

# TREK Vet Update

Volume 2, Number 1

Spring 2005

## ESBL Testing in Diagnostic Laboratories

By Jenny Lorbach, Global Sensititre Product Manager, TREK Diagnostic Systems

Recently, veterinary diagnostic laboratories have posed questions regarding extended spectrum beta-lactamases (ESBLs). Why are these tests needed in the microbiology laboratory? What is an ESBL? And more importantly, should confirmatory ESBL testing be performed in my veterinary diagnostic lab?

### What is an ESBL?

ESBLs are enzymes produced by some bacteria that inactivate select antibiotics during therapeutic use, resulting in treatment failure. In the human population, they are responsible for numerous outbreaks of hospital-acquired infections and are associated with a high degree of morbidity and mortality. Bacterial resistance to drugs using normal susceptibility test procedures may not easily detect resistance; therefore, growth in dilutions below therapeutic breakpoints is used as a screening aid. Once an organism screens "suspect ESBL", laboratories implement an MIC test to confirm the ESBL enzyme.

### What happens when a laboratory confirms an ESBL isolate?

Once confirmed, the interpretation for all penicillins, cephalosporins and aztreonam are forced to exhibit a "resistant" result regardless of the actual MIC result. Changing results ensures that patients are treated with appropriate antibiotic therapy.

### When did NCCLS make recommendations to test ESBLs?

In 1998, NCCLS (now Clinical and Laboratory Standards Institute) introduced guidelines for the screening and confirmation of ESBLs in *E.coli*, *Klebsiella pneumoniae* and *Klebsiella oxytoca* in human isolates. These recommendations were strengthened in 2002.

### If an organism is classified as a confirmed ESBL, what antimicrobics can be used for treatment?

Carbapenems, for example, imipenem, and cephamycins (cefoxitin and cefotetan) remain effective therapy for ESBL confirmed isolates.

### Should ESBLs be a part of the veterinary diagnostic daily test methods?

Although CLSI recommends that ESBL confirmatory test methods occur in human medicine, the Veterinary Subcommittee on Antimicrobial Susceptibility Tests (VAST) has not addressed this specific topic. Veterinary diagnostic laboratories today are not required to perform confirmatory tests; however, this topic may be addressed by the subcommittee at a later date.

### In the future, if my laboratory implements ESBL confirmatory testing or, if it is required for a research project, how can I easily perform this test?

At TREK Diagnostic Systems, our Sensititre® product line

has introduced a confirmatory MIC test for ESBL isolates. The MIC plate is a standard plate sold in boxes of 10 (**Part No. ESB1F**). The MIC plate can be read automatically with the ARIS® 2X system or read manually. The plate contains all recommended screening and CLSI recommended confirmation drugs in full dilution ranges.

*For more information, please contact us at 800-871-8909 or via e-mail at [info@trekds.com](mailto:info@trekds.com).*

#### **ESBL Antimicrobics (Part No. ESB1F)**

##### **Cephems**

Cefazolin  
Cefepime  
Cefotaxime  
Cefoxitin  
Cefpodoxime  
Ceftazidime  
Ceftriaxone  
Cephalothin

##### **Carbapenems**

Imipenem  
Meropenem

##### **Aminoglycoside**

Gentamicin

##### **Fluoroquinolone**

Ciprofloxacin

#### **Beta lactam/Beta lactamase inhibitor**

Cefotaxime/clavulanic acid  
Ceftazidime/clavulanic acid  
Piperacillin/tazobactam

## 2 Veterinary Antimicrobial Susceptibility Test (VAST) Update

By Jenny Lorbach, Global Sensititre Product Manager, TREK Diagnostic Systems

The Clinical and Laboratory Standards Institute (CLSI), formerly NCCLS, meeting was held in January 2005 in Tampa, Florida.

In case you were unable to attend, we thought you might like a quick update on the AST front:

QC ranges for Pradofloxacin (BAY14877) were approved for aerobic microbroth dilution tests.

Additional *Campylobacter jejuni* (ATCC 33560) QC ranges were approved for microbroth dilution tests.

See the sidebars below for specific details.

For more information, please contact us at 800-871-8909 or via e-mail at [info@trekds.com](mailto:info@trekds.com).

### QC Ranges for Pradofloxacin (BAY 14877)

<u>Control Strain</u>	<u>MIC Range (µg/ml)</u>
<i>E.coli</i> (ATCC 25922)	0.008 - 0.03
<i>P. aeruginosa</i> (ATCC 27853)	0.25 - 1
<i>E. faecalis</i> (ATCC 29212)	0.12 - 0.5
<i>S. aureus</i> (ATCC 29213)	0.03 - 0.12
<i>H. somnus</i> (ATCC 7025)	0.004 - 0.03
<i>A. pleuropneumoniae</i> (ATCC 27090)	0.004 - 0.016

### QC Ranges for *Campylobacter jejuni* (ATCC 33560)

<u>Antimicrobial Agent</u>	<u>MIC Range (µg/ml)</u>	
	<b>36°C/48 hours</b>	<b>42°C/24 hours</b>
Chloramphenicol	1 - 8	1 - 4
Ciprofloxacin	0.06 - 0.25 (approved 2004)	0.03 - 0.12
Clarithromycin	0.5 - 2	0.5 - 2
Clindamycin	0.12 - 1	0.12 - 0.5
Florfenicol	1 - 4	0.5 - 2
Levofloxacin	0.06 - 0.25 (approved 2004)	0.03 - 0.25
Nalidixic Acid	4 - 16	4 - 16
Telithromycin	1 - 4	0.5 - 2

## NVSL Approval to Test Johne's Samples

By DeAna Dziak, Product Manager, TREK Diagnostic Systems

Congratulations to Dr. Nadine Sullivan and her R&D team as her laboratory is now approved to test bovine fecal samples for Johne's Disease in 2005 by the NVSL Johne's Disease Laboratory Approved Organism-based Test! For this test the ESP® Culture System II was able to correctly detect 24/25 samples from the check test sent out last year.

