Material Safety Data Sheets (MSDS)
For MicroFlow^{PLUS} Kit (Mouse)

SOLUTION A
Description: METHYL ALCOHOL CAS No.: 67-56-1

1. Product Identification

Synonyms: Wood alcohol; methanol; carbinol
Molecular Weight: 32.04
Chemical Formula: CH3OH

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Methyl Alcohol	67-56-1	100%	Yes

3. Hazards Identification

Emergency Overview
POISON! DANGER! VAPOR HARMFUL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CANNOT BE MADE NONPOISONOUS. FLAMMABLE LIQUID AND VAPOR. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM AND LIVER.

Safety Ratings

Health Rating: 3 - Severe (Poison)
Flammability Rating: 3 - Severe (Flammable)
Reactivity Rating: 1 - Slight
Contact Rating: 3 - Severe (Life)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:
A slight irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better but then worse again up to 30 hours later.
Ingestion:
Toxic. Symptoms parallel inhalation. Can intoxicate and cause blindness. Usual fatal dose: 100-125 milliliters.
Skin Contact:
Methyl alcohol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur; symptoms may parallel inhalation exposure.
Eye Contact:
Irritant. Continued exposure may cause eye lesions.
Chronic Exposure:
Marked impairment of vision has been reported. Repeated or prolonged exposure may cause skin irritation.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.
4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:
Flash point: 12C (54F) CC
Autoignition temperature: 464C (867F)
Flammable limits in air % by volume:
lel: 6.0; uel: 36
Flammable Liquid and Vapor!
Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Moderate explosion hazard and dangerous fire hazard when exposed to heat, sparks or flames. Sensitive to static discharge.
Fire Extinguishing Media:
Use alcohol foam, dry chemical or carbon dioxide. (Water may be ineffective.)
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire. Vapors can flow along surfaces to distant ignition source and flash back.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
For Methyl Alcohol - OSHA Permissible Exposure Limit (PEL):
200 ppm (TWA) - ACGIH Threshold Limit Value (TLV):

200 ppm (TWA), 250 ppm (STEL) skin
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. Use explosion-proof equipment.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). This substance has poor warning properties.
Skin Protection:
Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure.
Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Clear, colorless liquid.
Odor: Characteristic odor.
Solubility: Miscible in water.
Specific Gravity: 0.8
pH: No information found.
% Volatiles by volume @ 21C (70F): 100
Boiling Point: 64.5C (147F)
Melting Point: -98C (-144F)
Vapor Density (Air=1): 1.1
Vapor Pressure (mm Hg): 97 @ 20C (68F)
Evaporation Rate (BuAc=1): 5.9

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
May form carbon dioxide, carbon monoxide, and formaldehyde when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Strong oxidizing agents such as nitrates, perchlorates or sulfuric acid. Will attack some forms of plastics, rubber, and coatings. May react with metallic aluminum and generate hydrogen gas.
Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Methyl Alcohol (Methanol) Oral rat LD50: 5628 mg/kg; inhalation rat LC50: 64000 ppm/4H; skin rabbit LD50: 15800 mg/kg; Irritation data-standard Draize test: skin, rabbit: 20mg/24 hr. Moderate; eye, rabbit: 100 mg/24 hr. Moderate. Investigated as a mutagen, reproductive effector.

--------\Cancer Lists\----------

	---NTP Carcinogen---		
Ingredient	Known	Anticipated	IARC Category
Methyl Alcohol (67-56-1)	No	No	None

12. Ecological Information

Environmental Fate:
When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into the water, this material is expected to have a half-life between 1 and 10 days. When released into water, this material is expected to readily biodegrade. When released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into air, this material is expected to have a half-life between 10 and 30 days. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.
Environmental Toxicity:
This material is expected to be slightly toxic to aquatic life.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: METHANOL
Hazard Class: 3
UN/NA: UN1230
Packing Group: II
Information reported for product/size: 350LB

International (Water, I.M.O.)

