

**Lactoferrin modulates the biofilm formation and *bap* gene expression of methicillin-resistant *Staphylococcus epidermidis***

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Affiliations expand PMID: 36265186 - DOI: [10.1139/cjm-2022-0135](https://doi.org/10.1139/cjm-2022-0135)

**Abstract**

Lactoferrin is an innate glycoprotein with broad antibacterial and antibiofilm properties. Lactoferrin's autonomous antibiofilm activity against Gram-positive bacteria is postulated to involve the cell wall and biofilm components. Thus, the prevention of biomass formation and eradication of preformed biofilms by lactoferrin was investigated using a methicillin-resistant *Staphylococcus epidermidis* (MRSE) strain. Additionally, the ability of lactoferrin to modulate the expression of the biofilm-associated protein gene (*bap*) was studied. The *bap* gene regulates the production of biofilm-associated proteins responsible for bacterial adhesion and aggregation. In the in vitro biofilm assays, lactoferrin prevented biofilm formation and eradicated established biofilms for up to 24 and 72 hours, respectively. Extensive eradication of MRSE biofilm biomass was accompanied by the significant upregulation of *bap* gene expression. These data suggest the interaction of lactoferrin with the biofilm components and cell wall of MRSE, including the biofilm-associated protein.