FUJIREBIO Diagnostics, Inc

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: K070822

SEP 28 2007

Submitter Information

Address:	Fujirebio Diagnostics, Inc. 201 Great Valley Parkway Malvern, PA 19355
Contact person:	Diana L. Dickson (610) 240-3917 dicksond@fdi.com

Summary preparation date: September 28, 2007

Name of Device

Trade/Proprietary Name:	ARCHITECT Sirolimus Assay ARCHITECT Sirolimus Calibrators
Common/Usual Name:	Sirolimus Test Systems Calibrator
Regulation Number:	21 CFR 862.3840 21 CFR 862.3200
Regulatory Class:	Class II
Product Code:	NRP DLJ

Predicate Device

ABBOTT IMx® Sirolimus Microparticle Enzyme Immunoassay (K042411)

Device Description

The ARCHITECT Sirolimus assay is a delayed one-step immunoassay for the quantitative determination of sirolimus in human whole blood using CMIA technology with flexible assay protocols, referred to as Chemiflex.

Prior to the initiation of the automated ARCHITECT sequence, a manual pretreatment step is performed in which the whole blood sample is extracted with a precipitation reagent, heated,

and centrifuged. The supernatant is decanted into a Transplant Pretreatment Tube, which is placed onto the ARCHITECT *i* System.

Sample, assay diluent, and anti-sirolimus coated paramagnetic microparticles are combined to create a reaction mixture. Sirolimus present in the sample binds to the anti-sirolimus coated microparticles. After a delay, sirolimus acridinium-labeled conjugate is added to the reaction mixture. The sirolimus acridinium-labeled conjugate competes for the available binding sites on the anti-sirolimus coated paramagnetic microparticles. Following an incubation, the microparticles are washed, and pre-trigger and trigger solutions are added to the reaction mixture. The resulting chemiluminescent reaction is measured as relative light units (RLUs).

An indirect relationship exists between the amount of sirolimus in the sample and the RLUs detected by the ARCHITECT *i* System optics.

Reportable Range

The reportable range for the ARCHITECT Sirolimus assay is 2 ng/mL (minimum reportable value based on Functional Sensitivity) to 30 ng/mL.

Intended Use

Reagent Kit

The ARCHITECT Sirolimus assay is a chemiluminescent microparticle immunoassay (CMIA) for the quantitative determination of sirolimus in human whole blood on the ARCHITECT *i* System. The ARCHITECT Sirolimus assay is to be used as an aid in the management of renal transplant patients receiving sirolimus therapy.

Calibrator Kit

The ARCHITECT Sirolimus Calibrators are for the calibration of the ARCHITECT *i* System when used for the quantitative determination of sirolimus in human whole blood.

Whole Blood Precipitation Reagent

The ARCHITECT Sirolimus Whole Blood Precipitation Reagent is for the extraction of sirolimus from samples (human whole blood patient specimens, controls, and ARCHITECT Sirolimus Calibrators) to be tested on the ARCHITECT *i* System.

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Statement of Substantial Equivalence

The ARCHITECT Sirolimus assay is a chemiluminescent microparticle immunoassay (CMIA) for the quantitative determination of sirolimus in human whole blood on the ARCHITECT *i* System. The ARCHITECT Sirolimus assay is to be used as an aid in the management of renal transplant patients receiving sirolimus therapy.

The ARCHITECT Sirolimus assay is substantially equivalent to the IMx Sirolimus assay. Both of the devices are IVD products and are indicated for the quantitative determination of sirolimus in human whole blood and used as an aid in the management of renal transplant patients receiving sirolimus therapy.

A study was performed using human whole blood specimens from renal transplant patients receiving sirolimus therapy, where regression analysis was performed using the Passing-Bablok[1] method. Data from the study are summarized in the following table.

