

Formation of casein micelle in mammary epithelial cell

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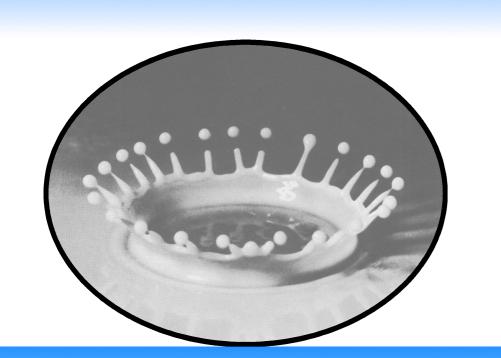
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Formation of casein micelle in mammary epithelial cell

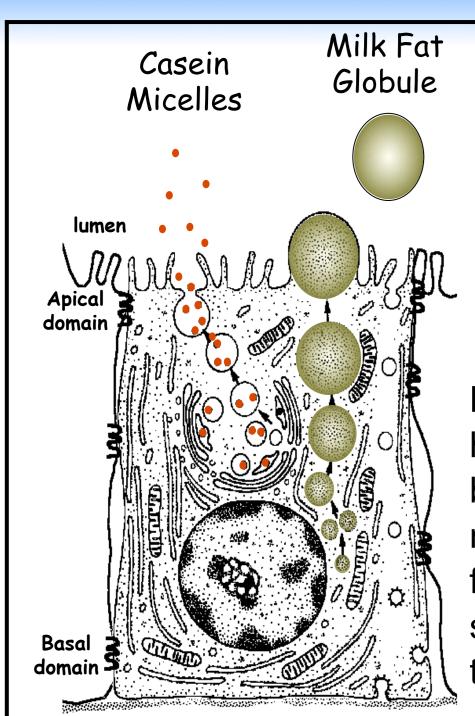


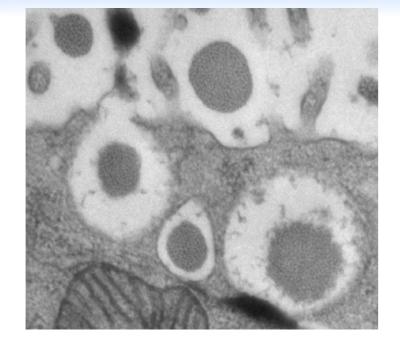
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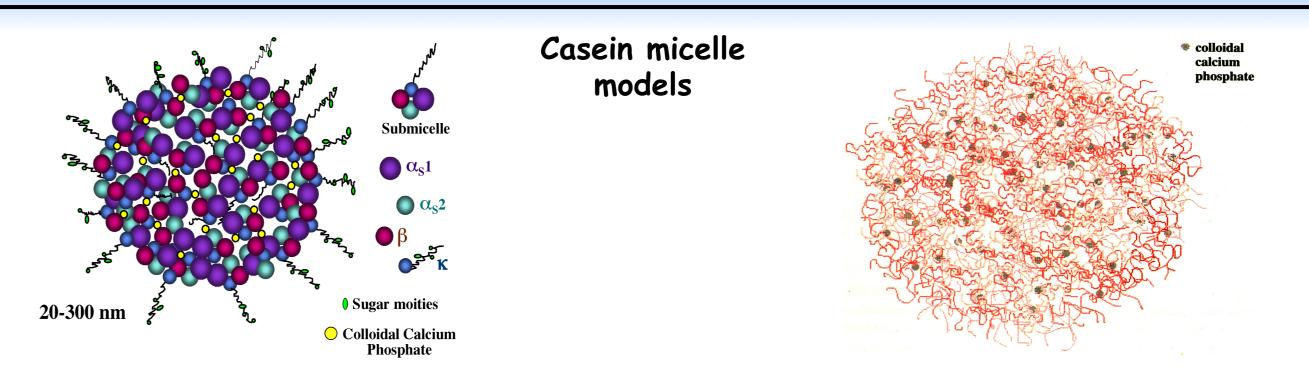






