SUPPORTING INFECTIOUS DISEASE RESEARCH

Enterobacter cloacae complex, Strain BEI02

Catalog No. NR-50392

Product Description:

Enterobacter cloacae complex (E. cloacae complex), strain BEI02 is from an unknown origin. NR-50392 lot 70057712 was produced by inoculation of the BEI Resources seed lot 64391825 into Tryptic Soy broth and grown for 1 day at 37°C in an aerobic atmosphere. Broth inoculum was added to Tryptic Soy agar kolles, which were grown for 1 day at 37°C in an aerobic atmosphere to produce this lot. Quality control testing was completed under propagation conditions unless otherwise noted.

Lot: 70057712

Manufacturing Date: 06JAN2023

BEI Resources is committed to ensuring digital accessibility for people with disabilities. This Certificate of Analysis contains complex tables and may not be fully accessible. Please let us know if you encounter accessibility barriers and a fully accessible document will be provided: E-mail: <u>Contact@BEIResources.org</u>. We try to respond to feedback within 24 hours.

Phenotypic Analysis Cellular morphology Gram-negative rods Report results Gram-negative rods Circular, entire, low convex, smooth and cream Motility (wet mount) Report results Motile VITEK® (2 Compact (GN card) E. cloacae complex (≥ 89.9%) E. cloacae complex (97% probability) ¹ Antibiotic Susceptibility Profile ² VITEK® (2 Susceptibility Profile ² VITEK® (2 Susceptibility Profile ²) VITEK® (2 Susceptibility Profile ² VITEK® (2 Susceptibility Profile ²) VITEK® (2 Susceptibility Profile ²) VITEK® (2 Susceptibility Profile ²) Resistant Resistant (2 Susceptibility Profile ²) VITEK® (2 Susceptibility Profile ²) Positive Positive Aztreonam Resistant Resistant (2 64 µg/mL) Beta-lactamase ³ Positive Positive Cefrazolin Resistant Resistant (2 64 µg/mL) Ciprofloxacin Resistant Resistant (2 64 µg/mL) Gentamicin Resistant Resistant (2 16 µg/mL) Impenem Resistant Resistant (2 64 µg/mL) Levofloxacin Resistant Resistant (2 64 µg/mL) Nitrofurantoin Sensitive Sensitive (516 µg/mL)	TEST	SPECIFICATIONS	RESULTS
Cellular morphology Gram-negative rods Gram-negative rods Motility (wet mount) Report results Motile VITEK® 2 Compact (GN card) Report results Motile Antibiotic Susceptibility Profile ² (97% probability) ¹ Antibiotic Susceptibility Profile ² (97% probability) ¹ Antibiotic Susceptibility Profile ² (97% probability) ¹ Antoxicilin/Clavulanic Acid Resistant Aztreonam Resistant Beta-lactamase ³ Positive Ceffraxone Resistant Ciprofloxacin Resistant Resistant Resistant (≥ 64 µg/mL) Grantmicin Resistant Imipenem Resistant Resistant Resistant (≥ 64 µg/mL) Gentamicin Resistant Imipenem Resistant Resistant Resistant (≥ 16 µg/mL) Intropenem Resistant Nutrofurantoin Sensitive Sensitive Sensitive Sensitive Sensitive (≥ 16 µg/mL) Teracycline Sensitive Trimethoprim/sulfamethoxazole Resistant <td< td=""><td>Phenotypic Analysis</td><td></td><td></td></td<>	Phenotypic Analysis		
Colony morphology Report results Circular, entire, low convex, smooth and cream Motility (wet mount) Report results Motile VITEK® 2 Compact (GN card) E. cloacae complex (≥ 89.9%) E. cloacae complex (27% probability) ¹ Antibiotic Susceptibility Profile ² Image: Cloacae complex (≥ 89.9%) E. cloacae complex (27% probability) ¹ Antibiotic Susceptibility Profile ² Image: Cloacae complex (≥ 89.9%) E. cloacae complex (27% probability) ¹ Antibiotic Susceptibility Profile ² Image: Cloacae complex (≥ 89.9%) E. cloacae complex (27% probability) ¹ Anteonam Resistant Resistant Resistant (≥ 4 µg/mL) Actreonam Resistant Resistant (≥ 64 µg/mL) Ceftriaxone Resistant Resistant (≥ 64 µg/mL) Caftriaxone Resistant Resistant (≥ 64 µg/mL) Gentamicin Resistant Resistant (≥ 16 µg/mL) Imipenem Resistant Resistant (≥ 16 µg/mL) Imipenem Resistant Resistant (≥ 16 µg/mL) Nitrofurantoin Sensitive Sensitive (≥ 16 µg/mL) Trimethoprim/sulfamethoxazole Sensitive Sensitive (≥ 16 µg/mL) <	Cellular morphology	Gram-negative rods	Gram-negative rods
