Certificate of Analysis

AVA (9CFR113.53)

Product Name: Fetal Bovine Serum

Product Description: USA origin, sterile-filtered, suitable for cell culture, suitable

for hybridoma

Product Brand: Sigma-Aldrich

Product Number: F2442

TEST SPECIFICATION LOT 18H165 RESULTS

Endotoxin $<= 10 \, EU/mL$ $0.2 \, EU/mL$ MycoplasmaNone detected (Broth Culture)None detectedOsmolality $260 - 340 \, mOsm/kg \, H2O$ $304 \, mOsm/kg \, H2O$

Bovine Adenovirus (type 3 and 5) -,NoneNone detected

detected

Bovine Parvovirus - None detected None detected

Blue Tongue Virus - None detected None detected

BVDV by FA - Tested Tested

Cytopathic Effect - None detected None detected
Hemadsorption - None detected None detected
Infectious Bovine Rhinotracheitis - None detected

None, detected

Parainfluenza 3 - None detected
Rabies Virus - None detected
Reovirus - None detected
None detected
Rovine Respiratory Syncytial Virus
None detected

-,None detected

Vesicular Stomatitis Virus -, None None detected

detected

Bacteriophage Testing Record (PFU/mL) None detected PFU/mL

Total Protein3.0 - 4.5 g%3.6 g%Chemical AnalysisCholesterol - Report result30 mg/dLHormone LevelEstradiol - Report result28.4 pg/mLChemical AnalysisIron - Report result173 mcg/dLGlucose - Report result126 mg/dL

Hormone LevelInsulin - Report result0.9 mcIU/mLChemical AnalysisSodium - Report result135 mEq/LHormone LevelProgesterone - Report result<0.1 ng/mL</th>Sterility per current USPNegativeNegativeHormone LevelTestosterone - Report result5 ng/dL

Tetracycline Report Result None detected

Chemical AnalysisTriglyceride - Report result71 mg/dLSerum Antibody Titer - BRSVReport result< 1:2</td>Serum Antibody Titer - BVDVReport result< 1:2</td>Serum Antibody Titer - IBRReport result< 1:2</td>Serum Antibody Titer - PI3Report result< 1:2</td>

Cloning Assay Pass Pass

Mycoplasma None detected (DNA Fluorochrome None detected

Stain)

Insect Cell Culture Test Min CD 1.2X10E6, Max DT 33.5 hr CD 2.9X10E6, DT 24.6 hr

Cell Lines Record cell lines used Sf9 cell line

pH 6.7 - 8.0 7.2

Bovine lgG $\leq 1 \text{ mg/mL}$ 0.103 mg/mL

Serum Performance Test Pass Pass

Cell Lines Record Cell Lines Used FIO BHK-21 cell line

Hemoglobin <= 20 mg% 14 mg%

Electrophoric Profile Albumin - Report Result 1.7 g/dL

Alpha 1 Globulin - Report result 0.0 g/dL

Alpha 2 Globulin - Report result 1.2 g/dL
Beta Globulin - Report result 0.7 g/dL
Gamma Globulin - Report result 0.0 g/dL

Country of Origin Record United States

Appearance Clear straw to amber colored liquid Clear amber colored liquid

COMMENTS

C of A comments Country of final product processing:

United States

Intended Use For R&D use only. Not for drug,

household, or other uses.

Origin The material used in this product was

collected in the United States.

Animals used for collection of serum were USDA inspected and acceptable

for slaughter.

Store at -20 C

Approval Date and Time 9/13/2018 16:18:50

 Manufact Date
 7/19/2018

 Expiratn Date
 7/31/2023

James Bennet

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Lenexa Site Quality Manager SAFC Biosciences, Lenexa KS