February 15, 2018

The Binding Site Group Ltd.
Andrea Thomas
Regulatory Affairs Specialist
8 Calthorpe Road, Edgbaston
Birmingham, B15 1QT Gb

Re: K172613
Trade/Device Name: Optilite Hevylite IgG Kappa Kit, Optilite Hevylite IgG Lambda Kit
Regulation Number: 21 CFR 866.5510
Regulation Name: Immunoglobulins A, G, M, D, and E immunological test system
Regulatory Class: Class II
Product Code: PCN, PCO
Dated: August 16, 2017
Received: August 31, 2017

Dear Andrea Thomas:

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 Part 801 and Part 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.

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.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/) and CDRH Learn (http://www.fda.gov/Training/CDRHLearn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (http://www.fda.gov/DICE) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Kelly Oliner -S

For,
Lea Carrington
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: 06/30/2020
See PRA Statement below.

510(k) Number *(if known)*
K172613

Device Name
Optilite Hevylite IgG Kappa Kit (NK621.OPT) and Optilite Hevylite IgG Lambda Kit (NK622.OPT)

Indications for Use *(Describe)*
The Hevylite IgG Kappa kit is a quantitative in vitro assay intended for the measurement of IgG Kappa (IgG heavy chain and Kappa light chain intact immunoglobulin) in serum using the Binding Site Optilite analyser. Measurement of Hevylite IgG Kappa is used alongside Hevylite IgG Lambda to calculate the IgG Kappa / IgG Lambda ratio. The Hevylite IgG Kappa / IgG Lambda ratio can be used when monitoring previously diagnosed IgG multiple myeloma patients and is used in conjunction with other laboratory tests and clinical evaluations. The assignment of complete response is reliant upon other tests including immunofixation, bone marrow and urine assessments.

The Hevylite IgG Lambda kit is a quantitative in vitro assay intended for the measurement of IgG Lambda (IgG heavy chain and Lambda light chain intact immunoglobulin) in serum using the Binding Site Optilite analyser. Measurement of Hevylite IgG Lambda is used alongside Hevylite IgG Kappa to calculate the IgG Kappa / IgG Lambda ratio. The Hevylite IgG Kappa / IgG Lambda ratio can be used when monitoring previously diagnosed IgG multiple myeloma patients and is used in conjunction with other laboratory tests and clinical evaluations. The assignment of complete response is reliant upon other tests including immunofixation, bone marrow and urine assessments.

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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Optilite Hevylite Human IgG Kappa and IgG Lambda Kits
Submission Summary

A. 510(k) Number:
K172613

B. Purpose for Submission:
Modified IVD assay on previously cleared instrument

C. Measurand:
Immunoglobulin IgG Kappa (combined γ heavy and κ light chain) and
Immunoglobulin IgG Lambda (combined γ heavy and λ light chain)

D. Type of Test:
Quantitative, Turbidimetry

E. Applicant:
The Binding Site Group, Ltd.

F. Proprietary and Established Names:
Optilite® Hevylite® IgG Kappa Kit
Optilite® Hevylite® IgG Lambda Kit

G. Regulatory Information:

1. Regulatory Section:
   21 CFR §866.5510, Immunoglobulins A, G, M, D and E Immunological Test System

2. Classification:
   Class II

3. Product Code:
   PCN – IgG Kappa (Heavy and Light chain combined). Antigen, antiserum, control
   PCO – IgG Lambda (Heavy and Light chain combined). Antigen, antiserum, control

4. Panel:
   Immunology (82)

H. Intended Use:

1. Intended use(s):
   Optilite Hevylite IgG Kappa is a quantitative in vitro assay performed on the Optilite analyser for the measurement of IgG kappa (IgG heavy chain and kappa light chain intact immunoglobulin) in serum. Measurement of Hevylite Human IgG Kappa is used alongside Hevylite Human IgG Lambda to calculate the IgG Kappa / IgG Lambda ratio. The Hevylite Human IgG Kappa / IgG Lambda ratio can be used when monitoring previously diagnosed IgG multiple myeloma and is used in conjunction with other laboratory tests and clinical evaluations. The assignment of complete response is reliant upon other tests including immunofixation, bone marrow and urine assessments.

