

OCT 15 1998

K 982209

Summary of Safety and Effectiveness
ACCUCLOT™ Thrombin Time Reagent (Product No. A8713, A4589)

Sigma Diagnostics' ACCUCLOT™ Thrombin Time Reagent is intended for use as a screening procedure to detect functional fibrinogen and thrombin inhibitors such as heparin, in citrated plasma.

The thrombin clotting time (TT) is an important screening procedure for disorders of thrombosis and hemostasis as well as the presence of heparin.¹⁻³ Thrombin Time testing is a rapid assay procedure that measures the polymerization of fibrinogen to fibrin. Any interference with this conversion will be reflected in a prolongation in the clotting time of the test procedure.

The ACCUCLOT™ Thrombin Time Reagent provides thrombin for fibrinogen hydrolysis and is able to detect normal fibrinogen function even in the presence of severe coagulation abnormalities such as hemophilia (Factor VIII or Factor IX deficiency) or a decrease in factor levels associated with vitamin K deficiency. Abnormal thrombin clotting times occur in cases of hypofibrinogenemia, afibrinogenemia, or dysfibrinogenemia. The TT is also prolonged in the presence of inhibitors such as heparin, myeloma proteins and fibrin/fibrinogen degradation products, which block either thrombin cleavage of fibrinopeptides or fibrin monomer polymerization.³⁻⁵

Sigma Diagnostics' ATROXIN® assay (Catalog # 845-2) can provide data to rule out the presence of heparin in samples with elongated thrombin clotting times.

The safety and effectiveness of the Sigma Diagnostics' ACCUCLOT™ Thrombin Time Reagent has been demonstrated by showing its substantial equivalence to Organon's Thromboquik™ Thrombin Time Reagent. Both Thrombin Time reagents were compared using normal and abnormal plasma samples. Sigma's ACCUCLOT™ Thrombin Time Reagent (y) was used on an Amelung KC-4A, an AMAX CS-190 (optically and mechanically) and Organon Teknika's Thromboquik™ (x) was used on a photo-optical analyzer, the Coag-A-Mate X2. Results of these correlation studies are presented in the table below.

Instrument	Equation	r ²	N
AMAX Optical	Y=2.11x-13.33	0.978	101
AMAX Mechanical	Y=2.87x-18.10	0.972	101
KC4a	Y=1.95x-7.26	0.959	49

Precision studies demonstrated a within run CV of less than 7% and a total

precision of less than 6%, using normal and abnormal control plasmas. Sigma Diagnostics' ACCUCLOT™ Thrombin Time Reagent is sensitive to heparin levels corresponding to 0.2 heparin U/mL and up to at least 0.8 heparin U/mL. The reagent also, demonstrated sensitivity for abnormal low fibrinogen levels starting at 98 mg/dL fibrinogen.

1. Coleman RW, Hirsh J, Marder VJ, Salzman EW: Hemostasis and Thrombosis, 2nd ed. J B Lippincott Co., Philadelphia, 1987
2. Jarret L, Sonnenworth AC: Gradwohl's Clinical Laboratory Methods and Diagnosis, Vol 1, 2nd ed. C V Mosby Co., St. Louis (MO), 1977
3. Miale JB: Laboratory Medicine Hematology, 5th ed. C V Mosby Co., St. Louis (MO), 1977
4. Williams WT, Beutler E, Erslev AJ, Rundles RW: Hematology, 2nd ed. McGraw-Hill, New York, 1977
5. Wintrobe MM, Lee GR, Boggs DR, Bitchell JC, Foerster J, Athens JW, Lukens JN: Clinical Hematology, 8th ed. Lea & Febiger, Philadelphia, 1981



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Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

William R. Gilbert, Ph.D.
Manager, Scientific Affairs
Sigma Diagnostics
545 South Ewing Avenue
St. Louis, Missouri 63103

Re: K982209/S1
Trade Name: ACCUCLOT Thrombin Time Reagent
Regulatory Class: II
Product Code: GJA
Dated: September 17, 1998
Received: September 18, 1998

Dear Dr. Gilbert:

We have reviewed your Section 510(k) notification of intent to market the device referenced above and we have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

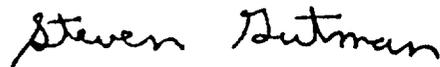
If your device is classified (see above) into either class II (Special Controls) or class III (Premarket Approval), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 895. A substantially equivalent determination assumes compliance with the Current Good Manufacturing Practice requirements, as set forth in the Quality System Regulation (QS) for Medical Devices: General regulation (21 CFR Part 820) and that, through periodic QS inspections, the Food and Drug Administration (FDA) will verify such assumptions. Failure to comply with the GMP regulation may result in regulatory action. In addition, FDA may publish further announcements concerning your device in the Federal Register. Please note: this response to your premarket notification submission does not affect any obligation you might have under sections 531 through 542 of the Act for devices under the Electronic Product Radiation Control provisions, or other Federal laws or regulations.

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This letter will allow you to begin marketing your device as described in your 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801 and additionally 809.10 for in vitro diagnostic devices), please contact the Office of Compliance at (301) 594-4588. Additionally, for questions on the promotion and advertising of your device, please contact the Office of Compliance at (301) 594-4639. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers Assistance at its toll-free number (800) 638-2041 or (301) 443-6597, or at its internet address "<http://www.fda.gov/cdrh/dsma/dsmamain.html>".

Sincerely yours,

A handwritten signature in black ink that reads "Steven Gutman". The signature is written in a cursive style with a large, stylized 'S' and 'G'.

Steven I. Gutman, M.D., M.B.A.
Director
Division of Clinical
Laboratory Devices
Office of Device Evaluation
Center for Devices and
Radiological Health

Enclosure

510(k) Number (if known): _____

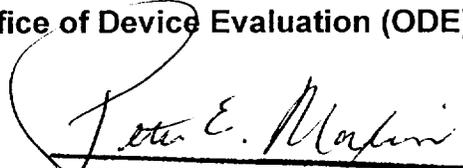
Device Name: Sigma Diagnostics ACCUCLOT™ Thrombin Time Reagent
(A8713/A4589) _____

Indications For Use:

Sigma Diagnostics ACCUCLOT™ Thrombin Time Reagent (A8713/A4589) is a device intended to measure fibrinogen concentration and to detect fibrin or fibrinogen split products for the evaluation of bleeding disorders.

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)



(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number 4989209

Prescription Use
(Per 21 CFR 801.109)

OR

Over-The-Counter Use _____