

innovations

from The University of Vermont

TITLE: TREATMENT OF STAPHYLOCOCCUS INFECTIONS

INVENTORS: A. John Bramley, Karen Plaut, David Kerr

DESCRIPTION: Infection of the mammary gland is a frequent problem for the dairy industry, and leads to estimated economic losses of \$184 per cow per year, or approximately \$2 billion/year in the U.S. Mastitis is transmitted from cow to cow at milking time. This invention provides methods and reagents for expressing novel proteins in mammalian cells that have anti-microbial, particularly anti-staphylococcal, activity. The invention provides altered genes, in which the naturally-occurring microbial sequences have been engineered to allow expression of active protein in desired mammalian cells or tissues. An altered gene has been modified in such a manner that the protein it encodes is not only produced in mammalian cells, but is secreted from those cells, so that a local concentration of anti-staphylococcal protein is created outside of the cells. Genes have also been altered so that the anti-microbial protein is expressed within cells that are sensitive to intracellular infection.

ADVANTAGES: Current therapies and preventative treatments for staphylococcal mastitis rely heavily on sterilization techniques, selective culling of animals with chronic recurring mastitis, and the use of β -lactam antibiotics. There has been little success with vaccines, and sterilization techniques have less than a 15% success rate. This invention provides a genetic approach to eliminate the problem, which now costs the dairy industry \$1.7 billion per year in reduced milk yield, reduced compositional quality, lower product quality, and increased veterinary cost.

PATENT STATUS: US Patent applied for 6/22/98, claims allowed

LICENSING STATUS: Worldwide rights available

CONTACT: Todd S. Keiller, Director, Technology Transfer University of Vermont

1 Pendulum Pass
Hopkinton, MA 01748

tel (508) 497-2497
fax (508) 497-0733
Todd.Keiller@uvm.edu