DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-0002

January 9, 2016

Beckman Coulter Ireland Inc.
Ms. Marguerita Sweeney
Regulatory Affairs Manager
Lismeehan, O'Callaghan's, Mills
CO. Clare, Ireland

Re: K161508
Trade/Device Name: Ceruloplasmin
Regulation Number: 21 CFR 866.5210
Regulation Name: Ceruloplasmin Immunological Test System
Regulatory Class: II
Product Code: DDB
Dated: November 28, 2016
Received: December 8, 2016

Dear Ms. Sweeney:

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,

Kelly Oliner -S

FOR
Leonthena R. Carrington, MS, MBA, MT(ASCP)
Director
Division of Immunology and Hematology 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)*
K161508

Device Name
Ceruloplasmin

Indications for Use *(Describe)*
System reagent for the quantitative determination of Ceruloplasmin (CER) in human serum and plasma on Beckman Coulter AU analyzers as an aid in the diagnosis of copper metabolism 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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510k Summary
Ceruloplasmin Reagent

1.0

Submitted By:
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2.0 Date of preparation:

May 26th 2016

3.0 Device Identification:

Proprietary Names: Ceruloplasmin
Common Name: Ceruloplasmin
Classification: 866.5210
Product Code: DDB

4.0 Predicate Device:

Candidate(s)	Predicate	Manufacturer	Docket Number
Ceruloplasmin	N Antisera to Human Ceruloplasmin	Siemens (formerly Dade-Behring)	K053074

The Ceruloplasmin reagent is substantially equivalent to the product listed above currently in commercial distribution

5.0 Description:

The Ceruloplasmin reagent kit is in a liquid, ready to use form. It is available in one format OSR6164 which consists of 4 x 18mL R1 vials and 4 x 5ml R2 vials. The calibrator is a Beckman Coulter Serum protein multi-calibrator ODR3023 which is sold separately. Ceruloplasmin is a turbidimetric method the basis for this method is the measurement of the decrease in light transmitted (increase in absorbance) through the particles suspended in solution as a result of complexes formed during the antigen-antibody reaction.
The Ceruloplasmin reagent is designed for optimal performance on the Beckman Coulter AU analyzers.

6.0 Intended Use:

System reagent for the quantitative determination of Ceruloplasmin (CER) in human serum and plasma on Beckman Coulter AU analyzers as an aid in the diagnosis of copper metabolism disorders.

Clinical Significance

Ceruloplasmin's main clinical importance is in the diagnosis of Wilson's disease. Increased levels of Ceruloplasmin are particularly notable in diseases of the reticuloendothelial system such as Hodgkin's disease and also during pregnancy or use of contraceptive pills. Low levels of ceruloplasmin are found in malnutrition, malabsorption, nephrosis and severe liver disease particularly biliary cirrhosis.

7.0 Comparison to Predicate(s):

The following tables shows similarities and differences between the predicate identified in Section 4.0 of this summary.

Similarities		
Feature	Ceruloplasmin reagent	Predicate
Intended Use	System reagent for the quantitative determination of Ceruloplasmin (CER) in human serum and plasma on Beckman Coulter AU analyzers as an aid in the diagnosis of copper metabolism disorders.	In-vitro diagnostic reagents for the quantitative determination of ceruloplasmin and hemopexin in human serum and heparanised plasma by means of immunonephelopetry on the BN II and BN Prospec ® system.
Measurement	Quantitative	Quantitative
Reagent	Liquid, Ready to use	Liquid, Ready to use
Calibration	Serum Protein Multi-calibrator (ODR3023) which is traceable to IFCC CRM470	N Protein Standard (OQIMG13E0502) which is traceable to ERM470
Reagent Storage/Closed Shelf Life	2-8^{0}C until expiration date	2-8^{0}C until expiration date
Linearity Range	60 - 2000 mg/L	Ceruloplasmin: 0.07 – 2.2 g/L for a sample dilution of 1:20.
Composition	Rabbit anti-human Ceruloplasmin antiserum Solution of polymers in Tris buffer (pH 7.4-7.6) Preservatives – Sodium Azide &	Rabbit anti-human Ceruloplasmin antiserum Preservatives – Sodium Azide

