October 28, 2021

bioMérieux, Inc
Cherece L Jones
Staff Regulatory Affairs Specialist
595 Anglum Rd.
Hazelwood, Missouri, 63042 USA.

Re: K210287
Trade/Device Name: VITEK 2 AST- *Streptococcus* Cefotaxime (≤0.125 - ≥8 ug/mL)
Regulation Number: 21 CFR 866.1645
Regulation Name: Fully Automated Short-Term Incubation Cycle Antimicrobial Susceptibility System
Regulatory Class: Class II
Product Code: LON, LTW, LTT
Dated: January 29, 2021
Received: February 2, 2021

Dear Cherece Jones:

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. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. 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) for devices or post marketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; 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 https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). 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 (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Ribhi Shawar, Ph.D. (ABMM)
Chief
General Bacteriology and Antimicrobial Susceptibility Branch
Division of Microbiology Devices
OHT7: Office of In Vitro Diagnostics and Radiological Health
Office of Product Evaluation and Quality
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: 06/30/2023
See PRA Statement below.

510(k) Number *(if known)*

K210287

Device Name
VITEK® 2 AST- *Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL)

Indications for Use *(Describe)*

VITEK® 2 AST-*Streptococcus* Cefotaxime is designed for antimicrobial susceptibility testing of *Streptococcus* spp. and is intended for use with the VITEK® 2 and VITEK® 2 Compact Systems as a laboratory aid in the determination of *in vitro* susceptibility to antimicrobial agents. VITEK® 2 AST- *Streptococcus* Cefotaxime is a quantitative test. Cefotaxime has been shown to be active against most strains of the microorganisms listed below, according to the FDA label for this antimicrobial.

Active in vitro and in clinical infections:
Streptococcus pneumoniae
Streptococcus pyogenes (Group A beta-hemolytic streptococci)*
Streptococcus spp. (Viridans group streptococci)

*The VITEK® 2 *Streptococcus* Susceptibility Card also reports the susceptibility of the following additional organisms as listed on the FDA Susceptibility Test Interpretative Criteria website (STIC): *Streptococcus* spp. ß-Hemolytic Group (other than *S. pyogenes*).

The VITEK® 2 *Streptococcus* Susceptibility Card is intended for use with the VITEK® 2 Systems in clinical laboratories as an *in vitro* test to determine the susceptibility of *S. pneumoniae*, beta-hemolytic *Streptococcus*, and *Viridans Streptococcus* to antimicrobial agents when used as instructed.

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.

510(k) SUMMARY

VITEK® 2 AST-*Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL)

A. 510(k) Submission Information:

Submitter's Name:	bioMérieux, Inc.
Address:	595 Anglum Road Hazelwood, MO 63042
Contact Person:	Cherece L. Jones Staff Regulatory Affairs Specialist
Phone Number:	314 -731-8684
Fax Number:	314-731-8689
Date of Preparation:	January 29, 2021

B. Device Name:

Formal/Trade Name:	VITEK® 2 AST- *Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL)
Classification Name:	21 CFR 866.1645 Fully Automated Short-Term Incubation Cycle Antimicrobial Susceptibility System Product Code: LON
Common Name:	VITEK® 2 AST-ST Cefotaxime (≤0.125 - ≥8 µg/mL)

C. Predicate Device:

VITEK® 2 AST-*Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) (K121863)

D. Device Description:

The principle of the VITEK® 2 AST cards is based on the microdilution minimum inhibitory concentration (MIC) technique reported by MacLowry and Marsh[(1)] and Gerlach[(2)]. The VITEK® 2 AST card is essentially a miniaturized, abbreviated and automated version of the doubling dilution technique[(3)].

