DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

NOV 8 - 2004

Ms. Darlene Phillips
Regulatory Affairs Associate
Ortho-Clinical Diagnostics
100 Indigo Creek Drive
Rochester, New York 14626-5101

Re: k042494
Trade/Device Name: VITROS Chemistry Products C3 Reagent
VITROS Chemistry Products C4 Reagent
VITROS Chemistry Products Calibrator Kit 20
VITROS Chemistry Products Protein Performance Verifiers I, II and III
Regulation Number: 21 CFR 866.5240
Regulation Name: Complement Components Immunological Test System
Regulatory Class: Class II
Product Code: CZW, DBI, JIT, JJY
Dated: September 13, 2004
Received: September 14, 2004

Dear Ms Phillips:

This letter corrects our substantially equivalent letter of October 19, 2004 regarding the VITROS Chemistry Products C3 Reagent, VITROS Chemistry Products C4 Reagent, VITROS Chemistry Products Calibrator Kit 20 and VITROS Chemistry Products Protein Performance Verifiers I, II and III in which the VITROS Chemistry Products C4 Reagent was omitted from the listing of the trade name(s).

We have reviewed your Section 510(k) premarket notification of intent to market the devices referenced above and have determined the devices are 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 (PMA). You may, therefore, market the devices, 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.

If your devices are classified (see above) into either class II (Special Controls) or class III (PMA), they may be subject to additional controls. Existing major regulations affecting your devices can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your devices 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 devices comply 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); 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.

This letter will allow you to continue marketing your devices as described in your Section 510(k) premarket notification. The FDA finding of substantial equivalence of your devices to legally marketed predicate devices results in a classification for your devices and thus, permits your devices to proceed to the market.

If you desire specific advice for your devices on our labeling regulation (21 CFR Part 801), please contact the Office of Compliance at (301) 594-3084. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its Internet address http://www.fda.gov/cdrh/dsma/dsmamain.html

Sincerely yours,

Robert L Becker Jr

Robert L. Becker, Jr., M,D,. PhD
DIRECTOR
Division of Immunology and Hematology Devices
Office of In Vitro Diagnostic Device Evaluation and Safety
Center for Devices and Radiological Health

Enclosure

1.0 Indications for Use for VITROS C3 assay

510(k) Number (if known): K042494

Device Name:

VITROS Chemistry Products C3 Reagent
VITROS Chemistry Products Calibrator Kit 20
VITROS Chemistry Products Protein Performance Verifiers I, II and III

Indications for Use:

For *in vitro* diagnostic use only. VITROS Chemistry Products C3 Reagent is used to quantitatively measure complement C3 (C3) concentration in human serum and plasma. Measurements of these proteins aids in the diagnosis of immunologic disorders, especially those associated with deficiencies of complement components.

For *in vitro* diagnostic use. VITROS Chemistry Products Calibrator Kit 20 is used to calibrate VITROS 5,1 FS Chemistry Systems for the quantitative measurement of transferrin, C3, C4, IgA, IgG and IgM.

For *in vitro* diagnostic use only. VITROS Chemistry Products Protein Performance Verifiers are assayed controls used to monitor the performance of TRFRN, C3, C4, IgA, IgG and IgM Reagents on VITROS 5,1 FS Chemistry Systems.

Prescription Use X AND/OR Over-The-Counter Use _____

(Part 21 CFR 801 Subpart D) (21 CFR 807 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE - CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

Maria M. Chan

Division Sign-Off

Office of In Vitro Diagnostic Device Evaluation and Safety

510(k) K042494

2.0 Indications for Use for VITROS C4 assay

510(k) Number (if known): K042494

Device Name:

VITROS Chemistry Products C4 Reagent
VITROS Chemistry Products Calibrator Kit 20
VITROS Chemistry Products Protein Performance Verifiers I, II and III

Indications for Use:

For *in vitro* diagnostic use only. VITROS Chemistry Products C4 Reagent is used to quantitatively measure complement C4 (C4) concentration in human serum and plasma. Measurements of these proteins aids in the diagnosis of immunologic disorders, especially those associated with deficiencies of complement components.