	Gentamicin	
Specimen Type	Serum and Plasma (Sodium Heparin and Lithium Heparin)	Serum and heparinized plasma
Expected Values	200 - 600 mg/L	Ceruloplasmin: 0.2-0.6g/L (200-600mg/L Hemopexin: 0.5 – 1.15g/L (500-1150mg/L)

Differences		
Feature	Ceruloplasmin reagent	Predicate
Assay Methodology/ Operating principle	Immunoturbitimetric	Immunonephelometry
Instrumentation	Beckman Coulter AU Clinical Chemistry analyzers	Siemens BN II and BN Prospec ® Systems
Reagent On-board Stability	90 days	3 days
Calibration Frequency	14 days	Not specified
Interfering Substances	Bilirubin: No significant interference (≤10%) up to 40mg/dL Hemolysis: No significant interference (≤10%) up to 500 mg/dL Triglyceride: No significant interference (≤10%) up to 1000mg/dL Rheumatoid Factor (RF): No significant interference (≤10%) up to 500 IU/mL	Bilirubin: No interference up to 0.6g/L Hemolysis: No interference up to 10g/L Triglyceride: No interference up to 2.4g/L
Sensitivity	≤6mg/dL (60mg/L)	Established by lower limit of reference curve – depends on the concentration of proteins in the N protein standard SL.

8.0 Summary of Performance Data:

The data in the Premarket Notification on safety and effectiveness supports a finding of substantial equivalence to a predicate chemistry test systems already in commercial distribution. Equivalence is demonstrated through performance characteristics testing. Experiments included: Method comparison, Precision, Linearity, Sensitivity, Interferences, Stability and Expected Values, Prozone (Hook effect) and Auto-dilution.

Performance on method comparison and precision are summarized below:

Method Comparison Study Results

Reference	Test	Sample Range:	Specifications	Results	Pass/Fail
Siemens (OUIEG09E0504)	Ceruloplasmin (OSR6x64)	Ref: 108 mg/L- 1890 mg/L Test: 98 mg/L - 1880 mg/L	Slope: 0.900-1.100	Slope: 1.056	Pass
			Intercept: ≤ ± 30mg/L	Intercept: -26.10mg/L	Pass
			r: ≥0.975	0.990	Pass
			N:≥100	120	Pass

Precision Study Results

Sample	Concentration mg/L	Within Run Precision			Total Precision			Pass/ Fail
		%CV	SD	Specification	%CV	SD	Specification	
Pool 1	95.99	1.10	1.042	≤5% CV or SD ≤1 mg/dL (10mg/L)	6.7	6.44	≤10% CV or SD ≤2 mg/dL (20mg/L)	Pass
Pool 2	148.36	1.10	1.70	≤5% CV or SD ≤1 mg/dL (10mg/L)	2.80	4.09	≤10% CV or SD ≤2 mg/dL (20mg/L)	Pass
Pool 3	254.17	0.90	2.30	≤5% CV or SD ≤1 mg/dL (10mg/L)	2.20	5.70	≤10% CV or SD ≤2 mg/dL (20mg/L)	Pass
Pool 4	596.43	0.90	5.46	≤5% CV or SD ≤1 mg/dL (10mg/L)	1.90	11.36	≤10% CV or SD ≤2 mg/dL (20mg/L)	Pass
Pool 5	915.61	0.7	6.78	≤5% CV or SD ≤1 mg/dL (10mg/L)	1.6	14.51	≤10% CV or SD ≤2 mg/dL (20mg/L)	Pass
Pool 6	1791.94	0.5	9.52	≤5% CV or SD ≤1 mg/dL (10mg/L)	1.4	25.23	≤10% CV or SD ≤2 mg/dL (20mg/L)	Pass

This summary of safety and effectiveness is being submitted in accordance with the requirements of the Safe Medical Device Act of 1990 and the implementing regulation 21 CFR 807.92