

AUG 26 1998



Diagnosti

510(k) Summary

Roche COBAS[®] INTEGRA Reagent Cassettes

In accordance with the Safe Medical Devices Act of 1990, a 510(k) summary is provided as outlined in 21 CFR 807.92.

The assigned 510(k) number is: K 981897

I. Identification of 510(k) Sponsor:

Roche Diagnostic Systems, Inc.
a subsidiary of Hoffmann-La Roche, Inc.
Branchburg Township
1080 U.S. Highway 202
Somerville, New Jersey 08876-3771

510(k) Submission dated May 29, 1998

Contact: Rita Smith
Senior Regulatory Affairs Associate
Phone: (908) 253-7545
Fax: (908) 253-7547

II. Device Name:

The device name, including both the trade/proprietary name and the classification name are provided in the table below.

Table 1

Product Name	Classification Name	Product Code	CFR Number and Regulatory Class
COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2) (ALPL6)	Nitrophenylphosphate, alkaline phosphatase or isoenzyme	CJE	862.1050 Class II
COBAS INTEGRA α Amylase EPS Pancreatic (AMY-P / AMYUP)	Catalytic methods, Amylase	JFJ	862.1070 Class II
COBAS INTEGRA C-Reactive Protein (Latex) (CRPLX)	C-reactive protein Immunological test system	DCN	862.5270 Class II

III. Identification of the legally marketed device to which the 510(k) sponsor claims equivalence:

The following table identifies the legally marketed devices to which Roche Diagnostic Systems, Inc. claims equivalence.

Table 2

Product Name	Predicate Product Name	Date Predicate Cleared	Predicate 510(k) Number
COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2) (ALPL6)	COBAS INTEGRA Alkaline Phosphatase IFCC (ALP)	9/8/95	K951595
COBAS INTEGRA α Amylase EPS Pancreatic (AMY-P / AMYUP)	Boehringer Mannheim/ Hitachi Pancreatic α -Amylase liquid	12/19/89	K895880
COBAS INTEGRA C-Reactive Protein (Latex) (CRPLX)	COBAS INTEGRA C-Reactive Protein (CRP)	9/8/95	K951595

IV. Description of the Device/Statement of Intended Use:

The COBAS INTEGRA test applications contained in this submission are intended for use with the COBAS INTEGRA Analyzer, which is also known as the COBAS INTEGRA 700. The COBAS INTEGRA Analyzer and COBAS INTEGRA Reagent cassettes together provide an integrated system for *in vitro* diagnostic testing. The COBAS INTEGRA Analyzer along with 108 Roche COBAS INTEGRA Reagent Cassettes were previously cleared on September 8, 1995 (K951595); January 25, 1996 (K954992); July 23, 1996 (K961824); October 31, 1996 (K963292); January 21, 1997 (K964457); August 12, 1997 (K972250); and May 21, 1998 (K974695).

The COBAS INTEGRA Analyzer utilizes three measuring principles, i.e., absorbance, fluorescence polarization and ion-selective electrodes. The analyzer has a throughput of up to 600 tests per hour with STAT samples prioritized and tested immediately. Random sample access, robotics and a user interface optimize time management and streamline workflow. The COBAS INTEGRA can store up to 68 COBAS INTEGRA Reagent Cassettes on board, 24 hours a day at 2-8°C. The COBAS INTEGRA Reagent Cassettes are compact and preparation-free with the added convenience of long term on-board stability. Barcode readers are used to identify newly loaded reagent cassettes, samples for patient identification, and rack inserts and to read calibration and control data from the cassette label. COBAS INTEGRA tests include chemistry, drugs of abuse, immunology, ion selective electrodes, therapeutic drug monitoring, and hematology reagents. For additional information on the COBAS INTEGRA Analyzer and its constituent modules, please refer to the Operator's Manual in Volumes 1 through 2, pages 92-703, of the original 510(k) submission (K951595).

Through this submission, it is the intention of Roche to gain clearance for three additional COBAS Reagent Cassettes. These are the COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2 and ALPL6), the COBAS INTEGRA α -Amylase EPS Pancreatic (AMY-P / AMYUP), and the COBAS INTEGRA C-Reactive Protein (Latex), (CRPLX).

Note: The Alkaline Phosphatase reagent cassette is produced in two sizes: the 200 test cassette (ALPL2) and the 600 test cassette (ALPL6).

V. Summary of the technological characteristics of the new device in comparison to those of the predicate.

Tables 3-5 outline the technological characteristics (methodologies) of the COBAS INTEGRA Reagents in comparison to those of legally marketed predicate products.