Optilite Hevylite IgG Lambda is a quantitative in vitro assay performed on the Optilite analyser for the measurement of IgG lambda (IgG heavy chain and lambda light chain intact immunoglobulin) in serum. Measurement of Hevylite Human IgG Lambda is used alongside Hevylite Human IgG Kappa to calculate the IgG Kappa / IgG Lambda ratio. The Hevylite Human IgG Kappa / IgG Lambda ratio can be used when monitoring previously diagnosed IgG multiple myeloma and is used in conjunction with other laboratory tests and clinical evaluations. The assignment of complete response is reliant upon other tests including immunofixation, bone marrow and urine assessments.

2. Indication(s) for use:
   Same as intended use.

3. Special conditions for use statement(s):
   This product is for in vitro diagnostic prescription use only.

   Warning: The result of Hevylite Human IgG Kappa in a given specimen determined with assays with different manufacturers and different instrument platforms can vary due to differences in assay methods and reagent specificity. The results reported by the laboratory to the physician must include the identity of the Hevylite Human IgG Kappa assay used. Values obtained with different assay methods cannot be used interchangeably. If, in the course of serially monitoring a patient, the assay method used for determining Hevylite IgG Kappa levels is changed, additional sequential testing should be carried out. Prior to changing assays, the laboratory **MUST** confirm baseline values for patients being serially monitored.

   Warning: The result of Hevylite Human IgG Lambda in a given specimen determined with assays with different manufacturers and different instrument platforms can vary due to differences in assay methods and reagent specificity. The results reported by the laboratory to the physician must include the identity of the Hevylite Human IgG Lambda assay used. Values obtained with different assay methods cannot be used interchangeably. If, in the course of serially monitoring a patient, the assay method used for determining Hevylite IgG Lambda levels is changed, additional sequential testing should be carried out. Prior to changing assays, the laboratory **MUST** confirm baseline values for patients being serially monitored.

4. Special instrument requirements:
   The Binding Site Optilite analyser

I. Device Description:

The Hevylite Human IgG Kappa and IgG Lambda Kits contain vials of ready-to-use polyclonal monospecific sheep anti-IgG antisera against combined γ heavy and κ light chain or combined γ heavy and λ light chain, calibrators (six levels), controls (low and high) and reaction buffer in liquid form. The reagents contain 0.099% sodium azide as preservative.

J. Substantial Equivalence Information:

1. Predicate device names and predicate 510(k) number:
   Hevylite Human IgG Kappa Kit and Hevylite Human IgG Lambda Kit for use on the Siemens BN™II (k132555)

2. Comparison with predicate:

Similarities		
Item	**Device**	**Predicate**
Intended Use	Quantitative in vitro assay for the measurement of IgG Kappa (IgG heavy chain and kappa light chain intact immunoglobulin) and IgG Lambda (IgG heavy chain and lambda light chain intact immunoglobulin) in serum. Measurement of Hevylite Human IgG Kappa is used alongside Hevylite Human IgG Lambda to calculate the IgG Kappa/IgG Lambda ratio. The Hevylite Human IgG Kappa/IgG Lambda ratio can be used when monitoring previously diagnosed IgG multiple myeloma and is used in conjunction with other laboratory tests and clinical evaluations. The assignment of complete response is reliant upon other tests including immunofixation, bone marrow and urine assessments.	Same
Analyte	IgG Kappa and Lambda	Same
Antibody	Polyclonal monospecific sheep anti-human combined γ heavy and κ light chain or combined γ heavy and λ light chain.	Same
Control	Binding Site High and Low Controls	Same
Traceability	DA470k	Same
Sample Matrix	Serum	Same
Capture Antibody	Sheep anti-human IgG combined	Same
Calibrator	Single level Binding Site Hevylite calibrator autodiluted by the analyser to six different concentrations	Same
Open Vial Stability	3 months	Same
Reference Interval	IgGK: 4.03 – 9.78 g/L IgGL: 1.97 – 5.71 g/L IgGK/IgGL Ratio: 0.98 – 2.75	Same

