b|e|i RESOURCES

SUPPORTING INFECTIOUS DISEASE RESEARCH

Certificate of Analysis for NR-303

Brucella suis, Strain Thomsen

Catalog No. NR-303

(Derived from ATCC® 23445™)

Product Description: *Brucella suis* (*B. suis*), strain Thomsen was isolated in 1951 from a hare in Denmark and deposited to the ATCC® in 1967 by W. J. Brinley Morgan. *B. suis*, strain Thomsen was deposited as a reference strain for biotype 2.

Lot[1]: 64364100 **Manufacturing Date: 11JUL2016**

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis		
Cellular morphology	Gram-negative rods	Gram-negative rods
Colony morphology[2]	Report results	Irregular, low convex, entire, smooth and cream (Figure 1)
Motility[3]	Non-motile	Non-motile
Biochemical tests		
Oxidase	Positive	Positive
Urease	Positive (> 5 minutes)	Positive (> 5 minutes)
Hydrogen sulfide production	Positive[4]	Positive
Arginine dihydrolase	Positive	Positive
Arabinose fermentation	Report results	Positive
Glucose fermentation	Positive	Positive
Xylose fermentation	Positive	Positive
Genotypic Analysis	≥ 99% sequence identity to *B. suis,* strain Thomsen (GenBank: CP000911.1 and CP000912.1)	99.5% sequence identity to *B. suis,* strain Thomsen (GenBank: CP000911.1 and CP000912.1)
Sequencing of 16S ribosomal RNA gene (~ 1260 base pairs)		
Digital DNA-DNA hybridization (dDDH)[5]	≥ 70% for species identification	98.7% *B. suis*[6]
Purity (post-freeze)[7]	Growth consistent with expected colony morphology	Growth consistent with expected colony morphology
Viability (post-vialing)[2]	Growth	Growth

[1]NR-303 was produced by inoculation of ATCC® 23445™ lot 42199 into Tryptic Soy broth and grown 3 days at 37°C in an aerobic atmosphere with 5% CO_2. Broth inoculum was added to Tryptic Soy agar kolles which were grown 3 days at 37°C in an aerobic atmosphere with 5% CO_2 to produce this lot.

[2]2 days at 37°C in an aerobic atmosphere with 5% CO_2 on Tryptic Soy agar

[3]Motility test performed on Remel™ Motility Test Medium w/TTC indicator for 7 days at 37°C in an aerobic atmosphere with 5% CO_2.

[4]The hydrogen sulfide production results are not consistent with *B. suis*, biotype 2, however, they are consistent with this strain. *B. suis*, strain Thomsen was shown positive for hydrogen sulfide production prior to its deposit into BEI Resources.

[5]Relatedness between bacterial strains has traditionally been determined using DDH. For additional information refer to Auch, A.F., et al. "Digital DNA-DNA Hybridization for Microbial Species Delineation by Means of Genome-to-Genome Sequence Comparison." Stand Genomic Sci. 2 (2010): 117-134. PubMed: 21304684.

[6]*B. abortus, B. canis, B. ceti, B. melitensis, B. microti, B. neotomae, B. ovis,* and *B. pinnipedialis* all had dDDH scores over 96% and *B. inopinata* and *B. vulpis* had scores of 81.5 and 80.5, respectively, indicating that dDDH analysis cannot differentiate the *Brucella* genus.

[7]Purity of this lot was assessed for 10 days at 37°C in an aerobic atmosphere with 5% CO_2 on Tryptic Soy agar.

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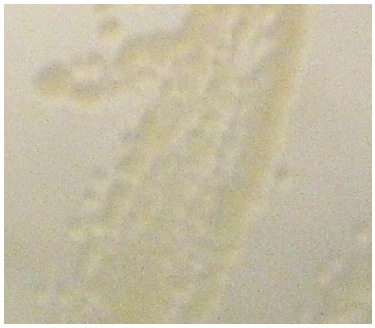
Figure 1: Colony Morphology



Date: 03 OCT 2017 **Signature:**

Title: Senior Director, Compliance & QA/Chief Compliance Officer

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