Motility (wet mount) Report results Motile VITEK® 2 Compact (GN card) E. cloacae complex (≥ 89.9%) E. cloacae complex (97% probability) ¹ Antibiotic Susceptibility Profile ² (97% probability) ¹ Antibiotic Caucal Comparence of the second complex (≥ 89.9%) Resistant (≥ 32 µg/mL) (97% probability) ¹ Attreonam Resistant Resistant (≥ 64 µg/mL) Resistant (≥ 64 µg/mL) Beta-lactamase ³ Positive Positive Cefazolin Resistant Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 64 µg/mL) Gentamicin Resistant Resistant (≥ 64 µg/mL) Gentamicin Resistant Resistant (≥ 64 µg/mL) Impenem Resistant Resistant (≥ 64 µg/mL) Inipenem Resistant Resistant Inipenem Resistant Resistant (≥ 64 µg/mL) Notrofuzation Resistant<	Colony morphology	Report results	Circular, entire, low convex,
Motility (wet mount) Report results Motile VITEK® 2 Compact (GN card) E. cloacae complex (≥ 89.9%) E. cloacae complex (97% probability) ¹ Antibiotic Susceptibility Profile ² E VITEK® (AST-GN84 card) Resistant Resistant (≥ 32 µg/mL) Anticolin/Clavulanic Acid Resistant Resistant (≥ 64 µg/mL) Actreonam Resistant Resistant (≥ 64 µg/mL) Beta-lactamase ³ Positive Positive Cefazolin Resistant Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 64 µg/mL) Gentamicin Resistant Resistant (≥ 64 µg/mL) Imipenem Resistant Resistant (≥ 64 µg/mL) Levofloxacin Resistant Resistant (≥ 64 µg/mL) Imipenem Resistant Resistant (≥ 64 µg/mL) Levofloxacin Resistant Resistant (≥ 64 µg/mL) Meropenem Resistant Resistant (≥ 16 µg/mL) Nitrofurantion Sensitive Sensitive (≥ 16 µg/mL) Tetracycline Sensitive Sensitive (≥ 16 µg/mL) Tetracycline Sensitive Sensitive (≥ 16 µg/mL) Tetracycline Sensitive Sensitive (≥ 16 µg/mL) Mue			smooth and cream
VITEK® 2 Compact (GN card) E. cloacae complex (≥ 89.9%) E. cloacae complex (97% probability) ¹ Antibiotic Susceptibility Profile ² (97% probability) ¹ VITEK® (AST-GN84 card) Amoxicillin/Clavulanic Acid Resistant Resistant (≥ 32 µg/mL) Aztreonam Resistant Resistant (≥ 64 µg/mL) Beta-lactamase ³ Positive Positive Cefazolin Resistant Resistant (≥ 64 µg/mL) Ceftriaxone Resistant Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 64 µg/mL) Gentamicin Resistant Resistant (≥ 64 µg/mL) Imipenem Resistant Resistant (≥ 64 µg/mL) Levofloxacin Resistant Resistant (≥ 64 µg/mL) Meropenem Resistant Resistant (≥ 64 µg/mL) Nitrofurantoin Sensitive Sensitive (≥ 16 µg/mL) Nitrofurantoin Sensitive Sensitive (≥ 16 µg/mL) Trimethoprim/sulfamethoxazole Resistant Resistant (≥ 320 µg/mL) Etest® antibiotic test strips 1 day at 35°C in an aerobic atmosphere on Mueller Hinton agar Resistant Sensitive (≥ 320 µg/mL)	Motility (wet mount)	Report results	Motile
Image: Construction E: Coolade Construction (97% probability)¹ Antibiotic Susceptibility Profile ² Image: Construction (97% probability)¹ Antibiotic Susceptibility Profile ² Image: Construction (25, 9, 9, %) VITEK® (AST-GNA4 card) Resistant Resistant (264 µg/mL) Aztreonam Resistant Resistant (264 µg/mL) Beta-lactamase ³ Positive Positive Cefazolin Resistant Resistant (264 µg/mL) Cefazolin Resistant Resistant (264 µg/mL) Ciprofloxacin Resistant Resistant (264 µg/mL) Ertapenem Resistant Resistant (264 µg/mL) Gentamicin Resistant Resistant (264 µg/mL) Imipenem Resistant Resistant (264 µg/mL) Levofloxacin Resistant Resistant (264 µg/mL) Meropenem Resistant Resistant (26 µg/mL) Nitrofurantoin Sensitive Sensitive (216 µg/mL) Trimethoprim/sulfamethoxazole Sensitive Sensitive (230 µg/mL) I day at 35°C in an aerobic atmosphere on Mueller Hinton agar Resistant Resistant (2566 µg/mL) Gentypic Analysis	VITEK [®] 2 Compact (CNI cord)	E closes complex (> 80.0%)	E. cloacae complex