Differences		
Item	**Device**	**Predicate**
Method	Turbidimetry	Nephelometry
Instrument	Binding Site Optilite	Siemens BN™II Systems
On Board Stability	28 days	Not stated
Measuring Range	IgGK: 2.3 – 30.0 g/L (1+19 dilution) IgGL: 1.5 – 17.5 g/L (1+19 dilution) Extended Range for IgGK: 1+0 dilution: 0.115 – 1.5 g/L 1+4 dilution: 0.575 – 7.5 g/L 1+79 dilution: 9.2 - 120 g/L Extended Range for IgGL: 1+0 dilution: 0.075 – 0.875 g/L 1+4 dilution: 0.375 – 4.375 g/L 1+79 dilution: 6 - 70 g/L 1+119 dilution: 9 – 105 g/L	IgGK: 1.72 – 27.5 g/L (1/100 dilution) IgGL: 0.88 – 14.0 g/L (1/100 dilution) Extended Range for IgGK: 1/5 dilution: 0.086 – 1.375 g/L 1/20 dilution: 0.344 – 5.500 g/L 1/400 dilution: 6.88 – 110.0 g/L 1/2000 dilution: 34.4 – 550 g/L Extended Range for IgGL: 1/5 dilution: 0.044 – 0.700 g/L 1/20 dilution: 0.175 – 2.800 g/L 1/100 dilution: 0.88 – 14.00 g/L 1/400 dilution: 3.50 – 56.0 g/L 1/2000 dilution: 17.5 – 280 g/L

K. Standard/Guidance Documents Referenced (if applicable):

CLSI EP17-A Protocols for Determination of Limits of Detection and Limits of Quantitation; Approved Guideline.
CLSI EP7-A2 Interference Testing in Clinical Chemistry, Approved Guideline - Second Edition.
CLSI EP6-A: Evaluation of the Linearity of Quantitative Measurement Procedures: A Statistical Approach.
CLSI EP5-A2 Evaluation of Precision Performance of Quantitative Measurement Methods; Approved Guideline – Second Edition.
CLSI C28-A3: Defining, Establishing and Verifying Reference Intervals in the Clinical Laboratory.

L. Test Principle:

Evaluating the concentration of a soluble antigen (e.g. IgG lambda) by turbidimetry involves the addition of the test sample to a solution containing the appropriate antibody (anti-IgG lambda) in a reaction vessel or cuvette. A beam of light is passed through the cuvette and, as the antigen-antibody reaction proceeds, the light passing through the cuvette is scattered increasingly as insoluble immune complexes are formed. Light scatter is monitored by measuring the decrease in intensity of the incident beam of light. The antibody in the cuvette is in excess so the amount of immune complex formed is proportional to the antigen concentration. A series of calibrators of known antigen concentration are assayed initially to produce a calibration curve of measured light scatter versus antigen concentration. Samples of unknown antigen concentration can then be assayed and the results read from the calibration curve.

M. Performance Characteristics (if/when applicable):

1. Analytical performance:

a. Precision/Reproducibility:

The within-run, between-run, between-day, between-lot and between-instrument precision were determined by testing six serum samples over 21 days with two runs per day on three different reagent lots on three analysers. Results are summarised below.

IgGK Precision studies:

Sample	Mean	Within Run		Between Run		Between Day		Between Lot		Between Instrument		Total	
		SD	%CV	SD	%CV	SD	%CV	SD	%CV	SD	%CV	SD	%CV
1	4.260	0.184	4.3	0.209	4.9	0.162	3.8	0.140	3.3	0.033	0.8	0.323	7.6
2	3.148*	0.048	1.5	0.104	3.3	0.124	3.9	0.098	3.1	0.036	1.1	0.169	5.4
3	5.601*	0.145	2.6	0.263	4.7	0.308	5.5	0.205	3.7	0.099	1.8	0.430	7.7
4	7.621	0.178	2.3	0.263	3.5	0.413	5.4	0.426	5.6	0.216	2.8	0.521	6.8
5	13.574	0.218	1.6	0.385	2.8	0.879	6.5	0.851	6.3	0.253	1.9	0.984	7.2
6	16.824	0.383	2.3	0.352	2.1	0.992	5.9	0.991	5.9	0.608	3.6	1.120	6.7

