

CERTIFICATE OF ANALYSIS BenchMark™ Fetal Bovine Serum (Catalog Number 100-106)

Lot Number:

A59H74L

Date of Manufacture: AUG 2020

Origin:

Nicaragua

Product Expiry: AUG 2025

For Cell culture, Further Manufacturing or Research

use Only. Not for Direct Therapeutic Use.

Storage Temperature: ≤ -10°C

Product description: BenchMark™ Fetal Bovine Serum is sterile-filtered through a 0.1 μm filter prior to freezing.

Test	Methodology	Specification	Analysis
Biological Testing			
Endotoxin	USP<85>, EP 2.6.14	<10.0 EU/mL	<0. <mark>5 EU/</mark> mL
Hemoglobin	Fleming, AF and Woolf, AJ (1965)	<20.0 mg/dL	11. <mark>63 m</mark> g/dL
Microbiological Testing			
Sterility	USP<71>, EP 2.6.1		
Bacteria		No Growth	No Growth
F <mark>ung</mark> i		No Growth	No Growth
Mycoplasma	Barile, MF and Kern, J (1971), EP 2.6.7	Not Detected	Not Detected
Viral Testing	9CFR 113.53c[113.46,		
	113.47]		
Cytopathic Agents		Not Detected	Not Detected
Hemadsorbing Agents		Not Detected	Not Detected
Bovi <mark>ne Viral</mark> Diarrhea Ab Titer			
Type I		Test and Report	<undiluted< td=""></undiluted<>
T <mark>ype II</mark>		Test and Report	Undiluted
Extraneous Viruses (FAb)			
Bluetongue Virus		Not Detected	Not Detected
Bovine Adenovirus		Not Detected	Not Detected
Bovine Parvovirus		Not Detected	Not Detected
Bovine Viral		Not Detected	Not Detected
Diarrhea(cytopathic)			
Bovine Viral Diarrhea(non-cytopathic)		Test and Report	Not Detected
Bovine Syncytial Virus		Not Detected	Not Detected
Bovine Rabie Virus		Not Detected	Not Detected
Reovirus		Not Detected	Not Detected