Antibiotic Susceptibility Profile ² Resistant Resistant VITEK [®] (AST-GN84 card) Resistant Resistant Amoxicillin/Clavulanic Acid Resistant Resistant Resistant (≥ 64 µg/mL) Beta-lactamase ³ Positive Positive Positive Cefrazolin Resistant Resistant (≥ 64 µg/mL) Resistant (≥ 64 µg/mL) Cefraixone Resistant Resistant (≥ 64 µg/mL) Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 64 µg/mL) Resistant (≥ 64 µg/mL) Gentamicin Resistant Resistant (≥ 64 µg/mL) Resistant (≥ 64 µg/mL) Imipenem Resistant Resistant (≥ 64 µg/mL) Resistant (≥ 64 µg/mL) Imipenem Resistant Resistant (≥ 16 µg/mL) Resistant (≥ 16 µg/mL) Meropenem Resistant Resistant (≥ 16 µg/mL) Resistant (≥ 16 µg/mL) Nitrofurantoin Sensitive Sensitive (3 µg/mL) Resistant (≥ 320 µg/mL) Trimethoprim/sulfamethoxazole Resistant Resistant (≥ 256 µg/mL) Resistant (≥ 256 µg/mL) Etest® antibiotic test strips 1 day at 35°C in an aerobic atmosphere on Sensitive Sensitive (2 µg/mL) Sensitive (2			(97% probability) ¹
VITEK® (AST-GN84 card) Amoxicillin/Clavulanic Acid Resistant Resistant (≥ 32 µg/mL) Aztreonam Resistant Resistant (≥ 64 µg/mL) Beta-lactamase ³ Positive Positive Cefazolin Resistant Resistant (≥ 64 µg/mL) Ceftriaxone Resistant Resistant (≥ 64 µg/mL) Ciprofloxacin Resistant Resistant (≥ 44 µg/mL) Ertapenem Resistant Resistant (≥ 4 µg/mL) Gentamicin Resistant Resistant (≥ 16 µg/mL) Imipenem Resistant Resistant (≥ 64 µg/mL) Levofloxacin Resistant Resistant (≥ 4 µg/mL) Meropenem Resistant Resistant (≥ 16 µg/mL) Itrofurantoin Resistant Resistant (≥ 16 µg/mL) Nitrofurantoin Sensitive Sensitive (≥ 16 µg/mL) Trimethoprim/sulfamethoxazole Resistant Resistant (≥ 320 µg/mL) Etest® antibiotic test strips 1 day at 35°C in an aerobic atmosphere on Mueller Hinton agar Resistant Resistant (≥ 256 µg/mL) Ampicillin Cefepime Sensitive Sensitive (≥ 10 µg/mL) Sensitive (≥ 10 µg/mL) Fertorelow Sensitive Sensitive (≥ 10 µg/	Antibiotic Susceptibility Profile ²		
Amoxicillin/Clavulanic AcidResistantResistant (≥ 32 µg/mL)AztreonamResistantResistant (≥ 64 µg/mL)Beta-lactamase³PositivePositiveCefazolinResistantResistant (≥ 64 µg/mL)CeftriaxoneResistantResistant (≥ 64 µg/mL)CiprofloxacinResistantResistant (≥ 64 µg/mL)ErtapenemResistantResistant (≥ 64 µg/mL)GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 8 µg/mL)NitrofurantoinSensitiveSensitive (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≥ 16 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antbiotic test stripsResistantResistant (≥ 256 µg/mL)1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillin (C + 1370 base pairs)SensitiveSensitiveSensitive (2 µg/mL)Purpracillin/tazobactam≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Tartet & CoursentGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	VITEK [®] (AST-GN84 card)		
AztreonamResistantResistant (≥ 64 µg/mL)Beta-lactamase ³ PositivePositiveCefazolinResistantResistant (≥ 64 µg/mL)CeftriaxoneResistantResistant (≥ 64 µg/mL)CiprofloxacinResistantResistant (≥ 4 µg/mL)ErtapenemResistantResistant (≥ 16 µg/mL)GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (4 µg/mL)TetracyclineSensitiveSensitive (4 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 256 µg/mL)Etest [®] antibiotic test stripsResistantResistant (≥ 256 µg/mL)1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillin (CefepimeResistantResistantResistant (48 µg/mL)Beaucing of 16S ribosomal RNA gene (- 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on 7 days at 37°C in an aerobic atmosphere on 	Amoxicillin/Clavulanic Acid	Resistant	Resistant (≥ 32 µg/mL)
Beta-lactamase ³ Positive Positive Cefazolin Resistant Resistant Resistant (≥ 64 µg/mL) Ceftriaxone Resistant Resistant (≥ 4 µg/mL) Ciprofloxacin Resistant Resistant (≥ 4 µg/mL) Ertapenem Resistant Resistant (≥ 4 µg/mL) Gentamicin Resistant Resistant (≥ 16 µg/mL) Imipenem Resistant Resistant (≥ 16 µg/mL) Levofloxacin Resistant Resistant (≥ 16 µg/mL) Meropenem Resistant Resistant (≥ 16 µg/mL) Nitrofurantoin Sensitive Sensitive (≤ 16 µg/mL) Tetracycline Sensi	Aztreonam	Resistant	Resistant (≥ 64 µg/mL)