Each VITEK® 2 AST card contains 64 wells. A control well which only contains microbiological culture media is resident on all cards. The remaining wells contain premeasured portions of a specific antibiotic combined with culture media. The isolate to be tested is diluted to a standardized concentration with 0.45 – 0.5% saline before being used to rehydrate the antimicrobial medium within the card. The VITEK® 2 System automatically fills, seals and places the card into the incubator/reader. The VITEK® 2 Compact has a manual filling, sealing and loading operation. The VITEK® 2 Systems monitor the growth of each well in the card over a defined period of time. At the completion of the incubation cycle, a report is generated that contains the MIC value along with the interpretive category result for each antibiotic contained on the card.

E. Substantial Equivalence Information:

The similarities and differences of the VITEK® 2 AST- *Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) when compared to the predicate device, VITEK® 2 AST-*Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) (K121863), are described in **Table 1** below.

Table 1: Substantial Equivalence

Item	Device: VITEK® 2 AST- *Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) (K210287)	Predicate: VITEK® 2 AST-*Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) (K121863)
General Device Characteristic Similarities		
Intended Use/Indications for Use	VITEK® 2 AST-*Streptococcus* Cefotaxime is designed for antimicrobial susceptibility testing of *Streptococcus* spp. and is intended for use with the VITEK® 2 and VITEK® 2 Compact Systems as a laboratory aid in the determination of *in vitro* susceptibility to antimicrobial agents. VITEK® 2 AST-*Streptococcus* Cefotaxime is a quantitative test.	Same
Test Methodology	Automated quantitative antimicrobial susceptibility test for use with the VITEK® 2 and VITEK® 2 Compact Systems to determine the *in vitro* susceptibility of microorganisms	Same
Antimicrobial Agent	Cefotaxime	Same
Inoculum	Saline suspension of organism	Same
Test Card	*Streptococcus* (AST-ST) Susceptibility Card	Same
Analysis Algorithms	Discriminate Analysis	Same
Instrument	VITEK® 2 and VITEK® 2 Compact Systems	Same

Item	Device: VITEK® 2 AST- *Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) (K210287)	Predicate: VITEK® 2 AST-*Streptococcus* Cefotaxime (≤0.125 - ≥8 µg/mL) (K121863)
Concentrations	0.25, 0.5, 1, 2	Same
General Device Characteristic Differences		
Indicated Organisms	Cefotaxime has been shown to be active against most strains of the microorganisms listed below, according to the FDA label for this antimicrobial. **Active *in vitro* and in clinical infections:** *Streptococcus pneumoniae* *Streptococcus pyogenes* (Group A beta-hemolytic *streptococci*)* *Streptococcus* spp. (Viridans group *streptococci*) *The VITEK® 2 *Streptococcus* Susceptibility Card also reports the susceptibility of the following additional organisms as listed on the FDA Susceptibility Test Interpretative Criteria website (STIC): *Streptococcus* spp. ß-Hemolytic Group (other than *S. pyogenes).* The VITEK® 2 *Streptococcus* Susceptibility Card is intended for use with the VITEK® 2 Systems in clinical laboratories as an *in vitro* test to determine the susceptibility of *S. pneumoniae,* beta-hemolytic *Streptococcus*, and *Viridans Streptococcus* to antimicrobial agents when used as instructed.	Cefotaxime has been shown to be active against most strains of the microorganism listed below, according to the FDA label for this antimicrobial. **Active *in vitro* and in clinical infections:** *Streptococcus pneumoniae*, *Streptococcus pyogenes* (Group A beta-hemolytic streptococci), *Streptococcus* spp. The VITEK® 2 Antimicrobial Susceptibility Test (AST) is intended to be used with the VITEK® 2 and VITEK 2 Compact Systems for the automated quantitative or qualitative susceptibility testing of isolated colonies for the most clinically significant aerobic gram-negative bacilli, *Staphylococcus spp., Enterococcus spp., Streptococcus agalactiae, and S. pneumoniae.*

F. Performance Overview and Conclusion:

VITEK® 2 AST-ST Cefotaxime (≤0.125 - ≥8 µg/mL) demonstrated substantially equivalent performance when compared with the CLSI broth microdilution reference method, as defined in the FDA Class II Special Controls Guidance Document: Antimicrobial Susceptibility Test (AST) Systems; Guidance for Industry and FDA (Issued August 28, 2009).

