510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION
DECISION MEMORANDUM

A. 510(k) Number:

K150854

B. Purpose for Submission:

Addition of four new recombinant allergens and one purified native allergen to a cleared device

C. Measurand:

Five new allergen-specific IgE analytes: f439, rCor a 14 (Hazelnut); f440, nCor a 9 (Hazelnut); f441, rJurg r 1 (Walnut); f442, rJurg r 3 (Walnut); f443, rAna o 3 (Cashew nut)

D. Type of Test:

Fluoroenzymeimmunoassay, Quantitative

E. Applicant:

Phadia AB

F. Proprietary and Established Names:

ImmunoCAP Specific IgE

Additions include:
ImmunoCAP Allergen f439, Allergen component rCor a 14, Hazelnut, 14-5754-01
ImmunoCAP Allergen f440, Allergen component nCor a 9, Hazelnut, 14-5758-01
ImmunoCAP Allergen f441, Allergen component rJug r 1, Walnut, 14-5762-01
ImmunoCAP Allergen f442, Allergen component rJug r 3, LTP, Walnut, 14-5954-01
ImmunoCAP Allergen, f443, Allergen component rAna o 3, Cashew nut, 14-5760-01

G. Regulatory Information:

1. Regulation section:

   21 CFR § 866.5770, Radioallergosorbent (RAST) immunological test system

2. Classification:

   Class II

3. Product code:

   DHB – System, Test, Radioallergosorbent (RAST), Immunological

4. Panel:

Immunology (82)

H. Intended Use:

1. Intended use(s):

   ImmunoCAP Specific IgE is an *in vitro* quantitative assay for the measurement of allergen specific IgE in human serum or plasma (EDTA or Na-Heparin). ImmunoCAP Specific IgE is to be used with instruments Phadia 100, Phadia 250, Phadia 1000, Phadia 2500 and Phadia 5000. It is intended for *in vitro* diagnostic use as an aid in the clinical diagnosis of IgE mediated allergic disorders in conjunction with other clinical findings, and is to be used in clinical laboratories.

2. Indication(s) for use:

   Same as intended use.

3. Special conditions for use statement(s):

   For prescription use only.

4. Special instrument requirements:

   For use on the instruments Phadia 100, Phadia 250, Phadia 1000, Phadia 2500 and Phadia 5000

I. Device Description:

The ImmunoCAP system is a fully integrated and automated system for the determination of specific IgE in human blood serum or plasma (EDTA or Na-Heparin) sample. It is comprised of general, test and method specific reagents for Phadia 100, Phadia 250, Phadia 1000, Phadia 2500 and Phadia 5000 test system modules, as well as instrument and data management software.

The general ImmunoCAP reagents include ImmunoCAP Specific IgE Conjugate, ImmunoCAP Specific IgE Curve Control, ImmunoCAP Specific IgE Calibrators, Specific IgE anti-IgE ImmunoCAP, Allergen ImmunoCAP carriers, ImmunoCAP development solution and stop solution. The method specific reagents consist of individual purified allergen (native or recombinant) covalently coupled to a support in a plastic housing.

J. Substantial Equivalence Information:

1. Predicate device name(s) and 510(k) number(s):

   ImmunoCAP system, ImmunoCAP Specific IgE Assay and ImmunoCAP Specific IgE Conjugate 100 and Conjugate 400 (K051218)

   ImmunoCAP Specific IgE Assay (K962274 and K974580)

2. Comparison with predicate:

Similarities		
Item	Device	Predicate
Intended Use	An *in vitro* quantitative assay for the	Same

Similarities		
Item	Device	Predicate
	measurement of allergen specific IgE in human serum or plasma. It is intended for *in vitro* diagnostic use as an aid in the clinical diagnosis of IgE mediated allergic disorders in conjunction with other clinical findings and to be used in clinical laboratories.	
Assay type	Quantitative	Same
Basic principle	Fluoroenzymeimmunoassay	Same
Detection antibody	β-Galactosidase-anti-human IgE (mouse monoclonal antibody)	Same
Sample volume	40 µL	Same
Number of calibrators	Six	Same
Process time	Phadia 100: 2 hrs 30 min. Phadia 250, Phadia 1000, Phadia 2500 and Phadia 5000: 1 hour 45 minutes from entering the first sample.	Same
Incubation temperature	37°C	Same

