K122187

510(k) SUMMARY

NOV 6 2012

Date of Summary November 6, 2012

Product Name **VRE*Select*** ™ Media

Sponsor

Bio-Rad
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France

Correspondent

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Substantially Equivalent Device

VRE*Select* ™ is substantially equivalent to the Thermo Fisher Scientific (formerly Remel) Spectra VRE Chromogenic Media (reference 510(k) K092819) and the Thermo Fisher Bile Esculin Azide Agar with 6µg/mL vancomycin (reference 510(k) K972359). The predicate device Package Inserts are included for reference (see Appendix II).

Manufacturer:	Thermo Fisher Scientific (formerly Remel)
Products:	Spectra VRE Chromogenic Media
	Bile Esculin Azide Agar with 6µg/mL vancomycin

Product Attribute	Bio-Rad VRE*Select* ™	Spectra VRE Chromogenic media	Bile Esculin Azide Agar	Substantial Equivalent
Intended use	**VRE*Select*** ™ is a selective and differential chromogenic medium, containing 8µg/mL of Vancomycin, for the qualitative detection of gastrointestinal colonization of vancomycin-resistant *Enterococcus faecium* (VREfm) and vancomycin-resistant *Enterococcus faecalis* (VREfs) and to aid in the prevention and control of vancomycin-resistant Enterococcus (VRE) in healthcare settings. The test is performed on rectal swabs or fecal specimens from patients to be screened for VRE colonization. **VRE*Select*** ™ is not intended to diagnose VRE infection nor to guide or monitor treatment of infection. Results can be interpreted after 24 to 28 hours incubation. Subculture to non-selective media (e.g., trypticase soy agar with 5% sheep blood) is needed for susceptibility testing and epidemiological typing.	Remel Spectra VRE is a selective and differential chromogenic medium, containing 6µg/mL of Vancomycin, intended for use in the qualitative detection of gastrointestinal colonization with vancomycin-resistant *Enterococcus faecium* and *Enterococcus faecalis* (VRE) to aid in the prevention and control of VRE in healthcare settings. The test is performed with a rectal swab and fecal specimens from patients to screen for VRE colonization. Spectra VRE is not intended to diagnose VRE infection or to guide or monitor treatment for infections. Subculture to non-selective media (e.g. Tryptic Soy Agar with 5% sheep blood) is needed for further identification, susceptibility testing, and epidemiological typing.	Remel's Bile Esculin Azide Agar w/ 6µg/mL vancomycin is a plated medium recommended for use in qualitative procedures as a selective and differential medium for the primary isolation of vancomycin-resistant enterococci from surveillance cultures. This product is not intended for use as [a] method of antimicrobial susceptibility testing. Confirmation of resistance by an approved method is recommended as some organisms on initial isolation may overcome the inhibitory effects of the medium.	√
Methodology	Enzymatic	Enzymatic	Enzymatic	√
Inoculation	Direct or indirect	Direct specimen	Direct specimen	√
Sample Type	Rectal swabs or fecal specimens	Rectal swabs or fecal specimens	Fecal or urine specimens	√
Interpretation	Manual. Visual	Manual. Visual	Manual. visual	√

Product Description

VRE*Select* ™ is a selective medium for the detection of vancomycin-resistant *Enterococcus* (VRE). The selectivity of this medium is based on the presence of an antifungal/antibiotic mixture that inhibits the growth of most yeast, Gram negative and Gram positive bacteria, with the exception of vancomycin-resistant Enterococci (VRE).

Detection is based on the cleavage of chromogenic substrates by specific enzymes of *Enterococcus faecium* which produces pink colonies and *Enterococcus faecalis* which produces blue colonies.

Enterococcus gallinarum and *Enterococcus casseliflavus* are intrinsically resistant to vancomycin and may grow on the **VRE***Select*™ medium as colorless or white colonies because they do not metabolize the chromogenic substrates. Vancomycin susceptible enterococci are inhibited.

