DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
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Silver Spring, MD 20993-0002

SIEMENS HEALTHCARE DIAGNOSTICS, INC.
KIRA GORDON
SR. REGULATORY AFFAIRS SPECIALIST
511 BENEDICT AVENUE
TARRYTOWN NY 10591

December 18, 2015

Re: K153365
Trade/Device Name: ADVIA® Chemistry Enzyme 1 Calibrator,
ADVIA® Chemistry Enzyme 2 Calibrator
Regulation Number: 21 CFR 862.1150
Regulation Name: Calibrator
Regulatory Class: II
Product Code: JIX
Dated: November 19, 2015
Received: November 20, 2015

Dear Kira Gordon:

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. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

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 Parts 801 and 809); 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 regulations (21 CFR Parts 801 and 809), please contact the Division of Industry and Consumer Education at its toll-free number (800) 638 2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm. 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 Industry and Consumer Education at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,

Katherine Serrano -S

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

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: January 31, 2017
See PRA Statement below.

510(k) Number *(if known)*
k153365

Device Name
ADVIA® Chemistry Enzyme 1 Calibrator

Indications for Use *(Describe)*

ADVIA Chemistry Enzyme 1 Calibrator is intended for in vitro diagnostic use in the calibration of Gamma-Glutamyl Transferase (GGT), Lactate Dehydrogenase P-L (LDPL), Lactate Dehydrogenase L-P (LDLP), Cholinesterase (CHE), and Lipase (LIP) assays on the ADVIA Chemistry systems.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

This section applies only to requirements of the Paperwork Reduction Act of 1995.

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The burden time for this collection of information is estimated to average 79 hours per response, including the time to review instructions, search existing data sources, gather and maintain the data needed and complete and review the collection of information. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden, to:

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: January 31, 2017
See PRA Statement below.

510(k) Number *(if known)*
k153365

Device Name
ADVIA® Chemistry Enzyme 2 Calibrator

Indications for Use *(Describe)*

ADVIA® Chemistry Enzyme 2 Calibrator is intended for in vitro diagnostic use in the calibration of Alanine Aminotransferase (ALT); Alanine Aminotransferase, Concentrated Reagents (ALT_c); Alanine Aminotransferase (P5P) (ALTP5P); Alanine Aminotransferase (P5P), Concentrated Reagents (ALTP_c); Aspartate Aminotransferase (AST); Aspartate Aminotransferase, Concentrated Reagents (AST_c); Aspartate Aminotransferase (P5P) (ASTP5P); and Aspartate Aminotransferase (P5P), Concentrated Reagents (ASTP_c) assays on the ADVIA Chemistry systems.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

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510(k) Summary of Safety and Effectiveness for the
ADVIA® Chemistry Enzyme 1 Calibrator
and
ADVIA® Chemistry Enzyme 2 Calibrator

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.

1. **510(k) Number: k153365_____**

2. **Applicant:**

Contact: Kira Gordon, PhD
Sr. Regulatory Affairs Specialist
Address: Siemens Healthcare Diagnostics Inc
511 Benedict Ave,
Tarrytown, NY 10591
Phone: (914) 524-2996
(914) 524-3579 (FAX)

3. **Date:** November 19, 2015

4. **Proprietary and Established Names:**

ADVIA® Chemistry Enzyme 1 Calibrator
ADVIA® Chemistry Enzyme 2 Calibrator

5. **Regulatory Information:**
Regulation section: 21 CFR §862.1150, calibrator, multi-analyte mixture
Classification: Class II
Product Code: JIX
Panel: Clinical Chemistry

6. **Predicate Device:**
Device Name: Dimension® Vista ENZ 1 CAL; Dimension® Vista ENZ 2 CAL
510(k) Number: k061923; k103612
Manufacturer: Siemens Healthcare Diagnostics Inc.

7. **Intended Use:**

See Indications for Use

8. **Indications for Use:**

ADVIA® Chemistry Enzyme 1 Calibrator is for *in vitro* diagnostic use in the calibration of Gamma-Glutamyl Transferase (GGT), Lactate Dehydrogenase P-L (LDPL), Lactate Dehydrogenase L-P (LDLP), Cholinesterase (CHE), and Lipase (LIP) assays on the ADVIA Chemistry systems

ADVIA® Chemistry Enzyme 2 Calibrator is for *in vitro* diagnostic use in the calibration of Alanine Aminotransferase (ALT); Alanine Aminotransferase, Concentrated Reagents (ALT_c); Alanine Aminotransferase (ALTP5P); Alanine Aminotransferase (P5P), Concentrated Reagents (ALTP_c); Aspartate Aminotransferase (AST); Aspartate Aminotransferase, Concentrated Reagents (AST_c); Aspartate Aminotransferase (P5P) (ASTP5P); and Aspartate Aminotransferase (P5P), Concentrated Reagents (ASTP_c) assays on the ADVIA Chemistry systems

