

## Could cow's own lactic acid bacteria serve as a tool to prevent and/or treat mastitis?

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### Facts about mastitis in dairy cows

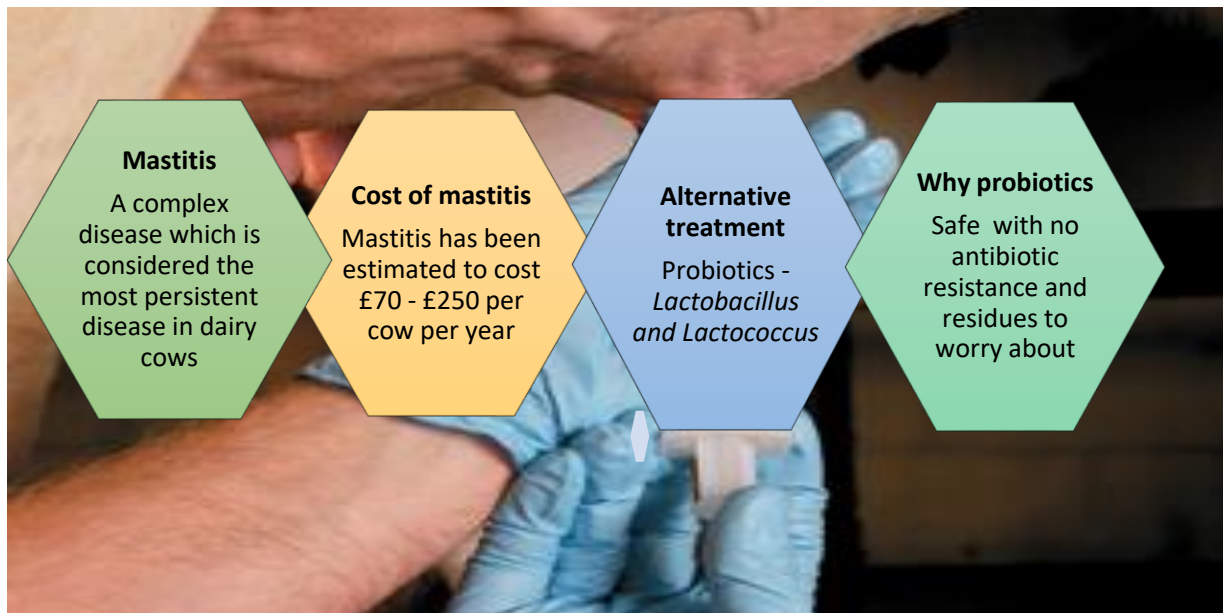
- A complex disease which is considered the most persistent disease in dairy cows and is of great economic importance.
- Treatment of the disease is normally by antibiotics which can lead to antibiotic residues in the milk and subsequent economic losses due to the need to discard milk during and post-treatment.
- The cost of mastitis varies widely where it has been estimated to cost £70 - £250 per cow per year.

### Why alternative treatment

- Milk from cows with sub-clinical infection can accidentally be mixed into bulk milk and thus enter the food chain, posing a threat to human health.
- Non-antibiotic mastitis prevention could reduce the costs associated with antibiotic therapy and would also relieve some of the pressure to limit the use of antibiotics which has been linked to drug resistant bugs.

### Examples of alternative treatment

Examples of alternatives approaches include use pf probiotics where a recent research has shown that the cow's own lactic acid bacteria, isolated from the bacteria in the mammary gland, could serve as a tool to prevent and/or treat mastitis.



## Findings from a study in Western France

A study carried out in Western France with the aim of isolating lactic acid bacteria from bovine mammary microbiota that exhibit beneficial properties that could be used for mastitis prevention or treatment. The study involved samples from 20 Holstein cows.

## Isolation of strains with high potential for mastitis prevention and treatment

### *Lactobacillus and Lactococcus strains of lactic acid bacteria*

Both strains showed high in-vitro adhesion and invasion capacity and were potential candidates that were able to compete with pathogens for the colonisation of mammary gland tissue with prolonged beneficial effects. Both bacteria showed inhibition effect on the 3 main mastitis pathogens- *Staphylococcus aureus*, *Escherichia coli* and *Streptococcus uberis*, making them good candidates to compete with pathogens for mammary gland colonisation. They exert their action by producing acids, hydrogen peroxide and bacteriocin-like compounds.

## Conclusion

Cows' mammary lactic acid bacteria could serve as a potential probiotic with efficacy in the treatment of mastitis. From the study it was evident that the pro-inflammatory properties of lactic acid bacteria could help stimulate the innate immune system and promote the clearance pathogens causing mastitis while the anti-inflammatory properties could contribute to reduce inflammation in the mammary system.

## References

Bouchard, D.S, Seridan, B., Saraoui, T, Rault, L., Germon, P., Gonzalez-Moreno, C., *et al.* (2015) Lactic Acid Bacteria Isolated from Bovine Mammary Microbiota: Potential Allies against Bovine Mastitis. *PLoS ONE* 10 (12).

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