

**1. IDENTIFICATION**

**Product Identification**

Product Name Human PD-1 ELISA Kit  
 Catalog Number ELH-PD1

**Kit Components**

Component	Size / Description
PD-1 Microplate (Item A)	96 wells (12 strips x 8 wells) coated with anti-Human PD-1.
Wash Buffer Concentrate (20X) (Item B)	25 ml of 20X concentrated solution.
Standard Protein (Item C)	2 vials of Human PD-1. 1 vial is enough to run each standard in duplicate.
Detection Antibody PD-1 (Item F)	2 vials of biotinylated anti-Human PD-1. Each vial is enough to assay half the microplate.
HRP-Streptavidin Concentrate (Item G)	200 µl 200X concentrated HRP-conjugated streptavidin.
TMB One-Step Substrate Reagent (Item H)	12 ml of 3,3,5,5'-tetramethylbenzidine (TMB) in buffer solution.
Stop Solution (Item I)	8 ml of 0.2 M sulfuric acid.
Assay Diluent A (Item D)	30 ml of diluent buffer, 0.09% sodium azide as preservative.
Assay Diluent B (Item E)	15 ml of 5x concentrated buffer.

**Usage**

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

**Supplier Identification**

Company RayBiotech, Inc.  
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**Emergency Telephone Number**

Emergency Phone # 1-888-494-8555

## 2. HAZARDS IDENTIFICATION

### Hazardous Ingredients

1. Stop Solution contains Sulfuric Acid
2. Assay Diluent A contains Sodium Azide

### OSHA/HCS status

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

### Classification of the substance or mixture

Sulfuric Acid (Stop Solution): Causes skin irritation (H315); Causes serious eye irritation (H319)

Sodium Azide (Assay Diluent A): Short-term (acute) aquatic hazard (Category 3), H402; Long-term (chronic) aquatic hazard (Category 3), H412

### GHS Label Elements

Hazard Pictograms



Signal Word

Warning

Hazard Statements

Sulfuric Acid (Stop Solution): Causes skin irritation (H315); Causes serious eye irritation (H319)

Sodium Azide (Assay Diluent A): Harmful to aquatic life with long lasting effects (H412)

Prevention

Wear protective gloves, protective clothing, eye protection, face protection. Wash exposed skin thoroughly after handling.

Response

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

Not applicable.

Disposal

Dispose of contents/container to comply with local, state and federal regulations.

### Hazards not otherwise classified

None known.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture                      Item A is substance. All other items are mixture.

Other means of identification        Not available

### CAS Numbers/other identifiers

<u>Ingredient Name</u>	<u>%</u>	<u>CAS Number</u>
Sulfuric Acid	1-3	7664-93-9
Sodium Azide	<0.1	26628-22-8

Any percentage shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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#### 4. FIRST-AID MEASURES

##### Description of Necessary First Aid Measures

Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
Skin Contact	Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER/doctor.
Inhalation	Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
Ingestion	Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

##### Potential Acute Health Effects

Eye Contact                      Sulfuric Acid (Stop Solution): Causes serious eye damage (H319)

Skin Contact                      Sulfuric Acid (Stop Solution): Causes skin irritation (H315)

Inhalation                        No known significant effects or critical hazards.

Ingestion                         No known significant effects or critical hazards

##### 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.

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## 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.

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## 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.

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## 7. STORAGE AND HANDLING

### Storage

May be stored for up to 6 months at 2° to 8°C from the date of shipment. Opened Microplate Wells or reagents may be stored for up to 1 month at 2° to 8°C. Return unused wells to the pouch containing desiccant pack, reseal along entire edge. Reconstituted standard can be stored at -80°C for up to 1 week. Note: the kit can be used within one year if the whole kit is stored at -20°C. Avoid repeated freeze-thaw cycles.

## Handling

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Keep away from incompatible materials (see Section 10) and food and drink.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Permissible Exposure Limits (PELs)

Substance	CAS No.	Regulatory Limits		Recommended Limits	
		OSHA PEL	Cal/OSHA PEL	NIOSH REL	ACGIH
		mg/m <sup>3</sup>	8-hour TWA (ST) STEL (C) Ceiling	Up to 10-hour TWA (ST) STEL (C) Ceiling	8-hour TWA (ST) STEL (C) Ceiling
Sulfuric acid	7664-93-9	1	0.1 mg/m <sup>3</sup> (ST) 3 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup> (Thor.)
Sodium Azide	26628-22-8	-	-	0.3 mg/m <sup>3</sup> (C; Skin)	0.29 mg/m <sup>3</sup> (C)

### Appropriate Engineering Controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### 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.

## 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

## 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.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

Ingredient Name	Result	Species	Dose	Exposure
Sulfuric Acid	LC50 Inhalation Gas LD50 Oral	Rat Rat	347 ppm 2140 mg/kg	1 hour -
Sodium Azide	LC50 Inhalation LD50 Oral LD50 Dermal	Rat Rabbit Rabbit	37 mg/m3 10 mg/kg 20 mg/kg	-

### Irritation/Corrosion

Ingredient Name	Result	Species	Exposure	Observation
Sulfuric Acid	Eyes - Severe irritant Eyes - Severe irritant	Rabbit Rabbit	250 Micrograms 0.5 minutes 5 milligrams	- -
Sodium Azide	No data available	-	-	-

**Sensitization** Not Available

**Mutagenicity** Not available

### Classification

Ingredient Name	OSHA	IARC	NTP
Sulfuric Acid	+	1	Known to be a human carcinogen.
Sodium Azide	+	1	Not classifiable as a human carcinogen. It is unknown whether chronic or repeated exposure to sodium azide increases the risk of reproductive toxicity or developmental toxicity.

**Reproductive Toxicity** Not Available

**Specific target organ toxicity (single exposure)** Not available

**Specific target organ toxicity (repeated exposure)** Not available

**Aspiration hazard** Not available

**Likely routes of exposure** Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

**Eye contact** Sulfuric Acid (stop solution): Risk of serious damage to eyes.

**Inhalation** No known significant effects or critical hazards.

**Ingestion** No known significant effects or critical hazards

**Skin Contact** Sulfuric Acid (stop solution): Skin irritant or corrosion.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** No data available

**Persistence and degradability** No data available

**Bioaccumulation/accumulation** No data available

**Mobility in environmental media** No data available

**Other hazardous effects** May be harmful to the environment, particularly aquatic organisms.

## 13. DISPOSAL CONSIDERATIONS

<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>Europe</b>	In accordance with Regulation (EC) No. 1907/2006 of the European Parliament and the Council (REACH) and Commission Regulation (EU) No. 830/2015. In accordance with Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures (CLP)
<b>SARA 302 Components</b>	Sulfuric Acid (Stop Solution): CAS 7664-93-9 Sodium Azide (Assay Diluent A): CAS 26628-22-8
<b>SARA 313 Components</b>	Sulfuric Acid (Stop Solution): Concentration <3% Sodium Azide (Assay Diluent A): Concentration <0.1%
<b>SARA 311/312 Hazards</b>	Sulfuric Acid (Stop Solution): Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation
<b>California Prop. 65 Components</b>	Sulfuric Acid (Stop Solution): WARNING: This product contains a chemical known to the State of California to cause cancer. Sodium Azide (Assay Diluent A): This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.
<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.
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This product is for research use only.



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