Proper Shipping Name: METHANOL
Hazard Class: 3, 6.1
UN/NA: UN1230
Packing Group: II
Information reported for product/size: 350LB

15. Regulatory Information
Chemical Inventory Status - Part 1

Ingredient	TSCA	EC	Japan	Australia
Methyl Alcohol (67-56-1)	Yes	Yes	Yes	Yes

Chemical Inventory Status - Part 2

		--Canada--		
Ingredient	Korea	DSL	NDSL	Phil.
Methyl Alcohol (67-56-1)	Yes	Yes	No	Yes

Federal, State & International Regulations - Part 1

	-SARA 302-		------SARA 313------	
Ingredient	RQ	TPQ	List	Chemical Catg.
Methyl Alcohol (67-56-1)	No	No	Yes	No

Federal, State & International Regulations - Part 2

	-RCRA-	-TSCA-
Ingredient	CERCLA	261.33	8(d)
Methyl Alcohol (67-56-1)	5000	U154	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: No (Pure / Liquid)

16. Other Information

NFPA Ratings: Health: 1 Flammability: 3 Reactivity: 0
Label Hazard Warning:
POISON! DANGER! VAPOR HARMFUL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CANNOT BE MADE NONPOISONOUS. FLAMMABLE LIQUID AND VAPOR. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM AND LIVER.
Label Precautions:
Avoid breathing vapor.
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Keep container closed.
Use only with adequate ventilation.
Keep away from heat, sparks and flame.
Label First Aid:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.
Product Use:
Laboratory Reagent.
Other Information:
THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. LITRON LABORATORIES SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT.

FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES.

SOLUTION B

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - -
NAME: HEPARIN SODIUM GRADE I-A FROM PORCINE INTESTINAL MUCOSA

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #: 9041-08-1
SYNONYMS
ALFA 87-81 * ALFA 87-120 * ALFA 87-163 * ALFA 87-198 * ALFA 87-247 * DALTEPARIN SODIUM * DEPO-HEPARIN * ENOXAPARIN SODIUM * INNO-HEP * HED-HEPARIN * HEPARIN SODIUM * HEPATHROM * KABI 2165 * LHN 1 * LIQUAEMIN SODIUM * LIQUEMIN * MINOLTEPARIN SODIUM * NORMIFLO * PARNAPARIN SODIUM * PK 10169 * PULARIN * REVIPARIN SODIUM * RO 11 * RP 54563 * SODIUM ACID HEPARIN * SODIUM HEPARIN * SODIUM HEPARINATE * TINZAPARIN SODIUM *

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -
CAUTION:
AVOID CONTACT AND INHALATION.
TARGET ORGAN(S):
BLOOD

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.

CALL A PHYSICIAN.
IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT, CALL A PHYSICIAN.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL. AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.
WASH THOROUGHLY AFTER HANDLING.
AVOID INHALATION.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
DO NOT USE IF SKIN IS CUT OR SCRATCHED. WASH THOROUGHLY AFTER HANDLING.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -
APPEARANCE AND ODOR
SOLID.
PHYSICAL PROPERTIES
SOLUBILITY:
WATER -Z26012
SWISS POISON CLASS: 3

SECTION 10. - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -
STABILITY
STABLE.
INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
CARBON MONOXIDE, CARBON DIOXIDE

NITROGEN OXIDES
SULFUR OXIDES
SODIUM/SODIUM OXIDES
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -
ACUTE EFFECTS
MAY CAUSE SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
MAY CAUSE EYE IRRITATION.
MAY BE HARMFUL IF INHALED.
MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
MAY BE HARMFUL IF SWALLOWED.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
CHRONIC EFFECTS
TARGET ORGAN(S):
BLOOD
RTECS #: MI0850000
HEPARIN, SODIUM SALT
TOXICITY DATA

ORL-RAT LD50:>779000 IU/KG	IYKEDH 23,201,1992
SCU-RAT LD50:46715 IU/KG	IYKEDH 23,201,1992
IVN-RAT LD50:391821 IU/KG	IYKEDH 23,201,1992
ORL-MUS LD50:>5 GM/KG	NIIRDN -,1084,1990
IPR-MUS LD50:>2500 MG/KG	NIIRDN -,1084,1990
SCU-MUS LD50:>2500 MG/KG	NIIRDN -,1084,1990
IVN-MUS LD50:2800 MG/KG	JPETAB 102,156,1951
UNR-MUS LD50:2800 MG/KG	PSEBAA 82,280,1953
IVN-DOG LD50:1 GM/KG	JPETAB 102,156,1951

TARGET ORGAN DATA
BEHAVIORAL (HALLUCINATIONS, DISTORTED PERCEPTIONS)
BEHAVIORAL (CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD)
BLOOD (HEMORRHAGE)
SKIN AND APPENDAGES (AFTER SYSTEMIC EXPOSURE: DERMATITIS, OTHER)
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -
CONTACT LITRON LABORATORIES FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -
EUROPEAN INFORMATION
CAUTION: SUBSTANCE NOT YET FULLY TESTED.
S 22
DO NOT BREATHE DUST.
S 24/25
AVOID CONTACT WITH SKIN AND EYES.
REVIEWS, STANDARDS, AND REGULATIONS
OEL=MAK
NOES 1983: HZD X4183; NIS 2; TNF 384; NOS 12; TNE 20207; TFE 16054
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001

SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -
THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. LITRON LABORATORIES SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT.

FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES.

SOLUTION C

DESCRIPTION: HANK'S BALANCED SALTS, 1X SOLUTION, WITHOUT CALCIUM, MAGNESIUM & PHENOL RED

SECTION I --HEALTH HAZARD DATA
TO THE BEST OF OUR KNOWLEDGE, THIS MATERIAL IS NOT BELIEVED TO BE TOXIC, HAZARDOUS OR DANGEROUS TO ONE'S HEALTH ACCORDING TO OSHA REGULATIONS. FOLLOW APPROPRIATE GUIDELINES FOR PROPER LABORATORY
PRECAUTIONS AND PROCEDURES WHEN HANDLING PRODUCT. WEAR APPROPRIATE PROTECTIVE CLOTHING TO LIMIT EXPOSURE TO EYES, SKIN AND MUCOUS MEMBRANES, AS IRRITATION MAY OCCUR WHILE USING DRY POWDERS OR LIQUID MEDIA. WASH HANDS THOROUGHLY AFTER HANDLING.

SECTION II -- FIRE AND ACCIDENTAL EXPOSURE DATA
IN THE EVENT OF A FIRE, EVACUATE AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING. USE ANY SUITABLE MEDIA FOR EXTINGUISHING THE MATERIAL SUPPORTING THE FIRE (WATER SPRAY, CARBON DIOXIDE, DRY CHEMICAL OR FOAM). IN THE EVENT OF AN OCCUPATIONAL SPILL, EVACUATE AREA OF UNNECESSARY PERSONNEL, CAREFULLY SWEEP UP MATERIAL AND PLACE IN A SUITABLE CONTAINER FOR RECLAMATION OR DISPOSAL. VENTILATE AREA AND WASH SPILL SITE AFTER PICKUP IS COMPLETED. OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION III -- GUIDELINES FOR SAFE HANDLING
THE USE OF PROTECTIVE CLOTHING SHOULD BE FOLLOWED AS REQUIRED BY INTERNAL SAFETY COMMITTEE RECOMMENDATIONS. PROTECTIVE GLOVES, SAFETY GOGGLES, AND ACCESS TO A SAFETY SHOWER AND EYE BATH ARE RECOMMENDED. IN CASE OF CONTACT WITH EYES, FLUSH IMMEDIATELY WITH COPIOUS AMOUNTS OF
WATER FOR AT LEAST 15 MINUTES. FOR SKIN CONTACT, WASH IMMEDIATELY WITH SOAP AND COPIOUS AMOUNTS OF WATER. IF INHALED, REMOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDING THE
PERSON IS CONSCIOUS. SEEK MEDICAL ADVICE. (SHOW LABEL WHENEVER POSSIBLE). WASH CONTAMINATED CLOTHING BEFORE REUSE.

OTHER INFORMATION: THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TOBE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. LITRON LABORATORIES SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT.

FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES.

SOLUTION D

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
NAME: RIBONUCLEASE A TYPE III-A FROM BOVINE PANCREAS

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #: 9001-99-4
EC NO: 232-646-6
SYNONYMS
ALKALINE RIBONUCLEASE * E.C. 2.7.7.16 * E.C. 3.1.4.22 * PANCREATIC RIBONUCLEASE * RIBONUCLEASE * RIBONUCLEASE A * RIBONUCLEASE I * RIBONUCLEIC PHOSPHATASE *

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
CAUTION:
AVOID CONTACT AND INHALATION.
FREEZE.

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT, CALL A PHYSICIAN.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA
NONCOMBUSTIBLE.
USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
SAFETY SHOWER AND EYE BATH.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID INHALATION.

AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
WASH THOROUGHLY AFTER HANDLING.
KEEP TIGHTLY CLOSED.
FREEZE.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -
APPEARANCE AND ODOR
SOLID.