Differences		
Item	Device	Predicate
Form of allergens	Recombinant proteins and a purified native allergen	Purified native allergens
Allergens	Individual recombinant proteins: f439, rCor a 14 (Hazelnut); f441, rJurg r 1 (Walnut); f442, rJurg r 3, LTP (Walnut); f443, rAna o 3 (Cashew nut) Individual purified native allergen source: f440, nCor a 9 (Hazelnut)	Whole allergen from purified native allergen source: f17 (Hazelnut; f256 (Walnut); f202 (Cashew nut)
Sample matrix	Serum and plasma (EDTA or sodium heparin)	Serum and plasma (EDTA and heparin)
Laboratory settings	Clinical laboratories	Clinical laboratories and physician office laboratories
Instruments	Phadia 100, Phadia 250, Phadia 1000, Phadia 2500 and Phadia 5000	UniCAP 100
Built-in Software versions	Phadia 100: 3.08 Phadia 250: 2.33 Phadia 1000: 2.40 Phadia 2500: 1.42 Phadia 5000: 1.42 Phadia Information Data Manager	Not available

Differences		
Item	Device	Predicate
	(IDM): 5.67	

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

CLSI EP5-A2: Evaluation of Precision Performance of Quantitative Measurement Methods; Approved Guideline – Second Edition.

CLSI EP7-A2: Interference testing in Clinical Chemistry; Approved Guideline – Second Edition.

CLSI EP17-A: Protocols for Determination of Limits of Detection and Limits of Quantitation; Approved Guideline.

CLSI EP25-A: Evaluation of stability of in vitro diagnostic reagents; Approved Guideline.

CLSI I/LA20-A2: Analytical Performance Characteristics and Clinical Utility of Immunological Assays for Human Immunoglobulin E (IgE) Antibodies and Defined Allergy Specificities; Approved Guidelines – Second Edition.

CEN 13640: 2002 Stability Testing of *in vitro* Diagnostic Reagents

L. Test Principle:

The allergen of interest, covalently coupled to ImmunoCAP solid phase, reacts with the specific IgE in the patient sample. After washing away nonspecific IgE, enzyme-labeled antibodies against IgE are added to form a complex. After incubation, unbound enzyme-anti-IgE is washed away and the bound complex is then incubated with a developing agent. After stopping the reaction, the fluorescence of the eluate is measured. The higher the response value, the more specific IgE is present in the specimen. To evaluate the test results, the responses for the patient samples are transformed to concentrations with the use of a calibration curve.

M. Performance Characteristics (if/when applicable):

1. Analytical performance:

a. Precision/Reproducibility:

i) Within-Lot imprecision:

Imprecision of the individual allergen components was evaluated by using two positive plasma samples, including a low range sample (0.35 ± 25%) and a high range sample (≥0.7 kU_A/L). Each sample was tested in 4 replicates in one assay run per day for a total of 20 operating days (a total of 80 replicates per sample). The assay was performed according to the ImmunoCAP Specific IgE Directions for Use using Phadia 250. Between-day and within-run coefficients of variance (%CV) were calculated for each component and each sample separately. Results of CV% values for individual allergen components were all within the acceptance criteria and are shown below:

ImmunoCAP Allergen Component	Sample	Number of tests	Mean (kU/L)	CV% Between Days	CV% Within-run	CV% Total
f439, rCor a 14 (Hazelnut)	1	80	1.70	2.44	2.24	3.31
	2	80	0.40	3.03	2.95	4.22
f440, nCor a 9	1	80	1.44	2.53	2.04	3.25

ImmunoCAP Allergen Component	Sample	Number of tests	Mean (kU/L)	CV% Between Days	CV% Within-run	CV% Total
(Hazelnut)	2	80	0.28	3.36	4.67	5.75
f441, rJurg r 1 (Walnut)	1	80	1.84	4.14	4.97	6.47
	2	80	0.38	1.98	2.05	2.85
f442, rJurg r 3, LTP (Walnut)	1	80	2.76	2.06	2.22	3.03
	2	80	0.35	5.19	4.11	6.62
f443, rAna o 3 (Cashew nut)	1	80	2.50	2.34	2.40	3.35
	2	80	0.28	3.24	9.39	9.93

Results of pooled CV% values for individual allergens:

ImmunoCAP Allergen Component	Number of samples	CV% Between Days	CV% Within-run	CV% Total
f439, rCor a 14 (Hazelnut)	2	2.75	2.62	3.79
f440, nCor a 9 (Hazelnut)	2	2.97	3.60	4.67
f441, rJurg r 1 (Walnut)	2	3.24	3.80	5.00
f442, rJurg r 3, LTP (Walnut)	2	3.95	3.30	5.15
f443, rAna o 3 (Cashew nut)	2	2.83	6.85	7.41

ii) Lot-to-lot imprecision:

For each allergen, three different ImmunoCAP Allergen Component lots were tested using two positive plasma samples (0.35 ± 25% and ≥ 0.7 kU_A/L) and one negative plasma sample (< 0.1 kU_A/L). For each lot, the samples were tested in 12 replicates in one assay run. Each lot represented a different preparation of the allergen from routine production. The assay was performed according to the ImmunoCAP Specific IgE, Directions for Use, using the Phadia 250 instrument. Mean concentration values, %CV and concentration quotients between lots were calculated for the positive samples were all within the acceptance criteria and are shown below.

	Positive 1		Positive 2		Negative	Concentration Quotient		
Lot	Mean (kU_A/L)	CV (%)	Mean (kU_A/L)	CV (%)	Mean (kU_A/L)		Positive 1	Positive 2
ImmunoCAP Allergen, f439, rCor a 14 (Hazelnut)								
1	1.76	2.9	0.36	1.4	<0.1	lot1/lot2	1.03	1.10
2	1.71	1.18	0.33	1.3	<0.1	lot1/lot3	0.99	1.03
3	1.78	2.1	0.35	2.4	<0.1	lot2/lot3	0.96	0.94
ImmunoCAP Allergen, f440, nCor a 9 (Hazelnut)								
1	2.57	1.89	0.34	3.29	<0.1	lot1/lot2	1.03	1.08
2	2.49	1.49	0.31	2.17	<0.1	lot1/lot3	1.04	1.08
3	2.47	1.95	0.31	5.50	<0.1	lot2/lot3	1.01	1.00
ImmunoCAP Allergen, f441, rJurg r 1 (Walnut)								
1	1.72	2.5	0.38	3.8	<0.1	lot1/lot2	1.05	1.02
2	1.65	2.0	0.37	2.3	<0.1	lot1/lot3	1.06	1.00
3	1.63	2.0	0.38	2.0	<0.1	lot2/lot3	1.01	0.99
ImmunoCAP Allergen, f442, rJurg r 3, LTP (Walnut)								

Lot	Positive 1 Mean (kU_A/L)	Positive 1 CV (%)	Positive 2 Mean (kU_A/L)	Positive 2 CV (%)	Negative Mean (kU_A/L)	Concentration Quotient	Positive 1	Positive 2
1	3.74	2.5	0.36	5.3	<0.1	lot1/lot2	0.95	0.90
2	3.95	2.3	0.40	6.0	<0.1	lot1/lot3	0.94	0.90
3	3.99	2.7	0.40	5.9	<0.1	lot2/lot3	0.99	1.00
ImmunoCAP Allergen, f443, rAna o 3 (Cashew nut)								
1	2.92	3.3	0.40	1.2	<0.1	lot1/lot2	1.01	1.00
2	2.89	2.4	0.40	11.6	<0.1	lot1/lot3	0.98	1.11
3	2.98	2.3	0.36	4.6	<0.1	lot2/lot3	0.97	1.11

b. Linearity/assay reportable range:

The linearity of the individual allergens was assessed following the CLSI I/LA20-A2 guidelines. For each allergen component, three positive plasma samples were each diluted in negative plasma generating at least five 2-fold consecutive dilutions. Undiluted samples were tested in 12 replicates and diluted samples were tested in four replicates in one assay run. The assay was performed according to the ImmunoCAP Specific IgE, Directions for Use using the Phadia 250 instrument. For each product, one lot of ImmunoCAP Allergen Component was used. The working range of the ImmunoCAP Specific Total IgE is LoD to100 kU_A/L.

For each allergen, results of the replicates from all three samples were pooled and analyzed for linearity. Regression statistics for each allergen comparing the observed results to expected results are presented below:

ImmunoCAP Allergen Component	Regression Equation	r^2	95% CI Slope	95% CI Intercept	Highest concentration tested (kU_A/L)
f439, rCor a 14 (Hazelnut)	y = 0.99x + 0.03	1.00	0.98–1.00	0.02–0.03	26.9
f440, nCor a 9 (Hazelnut)	y = 0.96x – 0.10	1.00	0.94–0.97	0.08–0.11	47.9
f441, rJurg r 1 (Walnut)	y =1.00x	1.00	0.99–1.00	0–0	63.3
f442, rJurg r 3, LTP (Walnut)	y =0.97x + 0.05	1.00	0.96–0.98	0.04–0.05	55.6
f443, rAna o 3 (Cashew nut)	y =1.03x + -0.03	1.00	1.03–1.02	-0.04–(-0.02)	22.3

