

CERTIFICATE OF ANALYSIS

BenchMark™ Fetal Bovine Serum

(Catalog Number 100-106)

Lot Number: A424065

Date of Manufacture: Dec2024

Product Expiry: Dec2029

Origin: Nicaragua

Storage Temperature: ≤ -10°C

For cell culture, further manufacturing or research use only. Not for direct therapeutic use.

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

Microbiological Testing Sterility USP <71> Bacteria Fungi No Growth No Detected Fluorochrome Stain	Test	Methodology	Specification	Analysis
Hemoglobin USP <90> <20.0 mg/dL 6.88 mg/dL Microbiological Testing Sterility USP <71> Bacteria No Growth No Growth Fungi Not Detected Pluorochrome Stain Viral Testing 9CFR 113.53c [113.46, 113.47] Cytopathic Agents Not Detected Not Detected Not Detected Hemadsorbing Agents Not Detected Not Detected Extraneous Viruses (FAb) Bluetongue Virus Not Detected Not Detected Not Detected Bovine Adenovirus Not Detected Not Detected Not Detected Bovine Parvovirus Not Detected Not Detected Not Detected Bovine Respiratory Syncytial Virus Not Detected Not Detected Not Detected Reovirus Not Detected Not Detected Not Detected Revirus Not Detected Not Detected Not Detected Not Detected Revirus Not Detected Not Detected Not Detected Not Detected Not Detected Not Detected Revirus Not Detected Not D	Biological Testing		•	
Microbiological Testing Sterility USP <71> No Growth No Growth Fungi No Growth No Growth No Growth Mycoplasma Barile and Kern & Hoechst Fluorochrome Stain Fluorochrome Stain	Endotoxin	USP <85> & EP 2.6.14	<10.0 EU/mL	<0.005 EU/mL
Sterility USP <71> Bacteria No Growth Fungi No Growth Fungi No Growth Fungi No Growth No Growth No Growth Mycoplasma Barile and Kern & Hoechst Fluorochrome Stain Not Detected Fluorochrome Stain Portal Testing 9CFR 113.53c [113.46, 113.47] Cytopathic Agents Not Detected Not Detected Not Detected Hemadsorbing Agents Not Detected Not Detected Extraneous Viruses (FAb) Bluetongue Virus Not Detected Not Detected Not Detected Bovine Adenovirus Not Detected Not Detected Not Detected Bovine Parvovirus Not Detected Not Detected Not Detected Bovine Respiratory Syncytial Virus Not Detected Not Detected Not Detected Rabies Virus Not Detected Not Detected Not Detected Recovirus Not Detected Not Detected Not Detected Recovirus Not Detected Not Detected Not Detected Not Detected Recovirus Not Detected	Hemoglobin	USP <90>	<20.0 mg/dL	6.88 mg/dL
Bacteria Fungi Mycoplasma Barile and Kern & Hoechst Fluorochrome Stain Viral Testing 9CFR 113.53c [113.46, 113.47] Cytopathic Agents Hemadsorbing Agents Bluetongue Virus Bovine Adenovirus Bovine Parvovirus Bovine Parvovirus Bovine Raspiratory Syncytial Virus Rabies Virus Reovirus Respiratory Syncytial Virus Reovirus Reovirus Reovirus Reovirus Respiratory Reference Refer	Microbiological Testing			-
Fungi Barile and Kern & Hoechst Fluorochrome Stain Viral Testing 9CFR 113.53c [113.46, 113.47] Cytopathic Agents Not Detected Not Detected Hemadsorbing Agents Not Detected Bovine Adenovirus Not Detected Bovine Parvovirus Not Detected Not Detected Bovine Parvovirus Not Detected Not Detected Bovine Respiratory Syncytial Virus Not Detected Not Detected Rabies Virus Not Detected Not Detected Recovirus Not Detected Not Detected Not Detected Recovirus Not Detected Not Detected Not Detected Rabies Virus Not Detected Not Detected Not Detected Recovirus Not Detected Not Detected Not Detected Not Detected Recovirus Not Detected Not Detect	Sterility	USP <71>		
Mycoplasma Barile and Kern & Hoechst Fluorochrome Stain Viral Testing 9CFR 113.53c [113.46, 113.47] Cytopathic Agents Hemadsorbing Agents Hemadsorbing Agents Fluorochrome Stain Not Detected Not Detected Not Detected Mot Detected Extraneous Viruses (FAb) Bluetongue Virus Bovine Adenovirus Bovine Parvovirus Bovine Parvovirus Bovine Respiratory Syncytial Virus Respiratory Syncytial Virus Revirus Revirus Revirus Revirus Revirus Revirus Revirus Flectrophoretic Pattern Cellulose Acetate Electrophoresis Detected Normal Osmolality USP <785> & EP 2.2.35 Biochemistry Testing Albumin Test and Report Test and Report SOUL AST (SGOT) Test and Report At U/L GGT Chemistry Analyzer Vota Detected Not Detected Not Detected Not Detected Normal Normal Normal SOUN SOURCE SOUL Test and Report Test and Re	Bacteria		No Growth	No Growth
Fluorochrome Stain Viral Testing 9CFR 113.53c [113.46, 113.47] Cytopathic Agents Not Detected Not Detected Hemadsorbing Agents Not Detected Not Detected Extraneous Viruses (FAb) Bluetongue Virus Not Detected Not Detected Not Detected Bovine Adenovirus Not Detected Not Detected Bovine Parvovirus Not Detected Not Detected Bovine Respiratory Syncytial Virus Not Detected Not Detected Not Detected Bovine Respiratory Syncytial Virus Not Detected Not Detected Rabies Virus Not Detected Not Detected Not Detected Recovirus Virus Not Detected Not Detected Not Detected Recovirus Not Detected Not Detected Not Detected Recovirus Virus Not Detected Not Detect	Fungi		No Growth	No Growth
Cytopathic Agents Not Detected Hemadsorbing Agents Not Detected Not Detected Extraneous Viruses (FAb) Bluetongue Virus Not Detected Not Detected Bovine Adenovirus Not Detected Not Detected Bovine Parvovirus Not Detected Not Detected Bovine Parvovirus Not Detected Not Detected Bovine Respiratory Syncytial Virus Not Detected Not Detected Rabies Virus Not Detected Not Detected Reovirus Not Detected Not Detected Not Detected Not Detected Reovirus Not Detected Not Detected Not Detected Not Detected Not Detected Not Detected Reovirus Not Detected Not Detected Not Detected Not Detected Not Detected Not Detected Reovirus Not Detected Not D	Mycoplasma		Not Detected	Not Detected
