DEC 2 0 2012

510(k) Summary of Safety and Effectiveness for the ADVIA® Chemistry Lipoprotein(a) Assay

This summary of 510(k) safety and effectiveness information is being submitted in accordance with the requirements of SMDA 1990 and 21 CFR 807.92.

A. 510(k) Number: K123096

B. Date of Preparation: 09/25/2012

C. Proprietary and Established Names:
ADVIA® Chemistry Lipoprotein(a) (LPA) Assay
ADVIA® Chemistry Lipoprotein(a) Calibrator

D. Applicant

Contact: Neil Parker
Regulatory Affairs
Address: Siemens Healthcare Diagnostics, Inc
511 Benedict Ave,
Tarrytown, NY 10591
Phone: (914) 524-2477

E. Regulatory Information:

Reagent

1. Regulation section:
   21 CFR §866.5600, LOW DENSITY LIPOROTEIN IMMUNOLOGICAL TEST SYSTEM
2. Classification:
   Class II
3. Product Code:
   DFC
4. Panel:
   Immunology

Calibrator

1. Regulation section:
   21 CFR §862.1150, Calibrator, secondary
2. Classification:
   Class II
3. Product Code:
   JIT
4. Panel:

Clinical Chemistry

F. Predicate Device:

Reagent

1. Device Name:
   Randox Lipoprotein (a) assay
2. Common Name:
   Randox Lipoprotein (a) assay
3. 510(k) Number:
   k011568
4. Manufacturer:
   Randox Laboratories, Ltd. Uk.

Calibrator

1. Device Name:
   Randox Lipoprotein(a) Calibrator Series
2. Common Name:
   Randox Lipoprotein(a) Calibrator Series
3. 510(k) Number:
   k011568
4. Manufacturer:
   Randox Laboratories, Ltd. UK.

G. Intended Use:

The ADVIA® Chemistry Lipoprotein (a) assay is for *in vitro* diagnostic use in the quantitative measurement of lipoprotein(a) (Lp(a)) in human serum or plasma on the ADVIA Chemistry systems. Measurement of Lp(a) may aid in the diagnosis of disorders of lipid (fat) metabolism and assessing persons at risk for cardiovascular diseases when used in conjunction with clinical evaluation and other lipoprotein tests.

The ADVIA Chemistry Lipoprotein (a) calibrator is for *in vitro* diagnostic use in the calibration of ADVIA® Chemistry systems for the ADVIA Chemistry Lipoprotein(a) (LPA) assay.

H. Device Description:

The Lipoprotein(a) reagents are ready-to-use liquid reagents packaged for use on the automated ADVIA 1650 Chemistry system. They are supplied as a 100 tests/wedge, 2 wedges/kit. ADVIA Chemistry Lipoprotein(a) calibrator is a single analyte, human serum based product containing human lipoprotein (a). The kit consists of 1 vial each of 5 calibrator levels which are lyophilized. The target concentrations of these calibrators are

7.5, 15, 30, 65, and 95 mg/dL. The volume per vial (after reconstitution with deionized water) is 1.0 mL. Deionized water is recommended to be used as a zero calibrator.

I. Test Principle:

In the ADVIA Chemistry Lipoprotein(a) assay, sample is diluted and then mixed with the R1 reagent (a buffer), followed by an addition of the R2 reagent (which contains latex particles coated with antibodies specific for Lipoprotein (a). The formation of the antibody-antigen complex during the reaction results in an increase in turbidity. This turbidity is measured at 694 nm. By constructing a standard curve from the absorbance of standards, Lipoprotein (a) concentration of a sample can be determined. Increasing Lipoprotein (a) results in increasing turbidity.

J. Substantial Equivalence Information:

Reagent

Item	**New Device:** **ADVIA 1650 Chemistry Lipoprotein(a)**	**Predicate Device:** Randox Lipoprotein(a) assay
Analyte	lipoprotein (a)	Same
Intended Use/Indications for Use	is for *in vitro* diagnostic use in the quantitative measurement of lipoprotein(a) (Lp(a)) in human serum or plasma on the ADVIA Chemistry systems. Measurement of Lp(a) may aid in the diagnosis of disorders of lipid (fat) metabolism and assessing persons at risk for cardiovascular diseases when used in conjunction with clinical evaluation and other lipoprotein tests.	Same - Immunoturbidimetric assay for the quantitative *in vitro* determination of Lipoprotein(a) in human serum or plasma. This product is suitable for use on the Hitachi 717 analyser.
Measurement	quantitative	Same
Sample type	Serum Lithium Heparin Plasma	Serum Lithium Heparin, Sodium EDTA plasma
Format	Liquid	Liquid
Use of Calibrators	Yes	Yes
Analytical measuring interval	10.00 mg/dL– 85.00 mg/dL	2-90 mg/dL
Method Principle	latex-particle-enhanced immuno-tubidimetric	latex-particle-enhanced immuno-tubidimetric
Reagents	Two:	Two:

