K992711

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SUMMARY OF SAFETY AND EFFECTIVENESS

ALEXIN™ HS (Catalog No. A 0969/A 1094)

Sigma Diagnostics ALEXIN™ HS contains purified rabbit brain and soy phospholipids with an ellagic acid activator for the determination of the activated partial thromboplastin time and related coagulation procedures in citrated plasma.

The activated partial thromboplastin time (APTT) is a general screening procedure for the detection of coagulation abnormalities in the intrinsic pathway.[1] This assay was developed from the plasma recalcification time (PRT) by the addition of a surface activator to a suspension of rabbit brain cephalin. The activator eliminates the effect of variable glass surfaces on coagulation assays.[2]

The APTT is sensitive to deficiencies or abnormalities of factors VIII, IX, XI, XII, X, V and II, prekallikrein, high molecular weight kininogen (HMWK), fibrinogen and to inhibitors of blood coagulation such as lupus anticoagulants and fibrin/fibrinogen degradation products.[3] The presence of non-specific inhibitors, such as lupus-anticoagulants may prolong the APTT. However, this effect is variable and related to the nature of the APTT reagent employed.[4] The APTT assay has also been widely used to monitor the effectiveness of standard heparin therapy, where the clotting time is prolonged in proportion to the level of unfractionated heparin.[5,6] In summary, the APTT is a clinically relevant screening test for the diagnosis of coagulant disorders and therapeutic monitoring of unfractionated heparin.

The safety and effectiveness of Sigma Diagnostics ALEXIN HS has been demonstrated by showing its substantial equivalence to Dade Actin-FS. One hundred fifty-three random frozen patient samples were assayed in both the optical and mechanical modes with the described ALEXIN HS reagent (y) and with Dade Actin-FS (x). Comparison of the results yielded a correlation coefficient of 0.97 and regression equation of $y = 0.81 x + 0.31$ using the optical mode and a correlation coefficient of 0.97 and regression equation of $y = 0.84 x + 0.28$ using the mechanical mode. When 97 random frozen samples were correlated on the KC 4A analyzer , correlation coefficient was 0.96 and the regression equation was $y = 0.94 x + 0.08$. All regression results were assessed using logarithmically transformed data.

Precision was determined on the KC 4A according to the NCCLS publication EP5-A using plasma controls at three different APTT levels.[7] The following data were obtained:

Sample	Control I	Control II	Control III
Mean, seconds	26.5	46.2	65.0
Within-Run			
1 SD, seconds	0.53	0.77	1.25
CV %	2.00	1.68	1.92
Total			
1 SD, seconds	0.92	1.27	1.85
CV%	3.49	2.74	2.85

REFERENCES

1. Manual of Hemostasis and Thrombosis, 3rd ed. AR Thompson, LA Harker, Editors, Davis Company, Philadelphia, 1983
2. Human Blood Coagulation, Haemostasis and Thrombosis, 3rd ed. R Biggs, CR Rizza, Editors, Blackwell Scientific Publications London, 1984
3. Surdsmo JS, Fair DS: Relationship among the complement, kinin, coagulation and fibrinolytic systems in the inflammatory reaction. Clin Physiol Biochem 1:225, 1983.

4. Forastiero RR, Cerrato GS, Carreras LO: Evaluation of Recently Described Tests for Detection of the Lupus Anticoagulant. Throm. Haem. 72(5):728,1994.
5. Basu D, Gallus MB, Hirsh J, Cade J: A prospective study of the value of monitoring heparin treatment with the activated partial thromboplastin time. N Engl J Med 287:324, 1972
6. Deykin D: Regulation of heparin therapy. N Engl J Med 287:355, 1972
7. National Committee for Clinical Laboratory Standards. Evaluation of Precision Performance of Clinical Chemistry Devices; Approved Guideline. NCCLS Publication EP5-A, Villanova, PA, 1999

DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

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

Re: K992711
Trade Name: Sigma Diagnostics ALEXIN™ HS
Regulatory Class: II
Product Code: GFO
Dated: October 14, 1999
Received: October 15, 1999

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.

Under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88), this device may require a CLIA complexity categorization. To determine if it does, you should contact the Centers for Disease Control and Prevention (CDC) at (770)488-7655.

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 at (301) 443-6597 or at its internet address "http://www.fda.gov/cdrh/dsmamain.html"

Sincerely yours,

Steven Gutman

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): K992711

Device Name: Sigma Diagnostics ALEXIN™ HS

Indications For Use:

Sigma Diagnostics ALEXIN™ HS is a device used for primary screening for coagulation abnormalities, for evaluation of the effect of therapy on procoagulant disorders, and as an assay for coagulation factor deficiencies of the intrinsic coagulation pathway.

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

Concurrence of CDRH, Office of Device Evaluation (ODE)

Peter E Maher

(Division Sign-Off)
Division of Clinical Laboratory Devices K992711
510(k) Number

Prescription Use ✓ OR **Over-The-Counter Use** ___
(Per 21 CFR 801.109)