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

i) *Traceability*:

The IgE calibrators are traceable (via an unbroken chain of calibrations) to the 2nd International Reference Preparation (IRP) 75/502 of Human Serum Immunoglobulin E from World Health Organization (WHO).

ii) *Kit Stability*:

Real-time and accelerated stability: The stability studies were performed in accordance with EN 13640 (Stability Testing of *In Vitro* Diagnostic Reagents) to demonstrate 24 month unopened shelf-life stability (from the date of manufacture when stored at the

recommended storage temperature of 2–8°C) on three lots each of: ImmunoCAP Allergen f439, rCor a 14 (Hazelnut); f440, nCor a 9 (Hazelnut); f441, rJurg r 1 (Walnut); f442, rJurg r 3, LTP (Walnut); f443, rAna o 3 (Cashew nut) by an ongoing real-time stability study and accelerated stability study. All stability data support the manufacturer's claim of 24 months.

The stability of the calibration curve, real-time, and on-board stability of ImmunoCAP Specific IgE calibrator are detailed in K100999.

d. Detection limit:

The Limit of Blank (LoB) and Limit of Detection (LoD) were determined for each allergen component on the Phadia 250 in alignment with CLSI EP17-A. The LoB was based on single determinations of 100 negative samples (blank samples) and was estimated as the 95% percentile of the distribution. LoD was calculated according to the equation: LoD = LoB + cß x SD where SD, the standard deviation, was based on 20 determinations of 3 low positive samples, in total 60 determinations. The results are shown in the table below.

ImmunoCAP Allergen Component	LoB (kU_A/L)	LoD (kU_A/L)
f439, rCor a 14 (Hazelnut)	0.007	0.013
f440, nCor a 9 (Hazelnut)	0.002	0.008
f441, rJurg r 1 (Walnut)	0.008	0.015
f442, rJurg r 3, LTP (Walnut)	0.014	0.037
f443, rAna o 3 (Cashew nut)	0.000	0.008

e. Analytical specificity:

i) *Inhibition studies*:

Immunological specificity of the allergen components was verified through competitive inhibition. The studies were planned in accordance with CLSI I/LA20-A2. The specific IgE concentration for the positive samples is shown in the table below.

ImmunoCAP Allergen Component	kU_A/L
f439, rCor a 14 (Hazelnut)	4.7
f440, nCor a 9 (Hazelnut)	10.2
f441, rJurg r 1 (Walnut)	4.5
f442, rJurg r 3, LTP (Walnut)	8.0
f443, rAna o 3 (Cashew nut)	5.4

The allergen solution was serially diluted with buffer to show an overall dose dependent inhibition. Equal volumes of a positive sample and varying dilutions of allergen solution (inhibitor) were premixed. The mixture was incubated in a sample tube at room temperature for 1 hour before being analyzed with the corresponding ImmunoCAP Allergen Component on the Phadia 250 according to the ImmunoCAP Specific IgE, Directions for Use. The testing was performed in duplicate in one assay run. Mean values were calculated.

The inhibition test was evaluated with inhibition values in %, calculated according to the formula below:

$$\left(1-\left(\frac{r-b}{t-b}\right)\right)\times 100 = i\%$$

r = response [RU]
b = background response (100% inhibition) [RU]
t = total response (0% inhibition) [RU]
i = inhibition

Any negative inhibition %-values are shown as 0% inhibition.

The results of the inhibition with the allergen solution and the unrelated inhibitors indicate that the five new ImmunoCAP Allergen Components s contain the immunologically relevant allergen as shown below:

ImmunoCAP Allergen, f439, Allergen Component rCor a 14 (Hazelnut)

The f439, rCor a 14 (Hazelnut) allergen Inhibition study showed that >50% inhibition was achieved with the related inhibitor (rCor a 14 allergen) at a final inhibitor concentration of 0.92 mg/mL. The inhibition studies using four unrelated inhibitors, including three from unrelated groups (rPla l 1, Plantain; rPla a 1, London Plane; and rFel d 2, Cat) and one from the related/same group (rCor a 8, Hazelnut) did not show any significant inhibition. The inhibition studies indicate that the ImmunoCAP Allergen f439, rCor a 14 (Hazelnut) solid phase contains the immunologically relevant allergen.

