This is an investigation into the validity of the somatic cell count (SCC) test as a diagnostic or survey tool to identify pathogen specific udder infections in cows when used on its own in composite cow milk samples. A SCC cut-off of 200 000 cells/ml is currently recommended by the National Mastitis Council (NMC). Sensitivity, specificity and predictive values were used to assess the validity of the somatic cell count test at the 200 000 cells/ml threshold and its ability to correctly identify pathogen specific udder infections in cows. This dataset contains micro-cytology results of 385 594 composite cow milk samples from 191 different mastitis pathogens.

Whilst over 100 different micro-organisms have been identified as causative agents of mastitis, only a few species of staphylococci, streptococci and Gram-negative organisms are of economic importance. In South Africa most cases of subclinical mastitis are caused by coagulase negative staphylococci (CNS), Staphylococcus aureus, Streptococcus agalactiae and Streptococcus uberis. The sensitivity of detecting mastitis pathogens at 200 000 cells/ml was low (<60%) and almost similar for all examined, indicating that SCC used at this threshold is not a good indicator of pathogen specific udder infections. Unlike sensitivity, specificity differed greatly between these pathogens. High specificity (>80%) was present when testing for Staphylococcus aureus, Streptococcus agalactiae and Streptococcus uberis, indicating that there was little differentiation between them and the pathogen negative milk samples.

**Table 1:** Sensitivity, specificity, positive predictive value and negative predictive value, all at 95% CI for bacteria comparing a SCC threshold of 200 against the culture as reference standard isolated from composite cow milk samples.

**Comparison of sensitivity and specificity when using a SCC cut-off of 200 000 cells/ml to detect 19 different mastitis pathogens in composite cow milk samples.**