
1. IDENTIFICATION

Product Identification

Product Name Human TNF-alpha / TNF-R1 Binding Assay
Catalog Number BAH-TNFR1-TNF

Kit Components

1. TNFR1 Microplate (Item A): 96 wells (12 strips x 8 wells) coated with recombinant human TNFR1 protein
2. Wash Buffer Concentrate (20x) (Item B): 25 ml of 20x concentrated solution
3. Assay Diluent (Item E2): 15 ml of 5x concentrated buffer
4. TNF protein (Item F): 2 vials of purified recombinant human TNF protein (1 vial is enough to assay half microplate)
5. Detection Antibody TNF (Item C-1): 2 vials of anti-human TNF antibody (1 vial is enough to assay half of the microplate)
6. HRP-conjugated Anti-IgG (Item D-2): 15 µl of 1000x concentrated HRP-conjugated anti-IgG
7. TMB One-Step Substrate Reagent (Item H): 12 ml of 3,3',5,5'-tetramethylbenzidine (TMB) in buffered solution
8. Stop Solution (Item I): 8 ml of 0.2 M sulfuric acid

Usage

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

Supplier Identification

Company	RayBiotech Life, Inc. 3607 Parkway Lane, Suite 200 Peachtree Corners, GA 30092 USA
Telephone	770-729-2992
Fax	770-206-2393
Website	www.RayBiotech.com
Email	info@raybiotech.com

Emergency Telephone Number

Emergency Phone # 1-888-494-8555

2. HAZARDS IDENTIFICATION

Hazardous Ingredients

1. Stop Solution contains Sulfuric Acid
2. Assay Diluent 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): ACUTE TOXICITY (inhalation)

Sodium Azide (Assay Diluent): ACUTE TOXICITY (ingestion)

GHS Label Elements

Hazard Pictograms



Signal Word

Warning

Hazard Statements

Sulfuric Acid (Stop Solution): Harmful if inhaled.

Sodium Azide (Assay Diluent): Harmful if ingested.

Prevention

Use only outdoors or in a well-ventilated area. Avoid breathing vapor.

Response

IF INHALED: Go to fresh air and rest in a position comfortable for breathing.

Call a POISON CENTER or physician you feel unwell.

IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

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

SKIN CONTACT: Wash with clean water or soap and water.

INHALATION: Move to an outside area and breath fresh air. Clear the nose by blowing.

Storage

Not applicable.

Disposal

Not applicable.

Hazards not otherwise classified

None known.

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	<0.01	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.

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	No known significant effects or critical hazards.
Skin Contact	No known significant effects or critical hazards
Inhalation	Sulfuric Acid (Stop Solution): Harmful if inhaled.
Ingestion	Sodium Azide (Assay Diluent): Harmful if ingested.

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

Upon receipt, the kit should be stored at 4°C. Please use within 6 months from the date of shipment. After initial use, Wash Buffer Concentrate (Item B), Assay Diluent (Item E2), TMB One-Step Substrate Reagent (Item H), Stop Solution (Item I) should be stored at 4°C to avoid repeated freeze-thaw cycles. Return unused wells to the pouch containing a desiccant pack, reseal along entire edge and store at 4°C. Item F, Item C and Item D store at 2-8°C for up to one month (store at -20°C for up to 6 months, 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/m3	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/m3 (ST) 3 mg/m3	1 mg/m3	0.2 mg/m3 (Thor.)
Sodium Azide	26628-22-8			0.3 mg/m3 (C; Skin)	0.29 mg/m3 (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	Rat	347 ppm	1 hour
	LD50 Oral	Rat	2140 mg/kg	-
Sodium Azide	LC50 Inhalation	Rat	37 mg/m3	
	LD50 Oral	Rabbit	10 mg/kg	
	LD50 Dermal	Rabbit	20 mg/kg	

Irritation/Corrosion

Ingredient Name	Result	Species	Exposure	Observation
Sulfuric Acid	Eyes - Severe irritant	Rabbit	250 Micrograms	-
	Eyes - Severe irritant	Rabbit	0.5 minutes 5 milligrams	-

Sensitization Not Available

Mutagenicity Not available

Classification

Ingredient Name OSHA IARC NTP

Sulfuric Acid + 1 Known to be a human carcinogen.

Reproductive Toxicity Not Available

Specific target organotoxicity (single exposure) Not available

Specific target organotoxicity (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 No known significant effects or critical hazards.

Inhalation Sulfuric Acid (Stop Solution): Harmful if inhaled.

Ingestion Sodium Azide (Assay Diluent): Harmful if ingested.

Skin Contact No known significant effects or critical hazards.

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 organism

13. DISPOSAL CONSIDERATIONS

Disposal methods

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.

14. TRANSPORT INFORMATION

DOT Not dangerous goods.
IATA Not dangerous goods.
ADR Not dangerous goods.

15. REGULATORY INFORMATION

United States (TSCA) All ingredients are on the inventory or exempt from listing.
Canada (DSL / NDSL) All ingredients are on the inventory or exempt from listing.
Europe In accordance with Regulation (EC) No. 1907/2006 of the European Parliament and the Council (REACH) and Commission Regulation (EU) No. 830/2015.
SARA 302 Components Sulfuric Acid (Stop Solution): CAS 7664-93-9
Sodium Azide (Assay Diluent): CAS 26628-22-8
SARA 313 Components Sulfuric Acid (Stop Solution): Concentration <5%
Sodium Azide (Assay Diluent): Concentration <0.1%
SARA 311/312 Hazards Sulfuric Acid (Stop Solution): Reactive, Acute Health Hazard
Sodium Azide (Assay Diluent): Acute Health Hazard
California Prop. 65 Components Sulfuric Acid (Stop Solution): WARNING: This product contains a chemical known to the State of California to cause cancer.
Sodium Azide (Assay Diluent): This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Disclaimer 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 November 21, 2021

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