CefazolinResistantResistant (≥ 64 µg/mL)CeftriaxoneResistantResistant (≥ 64 µg/mL)CiprofloxacinResistantResistant (≥ 64 µg/mL)ErtapenemResistantResistant (≥ 4 µg/mL)GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 8 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≤ 16 µg/mL)TetracyclineSensitiveSensitive (≤ 16 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 256 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillin (⊂fepimeResistantResistantResistant (≥ 256 µg/mL)Piperacillin/tazobactamResistantResistantResistant (≥ 256 µg/mL)Genotypic Analysis≥ 99% sequence identity to E. c/oacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. c/oacae complex type strain (Genbank: NR_118568.1)4Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on (7 days at 37°C in an aerobic atmosphere on <td>Beta-lactamase³</td> <td>Positive</td> <td>Positive</td>	Beta-lactamase ³	Positive	Positive
CeftriaxoneResistantResistant (≥ 64 µg/mL)CiprofloxacinResistantResistant (≥ 4 µg/mL)ErtapenemResistantResistant (≥ 4 µg/mL)GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≥ 16 µg/mL)TetracyclineSensitiveSensitive (≤ 16 µg/mL)Trimethoprim/sulfamethoxazoleSensitiveSensitive (≤ 16 µg/mL)Etest® antibiotic test stripsSensitiveSensitive (≤ 16 µg/mL)1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillinResistantResistantResistant (≥ 256 µg/mL)CefepimeSensitiveSensitiveSensitive (2 µg/mL)Piperacillin/tazobactamResistantResistant (≥ 4 µg/mL)Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain 	Cefazolin	Resistant	Resistant (≥ 64 µg/mL)
CiprofloxacinResistantResistant (≥ 4 µg/mL)ErtapenemResistantResistant (≥ 4 µg/mL)GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≥ 16 µg/mL)TetracyclineSensitiveSensitive (≥ 16 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test stripsResistantResistant (≥ 320 µg/mL)1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillinResistantResistantResistant (≥ 256 µg/mL)CefepimeSensitiveSensitiveSensitive (2 µg/mL)Piperacillin/tazobactamResistantResistantResistant (≥ 256 µg/mL)Genotypic AnalysisSequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)499.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Terestic Own compGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Ceftriaxone	Resistant	Resistant (≥ 64 µg/mL)
ErtapenemResistantResistant (4 µg/mL)GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 8 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≤ 16 µg/mL)TetracyclineSensitiveSensitive (≤ 16 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillinResistantResistantResistant (≥ 256 µg/mL)Genotypic AnalysisSensitiveSensitiveSensitive (2 µg/mL)Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere onGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Ciprofloxacin	Resistant	Resistant (≥ 4 µg/mL)
GentamicinResistantResistant (≥ 16 µg/mL)ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≤ 16 µg/mL)TetracyclineSensitiveSensitive (4 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistantAmpicillinResistantResistantResistant (≥ 256 µg/mL)CefepimeSensitiveSensitiveSensitive (2 µg/mL)Piperacillin/tazobactamResistantResistant (≥ 256 µg/mL)Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)4Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on (~ 1370 base pairs)Growth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Ertapenem	Resistant	Resistant (4 µg/mL)
