



Comparative proteomic changes of differentially expressed whey proteins in clinical mastitis and healthy yak cows

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ABSTRACT. Under the traditional grazing system on the Qinghai-Tibetan Plateau, the amount of milk in domesticated yak (*Bos grunniens*) with clinical mastitis decreases and the milk composition is altered. To understand the mechanisms of mammary gland secreted milk and disease infection, changes in the protein composition of milk during clinical mastitis were investigated using a proteomic approach. Milk whey from yak with clinical mastitis was compared to whey from healthy animals with two-dimensional gel electrophoresis using a mass spectrometer. Thirteen protein spots were identified to be four differentially expressed proteins. Increases in the concentrations of proteins of blood serum origin, including lactoferrin, were identified in mastitic whey compared to normal whey, while concentrations of the major whey proteins, casocidin-I, a-lactalbumin, and b-lactoglobulin, were downregulated in mastitic whey. These results indicated significant differences in protein

expression between healthy yaks and those with clinical mastitis, and they may provide valuable information for finding new regulation markers and potential protein targets for the treatment of mastitis.

Key words: Mastitis; Milk proteins; Two-dimensional gel electrophoresis