IgGL Precision studies:

Sample	Mean	Within Run		Between Run		Between Day		Between Lot		Between Instrument		Total	
		SD	%CV	SD	%CV	SD	%CV	SD	%CV	SD	%CV	SD	%CV
1	2.894	0.118	4.1	0.120	4.2	0.198	6.8	0.119	4.1	0.142	4.9	0.260	9.0
2	1.313*	0.029	2.2	0.034	2.6	0.068	5.2	0.054	4.1	0.037	2.8	0.081	6.2
3	2.379*	0.059	2.5	0.049	2.1	0.064	2.7	0.061	2.6	0.027	1.1	0.100	4.2
4	4.262	0.096	2.2	0.144	3.4	0.267	6.3	0.182	4.3	0.190	4.4	0.318	7.5
5	6.657	0.138	2.1	0.112	1.7	0.301	4.5	0.256	3.8	0.200	3.0	0.350	5.3
6	13.941	0.297	2.1	0.237	1.7	0.414	3.0	0.541	1.7	0.096	0.7	0.561	4.0

* sample run at 1+4 dilution.

b. Linearity/assay reportable range:

A linearity study was performed following CLSI document Evaluation of the Linearity of Quantitative Measurement Procedures: A Statistical Approach. The linearity of the IgGK and IgGL assays have been confirmed using serially diluted serum samples to cover the standard measuring ranges of 2.3 – 30.0 g/L and 1.5 – 17.5 g/L respectively. The results demonstrated that the IgGK and IgGL assays are linear over the ranges of 1.930 – 33.427 g/L and 1.380 – 19.300 g/L at 1+19 dilution with deviation from linearity ≤ 10%.

c. Traceability, Stability, Expected values (controls, calibrators, or methods):

Traceability: An Internal Reference material (IR) was assigned by comparison with the Reference Material DA470K.

Stability:

Open-vial stability was performed on three lots of Optilite Hevylite IgG Kappa and IgG Lambda kits with testing intervals at various time points up to 112 days. Data supports an open vial stability claim of 3 months at 2-8°C.

On-board stability was performed on three lots of Optilite Hevylite IgG Kappa and IgG Lambda kits with testing intervals at various time points up to 37 days for IgGK and

49 days for IgGL. Data supports an on-board stability claim of 28 days, provided that the power is left switched on as stated in the product insert.

d. Detection limit:

The analytical sensitivity was determined in accordance with CLSI EP17-A. The Limit of Blank was based on 60 determinations of analyte depleted sample and was estimated at the 95th percentile of the distribution. The Limit of Detection was calculated from the LoB and the combined SD of the 5 LoQ samples. The LoQ was calculated from 5 independent samples (serum samples diluted with analyte depleted serum to achieve a concentration close to the bottom of the measuring range) tested twelve times over five days. The tabulated summary of results is shown below:

	LoB	LoD	LoQ
IgG Kappa	0.000 g/L	0.009 g/L	0.115 g/L
IgG Lambda	0.000 g/L	0.005 g/L	0.075 g/L

e. Analytical specificity:

Interference:

Interferences were assessed according to CLSI EP7-A2 by testing three serum samples with different IgG Kappa and IgG Lambda concentration ranges, including a sample close to the lower limit of the reference interval, a sample within the reference interval and an elevated serum sample. Each sample was spiked with interfering substances and tested in multiple replicates. The acceptance criterion was that the mean results from the spiked samples must be within ±10% of the mean of the control samples.

No significant assay interference effects were observed when the samples were tested with bilirubin at 200mg/L, haemoglobin at 5g/L, triglyceride at 1000mg/dL, intralipid at 125mg/dL or the 16 commonly used drugs at the concentrations given below.