The Premarket Notification (510[k]) presents data in support of VITEK® 2 AST-ST Cefotaxime. An external evaluation was conducted with contemporary and stock clinical isolates, as well as a set of challenge strains. The external evaluations were designed to confirm the acceptability of AST-ST Cefotaxime by comparing its performance with the CLSI broth microdilution reference method incubated at 20-24 hrs (i.e. *Streptococcus*). The data is representative of performance on both the VITEK® 2 and VITEK® 2 Compact instrument platforms.

The VITEK® 2 AST-ST Cefotaxime (≤0.125 - ≥8 µg/mL) demonstrated acceptable performance as presented in **Table 2** below:

Table 2: VITEK® 2 AST-ST Cefotaxime Performance

Antimicrobial	Antimicrobial Code	Antibiotic Version	Bp[1]	Comment[2]	Essential Agreement Category				Category Agreement				% Reproducibility
					% Error				% Error				
					%EA	VME	ME	mE	%CA	VME	ME	mE	
Cefotaxime*	CTX	(ctx01n)	FDA (CLSI)	#, E *Streptococcus pneumoniae* (meningitis)	(346/351) 98.6	N/A	N/A	N/A	(314/351) 89.5	(0/54) 0.0	(2/243) 0.8	(35/351) 10.0	100.0
				#, E *Streptococcus pneumoniae* (non - meningitis)	(346/351) 98.6	N/A	N/A	N/A	(315/351) 89.7	(0/23) 0.0	(1/297) 0.3	(35/351) 10.0	
				#, E *Streptococcus* pyogenes (Group A β-Hemolytic Group[NS]	(310/310) 100.0	N/A	N/A	N/A	(310/310) 100.0	(0/0) 0.0	(0/310) 0.0	N/A	
				#, E *Streptococcus* spp. β-Hemolytic Group (other than *S. pyogenes*) [NS]	(554/554) 100.0	N/A	N/A	N/A	(554/554) 100.0	(0/0) 0.0	(0/554) 0.0	N/A	
				#, E *Streptococcus* spp. Viridans Group	(397/408) 97.3	N/A	N/A	N/A	(396/408) 97.1	(0/12) 0.0	(0/381) 0.0	(12/408) 2.9	

The VITEK 2 Cefotaxime MIC values for *Streptococcus* spp Viridans Group tended to be at least one doubling dilution lower than the reference method and may contribute to the occurrence of very major errors.

NS - The current absence of resistant isolates precludes defining any results other than susceptible. Isolates yielding MIC results suggestive of Nonsusceptible category should be submitted to a reference laboratory for further testing.

*For specific information regarding susceptibility test interpretive criteria and associated test methods and quality controls standards recognized by FDA for this drug, please see: https://www.fda.gov/STIC.

Key:
# = US Food and Drug Administration 510(k) cleared
E = External performance data

Quality Control demonstrated acceptable results.

G. Limitations:

The ability of the AST card to detect resistance with the following combination(s) is unknown because resistant strains were either not available or an insufficient number were encountered at the time of comparative testing:

- Cefotaxime (ctx01n): *Streptococcus pyogenes (*Group A ß-hemolytic *streptococci)* and *Streptococcus* spp ß-Hemolytic Group (other than *S. pyogenes)*

H. References:

1. MacLowry, J.D. and Marsh, H.H., Semi-automatic Microtechnique for Serial Dilution Antibiotic Sensitivity Testing in the Clinical laboratory, Journal of Laboratory Clinical Medicine, 72:685-687, 1968.
2. Gerlach, E.H., Microdilution 1: A Comparative Study, p. 63-76. Current Techniques for Antibiotic Susceptibility Testing. A. Balows (ed.), Charles C. Thomas, Springfield, IL,1974.
3. Barry, A.L., The Antimicrobic Susceptibility Test, Principles and Practices, Lea and Febiger, Philadelphia, PA, 1976.