Sialic Acid Quantitative Determination Kit #1

(Cat. No. : SAQD-01)

Purpose of Use

To measure sialic acid in serum.

Principle of Procedure

The glycosidically bound sialic acid is hydrolyzed by neuraminidase to release free N-acetylneuraminic acid (NANA), which is converted to N-acetylmannosamine and pyruvic acid by the action of NANA-aldolase. The pyruvic acid is oxidized by pyruvate oxidase (POP) to give acetylphosphate and H_2O_2. The quantity of H_2O_2 produced is directly proportional to the amount of NANA in the specimen, and is determined by the use of the 4-AAP / EHMT / Peroxidase system. (4-aminoantypirine / N-ethyl-N-2-hydroxyethyl-m-toluidine / Peroxidase). In the presence of Peroxidase (POD), the H_2O_2 oxides and condensates 4-AAP and EHMT producing a purplish red quinone. The sialic acid content is determined by comparing the color spectrophotometrically.

Sialic acid (bound type) —neuraminidase→ NANA (free)

NANA —NANA-aldolase→ N-acetylmannosamine + Pyruvic

Pyruvic acid + O_2 + Pi —POP→ Acetylphosphate + CO_2 + H_2O_2

H_2O_2 + 4-AAP + EHMT —Peroxidase→ 550nm

Kit Contents

Reagent A	Neuraminidase , 4-AAP	10 x 5ml
Reagent B	NANA-aldolase , POP , POD, TPP, FAD	10 x 5ml
Buffer Solution	EHMT, Mg^{2+}, Phosphate Buffer	1 x 105ml
Stabilizer	Phosphate Buffer, Detergent	2 x 105ml
Standard Serum	Serum	2 x 1ml

Reagent Preparation

Reagent A: Reconstitute 1 vial of Reagent A by adding 5ml of buffer solution. This solution is stable for **7 days** when stored in the dark between 2-10°C.

Reagent B: Reconstitute 1 vial of Reagent B by adding 5ml of buffer solution. This solution is stable for **7 days** when stored in the dark between 2-10°C.

Stabilizer: Use, as is. The stabilizer will be stable for one year when stored in the dark between 2-10ºC.

Standard Serum: Reconstitute 1 vial of the standard serum by adding 1ml of distilled water. This solution is stable for 7 days when stored in the dark between 2-10ºC or for 30 days at -20ºC.

Procedure

Measuring Sample

1. Add 0.02ml of sample to a test tube.
2. Add 0.5ml of Reagent A to the test tube.
3. Then add 0.5ml of Reagent B to the test tube and gently mix.
   Note: Steps 2 and 3 may be replaced by the following:
   A premixture of Reagent A and Reagent B can be made by mixing equal volumes of each in a single test tube. This solution, however, should be used within a day. Add 1ml of this solution to the test tube containing the sample in step 1.
4. Heat the mixture for 20 min. at 37º C.
5. Add 2.0 ml of the stabilizer and mix well.
6. Measure the absorbance of the test sample and the standard a wavelength of 550nm.

	Sample	Standard	Blank
Unknown	0.02 ml	-	-
Standard Solution	-	0.02 ml	-
Reagent A	0.5 ml	0.5 ml	0.5 ml
Reagent B	0.5 ml	0.5 ml	0.5 ml
Warm in a water bath at 37°C for 20 minutes			
Stabilizer	2.0 ml	2.0 ml	2.0 ml
Within 60 min., after being mixed, measure the absorbance of the test sample and the standard against the blank at wavelength 550nm.			

Calculation

$$\text{sialic acid content in sample (mg NANA / ml sample)} = \frac{S}{St} \times \text{sialic acid content in standard serum*}$$

where S : OD550 sample - OD550 blank
St : OD550 Standard - OD550 blank

* The sialic acid content in standard serum is shown on the vial
detection range = 0 - 2 mg NANA / ml sample

Special Notes and Cautions

1. Use serum for sample.
2. Factors affecting absorbances:
   a. Pyruvic acid will cause an increase in absorbance.
   b. Ascorbic acid will cause a slight decrease in absorbance.
3. Reagent A and Reagent B will be stable for 24 hours if stored in a dark place at room temperature (20-25ºC) or for one week if stored in a cool (2-10ºC) dark place.
4. A premixture of Reagent A and Reagent B (equal volume of each) should be used within a day. Always keep the premixture in a light shielding container since the absorbance of the blank reagent rises when the solution is exposed to light.
5. The standard serum should be handled as an infectious agent even though it has tested negative with the HBs antigen test, HIV antibody and HCV antibody test. **All serum samples should be handled as infectious agents.**
6. The buffer solution, stabilizer and standard serum contain sodium azide as a preservative. Please handle with care and do not ingest.
7. Please do not use the kit beyond the expiration date.
8. This kit is not to be used for diagnostic purposes.