	R1 and R2	R1 and R2
Instrument to be used	ADVIA 1650 Chemistry	Hitachi 717 Analyzer

Calibrator

Item	New Device: ADVIA Chemistry Lipoprotein(a) calibrator	Predicate Device: Randox Lipoprotein(a) Calibrator Series
Intended Use	For *in vitro* diagnostic use in the calibration of ADVIA® Chemistry systems for the ADVIA Chemistry Lipoprotein(a) (LPA) assay.	Same - For use in the calibration of Lipoprotein(a) assays
Measured Analytes (value assigned)	lipoprotein (a)	Same
Form	Lyophilized	Same
Matrix	Human serum	Same
Analyte source	Derived from human source	Same
Number of levels	Six (the lowest level is a zero-level, not included)	Same
Fill Volume	1.0 mL each vial	Same
Shelf Life Stability	36 months at 2-8°C	Same
Open Vial stability	14 days at 2-8°C	Same

K. Standard/Guidance Document Reference

- Interference Testing in Clinical Chemistry; Approved Guideline - Second Edition (CLSI EP07-A2)
- Protocols for Determination of Limits of Detection and Limits of Quantitation; Approved Guideline (CLSI EP17-A)
- Evaluation of Precision Performance of Quantitative Measurement Methods; Approved Guideline-Second Edition (CLSI EP05-A2)

L. Performance Characteristics

All studies were performed using the ADVIA 1650 Chemistry System.

Substantial equivalence was demonstrated by testing several performance characteristics including imprecision, method comparison, interfering substances and analytical range. All of the evaluation studies gave acceptable results when compared to the predicate device. These studies support that the ADVIA® Chemistry Lipoprotein(a) assay is substantially equivalent to the predicate device.

I. Precision

Within run and Total Precision were established by assaying serum sample pools and serum based controls. Each sample was assayed 2 replicates per run, 2 runs per day, for at least 20 days. Precision estimates were computed according to CLSI document EP05-A2, *Evaluation of Precision Performance of Quantitative Measurement Methods*; Approved Guideline.

					Within Run		Between Run		Between Day		Total	
Sample	# Day	# Run	# Rep	MEAN	SD	CV	SD	CV	SD	CV	SD	CV
Serum Control	20	40	80	14.17	0.12	0.9	0.12	0.8	0.08	0.5	0.19	1.3
Serum Control	20	40	80	18.44	0.14	0.7	0.12	0.6	0.07	0.4	0.20	1.1
Serum Pool 1	20	40	80	49.75	0.40	0.8	0.43	0.9	0.30	0.6	0.66	1.3
Serum Pool 2	20	40	80	83.67	1.03	1.2	0.85	1.0	0.00	0.0	1.34	1.6

II. Linearity/assay reportable range

A linearity study across the entire measuring range was assessed using nine diluted samples prepared from high and low serum pools by dilution. All samples were tested on the ADVIA Chemistry analyzer. The range of samples tested was from 7.75 -102.30 mg/dL. The observed values were compared to the expected values. Linear/measuring range of the assay is 10 to 85.0 mg/dL. The low end of the assay range is calculated based on the Limit of Quantitation. The high end of the assay range is based on the linearity calculation.

III. Limit of Blank, Limit of Detection, Limit of Quantitation

The estimations of the Limit of Blank (LoB), Limit of Detection (LoD) and Limit of Quantitation (LoQ) were performed according to CLSI guideline EP17-A, *Protocols for Determination of Limits of Detection and Limits of Quantitation,* by running 160 replicates of "zero" serum pool and several serum pools with Lipoprotein (a) concentration up to 4 x LOD level. Data (LoB = 5.35 mg/dL, LoD = 8.90 mg/dL and LoQ = 9.02 mg/dL) support the following claims LoB = 6.0 mg/dL, LoD = 9.0 mg/dL and LoQ = 10.0 mg/dL.