Hemadsorbing Agents Extraneous Viruses (FAb) Bluetongue Virus Bluetongue Virus Bovine Adenovirus Bovine Parvovirus Bovine Parvovirus Bovine Respiratory Syncytial Virus Rabies Virus Reovirus Not Detected Not Detected	Viral Testing	9CFR 113.53c [113.46, 113.47]		
Extraneous Viruses (FAb) Bluetongue Virus Bluetongue Virus Bovine Adenovirus Not Detected Bovine Parvovirus Not Detected Bovine Parvovirus Not Detected Not Detected Bovine Viral Diarrhea (Cytopathic) Bovine Respiratory Syncytial Virus Robies	Cytopathic Agents		Not Detected	Not Detected
Bluetongue Virus Bovine Adenovirus Bovine Adenovirus Bovine Parvovirus Bovine Respiratory Syncytial Virus Bovine Parvovirus Bovine Par	Hemadsorbing Agents		Not Detected	Not Detected
Bovine Adenovirus Bovine Parvovirus Bovine Parvovirus Not Detected Bovine Parvovirus Not Detected Not Detect	Extraneous Viruses (FAb)			
Bovine Parvovirus Bovine Viral Diarrhea (Cytopathic) Bovine Respiratory Syncytial Virus Rabies Virus Revoirus R	Bluetongue Virus		Not Detected	Not Detected
Bovine Viral Diarrhea (Cytopathic) Bovine Respiratory Syncytial Virus Rabies Virus Reovirus Reovirus Reovirus Revirus	Bovine Adenovirus		Not Detected	Not Detected
Bovine Respiratory Syncytial Virus Not Detected Rabies Virus Not Detected Rabies Virus Not Detected Not Detected Reovirus Not Detected Not Detected Not Detected Not Detected Not Detected Not Detected Physical Testing Electrophoretic Pattern Cellulose Acetate Electrophoresis Normal Normal Osmolality USP <785> & EP 2.2.35 260 – 350 mOsm/kg 309 mOsm/kg pH USP <791> & EP 2.2.3 6.5 – 8.5 7.23 Biochemistry Testing Albumin Test and Report 2.0 g/dL Alkaline Phosphatase Test and Report 5 U/L ALT (SGPT) Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L 5 U/L Billirubin, Total Test and Report 0.2 mg/dL Test and Report 0.2 mg/dL BUN	Bovine Parvovirus		Not Detected	Not Detected
Rabies Virus Reovirus Not Detected Not Detec	Bovine Viral Diarrhea (Cytopathic)		Not Detected	Not Detected
Reovirus Physical Testing Electrophoretic Pattern Cellulose Acetate Electrophoresis Normal Normal Normal Normal Osmolality USP <785> & EP 2.2.35 Dischemistry Testing Albumin Alkaline Phosphatase Alkaline Phosphatase ALT (SGPT) AST (SGOT) GGT Chemistry Analyzer Chemistry Analyzer Not Detected Not Detecte	Bovine Respiratory Syncytial Virus		Not Detected	Not Detected
Physical Testing Electrophoretic Pattern Cellulose Acetate Electrophoresis Normal Normal Osmolality USP <785> & EP 2.2.35 Biochemistry Testing Albumin Alkaline Phosphatase ALT (SGPT) AST (SGOT) GGT Chemistry Analyzer Chemistry Analyzer Electrophoretic Pattern Cellulose Acetate Electrophoresis Normal	Rabies Virus		Not Detected	Not Detected
Electrophoretic Pattern Cellulose Acetate Electrophoresis Normal Normal Osmolality USP <785> & EP 2.2.35 260 – 350 mOsm/kg pH USP <791> & EP 2.2.3 6.5 – 8.5 7.23 Biochemistry Testing Albumin Test and Report 2.0 g/dL Alkaline Phosphatase Test and Report 229 U/L ALT (SGPT) Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L 5 U/L Bilirubin, Total BUN Test and Report 0.2 mg/dL Test and Report 20 mg/dL	Reovirus		Not Detected	Not Detected
Osmolality USP <785> & EP 2.2.35 260 - 350 mOsm/kg 309 mOsm/kg pH USP <791> & EP 2.2.3 6.5 - 8.5 7.23 Biochemistry Testing Albumin Test and Report 2.0 g/dL Alkaline Phosphatase Test and Report 229 U/L ALT (SGPT) Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L	Physical Testing			
pH USP <791> & EP 2.2.3 6.5 - 8.5 7.23 Biochemistry Testing Albumin Test and Report 2.0 g/dL Alkaline Phosphatase Test and Report 229 U/L ALT (SGPT) Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L 5 U/L Bilirubin, Total Test and Report 0.2 mg/dL BUN	Electrophoretic Pattern	Cellulose Acetate Electrophoresis	Normal	Normal
Biochemistry Testing Albumin Test and Report 2.0 g/dL Alkaline Phosphatase Test and Report 229 U/L ALT (SGPT) Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L 5 U/L Bilirubin, Total Test and Report 0.2 mg/dL BUN Test and Report 20 mg/dL	Osmolality	USP <785> & EP 2.2.35	260 - 350 mOsm/kg	309 mOsm/kg
Albumin Test and Report 2.0 g/dL Alkaline Phosphatase Test and Report 229 U/L ALT (SGPT) Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L 5 U/L Bilirubin, Total Test and Report 0.2 mg/dL BUN Test and Report 20 mg/dL	pH	USP <791> & EP 2.2.3	6.5 - 8.5	7.23
Alkaline Phosphatase Alkaline Phosphatase Test and Report Test and Report 5 U/L AST (SGOT) Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L Test and Report 0.2 mg/dL BUN Test and Report 20 mg/dL	Biochemistry Testing			
ALT (SGPT) AST (SGOT) Test and Report Test and Report 44 U/L GGT Chemistry Analyzer <10 U/L Test and Report 0.2 mg/dL BUN Test and Report 20 mg/dL	Albumin		Test and Report	2.0 g/dL
AST (SGOT) GGT Chemistry Analyzer Chemistry	Alkaline Phosphatase		Test and Report	229 U/L
GGT Chemistry Analyzer <10 U/L 5 U/L Bilirubin, Total Test and Report 0.2 mg/dL BUN Test and Report 20 mg/dL	ALT (SGPT)		Test and Report	5 U/L
Bilirubin, Total Test and Report 0.2 mg/dL BUN Test and Report 20 mg/dL	AST (SGOT)		Test and Report	44 U/L
BUN Test and Report 20 mg/dL	GGT	Chemistry Analyzer	<10 U/L	5 U/L
0, 1	Bilirubin, Total		Test and Report	0.2 mg/dL
Calcium Test and Report 13.4 mg/dL	BUN		Test and Report	20 mg/dL
	Calcium		Test and Report	13.4 mg/dL