For *in vitro* diagnostic use. VITROS Chemistry Products Calibrator Kit 20 is used to calibrate VITROS 5,1 FS Chemistry Systems for the quantitative measurement of transferrin, C3, C4, IgA, IgG and IgM.

For *in vitro* diagnostic use only. VITROS Chemistry Products Protein Performance Verifiers are assayed controls used to monitor the performance of TRFRN, C3, C4, IgA, IgG and IgM Reagents on VITROS 5,1 FS Chemistry Systems.

Prescription Use ✓ AND/OR Over-The-Counter Use _____

(Part 21 CFR 801 Subpart D) (21 CFR 807 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE - CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

Division Sign-Off

Office of In Vitro Diagnostic
Device Evaluation and Safety

510(k) K042494

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4.0 510(k) Summary

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.

The assigned 510(k) number is: K042494

4.1 Submitter name, address, contact

Ortho-Clinical Diagnostics, Inc.
100 Indigo Creek Drive
Rochester, New York 14626-5101
Phone: (585) 453-4253
Fax: (585) 453-3368

Contact Person: Darlene J. Phillips

4.2 Date of Preparation:

September 13, 2004

4.3 Device Proprietary Names:

Trade Names: VITROS Chemistry Products C3 Reagent
VITROS Chemistry Products C4 Reagent
VITROS Chemistry Products Calibrator Kit 20
VITROS Chemistry Products Protein Performance Verifiers I, II and III

Common Name: Complement C3 and C4 assays

4.4 Classification Names

Classification Name: Complement components immunological test systems (866.5240):
Class: II (Performance standards)

Classification Name: Calibrator (862.1150): Class II The Clinical Chemistry and Toxicology Panel of the FDA has placed calibrators in Class II.

Classification Name: Quality Control material (assayed and unassayed) (862.1660):
Class I: The Clinical Chemistry and Toxicology Panel of the FDA has placed Quality Control material (assayed and unassayed) for clinical chemistry in Class I. Since this device is an assayed control, it meets the reserved criteria under Section 510(l) of the Food, Drug, and Cosmetic Act.

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4.5 Predicate device

4.5.1 The VITROS Chemistry Products C3 Reagent and VITROS Chemistry Products Calibrator Kit 20 are substantially equivalent to the IMMAGE® Immunochemistry System Complement C3 Reagent assayed on the Beckman IMMAGE® Immunochemistry System.

4.5.2 The VITROS Chemistry Products C4 Reagent and VITROS Chemistry Products Calibrator Kit 20 are substantially equivalent to the Dade Behring N Antisera to Human Complement C4 assayed on the Dade Behring BN® ProSpec Nephelometer.

4.5.3 The VITROS Chemistry Products Protein Performance Verifiers I, II and III are substantially equivalent to the VITROS Chemistry Products Performance Verifiers I and II.

4.6 Device description

The VITROS 5,1 FS Chemistry System is a fully automated clinical chemistry analyzer intended for use in the *in vitro* determination of various analytes in human specimens (serum, plasma, urine, and cerebrospinal fluid). The VITROS 5,1 FS System is designed for use with VITROS Chemistry Products MicroTip and Thin Film assays.

The system is comprised of four main elements:

1. The VITROS 5,1 FS Chemistry System – instrumentation, which provides automated use of the chemistry reagents. The VITROS 5,1 FS Chemistry System was cleared for market by a separate 510(k) premarket notification (K031924).
2. The VITROS Chemistry Products MicroTip range of liquid reagent products (in this case VITROS Chemistry Products C3 Reagent, VITROS Chemistry Products C4 Reagent, VITROS Chemistry Products Calibrator Kit 20 and VITROS Chemistry Products Protein Performance Verifiers I, II and III), which are combined on the VITROS 5,1 FS Chemistry System to perform the VITROS C3 and C4 assays.
3. The VITROS Chemistry Products Thin Film range of dry products, which are dry, multilayered, analytical elements, coated on polyester supports. The thin film products each have their own 510(k) clearance numbers and were cleared for market for use on the VITROS 5,1 FS Chemistry System through submission of information required by the ODE Guidance Document: "Data For Commercialization Of Original Equipment Manufacturer, Secondary and Generic Reagents For Automated Analyzers". The required information was provided in the VITROS 5,1 FS Chemistry System premarket notification (K031924).