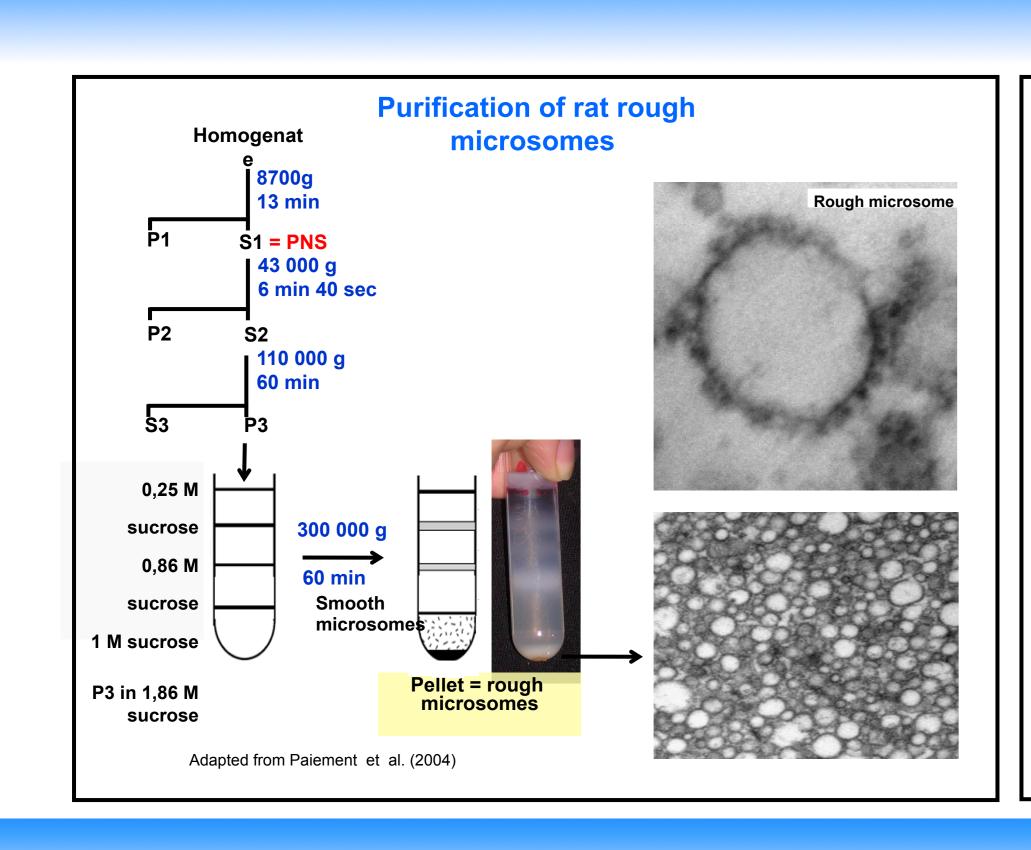
Casein micelle 100 nm

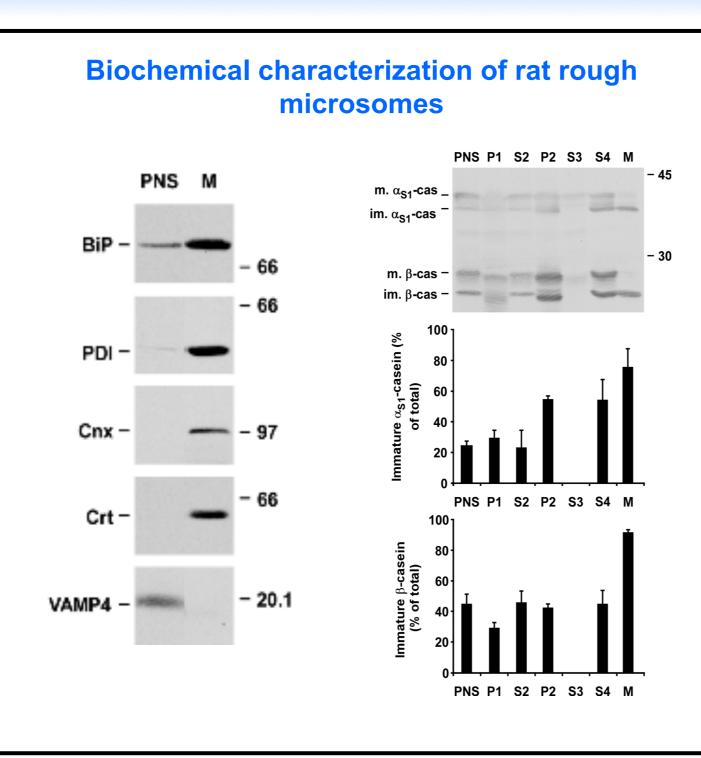
During lactation, mammary epithelial cells synthesize and secrete huge quantities of milk specific proteins, lipids and lactose. The biogenesis of milk supramolecular structures, casein micelles and milk fat globules, is initiated in the ER. These components ther follow independent intracellular trafficking pathways and milk supramolecular structures are released into the alveolar lumens of the mammary gland.