After 24 to 28 hours incubation **pink colonies can be reported as VREfm. Blue colonies should be confirmed by a catalase test and susceptibility (refer to limitation 9 in package insert).**

Intended Use

VRE*Select* ™ is a selective and differential chromogenic medium, containing 8µg/mL of vancomycin, for the qualitative detection of gastrointestinal colonization of vancomycin-resistant *Enterococcus faecium* (VREfm) and vancomycin-resistant *Enterococcus faecalis* (VREfs) and to aid in the prevention and control of VRE in healthcare settings. The test is performed on rectal swabs or fecal specimens from patients to be screened for VRE colonization. **VRE***Select* ™ is not intended to diagnose VRE infection nor to guide or monitor treatment of infection. Results can be interpreted after 24 to 28 hours incubation. Subculture to non-selective media (e.g., trypticase soy agar with 5% sheep blood) is needed for susceptibility testing and epidemiological typing.

Performance Data

Interfering Substances

The following potential interfering substances were tested to confirm that they did not interfere with the performance of the **VRE***Select* ™ media:

- Dulcolax®, Adult Glycerin Suppositories, Vaseline®, Preparation H®, Original Boudreaux's Butt Paste®, Tuck's Medicated Cooling Pads®, Pepto-Bismol®, Miconazole cream, Nonoxynol-9 (spermicide), KY® Jelly, and Pepcid AC Max strength®.
- Blood and Mucins
- Three commonly used transport media – Amies without charcoal, Cary Blair. and LQ Stuart

The interfering substances tested caused no significant differences between the number of colonies observed on the Control plates and the number of colonies observed on the **VRE***Select* ™ plates. The only exceptions were Tuck's Medicated Cooling Pads® (coloration delayed after

24 hours with VREfm (ATCC 700221)) and Miconazole cream. The blood and mucins caused a delayed growth of one VREfs strain (ATCC 51299).

Cross Reactivity Testing (Analytical Specificity)

A cross-reactivity study was performed to determine if strains other than vancomycin-resistant enterococci could grow on **VRE***Select* ™. One hundred thirty one (131) microorganisms representing Gram-negative rods, Gram-positive cocci, and yeasts were evaluated with the **VRE***Select* ™. No cross-reactivity was observed with any strain tested. No variation was seen between 24 and 28 hour incubation time.

Limit of Detection Study

The minimum concentration of VRE reliably detected by **VRE***Select* ™ is 10^3 CFU/mL.

To determine the percent recovery for the **VRE***Select* ™ media a panel of eighteen vancomycin-resistant enterococci – 8 VREfm and 10 VREfs – were tested at varying dilutions. For each strain to be tested a 0.5 McFarland suspension of the strain was prepared, A series of 10-fold serial dilutions in saline were carried out and inoculated onto three lots of **VRE***Select* ™ plates and one lot of Blood Agar plates. The plates were incubated at 35-37°C ambient air and read at 24 and 28 hours. The color and number of colonies were recorded. The Blood Agar plates were used to confirm the inoculum concentration at each dilution. Data confirmed that the minimum concentration of VRE reliably detected by **VRE***Select* ™ is 10^3 CFU/mL.

Reproducibility

In order to confirm the reproducibility of the **VRE***Select*™ medium a blinded panel of 6 ATCC reference strains (2 VREfs, 3 VREfm, and 1 vancomycin-susceptible Enterococcus) were tested at three sites. At each site three technicians tested the panel on three lots of **VRE***Select*™ each day for three days. The strains produced the expected results with **VRE***Select*™ 100% of the time at 24 and 28 hours.

Challenge Panel

VRE*Select* ™ was evaluated with fifty-six (56) well-characterized strains including vancomycin-resistant and vancomycin-susceptible *E. faecalis* and *E. faecium*, as well as microorganisms commonly isolated from stool. All strains showed expected results.

Method Comparison

946 stool samples were tested on **VRE***Select* ™ media (pink or blue colonies between 24 and 28 hours incubation) and BEAV (colonies with dark halos between 24 and 48 hours incubation) plus confirmatory testing (Gram stain, catalase, PYR, Vitek 2 identification and vancomycin (MIC E-Test) showed the following results.