VI. Brief discussion of the clinical and nonclinical tests relied on for a determination of substantial equivalence:

Tables 3-5 demonstrate the results of clinical and nonclinical studies performed using the COBAS INTEGRA Reagent Cassettes. The significant performance characteristics relied upon for a determination of substantial equivalence are summarized in this chart. This information concludes that the performance of this device is essentially equivalent to other legally marketed devices of a similar kind.

COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2 and ALPL6)

The cassettes COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2 and ALPL6) contain an in vitro diagnostic reagent system intended for use on COBAS INTEGRA for the quantitative determination of the catalytic activity of alkaline phosphatase in serum and plasma.

Table 3 - COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2 and ALPL6)

	COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2 and ALPL6) (proposed)	COBAS INTEGRA Alkaline Phosphatase IFCC (ALP) (cleared) K951595
Intended Use	quantitative determination of the catalytic activity of alkaline phosphatase in serum and plasma	quantitative determination of the catalytic activity of alkaline phosphatase in serum and plasma
Methodology	enzymatic colorimetric using 4-Nitrophenylphosphate (IFCC)	enzymatic colorimetric using 4-Nitrophenylphosphate (IFCC)
Sample type	Serum and Plasma	Serum and Plasma
Calibrator	Roche Calibrator (human) (K942706)	Roche Calibrator (human) (K942706)
Controls	Roche Control Serum N and P (human) (K972214)	Roche Control Serum N and P (human) (K972214)
Reagents	AMP in vial B (liquid) 4-Nitrophenylphosphate in vial C (liquid)	AMP in vial A and B (liquid) 4-Nitrophenylphosphate in vial C (granulate)
Performance Characteristics:		
Assay range	0-1500 U/L	0 - 2300 U/L
Sensitivity	$3.7 \times 10^{-4} \Delta A/\text{min}$ per U/L of ALP	$4.0 \times 10^{-4} \Delta A/\text{min}$ per U/L of ALP
Precision:	Level 1	Level 2
Mean (U/L)	45	236
% CV (within-run)	2.3	0.55
% CV (total)	2.7	1.3
Accuracy:		
Sample size (n)	252	234
Corr. Coefficient (r)	0.999	0.999
Linear regression	$1.00x + 0.15 \text{ U/L}$	$1.06x - 6 \text{ U/L}$

COBAS INTEGRA α -Amylase EPS Pancreatic (AMY-P / AMYUP):

The cassette Roche COBAS INTEGRA α -Amylase EPS Pancreatic (AMY-P / AMYUP) contains an in vitro diagnostic reagent system intended for use on the COBAS INTEGRA for the quantitative determination of the catalytic activity of pancreatic α -amylase in serum, plasma, and urine.

Table 4 - COBAS INTEGRA α -Amylase EPS Pancreatic (AMY-P/AMYUP)

	COBAS INTEGRA α-Amylase EPS Pancreatic (AMY-P / AMYUP) (proposed)		Boehringer Mannheim/Hitachi Pancreatic A-Amylase liquid reagent (cleared) K895880	
Methodology	Enzymatic colorimetric using substrate 4,6-ethylidene-p-nitrophenyl- α -D-malto-heptaoside		Enzymatic colorimetric using substrate 4,6-ethylidene-p-nitrophenyl- α -D-malto-heptaoside	
Sample type	Serum, plasma and urine		Serum, plasma, and urine	
Calibrator	Roche Calibrator (human) (K942706)		Calibrator for automated systems	
Controls	Roche Control Serum N and P (human) (K972214)		Precinorm® U, Precinorm® E, Precipath® U, Precipath® E	
Reagents	-enzyme, two monoclonal antibodies (mouse) in vial A (liquid) -substrate in vial C (liquid)		R1 enzyme, two monoclonal antibodies (mouse) R2 substrate	
Performance Characteristics:				
Assay range	Serum/Plasma and Urine: 0 - 1500 U/L		Serum/Plasma and Urine: 0 - 1500 U/L	
Sensitivity	Serum/Plasma and Urine: 2.8×10^{-4} $\Delta A/\text{min}$ per U/L of pancreatic α -amylase		Serum/Plasma and Urine: 3 U/L	
Precision (Serum):	Level 1	Level 2	Level 1	Level 2
Mean (U/L)	32	184	35.7	53.9
% CV (within-run)	1.2	0.91	0.9	0.5
% CV (total)	1.7	1.6	1.5	1.9
Precision (Urine):	Level 1	Level 2	Level 1	Level 2
Mean (U/L)	59	180	31.7	98.4
% CV (within-run)	1.094	0.8796	0.8	0.4
% CV (total)	1.2	1.1	1.7	0.8
Accuracy (Serum):				
Sample size (n)	246		51	
Corr. Coefficient (r)	0.999		1.000	
Linear regression	1.03x + 0.3 U/L		1.11x + 0.2	
Accuracy (Urine):				
Sample size (n)	106		51	
Corr. Coefficient (r)	0.999		1.000	
Linear regression	1.00x + 1.4 U/L		1.18x + 0.4	

COBAS INTEGRA C-Reactive Protein (Latex) (CRPLX)

The cassette C-reactive Protein (Latex), (CRPLX) contains an in vitro diagnostic reagent system intended for use on COBAS INTEGRA for the quantitative immunological determination of human C-reactive protein in serum and plasma.

