

# SPECIFICATIONS: FLUXERGY TEST KIT

## ENVIRONMENTAL SALMONELLA

**Background:** *Salmonella* is a leading cause of enterocolitis in susceptible horses. Clinical cases range from asymptomatic to acute and severe diarrhea to death. Further, it is possible for disease outbreaks and population epidemics to occur depending on the organism, host and degree of exposure. It is also possible for subclinical shedders to endanger the health of hospitalized patients and clinical personnel. It is thus recommended that PCR be used for rapid and specific pathogen detection to maintain biosecurity. Microbiological culture is typically used in tandem as standard of care due to only small concentrations of *Salmonella spp.* commonly being present. This Fluxergy assay targets a conserved gene responsible for invasion of epithelial cells by all pathogenic strains of *Salmonella*. Fluxergy further offers a 12-hour incubation buffer that can be used with the Fluxergy *Salmonella spp.* assay to ensure absence or presence of pathogen.



- ✓ Reduce Central Lab Fees and Logistics
- ✓ Stall-side care
- ✓ Get Fast, Accurate Results that can Improve Decision Making
- ✓ Minimal hands-on time per sample

### Assay Specifications

Test Type	RT-PCR, Direct
Time to Result	~1 hour
Sample Preparation	16 hours for enrichment, ~3 min from reagent thaw*
Sample Type	Environmental Swab
Compatible Enrichments	Selenite Cystein Broth
Required Sample Volume	14µL of Selenite Cystein Broth
Gene Targets	<i>Salmonella Spp.</i> InvA
LOD	1 CFU/mL Post 16-hour Enrichment
Reader Compatibility	Fluxergy Analyzer

## SPECIFICATIONS: FLUXERGY TEST KIT

### ENVIRONMENTAL SALMONELLA



Download more here!

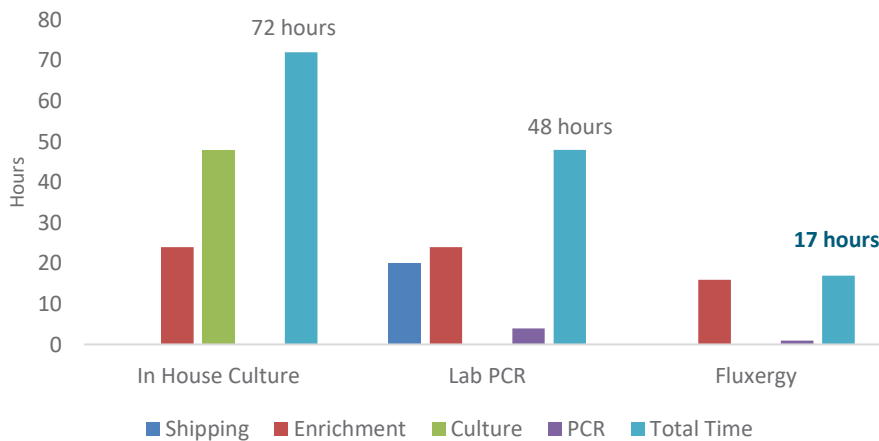
#### Why is Biosecurity Important?

- *Salmonella* is a zoonotic organism
- Prevalence of *Salmonella* shedding ranges from 1-5%
- Significant economic consequences if an outbreak were to occur
- Reduce risk of hospital acquired infection and provide proof of compliance

#### From Dr. Nicola Pusterla, DVM, PhD, DACVIM, DAVDC- Equine:

*"In an environment that is loaded with enteric organisms, you can imagine what's going to happen. If these animals contract infection and develop clinical Salmonellosis, not all of them will actually survive so that puts the animal at risk and then increases the hospitalization costs."*

#### Current Methods vs Fluxergy



#### Stall-Side Benefits

- ✓ Save 1.5 days for Time to Result
- ✓ Faster Stall Turnover
- ✓ Better Biosecurity
- ✓ Pool Testing to Save Cost

#### How to Test for Salmonella at Your Practice

Fluxergy has developed a simple workflow to replace microbiological culture or sending environmental samples to the lab.



1. Swab stall or drain



2. Enrich sample overnight



3. Run PCR test in 1 hour

# ASSAY PERFORMANCE

## ENVIRONMENTAL SALMONELLA

### Analytical Reactivity

This study is designed to assess the performance of Fluxergy PCR *Salmonella* Assay with *Salmonella* serotypes. Specific serotypes were selected due to their clinical relevance. A total of 20 serotypes were tested on the Fluxergy platform.