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4. Common reagents used by multiple assays on the VITROS System (in this case, VITROS Chemistry Products FS Diluent Pack 2).

The VITROS System and reagents are designed specifically for use with the VITROS Chemistry Products range of products.

4.7 Device intended use

4.7.1 VITROS Chemistry Products C3 Reagent

For *in vitro* diagnostic use only. VITROS Chemistry Products C3 Reagent is used to quantitatively measure complement C3 (C3) concentration in human serum and plasma. Measurements of these proteins aids in the diagnosis of immunologic disorders, especially those associated with deficiencies of complement components.

4.7.2 VITROS Chemistry Products C4 Reagent

For *in vitro* diagnostic use only. VITROS Chemistry Products C4 Reagent is used to quantitatively measure complement C4 (C4) concentration in human serum and plasma. Measurements of these proteins aids in the diagnosis of immunologic disorders, especially those associated with deficiencies of complement components.

4.7.3 VITROS Chemistry Products Calibrator Kit 20

For *in vitro* diagnostic use. VITROS Chemistry Products Calibrator Kit 20 is used to calibrate VITROS 5,1 FS Chemistry Systems for the quantitative measurement of transferrin, C3, C4, IgA, IgG and IgM.

4.7.4 VITROS Chemistry Products Protein Performance Verifiers I, II and III

For *in vitro* diagnostic use only. VITROS Chemistry Products Protein Performance Verifiers are assayed controls used to monitor the performance of TRFRN, C3, C4, IgA, IgG and IgM Reagents on VITROS 5,1 FS Chemistry Systems.

4.8 Comparison to predicate device

4.8.1 The VITROS Chemistry Products C3 Reagent and VITROS Chemistry Products Calibrator Kit 20 are substantially equivalent to the IMMAGE® Immunochemistry System Complement C3 Reagent assayed on the Beckman IMMAGE® Immunochemistry System (predicate device #1) which was cleared by the FDA (K964842) for IVD use.

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The relationship between the VITROS C3 assay and the predicate device, determined by the least squares linear regression is:

VITROS C3 assay = 0.95x X + 11 mg/dL,

with a correlation coefficient of 0.98,

where X is the IMMAGE® Immunochemistry System Complement C3 Reagent assayed on the Beckman IMMAGE® Immunochemistry System.

In addition to the above mentioned correlation study, studies were performed to determine the precision, analytical sensitivity, specificity and expected values of the VITROS C3 assay, (refer to VITROS C3 Reagent Instructions For Use for summaries of the results of these studies).

4.8.2 The VITROS Chemistry Products C4 Reagent and VITROS Chemistry Products Calibrator Kit 20 are substantially equivalent to the Dade Behring N Antisera to Human Complement C4 assayed on the Dade Behring BN® ProSpec Nephelometer (predicate device #2) which was cleared by the FDA (K860894) for IVD use.

The relationship between the VITROS C4 assay and the predicate device, determined by the least squares linear regression is:

VITROS C4 assay = 0.93x X + 3.0 mg/dL,

with a correlation coefficient of 0.976,

where X is the Dade Behring N Antisera to Human Complement C4 assayed on the Dade Behring BN® ProSpec Nephelometer.

In addition to the above mentioned correlation study, studies were performed to determine the precision, analytical sensitivity, specificity and expected values of the VITROS C4 assay, (refer to VITROS C4 Reagent Instructions For Use for summaries of the results of these studies).