Table 5 - COBAS INTEGRA C-Reactive Protein (Latex) (CRPLX)

	COBAS INTEGRA C-Reactive Protein (Latex) (CRPLX) (proposed)		COBAS INTEGRA C-Reactive Protein (CRP) (cleared) K951595	
Intended Use	quantitative immunological determination of human C-reactive protein in serum and plasma		quantitative immunological determination of human C-reactive protein in serum and plasma	
Methodology	Particle enhanced immunoturbidimetric		Immunoturbidimetric	
Sample type	Serum and Plasma		Serum and Plasma	
Calibrator	CRP T Standard (K951595)		CRP T Standard (K951595)	
Controls	CRP T Control (K954992) CRP T N Control (Exempt)		CRP T Control (K954992)	
Reagents	R1 BSA and immunoglobulins (mouse), vials A & B R2 Latex particles coated with anti-CRP (mouse), vial C (liquid)		R1 Accelerator, vials A & B R2 Anti-CRP T antiserum (sheep), vial C	
Performance Characteristics:				
Assay range	0 - 160 mg/L		5 - 160 mg/L	
Sensitivity	0.25 mg/L		5 mg/L	
Precision:	Level 1	Level 2	Level 1	Level 2
Mean (mg/L)	6.2	142	53	114
% CV (within-run)	1.8	1.5	2.0	2.4
% CV (total)	2.9	2.7	2.5	2.4
Accuracy:				
Sample size (n)	244		234	
Corr. Coefficient (r)	0.993		0.999	
Linear regression	1.07x - 6.2 mg/L		1.10x + 5.5 mg/L	



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Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

Rita Smith
.Senior Regulatory Affairs Associate
Roche Diagnostics Systems, Inc.
1080 U.S. Highway 202
Somerville, New Jersey 08876-3771

Re: K981897
Roche COBAS® INTEGRA Reagent Cassettes
Regulatory Class: II
Product Code: CJE, JFJ, DCK
Dated: August 13, 1998
Received: August 17, 1998

Dear Ms. Smith:

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 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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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 (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): K981897

Device Name: Roche COBAS INTEGRA Alkaline Phosphatase liquid Reagent Cassette (ALPL2) (ALPL6) Art. No. 07 6673 9, 07 5996 1

Roche COBAS INTEGRA Pancreatic α -Amylase EPS Reagent Cassette (AMY-P / AMYUP) Art. No. 07 6662 3

Roche COBAS INTEGRA C-Reactive Protein (Latex) Reagent Cassette (CRPLX) Art. No. 07 6493 0

Indications for Use:

The cassette COBAS INTEGRA Alkaline Phosphatase IFCC liquid (ALPL2 and ALPL6) contain an in vitro diagnostic reagent system intended for use on COBAS INTEGRA for the quantitative determination of the catalytic activity of alkaline phosphatase in serum and plasma. Measurements of alkaline phosphatase or its isoenzymes are used in the diagnosis and treatment of liver, bone, parathyroid, and intestinal diseases.

The cassette COBAS INTEGRA α -Amylase EPS Pancreatic (AMY-P / AMYUP) contains an in vitro diagnostic reagent system intended for use on COBAS INTEGRA for the quantitative determination of the catalytic activity of pancreatic α -amylase in serum, plasma, and urine. Amylase measurements are used primarily for the diagnosis and treatment of pancreatitis (inflammation of the pancreas).

The cassette COBAS INTEGRA C-reactive Protein (Latex), (CRPLX) contains an in vitro diagnostic reagent system intended for use on COBAS INTEGRA for the quantitative immunological determination of human C-reactive protein in ~~serum and plasma. Measurements of C-reactive protein aids in evaluation of the amount of injury to body tissues.~~

(Division Sign-Off)
Division of Clinical Laboratory Devices

510(k) Number _____

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

Concurrence of CDRH Office of Device Evaluation (ODE)

[Signature]
(Division Sign-Off)
Division of Clinical Laboratory Devices

510(k) Number K981897

Prescription Use
(Per 21 CFR 801.109)

OR

Over-The-Counter Use
(Optional Format 1-2-96)