ImmunoCAP Allergen, f440, Allergen Component nCor a 9 (Hazelnut)

The f440, nCor a 9 (Hazelnut) allergen Inhibition study showed that >50% inhibition was achieved with the related inhibitor (nCor a 9 allergen) at a final inhibitor concentration of 22 µg/mL. The inhibition studies using four unrelated inhibitors, including three from unrelated groups (nAmb a 1, Ragweed; rOle e 9, Olive; and rCan f 5, Dog) and one from the related/same group (rCor a 1, Hazelnut) did not show any significant inhibition. The inhibition studies indicate that the ImmunoCAP Allergen f440, nCor a 9 (Hazelnut) solid phase contains the immunologically relevant allergen.

ImmunoCAP Allergen, f441, Allergen Component rJug r 1 (Walnut)

The f441, rJug r 1 (Walnut) allergen Inhibition study showed that >50% inhibition was achieved with the related inhibitor (rJug r 1 allergen) at a final inhibitor concentration of 23 µg/mL. The inhibition studies using four unrelated inhibitors, including three from unrelated groups (rCan f 4, Dog; rOle e 9, Olive; and rPla l 1, Plantain) and one from the related/same group (rJug r 3, Walnut) did not show any significant inhibition. The inhibition studies indicate that the ImmunoCAP Allergen f441, rJug r 1 (Walnut) solid phase contains the immunologically relevant allergen.

ImmunoCAP Allergen, f442, Allergen Component rJurg r 3 (Walnut)

The f442, rJurg r 3 (Walnut) allergen Inhibition study showed that >50% inhibition was achieved with the related inhibitor (rJug r 3 allergen) at a final inhibitor concentration of 19 mg/mL. The inhibition studies using four unrelated inhibitors, including three from unrelated groups (rCan f 4, Dog; rOle e 9, Olive; and rPla l 1, Plantain) and one from the related/same group (rJurg r 1, Walnut) did not show any significant inhibition. The inhibition studies indicate that the ImmunoCAP Allergen f442, rJurg r 3 (Walnut) solid phase contains the immunologically relevant allergen.

ImmunoCAP Allergen, f443, Allergen Component rAna o 3 (Cashew nut)

The f443, rAna o 3 (Cashew nut) allergen Inhibition study showed that >50% inhibition

was achieved with related inhibitor (rAna o 3 allergen) at a final inhibitor concentration of 43 µg/mL. The inhibition studies using four unrelated inhibitors, including three from unrelated groups (nAmb a 1, Ragweed; rOle e 9, Olive; and rCan f 5, Dog) and one from the related/same group (rCor a 1, Hazelnut) did not show any significant inhibition. The inhibition studies indicate that the ImmunoCAP Allergen f443, rAna o 3 (Cashew nut) solid phase contains the immunologically relevant allergen.

ii) *Interference*:

a) Endogenous Substance Interference:

In order to show that icteric, hemolytic or lipemic samples do not adversely affect the results in ImmunoCAP Specific IgE assay using representative allergens, Bilirubin C [final concentration (fc) 20 mg/dL], Bilirubin F (fc 19 mg/dL), Hemoglobin (fc 489 mg/dL) and Chyle (fc 1,440 Formazine Turbidity Units) were spiked into 2 samples per allergen and were analyzed in duplicates in one assay run using Phadia 250. Refer to K1138441. The results demonstrate that icteric, hemolytic or lipemic samples do not adversely affect the results in ImmunoCAP Specific IgE.

b) Exogenous Substance Interference:

Two literature references were provided supporting that commonly prescribed "allergy medications" do not interfere with ImmunoCAP Specific IgE. The references included *(i)* Robert G. Hamilton, Accuracy of US Food and Drug Administration-cleared IgE antibody assays in the presence of anti-IgE (omalizumab), J. Allergy Clin. Immunol. 2006; 759-766, and *(ii)* Linda Cox et. al., Pearls and pitfalls of allergy diagnostic testing: report from the American College of Allergy, Asthma and Immunology/American Academy of Allergy, Asthma and Immunology Specific IgE Test Task Force, Annals of Allergy, Asthma & Immunology, 2008; 101:580-592.

f. Assay cut-off:

Limit of Quantitation for ImmunoCAP Specific IgE is 0.1 kU_A/L. All results >0.1 $kU_A//L$ are interpreted as being analytically positive.