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Table 1 Table 1 lists the characteristics of the VITROS C3 assay (new device #1) and the Beckman C3 assay (predicate device #1).

Device Characteristic	VITROS C3 assay (New Device #1)	Beckman C3 assay (Predicate Device #1)
Intended Use	For *in vitro* diagnostic use only. VITROS Chemistry Products C3 Reagent is used to quantitatively measure complement C3 (C3) concentration in human serum. Measurements of these proteins aids in the diagnosis of immunologic disorders, especially those associated with deficiencies of complement components.	C3 Reagent, when used in conjunction with IMMAGE Immunochemistry Systems and Calibrator 1, is intended for the quantitative determination of Complement C3 (C3) in human serum by rate nephelometry.
Method	Immunoturbidimetry	Rate nephelometry
Reportable Range	40 - 380 mg/dL	35- 350 mg/dL
Instrumentation	VITROS 5,1 FS Chemistry Systems	IMMAGE Immunochemistry Systems
Sample type	Serum and plasma	Serum
Reactive Ingredient	Goat anti-sera to human C3	C3 Antibody (processed goat sera)

Table 2 Table 2 lists the characteristics of the VITROS C4 assay (new device #2) and the Dade Behring C4 assay (predicate device #2).

Device Characteristic	VITROS C4 assay (New Device #2)	Dade Behring C4 assay (Predicate Device #2)
Intended Use	For *in vitro* diagnostic use only. VITROS Chemistry Products C4 Reagent is used to quantitatively measure complement C4 (C4) concentration in human serum. Measurements of these proteins aids in the diagnosis of immunologic disorders, especially those associated with deficiencies of complement components.	In vitro diagnostic reagents for the quantitative determination of complement factor (C4) in human serum using the BN Systems.
Method	Immunoturbidimetry	Rate nephelometry
Reportable Range	8.0 – 60.0 mg/dL	6 - 190 mg/dL
Instrumentation	VITROS 5,1 FS Chemistry Systems	Dade Behring Nephlometer
Sample type	Serum and plasma	Serum
Reactive Ingredient	Goat anti-sera to human C4	Antiserum to human C4

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4.8.3 The VITROS Chemistry Products Protein Performance Verifiers I, II and III are substantially equivalent to the VITROS Chemistry Products Performance Verifiers (predicate device) which were cleared by the FDA (K041720) for IVD use.

Table 3 **Table 3** lists the similarities and differences of the device characteristics between the VITROS Protein Performance Verifiers with the predicate device, VITROS Performance Verifiers I and II.

Device Characteristic	New device	Predicate device
Intended Use	For *in vitro* diagnostic use only. VITROS Chemistry Products Protein Performance Verifiers are assayed controls used to monitor the performance of TRFRN, C3, C4, IgA, IgG and IgM Reagents on VITROS 5,1 FS Chemistry Systems.	For *in vitro* diagnostic use only. VITROS Performance Verifiers are assayed controls used to monitor performance on VITROS Chemistry Systems.
Fluid Matrix	A base matrix of human serum to which inorganic salts, buffers and preservatives have been added.	A base matrix of freeze-dried human serum to which enzymes, electrolytes, stabilizers, preservatives and other organic analytes have been added.
Analyte Levels	Low, Medium and High	Low and High
Analytes Monitored	TRFRN, C3, C4, IgA, IgG and IgM	Multiple analytes including ALB, ALT, AMYL, Bc, Bu, BUN, Ca, Cl-, DGXN, ECO2, Fe, GLU, K+, LDH, Li, Mg, Na+, PHOS, TBIL, TP, URIC

4.9 Conclusions

The data presented in the premarket notification provide a reasonable assurance that the VITROS C3 and C4 assays and the VITROS Chemistry Products Protein Performance Verifiers are safe and effective for the stated intended uses and are substantially equivalent to the cleared predicate devices. Equivalence to the predicates was demonstrated using commercially available reagents along with patient samples.