ARCHITECT Sirolimus vs. IMx Sirolimus			
Number of Observations	**Intercept (95% CI[a])**	**Slope (95% CI)**	**Correlation Coefficient**
168	0.12 (-0.38 to 0.47)	1.05 (1.00 to 1.11)	0.94

[a] Confidence Interval
Specimen Range (ARCHITECT): 2.1 ng/mL – 29.7 ng/mL
Specimen Range (IMx): 1.8 ng/mL – 29.6 ng/mL

Additional testing of the above sample was completed with LC/MS/MS, where regression analysis was performed using the Passing-Bablok[1] method. Data from the study are summarized in the following table.

ARCHITECT Sirolimus vs. LC/MS/MS			
Number of Observations	**Intercept (95% CI)**	**Slope (95% CI)**	**Correlation Coefficient**
167	-0.37 (-0.89 to 0.12)	1.18 (1.11 to 1.27)	0.91

Specimen Range (ARCHITECT): 2.1 ng/mL – 29.7 ng/mL
Specimen Range (LC/MS/MS): 1.65 ng/mL – 29.1 ng/mL

[1] Passing H, Bablok W. A new biometrical procedure for testing the equality of measurements from two different analytical methods. *J Clin Chem Clin Biochem* 1983; 21(11)709-20.

A comparison of the features of the ARCHITECT Sirolimus assay and the IMx Sirolimus assay are as follows:

Similarities		
	ARCHITECT Sirolimus (Proposed Device)	**IMx Sirolimus (Predicate Device) K042411**
Device Type	*In vitro* diagnostic	*In vitro* diagnostic
Classification and Product Code	Class II, NRP	Class II, NRP
Product Usage	Clinical and Hospital laboratories	Clinical and Hospital laboratories
Intended Use	Quantitative determination of sirolimus in human whole blood as an aid in the management of renal transplant patients receiving sirolimus therapy.	Quantitative determination of sirolimus in human whole blood as an aid in the management of renal transplant patients receiving sirolimus therapy.
Type of Specimen	Human Whole Blood	Human Whole Blood
Specimen Collection Method	EDTA Whole Blood Collection Tubes	EDTA Whole Blood Collection Tubes
Specimen Pretreatment Step	Manual extraction of sirolimus in human whole blood	Manual extraction of sirolimus in human whole blood
Calibrators	6 Levels (0 – 30 ng/mL)	6 Levels (0 – 30 ng/mL)
Calibrator Matrix	Processed human whole blood	Processed human whole blood
Antibody	Mouse monoclonal (anti – sirolimus)	Mouse monoclonal (anti – sirolimus)
Interpretation of Results	Calibrator Curve An indirect relationship exists between the amount of sirolimus in the sample and the light detected by the instrument system	Calibrator Curve An indirect relationship exists between the amount of sirolimus in the sample and the light detected by the instrument system

Differences		
	ARCHITECT Sirolimus (Proposed Device)	**IMx Sirolimus (Predicate Device) K042411**
Instrument System	ARCHITECT System	IMx System
Principle of Operation	Chemiluminscent Microparticle Immunoassay (CMIA)	Microparticle Enzyme Immunoassay (MEIA)
Conjugate	Sirolimus-Acridinium Conjugate in citrate buffer	Sirolimus-alkaline phosphatase in TRIS buffer with protein stabilizers
Microparticles	Anti-sirolimus (mouse, monoclonal) coated paramagnetic microparticles in MES buffer	Anti-sirolimus (mouse monoclonal) coated polystyrene latex microparticles in TRIS buffer
Precipitation Reagent	Zinc sulfate solution in DMSO and Ethylene glycol	Zinc sulfate solution in methanol and Ethylene glycol

Performance Characteristics

Precision:

A study was performed with the ARCHITECT Sirolimus assay based on guidance from the Clinical and Laboratory Standards Institute, document (CLSI, formerly NCCLS) Protocol EP5-A2. Abbott Immunosuppressent-MCC (levels 1, 2) and five whole blood panels were assayed, using two lots of reagents, on two instruments, in replicates of two at two separate times per day for 20 days. Each reagent lot used a single calibration curve throughout the study.