ImipenemResistantResistant (≥ 16 µg/mL)LevofloxacinResistantResistant (≥ 8 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≤16 µg/mL)TetracyclineSensitiveSensitive (4 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistant (≥ 256 µg/mL)Ampicillin CefepimeResistantResistantResistant (≥ 256 µg/mL)Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Turtip OwnergenGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Gentamicin	Resistant	Resistant (≥ 16 µg/mL)
LevofloxacinResistantResistant (≥ 8 µg/mL)MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≤ 16 µg/mL)TetracyclineSensitiveSensitive (4 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistant (≥ 256 µg/mL)Ampicillin CefepimeResistantResistantResistant (≥ 256 µg/mL)Piperacillin/tazobactamResistantResistantSensitive (2 µg/mL)Genotypic Analysis (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Turtit Own comparedGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Imipenem	Resistant	Resistant (≥ 16 µg/mL)
MeropenemResistantResistant (≥ 16 µg/mL)NitrofurantoinSensitiveSensitive (≤16 µg/mL)TetracyclineSensitiveSensitive (4 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistant (≥ 256 µg/mL)OffepimeSensitiveSensitiveSensitive (2 µg/mL)Piperacillin/tazobactamResistantResistant (≥ 256 µg/mL)Genotypic AnalysisSequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Turtin Care complex type strain (Garbank: NR_118568.1)Growth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Levofloxacin	Resistant	Resistant (≥ 8 µg/mL)
NitrofurantoinSensitiveSensitive (≤16 µg/mL)TetracyclineSensitiveSensitiveSensitive (4 µg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistant (≥ 256 µg/mL)AmpicillinResistantSensitiveSensitive (2 µg/mL)CefepimeSensitiveSensitiveSensitive (2 µg/mL)Piperacillin/tazobactamResistantResistant (48 µg/mL)Genotypic Analysis≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) T days at 37°C in an aerobic atmosphere on Turtin Senue complexGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Meropenem	Resistant	Resistant (≥ 16 µg/mL)
TetracyclineSensitiveSensitive (4 μg/mL)Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 μg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistant (≥ 256 μg/mL)Ampicillin CefepimeResistantResistantResistant (≥ 256 μg/mL)Piperacillin/tazobactamResistantResistant (≥ 256 μg/mL)Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Trutin Pure strainGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Nitrofurantoin	Sensitive	Sensitive (≤16 µg/mL)
Trimethoprim/sulfamethoxazoleResistantResistant (≥ 320 µg/mL)Etest® antibiotic test strips1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistantResistant (≥ 256 µg/mL)Ampicillin CefepimeResistantResistant (≥ 256 µg/mL)Piperacillin/tazobactamResistantResistant (≥ 256 µg/mL)Genotypic Analysis (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Torwin ConverseGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Tetracycline	Sensitive	Sensitive (4 µg/mL)
Etest® antibiotic test strips 1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistant ResistantResistant (≥ 256 µg/mL) Sensitive (2 µg/mL) Sensitive (2 µg/mL) Resistant (48 µg/mL)Ampicillin Cefepime Piperacillin/tazobactamResistant ResistantResistant (≥ 256 µg/mL) Sensitive (2 µg/mL) Resistant (48 µg/mL)Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Tormite Row energyGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Trimethoprim/sulfamethoxazole	Resistant	Resistant (≥ 320 µg/mL)
1 day at 35°C in an aerobic atmosphere on Mueller Hinton agarResistant sesistantResistant (≥ 256 µg/mL)Ampicillin CefepimeResistantResistant (≥ 256 µg/mL)Piperacillin/tazobactamResistantResistant (≥ 256 µg/mL)Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Torvite Source areaGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Etest [®] antibiotic test strips		