A passing score consists of identifying 100% of the negatives correctly, identifying 100% of the "too numerous to count" positives, and identifying 70% of the remaining positives correctly. The minimum score for passing is 85%, however TREK surpassed this with a 96% passing score!

This check test program is performed annually and participants must take the test and pass it on a yearly basis if they want to stay on the NVSL approved laboratories list. The next test will be administered in March of 2005.

# New Sensititre® MIC Plates Available!

By Jenny Lorbach, Global Sensititre Product Manager, TREK Diagnostic Systems

New Sensititre MIC plates are available and in stock!

**Part No. BOPO1F**

Bovine/Porcine MIC Plate  
(replaces Part No. CMV1ABPF)

**Part No. COMEQ2F**

Companion and Equine MIC Plate (replaces Part No. CMV2ECOF)

**Part No. AQUATIC**

Aquatic MIC Plate

**Part No. CAMPY**

*Campylobacter* spp. MIC Plate

Bovine/Porcine formats can be read automatically on the ARIS® 2X or AutoReader Systems.

See sidebars for antimicrobics available on each format.

*For more information, please contact us at 800-871-8909 or via e-mail at info@trekds.com.*

All MIC plates can be read manually or with the SensiTouch® System. The Companion/Equine and

**Bovine/Porcine MIC Plate (Part No. BOPO1F)**

- Ampicillin
- Ceftiofur
- Chlortetracycline
- Clindamycin
- Danofloxacin
- Enrofloxacin
- Erythromycin
- Florfenicol
- Gentamicin
- Neomycin
- Oxytetracycline
- Penicillin
- Spectinomycin
- Sulphachloropyridazine
- Sulphadimethoxine
- Sulphathiazole
- Tiamulin
- Tilmicosin
- Trimethoprim/sulfamethoxazole
- Tylosin tartrate

**Companion/Equine MIC Plate (Part No. COMEQ2F)**

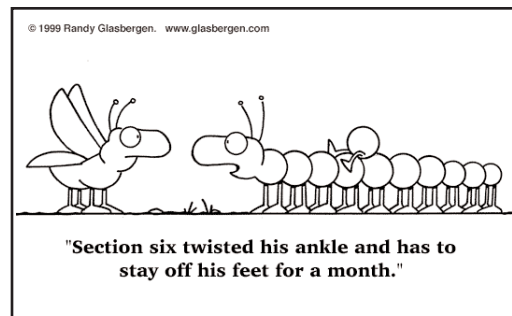
- Amikacin
- Amoxicillin/clavulanic acid
- Ampicillin
- Cefazolin
- Cefoxitin
- Cefpodoxime
- Ceftiofur
- Cephalothin
- Chloramphenicol
- Clindamycin
- Enrofloxacin
- Erythromycin
- Imipenem
- Gentamicin
- Marbofloxacin
- Orbifloxacin
- Oxacillin
- Penicillin
- Rifampin
- Tetracycline
- Ticarcillin
- Ticarcillin/clavulanic acid
- Trimethoprim/sulfamethoxazole

**Aquatic MIC Plate (Part No. AQUATIC)**

- Ampicillin
- Enrofloxacin
- Erythromycin
- Florfenicol
- Flumequine
- Gentamicin
- Ormetoprim/sulphadimethoxine
- Oxolinic Acid
- Trimethoprim/sulfamethoxazole

***Campylobacter* MIC Plate (Part No. CAMPY)**

- Azithromycin
- Ciprofloxacin
- Clindamycin
- Erythromycin
- Florfenicol
- Gentamicin
- Nalidixic acid
- Telithromycin
- Tetracycline



## Coming Soon – Something New in the Fight Against Johne's Disease

By DeAna Dziak, Product Manager, TREK Diagnostic Systems

At TREK Diagnostic Systems, we realize how busy veterinary laboratories can be, therefore we are busy working on something to make your life in the laboratory much easier - *para-JEM*® Windows® Software! This user-friendly, intuitive software program will be based on TREK's existing and well received clinical VersaTREK® Windows Software and is to be used in conjunction with your ESP® Culture System II in the fight against Johne's Disease.

TREK understands that veterinary laboratories have different requirements than a clinical laboratory so we plan to

custom-tailor this software program to fit all of your veterinary needs from the ability to auto-accession, dropdown lists with dictionary capability, and demographic area fields to record lab results, smear results, molecular results, immunological results, etc.

In addition, there will no longer be a need to archive data. With its powerful database management system, *para-JEM* Windows Software will have the capability to perform automatic back-ups, schedule maintenance tasks, search for data by numerous fields and provide extensive reporting capabilities.

The main menu display will feature prominent large icons that distinguish positive bottles from completed negative bottles along with a count of the number of positives and negatives. Bottle management couldn't be any easier!

Please stop by the TREK booth at the AAVLD Meeting this October in Hershey, PA for information on this outstanding software program. We look forward to seeing all of you there!



982 Keynote Circle, Suite 6  
Cleveland, Ohio 44131

800-871-8909

[www.trekds.com](http://www.trekds.com)

### Inside this issue:

ESBL Testing in Diagnostic Laboratories

Veterinary Antimicrobial Susceptibility Test (VAST) Update

NSVL Approval to Test Johne's Disease

New Sensititre® MIC Plates Available!

Something New in the Fight Against Johne's Disease