Storage: Store in a cool (2-10ºC) dark place.
Expiration: See vial label.

EY LABORATORIES, INC.
107 North Amphlett Blvd.
San Mateo, CA 94401

Tel: 650-342-3296
Fax: 650-342-2648
Orders: 1-800-821-0044
(Outside CA only)

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MATERIAL SAFETY DATA SHEET

Effective Date: March 31, 2006
Revision 5

PRODUCT IDENTIFICATION

Name: Crude and purified protein and enzymes.

Catalog Number (s): P-01, 2402, 2404, EC-32118, EC-32118S, E-34424, EC-34424, BA-000, BA-002, NP-01 to NP-05, B-1201 to B-4601, L-1102 to L-9000, AT-2100 to AT-2701, AF-001 to AF-2354, AL-1104 to AL-4701, 13-600 to 13-607, DM1011P to DM1064P, LGS-01, SAQD-01, SAQD-02.

Formula: Complex polypeptides.

Synonyms: Protein A, Horseradish Peroxidase, Laminin (mouse), Neuraminidase, Bromelain, Avidin (egg white), Glycosylated Bovine Serum Albumin, Lectins, Secondary and Monoclonal Antibodies, other Antisera.

EMERGENCY INFORMATION

EY Laboratories, Inc.
107 North Amphlett Blvd.
San Mateo, CA 94401

EMERGENCY PHONE: 650-342-3296

HAZARDOUS COMPONENTS

Specific protein (s) as listed on the vial label. Solutions are at a concentration generally greater than 0.5mg protein/ml. Powders are generally greater than 95% specific protein unless otherwise indicated on the vial label or product information sheet. Biological activity of these proteins will vary. Although these materials are not generally considered to be hazardous they may cause allergic responses in sensitive individuals if inhaled or allowed to contact skin.

HEALTH HAZARD INFORMATION

EXPOSURE LIMITS: None established. The toxicological properties of these products have not been thoroughly investigated. Care should be taken when handling any of these materials.

EFFECTS OF OVEREXPOSURE: Any of these proteins may cause acute localized eye, skin, or mucous membrane irritation. Some sensitive individuals may develop a chronic allergic reaction with exposure.

ROUTES OF EXPOSURE: Inhalation of powders and skin contact with liquids are the primary routes of exposure. Care should be taken to avoid the formation of aerosols when handling any of the solutions.

PHYSICAL CHARACTERISTICS

APPEARANCE: Powders may be white to amber brown in color. Solutions may be translucent to a clear brown

SOLUBILITY: Powders are completely soluble in many biological buffers. Some are soluble in water. All liquids are completely miscible in water and biological buffers.

FIRE AND EXPLOSION HAZARDS

Not considered to be a fire hazard.

EXTINGUISHING MEDIA: Water spray or CO_2.

SPECIAL FIRE FIGHTING PRECAUTIONS: None required.

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NOTE: Most solutions contain 0.05% sodium azide as a preservative. Azide may react with lead and copper plumbing to form explosive metal azides. Flush with copious amounts of water when disposing material in the sink.

REACTIVITY DATA

STABILITY: Stable. Decomposition products are not known to be hazardous.

HAZARDOUS POLYMERIZATION: Will NOT occur.

INCOMPATIBILITY: None known. (Lead and copper may react with sodium azide).

SPILL / LEAK PROCEDURES

MATERIAL RELEASE / SPILL: Avoid contact with powder or liquid. Clean up spill with a paper towel soaked in household bleach. Do not allow solutions to dry on environmental surfaces. Wash affected area with detergent after the area has been treated with bleach.

WASTE DISPOSAL: Incinerate, autoclave, or dispose of paper waste in accordance with all Local, State, and Federal regulations. Due to the small quantities of material involved these products are generally not considered to be environmental hazards. All of these proteins are fully biodegradable.

EMERGENCY FIRST AID PROCEDURES

May be harmful if swallowed, inhaled, or allowed to absorb through the skin. Wash contacted area with water for 15 minutes. If inhaled remove to fresh air. Report exposure to the appropriate safety official. Consult a physician if irritation occurs or if there is any indication of an allergic response such as watering eyes, sneezing, or difficulty breathing

SPECIAL HANDLING PRECAUTIONS

VENTILATION: No special ventilation is required but it is recommended to handle these reagents in a fume hood when possible.

EYE PROTECTION: Not required under most circumstances but recommended as a safety precaution.

RESPIRATORY PROTECTION: Recommended as a safety precaution, specifically when working with powders. An approved respirator may be required for those individuals already known to be sensitive to these materials.

