

**A SERIES OF *IN VITRO* STUDIES INVESTIGATING THE ROLE OF  
LACTOFERRIN IN CALF INNATE IMMUNITY**

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**ABSTRACT**

The central hypothesis of our studies is that bovine colostrum lactoferrin (LF) will impact the health of the bovine by reducing the effects of lipopolysaccharide (LPS) on the host immune responses. Lipopolysaccharide or endotoxin is a component of the outer membrane of Gram-negative bacteria. This molecule has potent pro-inflammatory properties and acts on several immune cells within the host. Gram-negative infections contribute greatly to cattle morbidity and mortality rates. Lactoferrin will indirectly enhance innate immune function and modulate the host inflammatory responses. Our long-term goal is to improve productivity in the cattle industry by reducing morbidity and mortality among neonatal and juvenile calves.

Although some reports attribute the lethal effects of Gram-negative infections to endotoxemia and bacteremia, the contribution of the host's innate immune response is critical to the pathophysiology of disease. Given its many functions: iron chelation, immune modulation, anti-inflammatory and anti-endotoxin activity, LF may prove useful in attenuating LPS-induced systemic disease in cattle.