Organisms	Result	Concentration Tested
<i>Salmonella enterica</i> subsp. <i>enterica</i> , ATCC® 6994™ (Serovar Typhimurium)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , A36 (Serovar Typhimurium)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , 15/5 (Serovar Abortusovis)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , G4639 (Serovar Montevideo)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , Strain IN01 (Serovar Tennessee)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , 9640 (Serovar Dublin)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , SARA23 (CDC B1722) (Serovar Saint Paul)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , SL473 (CVM19633) (Serovar Schwarzengrund)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , SL475 (CVM29188) (Serovar Kentucky)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , SL485 (CVM35947) (Serovar Hadar)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , SL491 (CVM36357) (Serovar Virchow)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , 2004 Pennsylvania Tomato Outbreak, Serovar Anatum, Isolate 3	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , 2004 Pennsylvania Tomato Outbreak, Serovar Javiana, Isolate 8	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , 2004 Pennsylvania Tomato Outbreak, Serovar Muenchen, Isolate 3	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , 2004 Pennsylvania Tomato Outbreak, Serovar Thompson, Isolate 1	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , Hopkins 26 (Serovar Typhi)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , Ty2 (Serovar Typhi)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , ATCC® 9150™ (Serovar Paratyphi-A)	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>diarizonae</i> , CDC 01-0005	Pos (3/3)	100 copies/rxn card
<i>Salmonella enterica</i> subsp. <i>enterica</i> , BL6802 (Serovar Typhi)	Pos (3/3)	100 copies/rxn card

### LOD

*Salmonella* spp. was serially diluted in negative pooled environmental swab matrix down to 1CFU/mL. 1mL of 1CFU/mL was spiked into BD BBL™ Mycoflask™ Selenite Cystine Broth Prepared Media (BD 297711). Culture was incubated (G-Biosciences Incubator Shaker overnight at 37°C for 16 hours. The **LOD of 1 CFU/mL** was confirmed by detecting > 95% of 20 replicates tested.

# ASSAY PERFORMANCE

## ENVIRONMENTAL SALMONELLA



Download more here!

### Cross-Reactivity Testing

Cross Reactivity of the Fluxergy Environmental *Salmonella* Test Kit was evaluated by wet-lab testing using the Fluxergy Analyzer. A panel of 23 microorganisms were tested at a concentration of  $1 \times 10^5$  copies/mL. **All organisms tested negative** in triplicate.

Study	Organisms	Results	Concentration Tested
Cross-Reactivity	Enterococcus faecalis B3119	Negative	1+E5 copies/mL
Cross-Reactivity	Escherichia coli KTE181	Negative	1+E5 copies/mL
Cross-Reactivity	Klebsiella oxytoca MIT 10-5244	Negative	1+E5 copies/mL
Cross-Reactivity	Acinetobacter radioresistens WC-A-157	Negative	1+E5 copies/mL
Cross-Reactivity	Micrococcus luteus SK58	Negative	1+E5 copies/mL
Cross-Reactivity	Burkholderia pyrrocinia 2327	Negative	1+E5 copies/mL
Cross-Reactivity	Enterococcus faecium TX1330	Negative	1+E5 copies/mL
Cross-Reactivity	Pseudomonas aeruginosa MRSN 315	Negative	1+E5 copies/mL
Cross-Reactivity	Shigella sp Strain D9	Negative	1+E5 copies/mL
Cross-Reactivity	Citrobacter portucalensis 4 7 47CFAA	Negative	1+E5 copies/mL
Cross-Reactivity	E coli Serotype O157 H7	Negative	1+E5 copies/mL
Cross-Reactivity	Listeria monocytogenes	Negative	1+E5 copies/mL
Cross-Reactivity	Streptococcus agalactiae	Negative	1+E5 copies/mL
Cross-Reactivity	Listeria ivanovii WSLC3009	Negative	1+E5 copies/mL
Cross-Reactivity	Citrobacter freundii	Negative	1+E5 copies/mL
Cross-Reactivity	Staphylococcus epidermidis	Negative	1+E5 copies/mL
Cross-Reactivity	Acinetobacter baumannii	Negative	1+E5 copies/mL
Cross-Reactivity	Shigella dysenteriae	Negative	1+E5 copies/mL
Cross-Reactivity	Bacillus subtilis	Negative	1+E5 copies/mL
Cross-Reactivity	Bacillus cereus	Negative	1+E5 copies/mL
Cross-Reactivity	Serratia sp Ag2	Negative	1+E5 copies/mL
Cross-Reactivity	Strep pyogenes MGAS9882	Negative	1+E5 copies/mL
Cross-Reactivity	Genomic DNA from Yersinia pestis, Strain PB6	Negative	1+E5 copies/mL