Special Conditions for Use Statement(s): For prescription use only

9. Device Description:

The ADVIA® Chemistry Enzyme 1 Calibrator and Enzyme 2 Calibrator are liquid, multi-analyte, bovine serum albumin based products. Enzyme 1 Calibrator kit consists of six vials of the same calibrator which is ready for use (no preparation is required). The volume per vial is 2.5 mL. Enzyme 2 Calibrator kit consists of six vials of calibrator of the same level which is ready for use (no preparation is required). The volume per vial is 1.5 mL.

10. Test Principle

ADVIA® Chemistry Enzyme 1 Calibrator is intended for in vitro diagnostic use in the calibration of Chemistry Gamma-Glutamyl Transferase (GGT), Lactate Dehydrogenase (LDPL and LDLP), Cholinesterase (CHE), and Lipase (LIP) assays on the ADVIA® Chemistry systems

ADVIA® Chemistry Enzyme 2 Calibrator is intended for in vitro diagnostic use in the calibration of Alanine Aminotransferase (ALT, ALT_c, ALTP5P, ALTP_c) Assays and Aspartate Aminotransferase (AST, AST_c, ASTP5P, ASTP_c) Assays on the ADVIA® Chemistry systems

11. Substantial Equivalence Information:

Predicate device name: Dimension® Vista Enzyme 1 Calibrator
Predicate K number: k061923
Comparison with Predicate:

Item	**New Device:**	**Predicate Device:**
Intended Use	for in vitro diagnostic use in the calibration of Gamma-Glutamyl Transferase (GGT), Lactate Dehydrogenase P-L (LDPL), Lactate Dehydrogenase L-P (LDLP), Cholinesterase (CHE), and Lipase (LIP) assays on the ADVIA Chemistry systems	*in vitro* diagnostic product for the calibration of Amylase (AMY), Gamma-Glutamyl Transferase (GGT), Lactate Dehydrogenase (LDH), Lipase (LIPL), and Pseudocholinesterase (PCHE) methods
Instrument	ADVIA Chemistry Systems	Dimension Vista Clinical Chemistry System
Measured Analytes (value assigned)	Gamma-Glutamyl Transferase, Lactate Dehydrogenase, Lipase, Cholinesterase (Pseudocholinesterase) --	Gamma-Glutamyl Transferase, Lactate Dehydrogenase, Lipase, Pseudocholinesterase Amylase
Form	Liquid	Same

Matrix	bovine serum albumin based product	Same
Analyte source	gamma-glutamyl transferase (bovine kidney) lactate dehydrogenase (chicken heart) lipase (porcine pancreas) pseudocholinesterase (horse serum)	gamma-glutamyl transferase (bovine kidney) lactate dehydrogenase (chicken heart) lipase (porcine pancreas) pseudocholinesterase (horse serum) amylase (human saliva)
Number of levels	One	Two
Target concentrations (U/L)	Gamma-glutamyl transferase - 840 Lactate dehydrogenase L-P - 350 Lactate dehydrogenase P-L - 780 Lipase - 100 Cholinesterase – 14200 Amylase – N/A	Gamma-glutamyl transferase – 0, 840 Lactate dehydrogenase – 0, 350 Lipase – 0, 1612 Cholinesterase - 0, 14700 Amylase – 0, 682
Fill Volume	2.5 mL	Same
Stability	Shelf-life – minimum 6 months at 2-8^{o}C at launch Open-vial – 30 days at 2-8^{o}C	Shelf-life – 12 months at 2-8^{o}C Open-vial – 30 days at 2-8^{o}C

Predicate device name: Dimension® Vista Enzyme 2 Calibrator
Predicate K number: k103612
Comparison with Predicate:

Item	**<u>New Device</u>:**	**<u>Predicate Device</u>:**
Intended Use	for *in vitro* diagnostic use in the calibration of Alanine Aminotransferase (ALT); Alanine Aminotransferase, Concentrated Reagents (ALT_c); Alanine Aminotransferase (ALTP5P); Alanine Aminotransferase (P5P), Concentrated Reagents (ALTP_c); Aspartate Aminotransferase (AST); Aspartate Aminotransferase, Concentrated Reagents (AST_c); Aspartate Aminotransferase (P5P) (ASTP5P); and Aspartate Aminotransferase (P5P), Concentrated Reagents (ASTP_c) assays on the ADVIA Chemistry systems	Is an *in vitro* diagnostic product for the calibration of alanine aminotransferase (ALT and ALTI) and aspartate aminotransferase (AST) methods
Instrument	ADVIA Chemistry Systems	Dimension Vista Clinical Chemistry System
Measured Analytes (value assigned)	Alanine aminotransferase and aspartate aminotransferase	Same
Form	Liquid	Same
Matrix	bovine serum albumin based product	Same
Analyte source	alanine aminotransferase (porcine heart) aspartate aminotransferase (porcine heart)	Same

Number of levels	One	Two
Target concentrations (U/L)	AST, AST_c, ASTP5P, ASTP_c – 500 ALT, ALT_c, ALTP5P, ALTP_c – 500	AST – 0, 1050 ALT – 0, 1050
Fill Volume	1.5 mL	Same
Stability	Shelf-life – min 6 months at 2-8^{o}C at launch Open-vial – 30 days at 2-8^{o}C	Shelf-life – 12 months at 2-8^{o}C Open-vial – 30 days at 2-8^{o}C

12. Standard/Guidance Document Reference

The following recognized standard and guidance documents were used:

- CEN 13640 Stability Testing of In Vitro Diagnostic Reagents
- Guidance for Industry – Abbreviated 510(k) Submissions for In Vitro Diagnostic Calibrators

13. Performance Characteristics

The following studies are not applicable for the purpose of this submission:

- *Precision/Reproducibility*
- *Linearity/Assay Reportable Range*
- *Detection limit*
- *Method and Matrix Comparison Studies*
- *Analytical Specificity*
- *Assay cut-off*
- *Expected Values/Reference Interval*

Stability:

Real-time stability studies for shelf-life and open-vial claims have been conducted and acceptance criteria were met.

ADVIA Chemistry Enzyme 1 Calibrator is to be stored at 2-8^{o}C until the expiration date printed on each carton. ADVIA Chemistry Enzyme 2 Calibrator is to be stored at 2-8^{o}C until the expiration date printed on each carton. Real-time stability studies for shelf-life are on-going. The final shelf life claims will be based on the completed real-time study results.

For opened products, once the cap is removed, assigned values are stable for 30 days when recapped immediately after use and stored at 2-8^{o}C.

Traceability and Value Assignment

To manufacture calibrator, a stock solution is prepared by gravimetrically adding quantities of analytes to bovine serum albumin base to the target concentrations. The stock solution concentration is determined by comparing the recovery of the stock solution versus the Master Lot assigned bottle values. Calculated quantities of the stock solution are added to the bovine serum albumin base to the target concentrations to produce the commercial calibrator lot. The concentration of each analyte is verified to be within acceptable range by using an instrument calibrated with Master Lot Calibrators.

Production lot calibrator value assignments are completed using two ADVIA 1800 Chemistry systems, two reagents lots, and three vials of calibrator. Each instrument is

calibrated using the Masterpool. The calibrators are run as unknowns with n=20 replicates. Acceptance criteria is the mean concentration should be within ±15% of the target value.
Traceability: The assigned values of the Enzyme 1 Calibrator and Enzyme 2 Calibrator are traceable as listed in the following table:

Product	**Analyte**	**Traceability**
Enzyme 1 Calibrator	CHE	molar extinction coefficient of the reaction product
	LDLP	IFCC Reference material (IFCC-453)
	LDPL	extinction coefficient of the NADH
	LIP	Internal Standard
	GGT	IFCC Reference material (IFCC-452)
Enzyme 2 Calibrator	ALT (ALT, ALT_c, ALTP5P, ALTP_c)	IFCC Reference material (IFCC-454)
	AST (AST, AST_c, ASTP5P, ASTP_c)	IFCC Reference method

14. Conclusions

The ADVIA Chemistry Enzyme 1 Calibrator is substantially equivalent to the Siemens Dimension Vista ENZ 1 Calibrator cleared under k061923. Based on the testing and the comparisons with the predicate device, the ADVIA Chemistry Enzyme 1 Calibrator is substantially equivalent to the Dimension Vista ENZ 1 Calibrator.
The ADVIA Chemistry Enzyme 2 Calibrator is substantially equivalent to the Siemens Healthcare Diagnostics Dimension Vista ENZ 2 Calibrator cleared under k103612. Based on the testing and the comparisons with the predicate device, the ADVIA Chemistry Enzyme 2 Calibrator is substantially equivalent to the Dimension Vista ENZ 2 Calibrator.