Mueller Hinton agarMueller Hinton agarAmpicillinResistantResistant (≥ 256 µg/mL)CefepimeSensitiveSensitive (2 µg/mL)Piperacillin/tazobactamResistantResistant (48 µg/mL)Genotypic Analysis> 99% sequence identity to99.3% sequence identity toSequencing of 16S ribosomal RNA gene≥ 99% sequence identity to99.3% sequence identity to(~ 1370 base pairs)E. cloacae complex type strain (Genbank: NR_118568.1)(Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Torutis CoursersGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	1 day at 35°C in an aerobic atmosphere on		
Ampicillin CefepimeResistant SensitiveResistant (≥ 256 µg/mL) Sensitive (2 µg/mL)Piperacillin/tazobactamResistantResistantResistant (48 µg/mL)Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Travis SequenceGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Mueller Hinton agar		
CefepimeSensitiveSensitiveSensitive (2 μg/mL)Piperacillin/tazobactamResistantResistant (48 μg/mL)Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs)≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1)Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Travitis GenerationGrowth consistent with expected colony morphologyGrowth consistent with expected colony morphology	Ampicillin	Resistant	Resistant (≥ 256 µg/mL)
Piperacillin/tazobactam Resistant Resistant (48 µg/mL) Genotypic Analysis ≥ 99% sequence identity to 99.3% sequence identity to Sequencing of 16S ribosomal RNA gene ≥ 99% sequence identity to 99.3% sequence identity to (~ 1370 base pairs) E. cloacae complex type strain (Genbank: NR_118568.1) (Genbank: NR_118568.1) ⁴ Purity (post-freeze) Growth consistent with expected Growth consistent with expected Growth consistent with expected 7 days at 37°C in an aerobic atmosphere on Travia Sequence Growth consistent with expected colony morphology	Cefepime	Sensitive	Sensitive (2 µg/mL)
Genotypic Analysis ≥ 99% sequence identity to 99.3% sequence identity to Sequencing of 16S ribosomal RNA gene ≥ 99% sequence identity to 99.3% sequence identity to (~ 1370 base pairs) E. cloacae complex type strain (Genbank: NR_118568.1) (Genbank: NR_118568.1) Purity (post-freeze) Growth consistent with expected Growth consistent with expected Growth consistent with expected 7 days at 37°C in an aerobic atmosphere on The first of the second part of the se	Piperacillin/tazobactam	Resistant	Resistant (48 µg/mL)
Sequencing of 16S ribosomal RNA gene (~ 1370 base pairs) ≥ 99% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1) 99.3% sequence identity to E. cloacae complex type strain (Genbank: NR_118568.1) ⁴ Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Tratic Sequence Growth consistent with expected colony morphology Growth consistent with expected colony morphology	Genotypic Analysis		
(~ 1370 base pairs) E. cloacae complex type strain (Genbank: NR_118568.1) E. cloacae complex type strain (Genbank: NR_118568.1) ⁴ Purity (post-freeze) 7 days at 37°C in an aerobic atmosphere on Turnitie Sourcease Growth consistent with expected colony morphology Growth consistent with expected colony morphology	Sequencing of 16S ribosomal RNA gene	≥ 99% sequence identity to	99.3% sequence identity to
Purity (post-freeze) Growth consistent with expected Growth consistent with expected 7 days at 37°C in an aerobic atmosphere on Growth consistent with expected Colony morphology	(~ 1370 base pairs)	<i>E. cloacae</i> complex type strain	<i>E. cloacae</i> complex type strain
Purity (post-freeze) Growth consistent with expected Growth consistent with expected 7 days at 37°C in an aerobic atmosphere on colony morphology colony morphology		(Genbank: NK_118568.1)	(Genbank: NR_118568.1)*
/ days at 37°C in an aeropic atmosphere on colony morphology colony morphology	Purity (post-freeze)	Growth consistent with expected	Growth consistent with expected
	7 days at 37°C in an aeropic atmosphere on	colony morphology	colony morphology

