MAY 1 4 2003

K021944

PREMARKET NOTIFICATION [510(k)] SUMMARY

Submitter

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Contact Person

Dr Roberto Liddi
Quality Assurance & Regulatory Affairs Manager

Date

6th December 2002

Device Name

Trade Name: Cozart EIA Cotinine Urine Kit
Classification Name: Cotinine Test System

Classification

Class I
Code of Federal Regulations Title 21 Food and Drugs
Part 862 Clinical Chemistry and Clinical Toxicology Devices
Subpart D Clinical Toxicology Test Systems
Section 862.3220 Cotinine Test System

Establishment Registration No

3002336046

Performance Standards

BS EN ISO 9001:1994; EN 46001:1996

Substantial Equivalence

The Cozart EIA Cotinine Urine Kit is substantially equivalent to the Auto-Lyte Cotinine EIA (K972481) manufactured by Orasure Technologies, Inc.

See below for table of comparison for substantial equivalence.

Parameter	Cozart Cotinine Urine EIA	Auto-Lyte Cotinine EIA
Intended Use	Qualitative test for Cotinine in human urine with a 500ng/ml cutoff. Recommend confirmation of positive results by GC/MS.	Qualitative and Semi-quantitative test for Cotinine in human urine with a 500ng/ml cutoff. Recommend confirmation of positive results by GC/MS.
Target Population	Clinical and forensic samples and insurance assessment.	Insurance risk assessment.
Design	Competitive ELISA	Competitive EIA for use on clinical chemistry analysers.
Enzyme	Horse Radish Peroxidase	Glucose-6-phosphate dehydrogenase.
Substrate	Tetramethylbenzidine (TMB)	Glucose-6-phosphate
Results	Read spectrophotometrically at 450nm.	Measure production of NADH spectrophotometrically at 340nm.
Calibrators	0, 100, 300 and 1000ng/ml.	0, 500 and 5000ng/ml.
Controls	None supplied but Cozart recommends using external controls.	None supplied.
Method Comparison	95 Urine Specimens were tested, 57 screened positive of which 56 were confirmed by GC/MS. 38 samples screened negative and all 38 were confirmed negative by GC/MS.	218 Urine specimens were tested, 160 from self reported smokers, and 58 from non-smokers. All samples were confirmed by GC/MS
Precision	CV (%) of 2-11%	Precision of less than 2%.
Sensitivity	1.2ng/ml	Unknown
Specificity	Twenty-Eight potential interferents tested – none cross-reacted.	48 potential interferents tested – none cross-reacted.

Introduction

The Cozart EIA Cotinine Urine Kit is a laboratory based test for the detection of Cotinine in human urine using a cutoff of 500ng/mL. The device detailed above was compared to Gas Chromatography/Mass Spectrometry (GC/MS).
Cozart Bioscience Ltd is the manufacturer of the Cotinine Urine Kit. We have not purchased this device from another manufacturer and the device is not marketed under another product name.

Intended Use

The Cozart Bioscience EIA Cotinine Urine Kit is intended for laboratory based testing in clinical and forensic laboratories and for insurance assessment. It provides qualitative screening results for Cotinine in human urine at a cutoff concentration of 500ng/mL. The Cozart EIA Cotinine Urine Kit acts as an aid in the detection of cotinine after use of tobacco products or other products containing nicotine.

This assay is for professional use only and provides only a preliminary analytical test result. Clinical consideration and professional judgement must be applied to any drug of abuse test result, particularly in evaluating a preliminary positive result. In order to obtain a more confirmed analytical result a more specific alternative chemical method is needed. Gas Chromatography/Mass Spectrometry (GC/MS) is the preferred confirmatory method.

Target Population

The target population for the Cozart EIA Cotinine Urine Kit is clinical and forensic samples.

Where Used

The Cozart EIA Cotinine Urine Kit is designed for use in clinical and forensic laboratories and for insurance risk assessment. To be used by trained laboratory personnel only.

Design

As can be seen from the Principle of the Test section in the pack insert, the Cozart EIA Cotinine Urine Kit test is a competitive ELISA for the detection of Cotinine in human urine.

Materials

The Cozart EIA Cotinine Urine kit supplies the following reagents – a microtitre plate coated with antibody, enzyme conjugate reagent, wash buffer, substrate solution, stop solution and four calibrators (0, 50, 500 and 5000ng/ml Cotinine in human urine).

Performance

Method Comparison

The Cozart EIA Cotinine Urine Kit was compared to Gas Chromatography/Mass Spectrometry. All the samples were tested through the Cozart EIA Cotinine Urine Kit according to the pack insert enclosed. Forty-four samples were positive by Cozart Cotinine Microplate EIA and forty-four were confirmed

positive by GC/NPD. Of these forty-four samples, three were in the range 625 – 500ng/mL (between +25% cutoff and the cutoff).

All the samples were tested with the Cozart EIA Cotinine Urine Kit according to the pack insert enclosed. Ninety-five samples were tested through the Cozart EIA Cotinine Urine Kit, of which 57 screened positive and 56 were confirmed positive by GC/MS subject to cut offs of 500ng/mL. Thirty-eight samples screened negative for cotinine and all 38 were confirmed by GC/MS.
Of the 95 samples tested 9 were in the range 375 – 625g/mL (between –25% cutoff and +25% cutoff).

