

Mastitis DNA Panels

Contagious 3 Mastitis Panel

For detection of: *Staphylococcus aureus*, *Streptococcus agalactiae* and *Mycoplasma bovis*

Complete 16 Mastitis Panel

For detection of: *Staphylococcus aureus*, *Staphylococcus* species, Staphylococcal beta-lactamase gene, *Corynebacterium bovis*, *Enterococcus* species, *Streptococcus agalactiae*, *Streptococcus dysgalactiae*, *Streptococcus uberis*, *Escherichia coli*, *Klebsiella* species, *Serratia marcescens*, *Mycoplasma bovis*, *Mycoplasma* species, *Prototheca* species, Yeast, *Arcanobacter pyogenes* and *Peptostreptococcus indolicus*

General condition information: Mastitis is most often caused by infectious pathogens that are divided into two groups based on their source: environmental and contagious. The three major contagious pathogens are *Staphylococcus aureus* (Staph. aureus), *Streptococcus agalactiae* (Strep. ag.), and *Mycoplasma bovis* (M. bovis). Contagious organisms are readily transmitted from cow-to-cow during the milking process, and generally cause long-term sub-clinical and clinical infections which often results in elevated bulk tank or herd average SCC scores. Environmental pathogens are generally transmitted from the environment (water, soil, manure) to cows and cause a variety of mastitis conditions including severe, acute mastitis that can result in death.

Results presentation (Value): The Mastitis DNA panels identify the presence of specific mastitis causing organisms in milk samples by use of real-time Polymerase Chain Reaction (PCR) technology. These tests determine the type of bacteria by identifying specific DNA sequences, which are not compromised by poor organism viability or antibiotic residues. Elimination of viability requirements results in fewer unidentifiable ('no growth') results than culture. Positive results are presented with a categorical assessment (+, ++, +++) as well as a 'Cycles-to-Threshold' (Ct) numeric value, which both give indications of the amount and type of bacterial DNA present in the sample. Ct values are a measurement of the length of time (cycles) necessary to detect target organisms (threshold). This value is inversely proportional to the amount of organism in the sample. The more organism present at the outset of the test; the more quickly and in fewer cycles the threshold is reached.

Results interpretation:

Positive values: Samples with CT values of 37 or less indicate presence of bacterial content and are reported as positive. Relative bacterial DNA content categories are classified as follows:

low	(+)
intermediate	(++)
high	(++++)

Positive Pools: In the event of a positive group/pool, additional testing may be performed to assist in identification of specific positive animals within a test-positive pooled sample. If multiple tests were performed, only the final result will be presented. Individual samples from pools that have positive Ct values (+, ++, +++) will be unpooled and retested upon request of the submitter. Follow-up testing is subject to normal testing fees.

Interpretation of Ct values from the Mastitis DNA Panels for each major contagious and environmental pathogen.

Target	Ct-value range for +++	Ct-value range for ++	Ct-value range for +
<i>Arcanobacter pyogenes</i> and <i>Peptostreptococcus (Peptoniphilus) indolicus</i>	<24	24-30	30.1-37
<i>Corynebacterium bovis</i>	<22	22-28	28.1-37
<i>Enterococcus</i> spp.	<24	24-28	28.1-37
<i>Escherichia coli</i>	<24	24-34	34.1-37
<i>Klebsiella</i> spp.	<24	24-32	32.1-37
<i>Mycoplasma bovis</i>	<22	22-32	32.1-37
<i>Mycoplasma</i> spp.	<20	20-30	30.1-37
<i>Prototheca</i> spp.	<21	21-31	31.1-37
<i>Serratia marcescens</i>	<31	31-34	34.1-37
Staphylococcal beta-lactamase gene	<25	25-30	30.1-37
<i>Staphylococcus aureus</i>	<24	24-30	30.1-37
<i>Staphylococcus</i> spp.	<24	24-31	31.1-37
<i>Streptococcus agalactiae</i>	<24	24-32	32.1-37
<i>Streptococcus dysgalactiae</i>	<22	22-30	30.1-37
<i>Streptococcus uberis</i>	<21	21-31	31.1-37
Yeast	<22	22-32	32.1-37

‡Classification of bacterial DNA content: (+) low, (++) intermediate, and (+++) high quantities.

Negative Values: Samples with values greater than 37 Ct do not meet the test criteria for positive samples, and therefore are indicated as Negative. Values for individual samples and specific organisms returning negative results are not listed, rather, identification only of negatives samples are indicated in the Comments section of the report.