Certificate of Analysis for NR-50392

SUPPORTING INFECTIOUS DISEASE RESEARCH

TEST	SPECIFICATIONS	RESULTS
7 days at 37°C in an aerobic atmosphere with 5% CO ₂ on Tryptic Soy agar with 5% defibrinated sheep blood	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
Viability (post-freeze)	Growth	Growth

¹Percent probabilities above 90% indicate a close match to the typical biochemical pattern for the given organism, with a percent probability of 99% being a perfect match between the test reaction pattern and the unique biochemical pattern of the given organism or organism group. For additional information, please refer to O'Hara, C.M. and J. M. Miller. "Evaluation of the Vitek 2 ID-GNB Assay for Identification of Members of the Family Enterobacteriaceae and Other Nonenteric Gram-Negative Bacilli and Comparison with the Vitek GNI+ Card." J. Clin. Microbiol. 41 (2003): 2096-2101. PubMed: 12734254.

²Minimum Inhibitory Concentration (MIC); MIC Interpretation Guideline: CLSI M100-S28 (2018)

³The production of beta-lactamase was detected using a Cefinase [™] Paper Disc (BBL[™] 231650).

⁴Also consistent with other Enterobacter species

/Sonia Bjorum Brower/ Sonia Bjorum Brower

Technical Manager or designee, ATCC Federal Solutions

ATCC[®], on behalf of BEI Resources, hereby represents and warrants that the material provided under this certificate has been subjected to the tests and procedures specified and that the results described, along with any other data provided in this certificate, are true and accurate to the best of ATCC[®]'s knowledge.

ATCC[®] is a trademark of the American Type Culture Collection. You are authorized to use this product for research use only. It is not intended for human use.



12 OCT 2023