Substance	Concentration
Acetaminophen	1324µmol/L
Acetylsalicylic Acid	3.63mmol/L
Ascorbic Acid	342µmol/L
Bortezomib	6mg/mL
Caffeine	308µmol/L
Cimetidine	79.2µmol/L
Cyclophosphamide Monohydrate	60µg/mL
Digoxin	3.9nmol/L (IgGK) 7.8nmol/L (IgGL)
Furosemide	181µmol/L
Ibuprofen	2425µmol/L
Methotrexate	2mmol/L
Penicillin	75mg/L
Phenytoin	198µmol/L
Pomalidomide	100µg/mL
Prednisolone	100µg/mL
Theophylline	222µmol/L

Cross reactivity:
No significant cross reaction was observed during testing for the predicate device. The specificity of the antisera is unchanged.

Antigen Excess Detection:
The possibility of antigen excess occurring when using the device on the Binding Site Optilite was evaluated with 8 monoclonal IgG Kappa and 6 monoclonal IgG Lambda samples with concentrations above the respective standard measuring ranges. No antigen excess was observed up to 100.5g/L and 102.5g/L for IgG Kappa and IgG Lambda respectively.

f. Assay cut-off:
Refer to Expected values.

2. Comparison studies:
   a. Method comparison with predicate device:

IgG Kappa:
A comparison study was performed by analysing 284 serum samples (including 135 IgG Kappa paraprotein and 60 IgG Lambda paraprotein samples, 60 donor samples and 29 other samples, covering the range 0.2 – 47.69 g/L) using the Optilite Hevylite IgG Kappa kit and an alternative commercially available assay. Passing Bablok regression analysis generated the following results:

y = 1.10x – 0.68 g/L (y = Optilite, x = predicate analyser)
correlation coefficient r = 0.957

IgG Lambda:
A comparison study was performed by analysing 172 serum samples (including 42 IgG Kappa paraprotein and 59 IgG Lambda paraprotein samples, 59 donor samples and 1 AL Amyloidosis sample, covering the range 0.09 – 40.65 g/L) using the Optilite Hevylite IgG Lambda kit and an alternative commercially available assay. Passing Bablok regression analysis generated the following results:

y = 0.95x + 0.00 g/L (y = Optilite, x = predicate analyser)
correlation coefficient r = 0.823

IgG Kappa/Lambda Ratio:
A comparison study was performed by analysing 143 serum samples (including 39 IgG Kappa paraprotein and 44 IgG Lambda paraprotein samples, 59 donor samples and 1 AL Amyloidosis sample, covering the range 0.01 – 277.50 g/L) using the Optilite Hevylite IgG Kappa and IgG Lambda kits and alternative commercially available assays. Passing Bablok regression analysis generated the following results:

y = 1.12x - 0.17 (y = Optilite, x = predicate analyser)
correlation coefficient r = 0.901

b. Matrix comparison:
Not applicable

3. Clinical studies:

a. Clinical Sensitivity/clinical specificity:
Transformation of the BNII Study onto the Optilite

Purpose of the study

The purpose of this study was to compare the clinical HLC Response categorisation of the predicate and the Optilite Hevylite IgG Kappa and Lambda Kits obtained from samples taken at multiple time points from IgG Kappa and IgG Lambda multiple myeloma patients during the course of their disease. The sponsor generated Passing and Bablok regression equations for the comparison study of the Optilite kits against the predicate kits. The regression equation was then modelled with the existing monitoring sample results from the original BNII submission to evaluate the clinical validity of the new device.

Table 1: HLC Monitoring Response Category

Complete Response (CR)	HLC ratio within the normal range and negative urine immunofixation.
Very Good Partial Response (VGPR)	>91% reduction of HLC ratio from baseline and reduction in 24 hour urinary M-protein to ≤100mg per 24 hours
Partial Response (PR)	Reduction of HLC ratio from baseline between 47 - 91% and reduction in 24 hours urinary M-protein by ≥90% or to ≤200mg/24 hours.
Stable Disease (SD)	A change in HLC ratio from baseline < 32% increase but < 47% reduction.
Progressive Disease (PD)	> 32% increase in HLC ratio from baseline (the absolute increase in involved IgG must be ≥5g/L) or a ≥25% increase in urine M-protein from baseline (the absolute increase must be ≥200mg/24 hours)
Relapse from CR	> 32% increase in HLC ratio from baseline (the absolute increase in involved IgG must be ≥5g/L)

Optilite HLC Response Category Study

Assignment of classification was based on the HLC Monitoring Response Category detailed in Table 1, using all assay data available. Responses were categorised in accordance with NCCN Guidelines v1.2011 by using the percentage change from baseline. Responses were characterised as progressive disease (PD), stable disease (SD), partial response (PR), very good partial response (VGPR), and complete response (CR). Kappa statistics were used to evaluate agreement between the test and predicate devices.

