST-AID MEASURES

#### Description of Necessary First Aid Measures

Eye Contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Skin Contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing and clean shoes before reuse.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Potential Acute Health Effects

Eye Contact	Triton-X-100 (Lysis Buffer): Causes serious eye irritation (H319)
Skin Contact	Triton-X-100 (Lysis Buffer): Causes skin irritation (H315)
Ingestion	Triton-X-100 (Lysis Buffer): Harmful if swallowed (H302)

### Over-Exposure Signs/Symptoms

No specific data.

### Notes to Physician

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### Specific Treatments

No specific treatment

### Protection of First-Aiders

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

## 5. FIRE FIGHTING MEASURES

Extinguishing Media	Use an extinguishing agent suitable for the surrounding fire, such as water spray, carbon dioxide, dry chemical powder or appropriate foam. Prevent contact with skin and eyes.
Chemical Hazards from Fire	In a fire or if heated, a pressure increase will occur and the component containers may burst.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For Emergency Responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For Non-Emergency Personnel" above.
Environmental Precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Protective Equipment	Wear respirator, chemical safety goggles, rubber boots and rubber gloves.

### Methods and Materials for Containment and Cleaning Up

Small Spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large Spill	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## 7. STORAGE AND HANDLING

### Storage

Store the entire kit frozen at -20°C upon arrival.

### Handling

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Permissible Exposure Limits (PELs)

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### Appropriate Engineering Controls

Showers  
Eyewash stations  
Ventilation systems

### Protective Equipment

Wear suitable protective clothing, including gloves, safety glasses, dust mask, and a laboratory coat.

### Special Precautions

Not for human or drug use. Not for household use.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless
Odor	Odorless
Physical State	Liquid
pH	N/A
Boiling Point	N/A
Melting Point	N/A
Freezing Point	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Specific Gravity	N/A
Evaporation Rate	N/A
Solubility in Water	N/A
Odor Threshold	N/A
Coefficient of Water/Oil Distribution	N/A

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## 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal handling procedures.
Hazardous Reactions	Under normal conditions of storage and use, hazardous reactions will not occur.

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

Ingredient Name	Result	Species	Dose
Triton-X-100	LD50	Oral rat female Oral rat male	707 mg/kg 2140 mg/kg
Ethylenediaminetetraacetic acid (EDTA)	LD50	Oral rat	4,500 mg/kg
Sodium Fluoride	LD50	Oral rat Oral mice	31 mg/kg 44 mg/kg
Sodium Molybdate	LD50	Oral rat	4 g/kg
Sodium Orthovanadate	LD50	Oral rat	330 mg/kg

<b>Carcinogenicity</b>	Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65
<b>Sensitization</b>	Not Available
<b>Mutagenicity</b>	Not available
<b>Reproductive Toxicity</b>	Not Available
<b>Specific target organ toxicity (single exposure)</b>	Not available
<b>Specific target organ toxicity (repeated exposure)</b>	Not available
<b>Aspiration hazard</b>	Not available
<b>Likely routes of exposure</b>	Routes of entry anticipated: Oral, Dermal, Inhalation.
<b>Potential acute health effects</b>	

	Triton-X-100 (lysis buffer) & Sulfuric Acid (stop solution): Risk of serious damage to eyes.
<b>Eye contact</b>	AEBSF (protease inhibitor set I): Eye irritant. Leupeptin (protease inhibitor set I): Eye irritant. Ethylenediaminetetraacetic acid (EDTA) (protease inhibitor set I): Eye irritant. Sodium Fluoride (phosphatase inhibitor set II): Eye irritant. Sodium Molybdate (phosphatase inhibitor set II): Eye irritant.
<b>Inhalation</b>	Leupeptin (protease inhibitor set I): Harmful if inhaled.
<b>Ingestion</b>	Triton-X-100 (lysis buffer): Harmful if ingested AEBSF (protease inhibitor set I): Harmful if swallowed. Leupeptin (protease inhibitor set I): Harmful if swallowed. Sodium Fluoride (phosphatase inhibitor set II): Harmful if swallowed. Sodium Orthovanadate (phosphatase inhibitor set II): Harmful if swallowed.
<b>Skin Contact</b>	Triton-X-100 (lysis buffer): Skin irritant or corrosion. AEBSF (protease inhibitor set I): Skin irritant. Leupeptin (protease inhibitor set I): Skin irritant. Sodium Fluoride (phosphatase inhibitor set II): Skin irritant. Sodium Orthovanadate (phosphatase inhibitor set II): Skin irritant.
<b>12. ECOLOGICAL INFORMATION</b>	
<b>Ecotoxicity</b>	No data available
<b>Persistence and degradability</b>	No data available
<b>Bioaccumulation/accumulation</b>	No data available
<b>Mobility in environmental media</b>	No data available
<b>Other hazardous effects</b>	May be harmful to the environment, particularly aquatic organisms.
<b>13. DISPOSAL CONSIDERATIONS</b>	
<b>Disposal methods</b>	Disposal should be in accordance with applicable national, state, and local laws and regulations. Local regulations may be more stringent than national or state requirements. Verify local and state regulations before discharging into public sewers or landfills. Do not dump into any body of water. Contact a licensed professional waste disposal service for appropriate methods of disposal.
<b>14. TRANSPORT INFORMATION</b>	
<b>DOT</b>	Not dangerous goods.
<b>IATA</b>	Not dangerous goods.
<b>ADR</b>	Not dangerous goods.
<b>15. REGULATORY INFORMATION</b>	
<b>United States (TSCA)</b>	All ingredients are on the inventory or exempt from listing.
<b>Canada (DSL / NDSL)</b>	All ingredients are on the inventory or exempt from listing.
<b>SARA 302 Components</b>	Triton-X-100 (lysis buffer): CAS 9002-93-1
<b>SARA 313 Components</b>	Triton-X-100 (lysis buffer): Concentration <3%
<b>SARA 311/312 Hazards</b>	Triton-X-100 (Lysis Buffer): Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation
<b>California Prop. 65 Components</b>	This product does not contain any Proposition 65 chemicals.
<b>16. OTHER INFORMATION</b>	
<b>Disclaimer</b>	The above information was obtained from sources available at the time of revision and believed to be accurate and reliable. The information included is not intended to be all inclusive and should only be used as a guide. RayBiotech shall not be held liable for any damage resulting from use, handling, or contact with the above product.

Last Revised

September 1, 2020