PROTECTIVE GLOVES: Required when handling any of these materials.

SPECIAL PRECAUTIONS

This material is for research and experimental application only. It is not intended for food, drug, household, agricultural, or cosmetic use. All materials should be handled only by technically qualified individuals experienced with working with potentially hazardous chemicals. The above information is correct to the best of our knowledge. The user should make independent decisions regarding completeness of the information, based on all sources available. EY Laboratories, Inc. shall not be held liable for any damage resulting from handling or contact with the above product.

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MATERIAL SAFETY DATA SHEET

Effective Date: March 31, 2006
Revision 6

PRODUCT IDENTIFICATION

Name:	Monosaccharides, Disaccharides, and Polysaccharides.
Catalog Number (s):	C-6000 to C-8006, LGS-01, SAQD-01, SAQD-02.
CAS Numbers:	14215-68-0, 10036-64-3, 6696-41-9, 59-23-4, 6363-53-7, 3458-28-4, 585-99-9, 492-62-6, 131-48-6, 617-04-9, 5989-81-1, 70431-34-4, 11040-27-0, 32181-59-2.
Synonyms:	N-Acetyl-D-Galactosamine, N-Acetyl-D-Glucosamine, α-L-Fucose, D-GalactoseMaltose, D-Mannose, Melibiose, D-Glucose, N-Acetylneuraminic Acid (sialic acid and oligomers of sialic acid), Methyl α-D-Mannopyranoside, α Lactose, Colominic Acid, N-Acetylneuraminyl Lactose (sialyllactose), Chitobiose (diacetyl chitobiose), chitotriose (triacetyl chitotriose), N-acetyllactosamine, Methyl β-D-Mannopyranoside Isopropylate.

EMERGENCY INFORMATION

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EMERGENCY PHONE:
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HAZARDOUS COMPONENTS

These carbohydrates are not considered to be hazardous but they may cause irritation or an allergic response in sensitive individuals.

HEALTH HAZARD INFORMATION

EXPOSURE LIMITS:	None established. The toxicological properties of these products have not been thoroughly investigated. Care should be taken when handling any of these materials.
EFFECTS OF OVEREXPOSURE:	No effects of overexposure have been documented. The carbohydrates may cause irritation or an allergic reaction
ROUTES OF EXPOSURE:	Ingestion, inhalation, or contact with skin. Contact with the eyes may also present a hazard.

PHYSICAL CHARACTERISTICS

APPEARANCE:	White to tan powder.
SOLUBILITY:	Soluble in water.

FIRE AND EXPLOSION HAZARDS

Not considered to be a fire hazard.

EXTINGUISHING MEDIA:	Water spray or CO_2.
SPECIAL FIRE FIGHTING PRECAUTIONS:	None required.

NOTE: Most solutions contain 0.05% sodium azide as a preservative. Azide may react with lead and copper plumbing to form explosive metal azides. Flush with copious amounts of water when disposing material in the sink.

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REACTIVITY DATA

STABILITY:	Stable. Decomposition products are not known to be hazardous.
HAZARDOUS POLYMERIZATION:	Will NOT occur.
INCOMPATIBILITY:	None known.

SPILL / LEAK PROCEDURES

MATERIAL RELEASE / SPILL:	Clean up spill with soap and water.
WASTE DISPOSAL:	Incinerate, autoclave, or dispose of paper waste in accordance with all Local, State, and Federal regulations. These materials are fully biodegradable.

EMERGENCY FIRST AID PROCEDURES

May be harmful if swallowed, injected, or allowed to contact the eyes. Wash contacted area with water for 15 minutes. If inhaled remove to fresh air. Report exposure to the appropriate safety official. Consult a physician if irritation occurs or if there is any indication of an allergic response, such as watering eyes, sneezing, or difficulty breathing. Any eye contact should be reported to a physician immediately.

SPECIAL HANDLING PRECAUTIONS

VENTILATION:	No special ventilation is required.
EYE PROTECTION:	Recommended but not required for most applications.
RESPIRATORY PROTECTION:	Recommended to prevent inhalation of powders. An approved respirator may be required for those individuals already known to be sensitive to these materials.
PROTECTIVE GLOVES:	Recommended but not required for most applications. Required for those individuals known to be sensitive to any of these materials.

SPECIAL PRECAUTIONS

This material is for research and experimental application only. It is not intended for food, drug, household, agricultural, or cosmetic use. All materials should be handled only by technically qualified individuals experienced with working with potentially hazardous chemicals. The above information is correct to the best of our knowledge. The user should make independent decisions regarding completeness of the information, based on all sources available. EY Laboratories, Inc. shall not be held liable for any damage resulting from handling or contact with the above product.

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