

CASE STUDY: DETECTION OF *S. EQUI* IN NASAL SECRETIONS

The independent validation was conducted at the Equine Infectious Disease Research Laboratory, School of Veterinary Medicine, University of California at Davis. In a quantitative real-time PCR assay, a positive detection of target nucleic acid (e.g. *S. equi* DNA) is confirmed by accumulation of a fluorescent signal after the specific target DNA is amplified. The Fluxergy Analyzer is a stall-side (e.g. point-of-care) platform for real-time PCR that allows for molecular testing within 45 minutes.

*The Fluxergy Analyzer is for Research Use Only (RUO) and is not for use in diagnostic procedures. The Fluxergy Analyzer is not yet cleared by USDA for in vitro diagnostic use. None of these statements have been endorsed by the USDA.

Table 1. Definition of CT in a specific *S. equi* quantitative real-time PCR

S. equi RT qPCR CT	Interpretation
None	Negative (<i>S. equi</i> DNA is not present)
< 32	Strong positive (abundant amount of <i>S. equi</i> DNA present)
32-35	Moderate positive (moderate amount of <i>S. equi</i> DNA present)
> 35	Weak positive (small amount of <i>S. equi</i> DNA present)

Table 2. Clinical samples to be tested characterized by RT qPCR results.

Sample Group	RT qPCR Results	n
1	Negative <i>S. equi</i> , negative <i>S. zoo</i>	42
2	Negative <i>S. equi</i> , positive <i>S. zoo</i>	40
3	Strong positive <i>S. equi</i> (Low CT - 27-32)	42
4	Moderate positive <i>S. equi</i> (Medium CT - 32-35)	49
5	Weak positive <i>S. equi</i> (High CT - 35-39)	59

Table 3. Agreement between RT qPCR and Fluxergy PCR.

Fluxergy <i>S. equi</i> PCR Assay	RT qPCR <i>S. equi</i> Assay		Total
	Positive	Negative	
Positive	126	0	126
Negative	16	73	89
Total	142	73	215
Sensitivity	88.7	Specificity	100% (73/73)
	95% [CI] 82.4%, 93.4%)		95% [CI] 95.1%, 100%)

Table 4. Agreement by sample group.

Sample Group	Fluxergy <i>S. equi</i> PCR Assay		Agreement
	Positive	Negative	
1 (neg)		38	100%
2 (<i>S. zoo</i> positive)	-	35	100%
3 (strong <i>S. equi</i> positive)	42	-	100%
4 (moderate <i>S. equi</i> positive)	49	-	100%
5. (weak <i>S. equi</i> positive)	35	16	71%

The Fluxergy PCR showed 100% agreement with RT qPCR in groups 1-4. Group 5, for samples of low bacterial load with a CT > 35, showed an overall agreement of 71%.