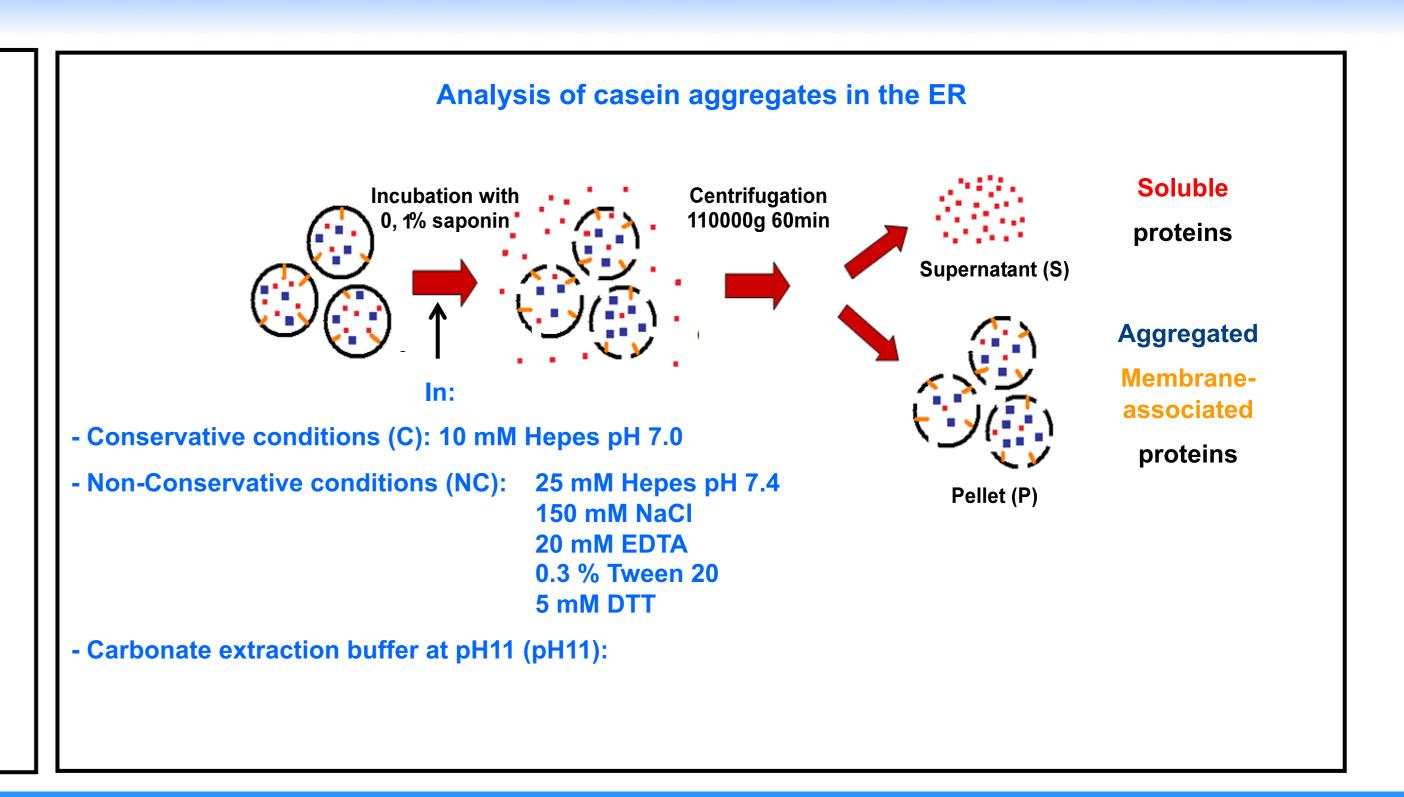


The intrinsic organisation and the mechanisms of casein micelle formation have not been fully established. The aggregation of the caseins appears to be initiated in the ER, and proceeds during their transport to the apical surface. To obtain information about the specific arrangement of the caseins in this structure and to characterize the interactions between the various components of the micelle, it is essential to study the dynamic of its elaboration within the secretory pathway.