Physical Testing Electrophoretic Pattern Cellulose Acetate Normal Surval	Test	Methodology	Specification	Analysis
Osmolality USP<785>, EP 2.2.35 260 – 350 mOsm/kg 304.0 mOsm/kg PH@RT USP<791> 6.5 – 8.5 7.40 7.40 810chemistry 339 lUyL	Physical Testing			•
Osmolality USP<785>, EP 2.2.35 260 – 350 mOsm/ kg 304.0 mOsm/kg pH@RT USP<791> 6.5 – 8.5 7.40 7.40 810	Electrophoretic Pattern	Cellulose Acetate	Normal	Normal
Description	Osmolality	USP<785>, EP 2.2.35	260 - 350 mOsm/ kg	
Albumin Test and Report 339 IU/L Alt (SGPT) Test and Report 10 IU/L AST (SGOT) Test and Report 50 IU/L GGT SOUNCE Test and Report 50 IU/L Bilirubin, Total Test and Report 19 mg/dL BUN Test and Report 19 mg/dL Calcium Test and Report 19 mg/dL Calcium Test and Report 19 mg/dL Chloride Test and Report 32 mg/dL Choride Test and Report 32 mg/dL Cortisol Test and Report 32 mg/dL Creatinine Test and Report 2.9 mg/dL Estradiol Test and Report 13.55 pg/mL Glucose Test and Report 13.55 pg/mL Insulin Test and Report 52 mg/dL Irest and Report 52 mg/dL Irest and Report 52 mg/dL Irest and Report 59 mg/dL Irest and Report 162 µg/dL Propensum Test and Report 162 µg/dL Progesterone Test and Report 10.00 mEq/L Progesterone Test and Report 138 mEq/L Test and Report 43.2 ng/dL Test and Report 138 mEq/L Test and Report 43.2 ng/dL Triglycerides Test and Report 48 mg/dL	pH@RT	USP<791>	6.5 – 8.5	
Alkaline Phosphatase Alkaline Phosphatase Test and Report Test and Repo	Biochemistry			
Alkaline Phosphatase ALT (SGPT) AST (SGOT) GGT GGT GGT Test and Report Test and Repo	Albumin		Test and Report	1.7g/dL
AST (SGOT) GGT GGT SILUL GGT SILUL Bilirubin, Total BUN Test and Report Test a	Alkaline Phosphatase			- -
GGT <10 U/L	ALT (SGPT)		Test and Report	10 IU/L
GGT	AST (SGOT)			-
Bilirubin, Total BUN Test and Report 19 mg/dL Calcium Test and Report Test and	GGT		<10 U/L	· · · · · · · · · · · · · · · · · · ·
BUN Calcium Test and Report Te	Bilirubin, Total		Test and Report	· · · · · · · · · · · · · · · · · · ·
Chloride Cholesterol Cholesterol Cholesterol Cortisol Creatinine Creating Report Creatinine Creating Report Creatinine Creatine Creatinine Creatinine Creatinine Creatinine Creatinine Creatine Creatinine Creatine C	BUN		Test and Report	-
Cholesterol Cortisol Cortisol Creatinine Estradiol Glucose IgG ELISA Fest and Report Fest and Report Insulin Forst and Report Fest and Report Igo Forst and Report Insulin Ins	Calcium		Test and Report	14.1 mg/dl
Cortisol Creatinine Creatinine Test and Report	Chloride		Test and Report	99 mEq/L
CreatinineTest and Report2.9 mg/dLEstradiolTest and Report13.55 pg/mLGlucoseTest and Report52 mg/dLIgGELISA<0.300 mg/mL*	Cholesterol		Test and Report	32 mg/dL
Estradiol Glucose ITest and Report IgG ELISA CO.300 mg/mL* Insulin Iron, Serum Phosphorus Potassium Protein, Total Sodium ITest and Report I	Cortisol		Test and Report	0.217 ug/dL
Glucose IgG ELISA Co.300 mg/mL* Co.105 mg/mL Insulin Insulin Irest and Report Fest	Creatinine		Test and Report	2.9 mg/dL
IgG ELISA <0.300 mg/mL* 0.105 mg/mL Insulin Test and Report 5.94 uIU/L Iron, Serum Test and Report 162 μg/dL Phosphorus Test and Report 8.4 mg/dL Potassium Test and Report >10.0 mEq/L Progesterone Test and Report <0.06 ng/mL Protein, Total Biuret 2.5 – 6.0 g/dL 3.70 g/dL Sodium Test and Report 138 mEq/L Testosterone Test and Report <0.01 ng/mL T3 Test and Report 43.2 ng/dL T4 Test and Report 17.1 μg/dL Triglycerides Test and Report 48 mg/dL Tetracycline <4 ng/mL Not Detected	Estradiol		Test and Report	13.55 pg/mL
Insulin Iron, Serum Iron, Serum Phosphorus Phosphorus Protein, Total Sodium Test and Report T	Glucose		Test and Report	5 <mark>2 m</mark> g/dL
Iron, SerumTest and Report162 μg/dLPhosphorusTest and Report8.4 mg/dLPotassiumTest and Report>10.0 mEq/LProgesteroneTest and Report<0.06 ng/mL	lgG	ELISA	<0.300 mg/mL*	0.105 mg/mL
PhosphorusTest and Report8.4 mg/dLPotassiumTest and Report>10.0 mEq/LProgesteroneTest and Report<0.06 ng/mL	Insulin		Test and Report	5.9 <mark>4 uI</mark> U/L
PotassiumTest and Report>10.0 mEq/LProgesteroneTest and Report<0.06 ng/mL	Iron, Serum		Test and Report	16 <mark>2 μg</mark> /dL
Progesterone Protein, Total Protein, Total Biuret 2.5 – 6.0 g/dL 3.70 g/dL Sodium Test and Report Test and Re	Phosphorus		Test and Report	8.4 mg/dL
ProgesteroneTest and Report<0.06 ng/mLProtein, TotalBiuret2.5 – 6.0 g/dL3.70 g/dLSodiumTest and Report138 mEq/LTestosteroneTest and Report<0.01 ng/mL	Potassium		Test and Report	>10.0 mEq/L
Sodium Test and Report 138 mEq/L Testosterone Test and Report <0.01 ng/mL	Progesterone		Test and Report	
Testosterone Test and Report Test and	Protein, Total	Biuret	2.5 – 6.0 g/dL	3.70 g/dL
Test and Report <0.01 ng/mL T3 Test and Report 43.2 ng/dL T4 Test and Report 17.1 µg/dL Triglycerides Test and Report 48 mg/dL Tetracycline <4 ng/mL Not Detected	Sodium		Test and Report	138 mEq/L
T3 Test and Report 43.2 ng/dL T4 Test and Report 17.1 μg/dL Triglycerides Test and Report 48 mg/dL Tetracycline <4 ng/mL Not Detected	Testosterone		Test and Report	
Triglycerides Test and Report 48 mg/dL Tetracycline <4 ng/mL Not Detected	Т3		Test and Report	_
Triglycerides Test and Report 48 mg/dL Tetracycline <4 ng/mL Not Detected	T4		Test and Report	17.1 μg/dL
	Triglycerides		Test and Report	
	Tetracycline Tetracycline		<4 ng/mL	
rest and Report U.8 mg/qL	Uric Acid		Test and Report	0.8 mg/dL

Our fetal bovine serum meets all USDA requirements and has passed ante and post-mortem inspection by a licensed veterinarian. It is collected in countries recognized as being free of foot-and-mouth disease and rinderpest. The origin of all fetal bovine serum is traceable by lot number, date and country of collection. Precipitates may develop in this product upon freezing and/or thawing; this occurrence does not impact culture performance. *Some geographic regions may test higher than 0.300 mg/mL. If this be the case, refer to GGT results less than 10 U/L to ensure FBS purity.

The testing that has been performed as part of this lot release has been reviewed by Quality Assurance personnel and has confirmed that the testing meets the specifications presented on this Certificate of Analysis.

Chuntug Hainaisco	_ Q(Associate
Name 22DEC 2020	Title
Date	