New Device		GC/MS Negs	Near Cutoff GC/MS Negs *	Near Cutoff GC/MS Pos **	GC/MS Pos***	Percent Agreement with GC/MS
Pos	57	1	0	3	56	98
Neg	38	38	6	0	0	100

* Between –25% Cutoff and the Cutoff.
** Between +25% Cutoff and the Cutoff.
*** Total number of positives (includes near cutoff samples).

Precision

The precision obtained for the Cozart EIA Cotinine Urine Kit produced CVs less than 10%. The total precision for the Kit produced CVs less than 11%. The Cozart EIA Cotinine Urine Kit is a qualitative manual ELISA assay and CVs of less than 10% are acceptable for this assay type.

Sensitivity

The sensitivity of the Cozart EIA Cotinine Urine Kit is 1.2ng/ml.

Specificity

Twenty-eight potentially interfering substances were tested for cross reactivity in the Cozart EIA Cotinine Urine Kit and only nicotine was found to cross react at 10,000ng/mL.

Cutoff Concentration

Testing samples at the cutoff concentration, 25% above and 25% below was carried out to validate the cutoff concentration. The absorbances for the 375ng/mL sample were all higher than the 500ng/mL cutoff calibrator. Similarly the absorbances obtained for the 625ng/ml sample were all lower than the 500ng/ml cutoff calibrator.

Interference Studies

A range of parameters including pH, specific gravity, ascorbic acid and protein were tested for potential interference in the Cozart EIA Cotinine Urine Kit. No interference was observed with any of the parameters.

Sample Stability

Sample stability was carried out at 2-8°C, room temperature and 37°C. Each sample was tested on day 0, 4, 7, 14 and 21. Urine samples are stable for 21 days stored at 2-8°C, 25°C and 37°C when tested in the Cozart EIA Cotinine Urine Kit. For longer storage urine samples must be stored frozen (-20°C).

Stopped Assay Stability

The stability of the stopped assay was investigated by reading the absorbance at 450nm at time 0, 5, 10, 15, 30, 45 and 60 minutes. The Cozart EIA Cotinine Urine Kit must be read within 15 minutes at 450nm.

Assay Drift

Sample addition at time 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5 and 25 minutes was investigated. Little change was observed across the plate and therefore sample addition to a Cozart EIA Cotinine Urine Kit must take place within 25 minutes.

Method Comparison

The method comparison study was performed at Cozart Bioscience Ltd by Cozart Bioscience staff. The GC/MS was performed by the Analytical Services Laboratory at Cozart Bioscience Ltd.

The samples were collected from drug dependency units in Coventry and Warwick, UK. They were selected for testing due to the assumption that a large proportion of these people would be smokers.

The Cozart EIA Cotinine Urine Kit was compared to Gas Chromatography/Mass Spectrometry (GC/MS). All the samples were tested with the Cozart EIA Cotinine Urine Kit according to the pack insert enclosed. Ninety-five samples were tested through the Cozart EIA Cotinine Urine Kit, of which 57 screened positive and 56 were confirmed positive by GC/MS subject to cut offs of 500ng/mL. Thirty-eight samples screened negative for cotinine and all 38 were confirmed by GC/MS.

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DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

Dr. Roberto Liddi
Quality Assurance/Regulatory Affairs Manager
Cozart Bioscience Limited
45 Milton Park
Abingdon
Oxfordshire, OX14 4RU
United Kingdom

MAY 14 2003

Re: k021944
Trade/Device Name: Cozart EIA Cotinine Urine Test
Regulation Number: 21 CFR § 862.3220
Regulation Name: Carbon Monoxide Test System
Regulatory Class: I
Product Code: MKU
Dated: April 14, 2003
Received: April 18, 2003

Dear Dr. Liddi:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and 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) that do not require approval of a premarket approval application (PMA). 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 (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in Title 21, Code of Federal Regulations (CFR), Parts 800 to 895. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Parts 801 and 809); and good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820). This letter will allow you to begin marketing your device as described in your Section 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 information about the application of labeling requirements to your device, or questions on the promotion and advertising of your device, please contact the Office of In Vitro Diagnostic Device Evaluation and Safety at (301) 594-3084. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer 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,

Steven I. Gutman, M.D., M.B.A.
Director
Office of In Vitro Diagnostic Device Evaluation and Safety
Center for Devices and Radiological Health

Enclosure

510(k) Number (if known): K021944

Device Name: Cozart EIA Cotinine Urine Kit

Indications For Use:

The Cozart Bioscience EIA Cotinine Urine Kit is intended for laboratory based testing in clinical and analytical laboratories and for insurance assessment. It provides qualitative screening results for Cotinine in human urine at a cut-off concentration of 500ng/mL. The Cozart EIA Cotinine Urine Kit acts as an aid in the detection of cotinine after use of tobacco products or other products containing nicotine.

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(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number K021944

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

Concurrence of CDRH, Office of Device Evaluation (ODE)

Division Sign-Off

Office of In Vitro Diagnostic Device Evaluation and Safety

(Optional Format 3-10-98)

510(k) ✓

prescription

OTC