SECTION 10. - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -
STABILITY
STABLE.
INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
NATURE OF DECOMPOSITION PRODUCTS NOT KNOWN.
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -
ACUTE EFFECTS
MAY CAUSE SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
MAY CAUSE EYE IRRITATION.
MAY BE HARMFUL IF INHALED.
MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
MAY BE HARMFUL IF SWALLOWED.
PROLONGED OR REPEATED EXPOSURE MAY CAUSE ALLERGIC REACTIONS IN CERTAIN SENSITIVE INDIVIDUALS.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
RTECS #: RF0760000
NUCLEASE, RIBO-
TOXICITY DATA

IPR-RAT LD50:392 MG/KG	54IIAL -,56,1985
SCU-RAT LD50:290 MG/KG	54IIAL -,56,1985
IMS-RAT LD50:310 MG/KG	54IIAL -,56,1985
IPR-MUS LD50:250 MG/KG	54IIAL -,56,1985
SCU-MUS LD50:230 MG/KG	54IIAL -,56,1985
IMS-MUS LD50:355 MG/KG	54IIAL -,56,1985

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -
CONTACT LITRON LABORATORIES FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -
EUROPEAN INFORMATION
S 22
DO NOT BREATHE DUST.
S 24/25
AVOID CONTACT WITH SKIN AND EYES.
REVIEWS, STANDARDS, AND REGULATIONS
OEL=MAK
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -
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FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES.

SOLUTION E

Description: MAb to Mouse CD71
Monoclonal Antibody to Mouse CD71
Fluorescein conjugated

Specificity: Recognizes the murine transferrin receptor protein on the surface of most dividing cells. The function of the transferrin receptor is believed to be mainly nutritional. Alternatively, it has been suggested that a growth signal might be provided by the interaction of transferrin and transferrin receptor. The CD71 is present on most dividing cells, including normally cycling in vivo hematopoietic progenitor cells, mitogenically stimulated cells in vitro, some primary tumor cells and most proliferating cells in vitro.

Clone: R17217.1.4

Host Animal: Rat **Isotype**: IgG_{2a}

Source: Tissue Culture

Format: FITC, Liquid

Purification: Affinity purified

Concentration: 0.5mg/ml (OD280)

Affinity Constant: Not determined.

Buffer: 0.01M PBS, pH 7.2, containing 1.0% BSA.

Preservative: 0.09% Sodium Azide

Applications: Suitable for subset analysis of the developmental stage of mouse cells and as a proliferation marker. Applications in flow cytometry, immunoprecipitation and immunohistochemistry.

Storage: Store at 2-8°C. **DO NOT FREEZE**.

Warning: This product contains sodium azide, which has been classified as Xn (Harmful) in European Directive 67/548/EEC in the concentration range of 0.1 – 1.0 %. When disposing of this reagent through lead or copper plumbing, flush with copious volumes of water to prevent azide build-up in drains.

References: The references listed below are for research purposes only.

1. Lesley, J. et al (1982) Immunogenetics **15**:313
2. Lesley, J. et al (1984) Mol. Cell. Biol. **4**(9): 1675
3. Kemp, J.D. et al (1987) J. Immunol. **138**:2422
4. Kemp, J.D. et al (1989) Cell Immunol. **122**:218

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SOLUTION F

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - -
NAME: PROPIDIUM IODIDE 95-98%

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - -
CAS #: 25535-16-4
MF: C27H34I2N4
EC NO: 247-081-0
SYNONYMS
3,8-DIAMINO-5-(3-DIETHYLAMINOPROPYL)-6-PHENYLPHENANTHRIDINIUM IODIDE METHIODIDE (6CI) * 3,8-DIAMINO-5-(3-(DIETHYLMETHYLAMMONIO)PROPYL)-6-PHENYLPHENANTHRIDINIUM DIIODIDE * PROPIDIUM DIIODIDE * PROPIDIUM IODIDE *

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
IRRITANT
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
WEAR SUITABLE PROTECTIVE CLOTHING.
LIGHT SENSITIVE
HYGROSCOPIC
REFRIGERATE.

