

# CERTIFICATE OF ANALYSIS

# NorthBio

## FETAL BOVINE SERUM

Cell Culture Grade

Canadian Origin

Lot # : SF67117

Catalog # : NBSF-701

Lot Expiry : September/ 2011

| Test                            | Test Method                        | Specification                   | Result                          |
|---------------------------------|------------------------------------|---------------------------------|---------------------------------|
| <b>Sterility and Endotoxin</b>  |                                    |                                 |                                 |
| Sterility                       | USP <71>                           | No evidence of microbial growth | No evidence of microbial growth |
| Mycoplasma                      | Large Volume Direct Culture        | Not Detected                    | Not Detected                    |
| Mycoplasma                      | FDA Points to Consider 1993        | Not Detected                    | Not Detected                    |
| Endotoxin                       | USP <85> LAL Gel Clot              | < 10 EU/ml                      | 0.84 EU/ml                      |
| <b>Viral Safety Testing</b>     |                                    |                                 |                                 |
| BVD                             | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| HA                              | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| CPE                             | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| Bovine Parvo                    | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| Bovine Adeno 3                  | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| Bovine Adeno 5                  | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| BRSV                            | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| REO Virus                       | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| Rabies                          | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| Blue Tongue                     | 9 CFR 113.53                       | Not Detected                    | Not Detected                    |
| BVD Antibody                    | Serum Neutralization               | As Reported                     | < 1:1                           |
| <b>Biochemistry</b>             |                                    |                                 |                                 |
| Total Protein                   | Biuret                             | 30 – 45 g/L                     | 42 g/L                          |
| Albumin                         | Gel Electrophoresis                | As Reported                     | 31 g/L                          |
| Globulins                       | Gel Electrophoresis                | As Reported                     | 11 g/L                          |
| Bilirubin                       | Diazo                              | As Reported                     | 1.07 µmol/L                     |
| ALT                             | Int'l Fed.Clinical Chemistry       | As Reported                     | 6 U/L                           |
| AST                             | Int'l Fed. Clinical Chemistry      | As Reported                     | 15 U/L                          |
| LDH                             | Gay's Lactate                      | As Reported                     | 341 U/L                         |
| Cholesterol                     | Cholesterol esterase/oxidase/perox | As Reported                     | 0.4 mmol/L                      |
| Glucose                         | Glucose oxidase/peroxidase         | As Reported                     | 1.65 mmol/L                     |
| Urea                            | Urease/glutamate dehydrogenase     | As Reported                     | 3.28 mmol/L                     |
| Creatinine                      | Alkaline Picric Acid               | As Reported                     | 174 µmol/L                      |
| Sodium                          | Ion Selective Electrode            | As Reported                     | < 100 mmol/L                    |
| Potassium                       | Ion Selective Electrode            | As Reported                     | 6.0 mmol/L                      |
| Calcium                         | Cresolphthalein Complexone         | As Reported                     | 1.95 mmol/L                     |
| Phosphorus                      | Ammonium Molybdate                 | As Reported                     | 1.52 mmol/L                     |
| Osmolality                      | Freezing Point Depression          | 280 – 340 mOsm/Kg               | 310 mOsm/Kg                     |
| Serum Identity                  | Ouchterlony                        | Bovine                          | Bovine                          |
| IgG                             | Elisa                              | < 250 mg/mL                     | 108 mg/L                        |
| Hemoglobin                      | Spectrophotometric                 | ≤ 20.0 mg/dL                    | 9.0 mg/dL                       |
| pH                              | Potentiometric                     | 6.80 – 8.20                     | 7.0                             |
| Specific Gravity                | Weight / Volume                    | ≥ 1.010 g/mL                    | 1.020 g/mL                      |
| ALP                             | Colorimetric                       | As Reported                     | 254 U/L                         |
| GGT                             | Enzymatic Colorimetric             | As Reported                     | 4 U/L                           |
| Chloride                        | Indirect ISE                       | As Reported                     | 55 mmol/L                       |
| Uric Acid                       | Enzymatic Colorimetric             | As Reported                     | 95 mmol/L                       |
| Triglyceride                    | Enzymatic                          | As Reported                     | 0.35 mmol/L                     |
| <b>Cell Culture Performance</b> |                                    |                                 |                                 |
| Plating Efficiency              | Diploid Cell Line                  | Pass                            | Pass                            |
| Population Dblg                 | Diploid Cell Line                  | Pass                            | Pass                            |
| Cell Toxicity                   | Diploid Cell Line                  | None                            | None                            |
| Growth Promotion                | Diploid Cell Line                  | ≥ 75 % of in house control      | 94 %                            |
| Appearance                      | Visual                             | Clear yellow-amber              | Complies                        |

### Statement of Origin

THIS SERUM HAS BEEN DERIVED FROM BLOOD ASEPTICALLY COLLECTED IN APPROVED ABBATOIRS. THE SERUM WAS ASEPTICALLY PROCESSED AND FILTER STERILIZED IN CANADA IN A FACILITY REGISTERED WITH MEDICAL DEVICES (U.S.) FOLLOWING GUIDELINES OF F.D.A. AND H.P.F.B. (CANADA). THE COUNTRY OF ORIGIN OF THE CRUDE BLOOD (DONOR COW) IS CANADA

SEPTEMBER 10, 2008

DATE

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