

## In vitro model system for the study of milk protein secretion

Eric Chanat

## ▶ To cite this version:

Eric Chanat. In vitro model system for the study of milk protein secretion. Meeting of the COST action 825, 1996, Liège, Belgium. 1996. hal-02834502

## HAL Id: hal-02834502 https://hal.inrae.fr/hal-02834502

Submitted on 7 Jun2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers. L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## In vitro model system for the study of milk protein secretion

Eric CHANAT, Laboratoire de Biologie Cellulaire et Moléculaire, INRA, 78352 Jouyen-Josas cedex, France.

To study intracellular mechanisms of milk protein traffic to the cell surface and secretory vesicles biogenesis in mammary epithelial cells (MEC), we are establishing a in vitro system using the mouse MEC line HC11. HC11 cells grown on plastic, although heterogeneous, can easily be induced to synthesize ß casein (ßcn) in the presence of insulin, cortisol and PRL. When HC11 cells are grown on porous filters, they expressed  $\geq$ 10 times more ßcn. Milk proteins secreted by these cells were essentially found in the apical medium and identified by western blotting as lactoferrin and  $\gamma$ cn. Only a minor proportion of the cellular ßcn was found in the apical medium. Analysis by SDS-PAGE showed that ßcn from cells and medium migrated as a doublet of lower Mr. than the mature mouse milk ßcn. This increase in electrophoretic mobility suggested that this form had not underwent all post-translational modifications and was blocked in an early compartment of the secretory pathway. Consistent with this hypothesis, we observed by electron microscopy that the rough endoplasmic reticulum of these cells was highly dilated. In some experiments, HC11 cells also expressed  $\alpha$ cns and, interestingly enough, the mature form of Bcn was observed in addition to the Bcn doublet. The amount of mature  $\beta$ cn was found to be proportional to the level of expression of  $\alpha$ cns.