2. Comparison studies:

a. Method comparison with predicate device:

Not applicable

b. Matrix comparison:

In order to show that different sample matrices (heparin plasma, EDTA plasma and serum) are interchangeable for ImmunoCAP Allergen Components, serum, sodium heparin plasma, and EDTA plasma samples were collected from four patients with clinical history of known specific allergies and four non-atopic patients. The samples contained specific IgE antibodies for one or more of the allergen components tested. All sample matrices (heparin plasma, EDTA plasma and serum) from each patient were tested with ImmunoCAP Allergen Components in two replicates in one assay run. The results from the study demonstrate that samples of different matrices (heparin plasma, EDTA plasma and serum) are interchangeable for ImmunoCAP Allergen Components. Refer to K101251.

3. Clinical studies:

a. Clinical sensitivity and specificity:

The performance of the five new individual allergen components was compared to a clinical diagnosis of allergy. The objectives of this study were: *(i)* to show the linkage between specific IgE antibodies to ImmunoCAP Allergen Component and the corresponding extract based ImmunoCAP Allergen, using clinical samples, and *(ii)* to demonstrate that samples from healthy, non-atopic donors with no reported clinical reaction to the allergen have undetectable or very low levels of specific IgE to the individual ImmunoCAP Allergen Component. Thirty or more clinical serum samples from individuals with a clinical history of allergy-like symptoms upon exposure to the allergen, as diagnosed by a physician were used in the study. Information about clinical symptoms and manifestations was available for all clinical samples. Negative samples (<0.35 kU_A/L) from 100 healthy non-atopic donors were also tested.

ImmunoCAP Allergen f439, Allergen Component rCor a 14 (Hazelnut)

		Clinical Diagnosis		
		Atopic	**Non-atopic**	**Total**
Allergen, f439, rCor a 14 (Hazelnut)	**Positive**	31	0	31
	Negative	1	100	101
	Total	32	100	132

Sensitivity =96.9% (31/32) (95% CI: 83.8–99.9%)
Specificity =100% (100/100) (95% CI: 96.4–100%)

ImmunoCAP Allergen f440, Allergen Component nCor a 9 (Hazelnut)

		Clinical Diagnosis		
		Atopic	**Non-atopic**	**Total**
Allergen, f440, nCor a 9 (Hazelnut)	**Positive**	27	0	27
	Negative	3	100	103
	Total	30	100	130

Sensitivity =90% (27/30) (95% CI: 73.5–97.9%)
Specificity =100% (100/100) (95% CI: 96.4–100.0%)

ImmunoCAP Allergen f441, Allergen Component rJurg r 1 (Walnut)

		Clinical Diagnosis		
		Atopic	**Non-atopic**	**Total**
Allergen, f441, rJurg r 1 (Walnut)	**Positive**	37	0	37
	Negative	2	100	102
	Total	39	100	139

Sensitivity =95% (37/39) (95% CI: 82.7–99.4%)
Specificity =100% (100/100) (95% CI: 96.4–100%)

ImmunoCAP Allergen f442, Allergen Component rJurg r 3, LTP (Walnut)

		Clinical Diagnosis		
		Atopic	**Non-atopic**	**Total**
Allergen, f442, rJurg r 3, LTP (Walnut)	**Positive**	25	0	25
	Negative	5	100	105
	Total	30	100	130

Sensitivity =83.3% (25/30) (95% CI: 65.3 – 94.4%)
Specificity =100% (100/100) (95% CI: 96.4–100%)

ImmunoCAP Allergen f443, Allergen Component rAna o 3 (Cashew nut)

		Clinical Diagnosis		
		Atopic	**Non-atopic**	**Total**
Allergen, f443, rAna o 3 (Cashew nut)	**Positive**	27	0	27
	Negative	4	100	104
	Total	31	100	131

Sensitivity =87% (27/31) (95% CI: 70.2–96.4%)
Specificity =100% (100/100) (95% CI: 96.4–100%)

All negative samples showed an undetectable level (< 0.35 kU_A/L) of allergen specific IgE. Studies described above were performed on the Phadia 1000 instrument system.

b. Other clinical supportive data (when a. and b. are not applicable):

Not applicable

4. Clinical cut-off**:**

Not applicable

5. Expected values/Reference range:

The expected value is negative (< 0.35 kU_A/L) for a specific allergen in a non-allergic person. The manufacturer recommends a cut-off at 0.35 kU_A/L. Each laboratory should establish its own expected range of values.

N. Proposed Labeling:

The labeling 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.