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BenchMark™ Fetal Bovine Serum

(Catalog Number 100-106)

Lot Number: A424065

Test	Methodology	Specification	Analysis
Chloride		Test and Report	99 mmol/L
Cholesterol		Test and Report	29 mg/dL
Cortisol		Test and Report	<0.20 µg/dL
Creatinine		Test and Report	2.8 mg/dL
Glucose		Test and Report	67 mg/dL
IgG	ELISA	<0.300 mg/mL*	0.0836 mg/mL
Insulin		Test and Report	8.06 μU/mL
Iron, Serum		Test and Report	168 μg/dL
Phosphorus		Test and Report	9.2 mg/dL
Potassium		Test and Report	10.8 mmol/L
Progesterone		Test and Report	<0.1 ng/mL
Protein, Total	USP <1057> & EP 2.5.33	2.5 - 6.0 g/dL	3.5 g/dL
Sodium		Test and Report	136 mmol/L
Testosterone		Test and Report	0.01 ng/mL
T3		Test and Report	79.9 ng/dL
T4		Test and Report	20.0 μg/dL
Triglycerides		Test and Report	62 mg/dL
Uric Acid		Test and Report	0.9 mg/dL

Our fetal bovine serum meets all USDA requirements and has passed ante and post-mortem inspection. 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.

Korvina Nicewonger	17MAR2025	
Name	Date	
Quality Control Lead Title		