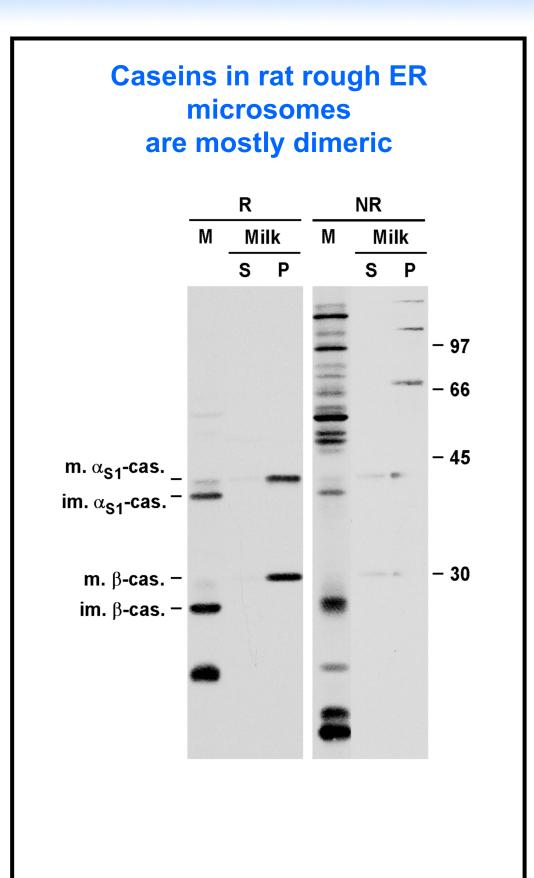
Materials and Methods

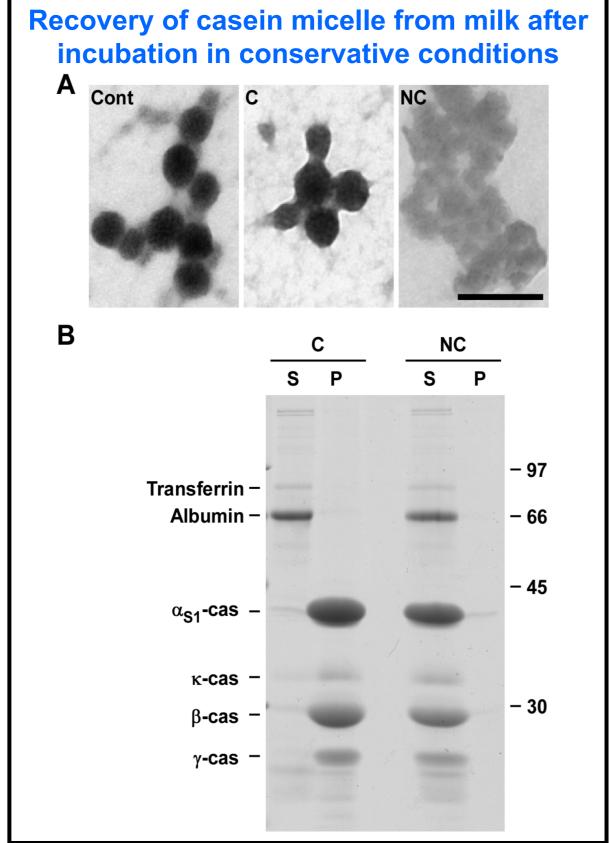


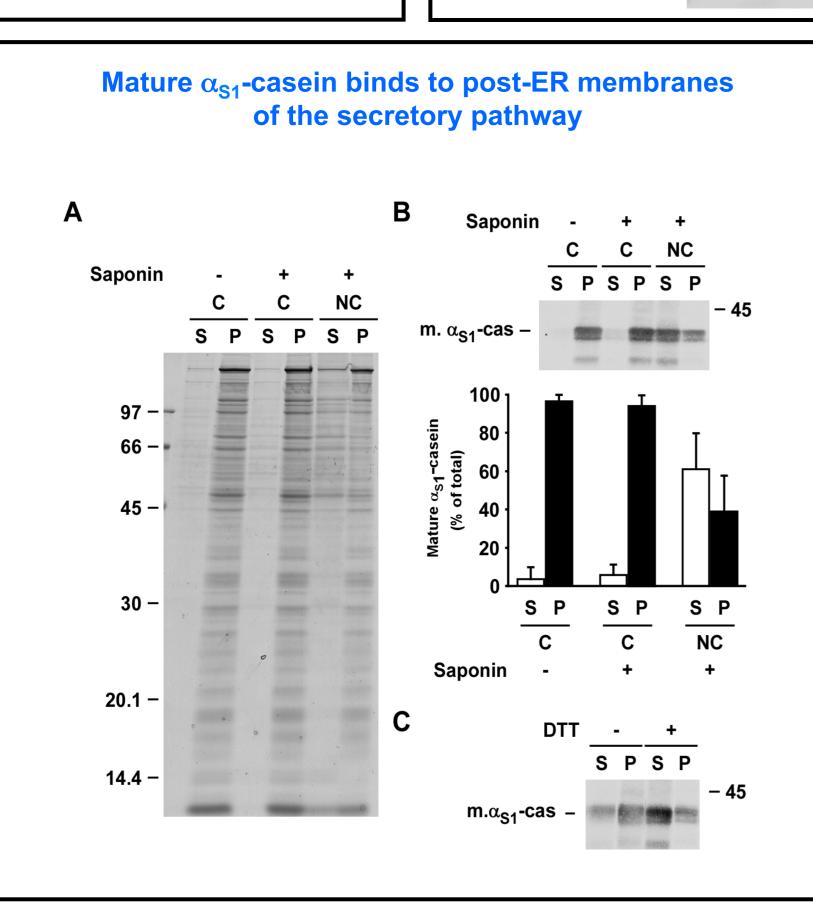


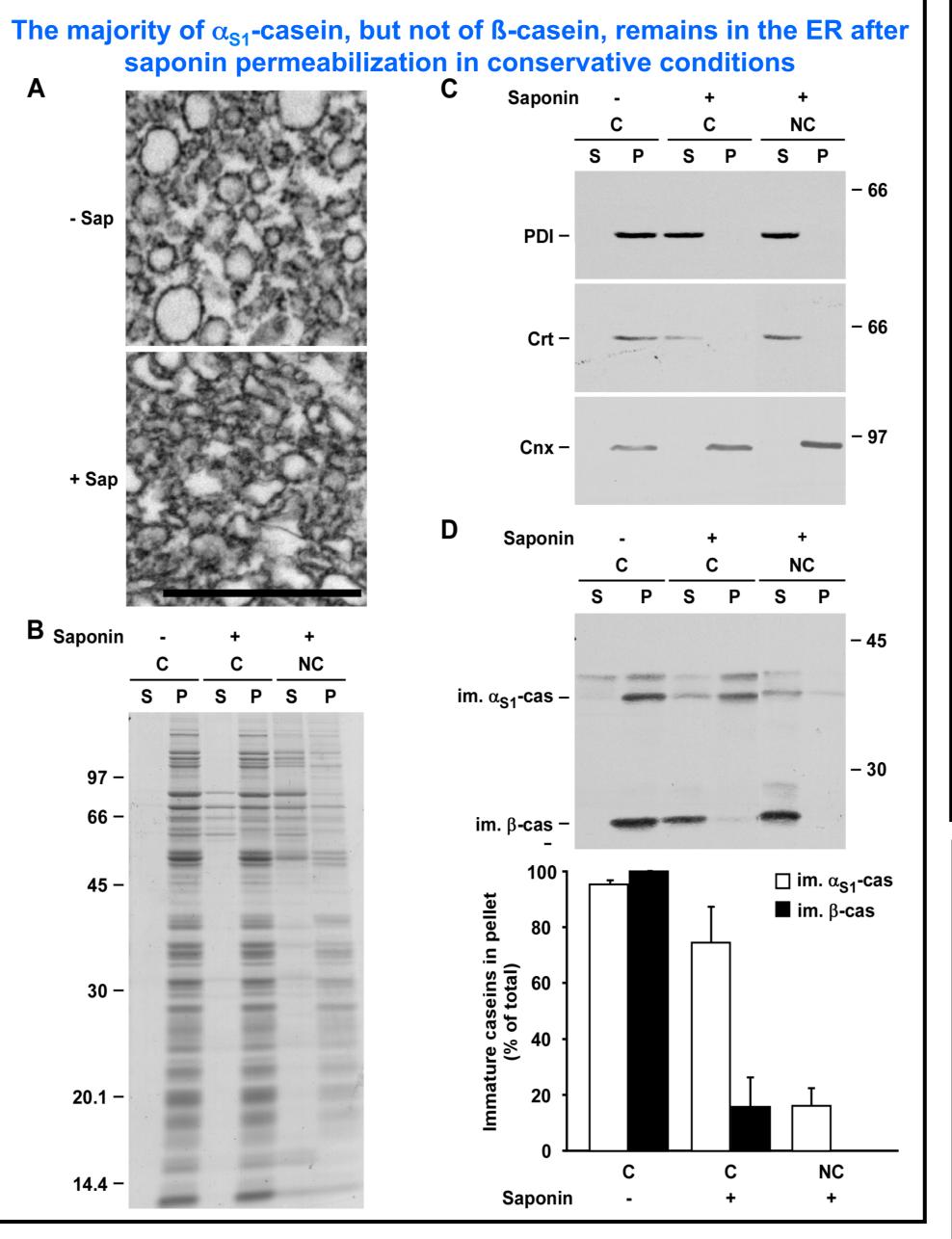