The total precision %CV of the ARCHITECT Sirolimus assay was determined to be less than or equal to 10%.

Linearity:

A dilution linearity study was performed by diluting high concentration sirolimus whole blood specimens with the ARCHITECT Sirolimus Calibrator A. The concentration of sirolimus was determined for each dilution of sample and the mean percent (%) recovery was calculated.

The ARCHITECT Sirolimus assay was determined to have a mean recovery within 10% of the expected result for diluted samples.

Functional Sensitivity:

Whole blood specimens were spiked with sirolimus to achieve approximate concentrations from 0.1 to 5.3 ng/mL and tested in replicates of 10, twice a day, for five days. At the upper 95% confidence limit, the lowest ARCHITECT Sirolimus assay value exhibiting a 20% CV was calculated to be 0.7 ng/mL, which is below the reportable range of the ARCHITECT Sirolimus assay.

Analytical Sensitivity:

The limit of detection for the ARCHITECT Sirolimus assay, defined as the concentration at two standard deviations above the ARCHITECT Sirolimus Calibrator A (0.0 ng/mL) was calculated to be 0.3 ng/mL, which is below the reportable range of the ARCHITECT Sirolimus assay at 95% confidence (based on one study with n=24 runs, 10 replicates calibrator A and 4 replicates calibrator B per run).

Interference:

Whole blood specimens were supplemented with various drugs and potentially interfering compounds (triglycerides, hematocrit, bilirubin, total protein, cholesterol, uric acid, HAMA, and rheumatoid factor [RF]). The average recovery observed during the study ranged from 95 to 106%.

Specificity:

Aliquots of whole blood specimens were augmented with sirolimus, targeting values ranging from 5 to 22 ng/mL. These five specimens were spiked with cross-reactant solution. Data from this study are summarized in the following table.

Metabolite	Amount Added (ng/mL)	Mean Excess Concentration Detected (ng/mL, n=5)	% Cross Reactivity
F2 (41-0-demethyl-hydroxyl-sirolimus)	10	0.87	8.7
F3 (41-0-demethyl-hydroxyl sirolimus; 7-0-demethyl sirolimus)	3	0.12	7.6
F4 (11-hydroxy-sirolimus)	10	3.7	36.8
F5 (41-0-demethyl-sirolimus)	10	2.0	20.3

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

SEP 2 8 2007

Fujirebio Diagnostics, Inc
c/o Ms. Diana Dickson
201 Great Valley Parkway
Malvern, PA 19355

Re: k070822
Trade/Device Name: ARCHITECT Sirolimus Assay
Regulation Number: 21 CFR 862.3840
Regulation Name: Sirolimus test system
Regulatory Class: Class II
Product Code: NRP, JIT
Dated: September 14, 2007
Received: September 17, 2007

Dear Ms. Dickson:

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.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in Title 21, Code of Federal Regulations (CFR), Parts 800 to 895. 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); and good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820).

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

If you desire specific information about the application of labeling requirements to your device, or questions on the promotion and advertising of your device, please contact the Office of In Vitro Diagnostic Device Evaluation and Safety at (240) 276-0490. 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 (240) 276-3150 or at its Internet address at http://www.fda.gov/cdrh/industry/support/index.html.

Sincerely yours,

Jean M. Cooper, M.S., D.V.M.

Jean M. Cooper, M.S., D.V.M.
Director
Division of Chemistry and Toxicology
Office of *In Vitro* Diagnostic Device
Evaluation and Safety
Center for Devices and
Radiological Health

Enclosure

Indications for Use

510(k) Number (if known): K070822

Device Name: ARCHITECT Sirolimus

Indications For Use:

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Division Sign-Off

Office of In Vitro Diagnostic
Device Evaluation and Safety

510(k) 070822

Prescription Use ✓ AND/OR Over-The-Counter Use _____
(Part 21 CFR 801 Subpart D) (21 CFR 801 Subpart C)

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

Concurrence of CDRH, Office of In Vitro Diagnostic Devices (OIVD)