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.
MATTHEW GEE
SENIOR MANAGER
511 BENEDICT AVENUE
TARRYTOWN NY 10591

May 1, 2015

Re: K150403
Trade/Device Name: ADVIA Centaur® TSH3-Ultra
Regulation Number: 21 CFR 862.1690
Regulation Name: Thyroid stimulating hormone test system
Regulatory Class: II
Product Code: JLW
Dated: February 16, 2015
Received: February 18, 2015

Dear Mr. Matthew Gee:

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)*
k150403

Device Name
ADVIA Centaur® TSH3-Ultra

Indications for Use *(Describe)*
For in vitro diagnostic use in the quantitative determination of thyroid-stimulating hormone (TSH, thyrotropin) in serum, heparinized plasma, and EDTA plasma using the ADVIA Centaur and ADVIA Centaur XP systems. Measurements of thyroid stimulating hormone produced by the anterior pituitary are used in the diagnosis of thyroid or pituitary disorders.

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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510(k) Summary of Safety and Effectiveness

This 510(k) Summary of Safety and Effectiveness is being submitted in accordance with the requirements of 21 CFR 807.92 and the Safe Medical Device Act of 1990.

The assigned 510(k) Number is: k150403

1. Date Prepared

April 24, 2015

2. Applicant Information

Contact: Matthew Gee, M.Sc.
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3. Regulatory Information

Table 1. Regulatory Information for ADVIA Centaur TSH3-Ultra Assay

Trade Name	ADVIA Centaur® TSH3-Ultra
Model Numbers	06491072 (1-pack) and 06491080 (5-pack)
Common Name	Radioimmunoassay, thyroid-stimulating hormone
Classification Name	Thyroid stimulating hormone test system
Product Code	JLW
Regulation Number	862.1690
FDA Classification	Class II
Review Panel	Clinical Chemistry

4. Predicate Device Information

The update of pediatric reference intervals to the labeling (Package Insert) of the ADVIA Centaur TSH3-Ultra assay does not require any other device modifications (i.e. no change to design or manufacturing process). Therefore, the predicate device (K083844) and subject device are the same.

5. Substantial Equivalence Information

The following table demonstrates substantial equivalence between the predicate ADVIA Centaur thyroid assays (with unmodified labeling) and ADVIA Centaur thyroid assays which have modified Instructions for Use (Package Inserts) with updated pediatric reference intervals.

Table 2. Summary of Substantial Equivalence for ADVIA Centaur Thyroid Assays

Item	Predicate Device (Unmodified Labeling)	Subject Device (Updated Reference Intervals)
Analytes	thyroid stimulating hormone (TSH)	Same
Reagents	ADVIA Centaur TSH3-Ultra	Same
Instruments	ADVIA Centaur ADVIA Centaur XP	Same
Intended Use Statements	For *in vitro* diagnostic use in the quantitative determination of thyroid-stimulating hormone (TSH, thyrotropin) in serum, heparinized plasma, and EDTA plasma using the ADVIA Centaur and ADVIA Centaur XP systems.	For *in vitro* diagnostic use in the quantitative determination of thyroid-stimulating hormone (TSH, thyrotropin) in serum, heparinized plasma, and EDTA plasma using the ADVIA Centaur and ADVIA Centaur XP systems. Measurements of thyroid stimulating hormone produced by the anterior pituitary are used in the diagnosis of thyroid or pituitary disorders.
Analytical Measuring Range (Assay Range)	0.008 – 150 µIU/mL (mIU/L)	Same
Adult Reference Interval	0.55 – 4.78 mIU/L (mIU/L)	Same
Pediatric Reference Intervals	Infants: None Pediatrics: 02 years – 11 years Adolescents: 12 years – 18 years	Infants: 01 month – 23 months Children: 02 years – 12 years Adolescents: 13 years – 20 years

6. Standard/Guidance Document Reference

Defining, Establishing and Verifying Reference Intervals in the Clinical Laboratory; Approved Guideline -- Third Edition (CLSI EP28-A3c); FDA Recognition Number 7-224.

7. Pediatric Reference Intervals

Data from a total of 442 patients (94 infants, 198 children, 150 adolescents) were analyzed to establish the ADVIA Centaur thyroid assay reference intervals for the studied pediatric population. These pediatric reference intervals, as well as the previously-established euthyroid adult reference intervals and analytical measuring ranges, are presented below.

Table 3. Comparison of Pediatric and Adult 95% Reference Intervals

Infants (01 – 23M)	0.87 – 6.15 µIU/mL (mIU/L)
Children (02 – 12Y)	0.67 – 4.16 µIU/mL (mIU/L)
Adolescents (13 – 21Y)	0.48 – 4.17 µIU/mL (mIU/L)
Euthyroid Adults*	0.55 – 4.78 µIU/mL (mIU/L)
Assay Range*	0.008 – 150 µIU/mL (mIU/L)

* Information taken from existing Instructions for Use (Package Insert)

8. Performance Characteristics

The inclusion of pediatric reference intervals in the Instructions for Use (Package Insert) does not necessitate the collection of additional analytical performance data. Therefore, all analytical performance data previously reviewed for the ADVIA Centaur TSH3-Ultra assay continues to apply to this device. All performance data is cross-referenced to the original 510(k) submission (K083844) for this device.

Specifically, the following studies are not needed for the purpose of this submission:

- Precision/Reproducibility
- Linearity
- Calibrator/Assay Traceability
- Calibrator/Assay Stability
- Assay Cut-off
- Method Comparison
- Matrix Comparison
- Sensitivity (Detection Limits, LoB, LoD, LoQ)
- Analytical Specificity

9. Shelf-Life

The inclusion of pediatric reference intervals in the Instructions for Use (Package Insert) does not necessitate the collection of additional stability data. Therefore, all stability methods, acceptance criteria and data previously reviewed for the ADVIA Centaur TSH3-Ultra assay continues to apply to this device. All stability information is cross-referenced to the original 510(k) submission (K083844) for this device.

Specifically, the following stability studies are not needed for the purpose of this submission:

- Shelf Life Stability
- Onboard Stability
- Open Vial Stability

10. Conclusions

The ADVIA Centaur TSH3-Ultra assay with updated pediatric reference intervals is substantially equivalent to the currently marketed ADVIA Centaur TSH3-Ultra assay.

The modification of pediatric reference intervals in the Instructions for Use (Package Insert) does not require a change in the device design or a change in the manufacturing process.

All performance data is cross-referenced to the original 510(k) submission for this assay (K083844).

The modification of pediatric reference intervals for the ADVIA Centaur thyroid assays is further supported by the following rationale:

1. Testing of pediatric patients is within the established indications for use (i.e. for use in the diagnosis of thyroid or pituitary disorders), as described in 21 CFR §862.1690.
2. The updated reference intervals for children and adolescents are similar to those previously presented in the Instructions for Use (Package Insert)
3. The newly-established infant reference intervals are either within or are above the previously-established reference intervals for euthyroid (normal thyroid) adult and pediatric populations and they are within the analytical measuring ranges of the ADVIA Centaur TSH3-Ultra assay. Therefore, the ADVIA Centaur TSH3-Ultra assay has appropriate analytical performance to test infant patients.