Kansas State University Research Foundation
TECHNOLOGY LICENSING PROFILE

Subclinical Mastitis Diagnostic Assay

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Description: Researchers at Kansas State University are developing a fluorescence assay that has the potential to detect early signs of preclinical and subclinical mastitis in dairy cattle. Early detection of preclinical and subclinical mastitis could help milk producers more effectively detect bacterial infections in order to administer therapeutic intervention strategies to stop the spread of mastitis throughout their herd and keep individual animals in production.

Proteases are often released from leukocytes involved in acute or chronic inflammatory conditions such as mastitis, infections, arthritis, etc. This diagnostic assay is comprised of protease-sensitive cleavage sequences, which are used as linkers between two fluorophores (nanoparticles and/or organic or inorganic dyes). Optical (fluorescence) can be performed for quantitative determination of the proteases' activities. For preclinical or subclinical mastitis detection, only small amounts of milk (1-2 ml) per animal are required. Samples would be sent to a central location (for example, a veterinary health center) for analysis using fluorescent plate readers. It may be possible to test bulk milk samples to ascertain herd health status.

KSU is also developing a test strip to allow producers to detect subclinical mastitis on the farm. The advantages include extreme sensitivity and low cost.

Advantages: Advantages of this IP over previous methods:

- Rapid diagnostic
- Easy to use
- Inexpensive

Applications: This innovative technology can be used to:

- Detect otherwise undetectable early or chronic infections. For example, it could be used to detect preclinical or subclinical mastitis, or to otherwise assess milk quality.

Patent Status: Patent Pending

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