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
EVACUATE AREA.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
WASH THOROUGHLY AFTER HANDLING.
DO NOT BREATHE DUST.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.
STORE AT 2-8'C (35.6-46.4'F).
STORE IN THE DARK.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -
APPEARANCE AND ODOR
SOLID.
PHYSICAL PROPERTIES
MELTING POINT: 220 - 225 C

SECTION 10. - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -
STABILITY
STABLE.
CONDITIONS TO AVOID
MAY DECOMPOSE ON EXPOSURE TO LIGHT.
MAY DECOMPOSE ON EXPOSURE TO MOIST AIR OR WATER.
INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
CARBON MONOXIDE, CARBON DIOXIDE
NITROGEN OXIDES
HYDROGEN IODIDE
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -
ACUTE EFFECTS
CAUSES SKIN IRRITATION.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
CAUSES EYE IRRITATION.
MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
MAY BE HARMFUL IF INHALED.
MAY BE HARMFUL IF SWALLOWED.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
CHRONIC EFFECTS
LABORATORY EXPERIMENTS HAVE SHOWN MUTAGENIC EFFECTS.

RTECS #: SF7949600
PHENANTHRIDINIUM,
3,8-DIAMINO-5-(3-(DIETHYLMETHYLAMMONIO)PROPYL)-6-PHENYL-, DIIODIDE
TOXICITY DATA
SCU-MUS LD50:16 MG/KG BJPCAL 11,334,1956
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -
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CONTACT LITRON LABORATORIES FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -
EUROPEAN INFORMATION
IRRITANT
R 36/37/38
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
S 26
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
REVIEWS, STANDARDS, AND REGULATIONS
OEL=MAK
EPA GENETOX PROGRAM 1988, POSITIVE: IN VITRO MAMMALIAN NONHUMAN MICRONUCLEUS

SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -
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Solution G

Description: R-Phycoerythrin (R-PE)-Conjugated Hamster Anti-Mouse CD61(Integrin ß$_3$ chain) Monoclonal Antibody

Product Information

Size:	0.2 mg
Clone:	2C9.G2 (subclone of HMß3-1[1])
Immunogen:	Vitronectin receptor protein from the mouse T-cell hybridoma 2B4[2]
Isotype:	Armenian Hamster IgG1*, κ
Storage Buffer:	Aqueous buffered solution containing 0.09% Sodium Azide.

Specificity

The 2C9.G2 antibody reacts with the integrin ß$_3$ chain (CD61),[2] which associates with the integrin α$_v$ chain (CD51) to form the vitronectin receptor and with the α$_{IIb}$ chain (CD41) to form the gpIIb/IIIa complex.[3] Both receptors mediate adhesion to fibronectin, fibrinogen, vitronectin, thrombospondin, and von Willebrand factor.[3] Leukocyte-endothelial adhesion is also mediated by the binding of α$_v$ß$_3$ integrin or vitronectin receptor to CD31 (PECAM-1).[4] In addition, interaction of the α$_v$ß$_3$ integrin with its ligands regulates the L-type Ca^{2+} channel in vascular smooth muscle cells, possibly mediating vasodilatory responses to injury.[5] Soluble and insoluble 2C9.G2 mAb mimics the

effect of the natural ligands in smooth muscle cells from rat cremaster arterioles.[5] Furthermore, osteopontin, also named Eta-1, is a cytokine that binds to $\alpha_v\beta_3$.[6] CD61 is expressed on platelets,[3] activated T lymphocytes,[7] polymorphonuclear granulocytes,[8] and blastocysts.[9] Cross-reactivity of mAb 2C9.G2 to rat mast cells and platelets has been observed by flow cytometric analysis.[2,10] mAb 2C9.G2 has been demonstrated to block binding of rat and mouse cells to fibronectin.[2,9]

*Although hamster immunoglobulin isotypes have not been well defined, Armenian and Syrian hamster IgG monoclonal antibodies have been grouped according to their reactivity with a panel of mouse anti-hamster IgG mAbs.

Preparation and Storage

The antibody was purified from tissue culture supernatant by affinity chromatography. The antibody was conjugated with R-PE** under optimum conditions. The solution is free of unconjugated antibody. The conjugate should be stored undiluted at 4°C and protected from prolonged exposure to light. **Do not freeze.**

**This conjugated product is sold under license to the following patents: US Patent Nos. 4,520,110; 4,859,582; 5,055,556; European Patent No. 76,695; and Canadian Patent No. 1,179,942.

Usage

This antibody conjugate has been tested by immunofluorescent staining (≤ 1 μg/million cells) with flow cytometric analysis to assure specificity and reactivity. **Since applications vary, each investigator must determine dilutions appropriate for individual use.**

Hazardous Ingredient: Sodium Azide. *Avoid exposure to skin and eyes, ingestion, and contact with heat, acids, and metals. Wash exposed skin with soap and water. Flush eyes with water. Dilute with running water before discharge into plumbing.*