

GENE EXPRESSION PROFILE OF *AATK* IN MILK CELLS FROM DAIRY GYR COWS INFECTED WITH *STREPTOCOCCUS AGALACTIAE*

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Mastitis is characterized by the presence of an inflammatory response in the mammary gland caused by metabolic and physiological alterations, injuries or, more frequently, pathogenic microorganisms, being speed and efficiency of the host's immune response a crucial factor for establishment, persistence and severity of the infection. Associated with sanitary care, the selection of animals that are resistant to the disease and the incorporation of this trait into the herds seem to be a promising way to reduce problems caused by this disease. The genes involved in immune response have been suggested as strong candidates for the resistance phenotype and susceptibility to this disease. Therefore, by means of real time PCR technique it was evaluated the profile for the expression of *AATK* (apoptosis-associated tyrosine kinase) gene in milk cells of 17 Gyr cows artificially inoculated with a strain of *Streptococcus agalactiae*. Milk samples were collected before inoculation (hour 0) and 24 hours after inoculation. Total RNA was extracted from milk and the first strand of the cDNA was synthesized. Primers used to analyze *AATK* gene expression and both endogenous references (*RPLP0* - ribosomal protein large P0 - and *Ubiquitin*) were designed using *Primer Express* software (Applied Biosystem) based on sequences from *GenBank* database. Statistical analysis were performed using REST[®]2009 software, developed by M. Pfaffl (Technical University Munich) and Qiagen. Comparisons between gene expression levels indicated that on time 24, animals expressed 11.2 times more *AATK* than on time 0 ($p < 0.001$). It is known that damage to the mammary tissue can be induced by apoptosis or necrosis, and the *AATK* gene has a function related to apoptosis. The increase in the expression of this gene can indicate the induction of apoptosis in the mammary gland after experimental infection with *Strep. agalactiae*. Furthermore, the difference in the expression profile of this gene suggests that *AATK* possibly plays an important role in the mechanisms of resistance to bovine mastitis. The knowledge generated by studies of the expression of candidate genes can help in the selection of better adapted and more productive animals, enabling a reduced need to administer drugs, with consequent reduction of production costs and levels of contamination of dairy products and the environment. Financial Support: CNPq, CAPES, FAPEMIG and EMBRAPA/AGROFUTURO