

Subcloning the MAC-T Bovine Mammary Epithelial Cell Line: Morphology, Growth Properties, and Cytogenetic Analysis of Clonal Cells

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The objectives of the present study were 1) to determine the heterogeneity of the MAC-T cell line; 2) to examine whether homogeneous clones could be derived from MAC-T cells; and 3) to examine cell morphology, cytoskeletal characteristics, size, colony-forming ability, growth characteristics, β -casein production, response to oxytocin, and cytogenetic properties of the clones. Three clonal cells, designated CU-1, CU-2, and CU-3, were derived from MAC-T cells. CU-1 and CU-2 cells were morphologically homogeneous. CU-3 cells were heterogeneous and contained two distinct subtypes. All clones contained cytokeratin 14 and 18. CU-2 and CU-3 cells were 30 and 18% larger, respectively, than CU-1 cells. CU-1 cells did not grow in serum-free medium. Doubling times for MAC-T, CU-2, and CU-3 were 46, 48, and 78 h, respectively, in serum-free medium. MAC-T cells and clones constitutively expressed β -casein in culture ranging from .1 to .3 $\mu\text{g/ml}$ per 24 h. Cytogenetic analyses revealed Robertsonian translocations and isochromosomes in the clonal lines. We conclude that parental MAC-T cells are heterogeneous in morphology, growth, and cytogenetic characteristics.

Key Words: mammary epithelial cells • MAC-T cells • subcloning

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