Results





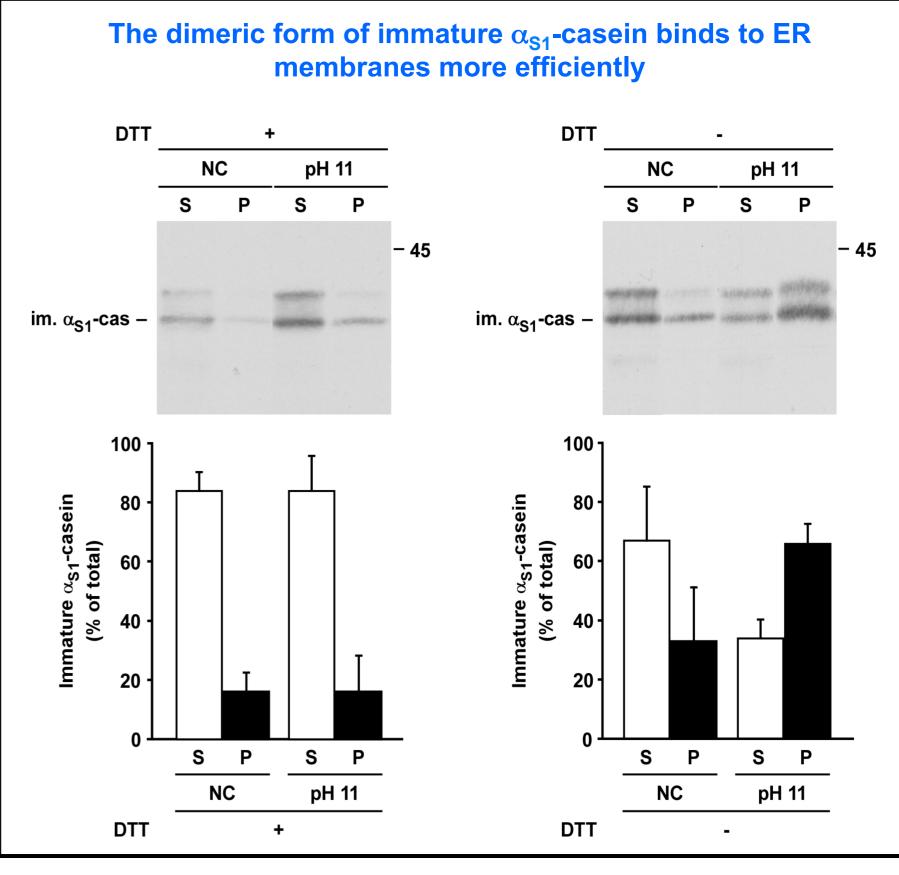


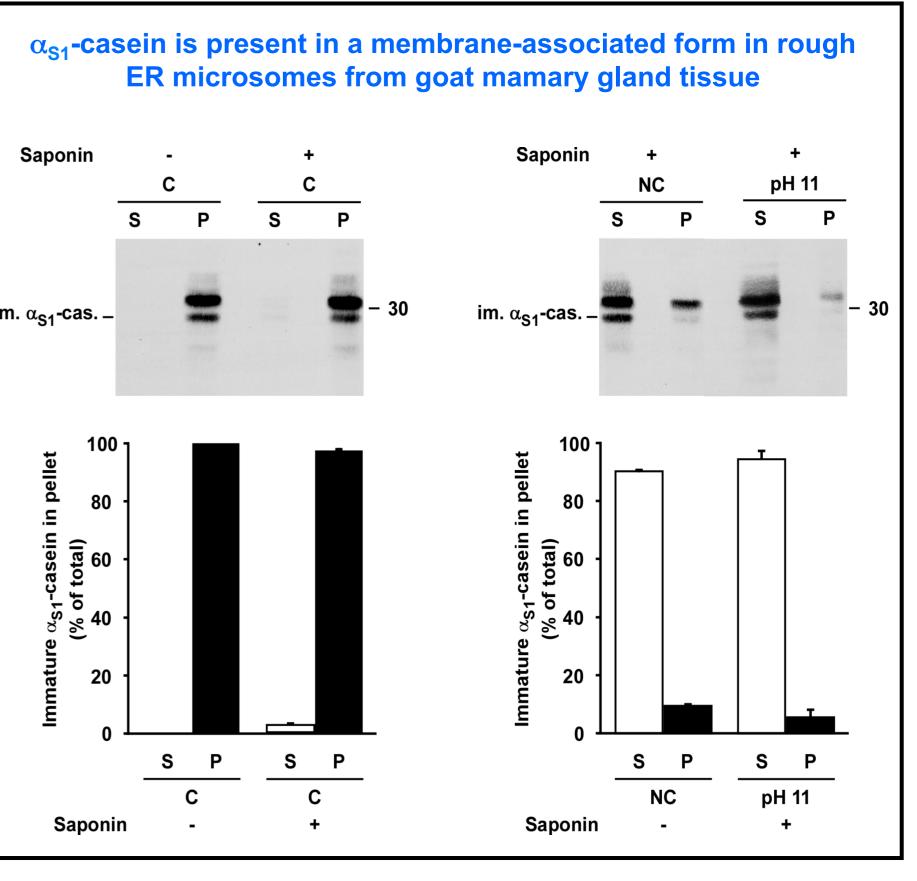




A substantial fraction of the immature and mature form of a51-casein is present in a tightly membrane-associated form in the secretory pathway of mammary epithelial cells

> Dimeric aS1-casein has a much higher affinity for membranes





Interaction of a51-casein with membranes of the secretory pathway might play a key role in casein micelle formation and/or exocytic trafficking in mammary epithelial cell