Optilite Monitoring Study Design

A comparison of 69 monitoring samples from 10 IgG Kappa patients and 12 IgG Lambda patients was performed to compare the BNII HLC response category assigned to those observed with the Optilite Hevylite IgG Kappa and Lambda kits (Note: The Optilite monitoring response category is not to be used interchangeably with other manufacturer's assays or with any other instrument platform monitoring response category). The results of the comparison study using 69 monitoring samples yielding 43 response classifications are shown in the table below:

Observed		Predicate HLC response					
		CR	**VGPR**	**PR**	**SD**	**PD**	**Total**
Optilite HLC Response	**CR**	0	0	0	0	0	**0**
	VGPR	0	1	0	0	0	**1**
	PR	0	0	11	1	0	**12**
	SD	0	0	1	23	1	**25**
	PD	0	0	0	2	3	**5**
	Total	**0**	**1**	**12**	**26**	**4**	**43**
Kappa (95% CIs)		0.79 (0.62 – 0.96)					
Weighted Kappa (95% CIs)		0.87 (0.74 – 0.98)					

These monitoring data were also supported by additional statistical regression equation modelling data.

Data Modelling:
A data modelling procedure was carried out on monitoring sample results from the original BNII submission. The Passing Bablok regression equations derived from the comparison study and the total imprecision values derived from the precision studies were used to mathematically transform the data. The results are summarised in the tables below.

H/L*		Predicate Assigned Response					
		CR	**VGPR**	**PR**	**SD**	**PD**	**Total**
Transformed Data Response	**CR**	29	5	2	0	0	**36**
	VGPR	24	72	27	0	0	**123**
	PR	7	4	165	4	0	**180**
	SD	0	1	4	92	0	**97**
	PD	0	0	0	0	1	**1**
	Total	**60**	**82**	**198**	**96**	**1**	**437**
Kappa (95% CIs)		0.75 (0.70 – 0.80)					
Weighted Kappa (95% CIs)		0.86 (0.82 – 0.89)					

* H/L: H = highest kappa, L = lowest lambda; the imprecision values were applied to generate the highest possible kappa and the lowest possible lambda results.

L/H**		Predicate Assigned Response					
		CR	**VGPR**	**PR**	**SD**	**PD**	**Total**
Transformed Data Response	**CR**	55	16	6	1	0	78
	VGPR	5	63	23	0	0	91
	PR	0	2	166	3	0	171
	SD	0	1	3	92	0	96
	PD	0	0	0	0	1	1
	Total	60	82	198	96	1	437
Kappa (95% CIs)		0.81 (0.76 – 0.85)					
Weighted Kappa (95% CIs)		0.90 (0.86 – 0.93)					

** L/H: L = lowest kappa, H = highest lambda; the imprecision values were applied to generate the lowest possible kappa and the highest possible lambda results.

b. Other clinical supportive data (when a. is not applicable)
Not applicable.

4. Clinical cut-off:
   Refer to discussion above.

5. Expected values/Reference range:
   The reference intervals were transferred from the predicate devices and were verified by testing 50 adult donor samples.

	95 Percentile Range
IgG kappa (g/L)	4.03 – 9.78 g/L
IgG lambda (g/L)	1.97 – 5.71 g/L
IgG kappa/ IgG lambda ratio	0.98 – 2.75

N. Proposed Labelling:
The labelling is sufficient and it satisfies the requirements of 21 CFR Part 809.10.

O. Conclusion:
The submitted information in this premarket notification is complete and supports a substantial equivalence decision.