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Two splice variants of the bovine lactoferrin gene identified in *Staphylococcus aureus* isolated from mastitis in dairy cattle

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ABSTRACT. Bovine lactoferrin (bLF) is a member of the transferrin family; it plays an important role in the innate immune response. We identified novel splice variants of the *bLF* gene in mastitis-infected and healthy cows. Reverse transcription-polymerase chain reaction (RT-PCR) and clone sequencing analysis were used to screen the splice variants of the *bLF* gene in the mammary gland, spleen and liver tissues. One main transcript corresponding to the *bLF* reference sequence was found in three tissues in both healthy and mastitis-infected cows. Quantitative real-time PCR analysis showed that the expression levels of the *LF* gene's main transcript were not significantly different in tissues from healthy versus mastitis-infected cows. However, the new splice variant, LF-AS2, which has the exon-skipping alternative splicing pattern, was only identified in mammary glands infected with *Staphylococcus aureus*. Sequencing analysis showed that the new splice variant was 251 bp in length, including exon 1, part of exon 2, part of exon 16, and exon 17. We conclude that *bLF* may play a role in resistance to mastitis through alternative splicing mechanisms.

Key words: Dairy cattle; Lactoferrin gene; Alternative splicing; Mastitis