IV. Method and matrix comparison with predicate device

The performance of the ADVIA Chemistry Lipoprotein(a) assay (y) for serum samples was compared with the performance of Randox Lipoprotein(a) assay on the Hitachi 717 (x). sixty-eight serum samples were tested. The sample results ranged from 11.00 – 81.60 mg/dL lipoprotein (a) (x), and gave a correlation coefficient of 0.99. The results calculated using least squares linear regression (1st replicate) are as follows:

ADVIA Chemistry Lipoprotein (a) = 1.01 (predicate device) – 1.02 mg/dL
Slope 95%CI: 1.00 – 1.02
Intercept 95% CI: -1.47 – -0.57

V. Matrix comparison with predicate device

The performance of the ADVIA Chemistry Lipoprotein(a) assay (y) for plasma samples on ADVIA Chemistry was compared with the performance of Randox Lipoprotein(a) assay on the Hitachi 717 (x). Forty-four plasma samples were tested; the sample results ranged from 12.0 – 80.1 mg/dL Lipoprotein(a) (x), and gave a correlation coefficient of 0.99. The results calculated using linear regression (1st replicate) are as follows:

ADVIA Chemistry 1650 Lipoprotein(a) = 1.01 (predicate device) – 0.98 mg/dL
Slope 95%CI: 0.99 – 1.02
Intercept 95% CI: -1.49 – -0.47

VI. Analytical specificity

Interferences from icterus, lipemia and hemolysis were evaluated in the ADVIA Chemistry Lipoprotein (a) assay using a significance criterion of >10% variance from the control. No significant interference was found at unconjugated bilirubin levels from 0-60 mg/dL in 14, 28, and 47 mg/dL lipoprotein (a) samples. No significant interference was found at conjugated bilirubin levels from 0-60 mg/dL in 14, 28, and 46 mg/dL lipoprotein (a) samples. No significant lipemia interference was found at Intralipid levels from 0-1000 mg/dL in 13, 26, and 44 mg/dL lipoprotein (a) samples. No significant hemoglobin interference was found at hemoglobin levels from 0-1000 mg/dL in 18, 31, and 46 mg/dL lipoprotein (a) samples.

VII. Clinical Studies

Not applicable.

VIII. Clinical cut-off

Not applicable

L. Conclusion

The ADVIA Chemistry Lipoprotein(a) assay is substantially equivalent in principle and performance to other products in commercial distribution intended for similar use. Most notably, it is substantially equivalent to the currently marketed Randox Lipoprotein(a) Assay (k011568).

The ADVIA Chemistry Lipoprotein(a) calibrator is substantially equivalent in principle and performance to other products in commercial distribution intended for similar use. Most notably, it is substantially equivalent to the currently marketed Randox Lipoprotein(a) Calibrator Series (k011568).

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-002

December 20, 2012

Siemens Healthcare Diagnostics, Inc.
c/o Neil Parker
511 Benedict Ave.
Tarrytown, NY 10591

Re: k123046
Trade/Device Name: ADVIA Chemistry Lipoprotein(a) Assay
ADVIA Chemistry Lipoprotein(a) Calibrator
Regulation Number: 21 CFR 866.5600
Regulation Name: Low Density Lipoprotein Immunological Test System
Regulatory Class: Class II
Product Code: DFC, JIT
Dated: September 25, 2012
Received: September 28, 2012

Dear Mr. Parker:

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 additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. 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 Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set

forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Parts 801 and 809), please contact the Office of *In Vitro* Diagnostics and Radiological Health at (301) 796-5450. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

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) 796-7100 or at its Internet address http://www.fda.gov/cdrh/industry/support/index.html.

Sincerely yours,

Carol C. Benson for

Courtney H. Lias, Ph.D
Director
Division of Chemistry and Toxicology Devices
Office of *In Vitro* Diagnostics and
Radiological Health
Center for Devices and Radiological Health

Enclosure

Indications for Use

510(k) Number (if known): k123046

Device Name:

ADVIA® Chemistry Lipoprotein(a) Assay
ADVIA® Chemistry Lipoprotein(a) Calibrator

Indications for Use:

For in vitro diagnostic use in the quantitative measurement of lipoprotein(a) (Lp(a)) in human serum or plasma on the ADVIA Chemistry systems. Measurement of Lp(a) may aid in the diagnosis of disorders of lipid (fat) metabolism and assessing persons at risk for cardiovascular diseases when used in conjunction with clinical evaluation and other lipoprotein tests.

The ADVIA® Chemistry Lipoprotein(a) calibrators is intended for use in the calibration of ADVIA® Chemistry systems for the ADVIA Chemistry Lipoprotein(a) (LPA) assay.

Prescription Use __X____ (21 CFR Part 801 Subpart D) And/Or Over the Counter Use ____. (21 CFR Part 801 Subpart C)

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

Concurrence of CDRH, Office of In Vitro Diagnostics and Radiological Health (OIR)

Division Sign-Off
Office of In Vitro Diagnostics and Radiological Health

510(k) k123046