Table 1
BEAV +Confirmation vs. **VRE***Select*™ results

		BEAV plus Confirmation	
		% Positive Agreement	% Negative Agreement
VRE*Select*™	24 hours	96% (182/189, [0.92, 0.98])	96% (727/757, [0.94, 0.97])
	28 hours	98% (186/189, [0.95, 0.99])	95% (721/757, [0.93, 0.96])*

* Thirty-three (33) of the 36 specimens that were BEAV plus Confirmation negative and that grew pink and/or blue colonies on **VRE***Select*™ media, after subculture to blood agar plates (BAPs), were confirmed to be vancomycin resistant *E. faecium* and/or *E. faecalis* by biochemical identification and vancomycin E-Test. Three (3) specimens that were BEAV plus Confirmation negative and that grew pink and/or blue colonies on **VRE***Select*™ media, after subculture to blood agar plates (BAPs), were not confirmed biochemical identification and vancomycin E-Test to be *E. faecium* and/or *E. faecalis* and represent false positive results.

VRE*Select* ™ (pink or blue colonies between 24 and 28 hours incubation) compared to samples identified as VREfm or VREfs using commercially available biochemical identification system demonstrated the following results.

Table 2
Biochemical identification (Vitek) vs. **VRE***Select*™ results

	Vitek 2 Biochemical Identification		
	% Positive Agreement		% Negative Agreement
VREfm			
VRE*Select*™ @ 24 hours	94% (171/181, [0.90, 0.97])		97% (740/765, [0.95, 0.98])
VRE*Select*™ @ 28 hours	97% (175/181, [0.93, 0.99])		96% (734/765, [0.94, 0.97])
VREfs			
VRE*Select*™ @ 24 hours	94% (15/16, [0.70, 0.99])		98% (910/930, [0.97, 0.99])
VRE*Select*™ @ 28 hours	94% (15/16, [0.70, 0.99])		98% (909/930, [0.97, 0.99])

VRE*Select* ™ (pink or blue colonies observed between 24 and 28 hours incubation) compared to Vancomycin minimal inhibitory concentration (MIC) demonstrated the following results.

Table 3
Vancomycin Resistance vs. **VRE***Select*™ results

	Vancomycin Resistance (E-Test)	
	% Positive Agreement	% Negative Agreement
VREfm		
VRE*Select*™ @ 24 hours	96% (171/178, [0.92, 0.98])	97% (743/768, 0.95, 0.98])
VRE*Select*™ @ 28 hours	98% (175/178, [0.95, 0.99])	96% (737/768, 0.94, 0.97])
VREfs		
VRE*Select*™ @ 24 hours	100% (12/12, [0.82, 1.00])	98% (911/934, [0.96, 0.99])
VRE*Select*™ @ 28 hours	100% (12/12, [0.82, 1.00])	97% (910/934, [0.96. 0.98])

Conclusion
The **VRE***Select* ™ showed high diagnostic sensitivity and specificity and accuracy in this study.

Statement of Safety and Efficacy
The data presented clearly demonstrates the safety and efficacy of the Bio-Rad **VRE***Select* ™ for testing stool samples as compared to routine culture and identification when results are interpreted after 24 to 28 hours incubation.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-002

Bio-Rad
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NOV 6 2012

Re: K122187
Trade/Device Name: VRE*Select*™ Culture Medium
Regulation Number: 21 CFR 866.1700
Regulation Name: Culture Medium for Antimicrobial Susceptibility Tests
Regulatory Class: Class II
Product Code: JSO
Dated: October 10, 2012
Received: October 11, 2012

Dear Ms. White:

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 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); 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 regulation (21 CFR Parts 801 and 809), please contact the Office of *In Vitro* Diagnostics and Radiological Health at (301) 796-5450. 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 Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/cdrh/industry/support/index.html.

Sincerely yours,

Sally A. Hojvat

Sally A. Hojvat, M.Sc., Ph.D.
Director
Division of Microbiology Devices
Office of *In Vitro* Diagnostics and Radiological Health
Center for Devices and Radiological Health

Enclosure

Indications for Use

510(k) Number (if known): K122187

Device Name: **VRE*Select*™**

Indications for Use:

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

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

Concurrence of CDRH, Office of In Vitro Diagnostics and Radiological Health (OIR)

Division Sign-Off
Office of In Vitro Diagnostic Device
Evaluation and Safety

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