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Production of a anti-MUC1 monoclonal antibody using a glutathione-S-transferase-MUC1 bacterial fusion protein.

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Muc1 mucin is found in a variety of epithelial tissue and is overexpressed in several epithelial cancer. Recently it is alsol reported that primary Hamster tracheal surface epithelial(HTSE) cells express Muc1 protein and cDNA encoding HTSE muc1 protein has been cloned. Although numerous monoclonal antibodies(mAbs) to human muncins, particularly Muc1 have been produced, no such antibodies to murine Muc1 have been described. We now describe monoclonal antibody, called mAb M1CT, produced to C-terminal region of HTSE Muc1 protein by immunising mice with a glutathion-s-transferase linked fusion protein. In this study, using this antibody(mAb M1CT) we investigated the effect of RA on the expression of Muc1 in HTSE cells. Retinoic acid(RA) plays an essential role in maintaining normal differentiation of tracheal epithelial cells. With RA-deficiency tracheocytes undergo squamous metaplasia, an abnormal differentiation that can be reversed by RA. We had primary culture of HTSE cells under different concentrations of RA. Culture was maintained until the direction of differentiation was determined. Then Western blot analysis with mAb M1CT was performed with the cell lysates from the culture. The expression of Muc1 protein was decreased in dose-dependent manner as the concentration of retinoic acid was decreased. Our result indicates that the expression of Muc1 protein is coordinately regulated with airway mucous cell differentiation by RA pathway. And the antibody, mAb M1CT, produced in this study should provide useful tool to study the expression of Muc1 mucin in differentiation process or disease.