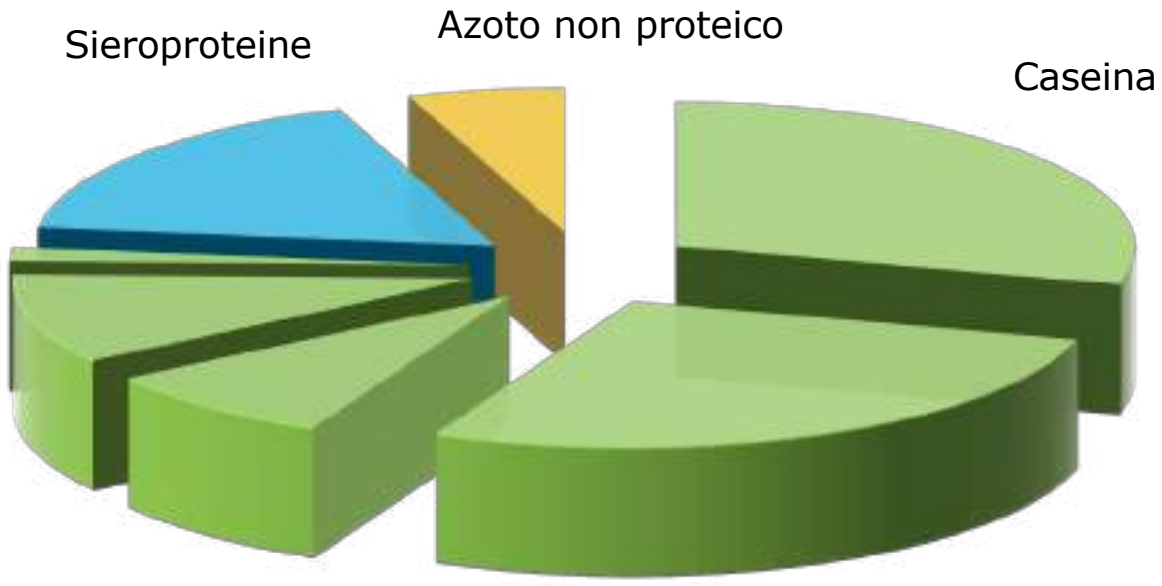
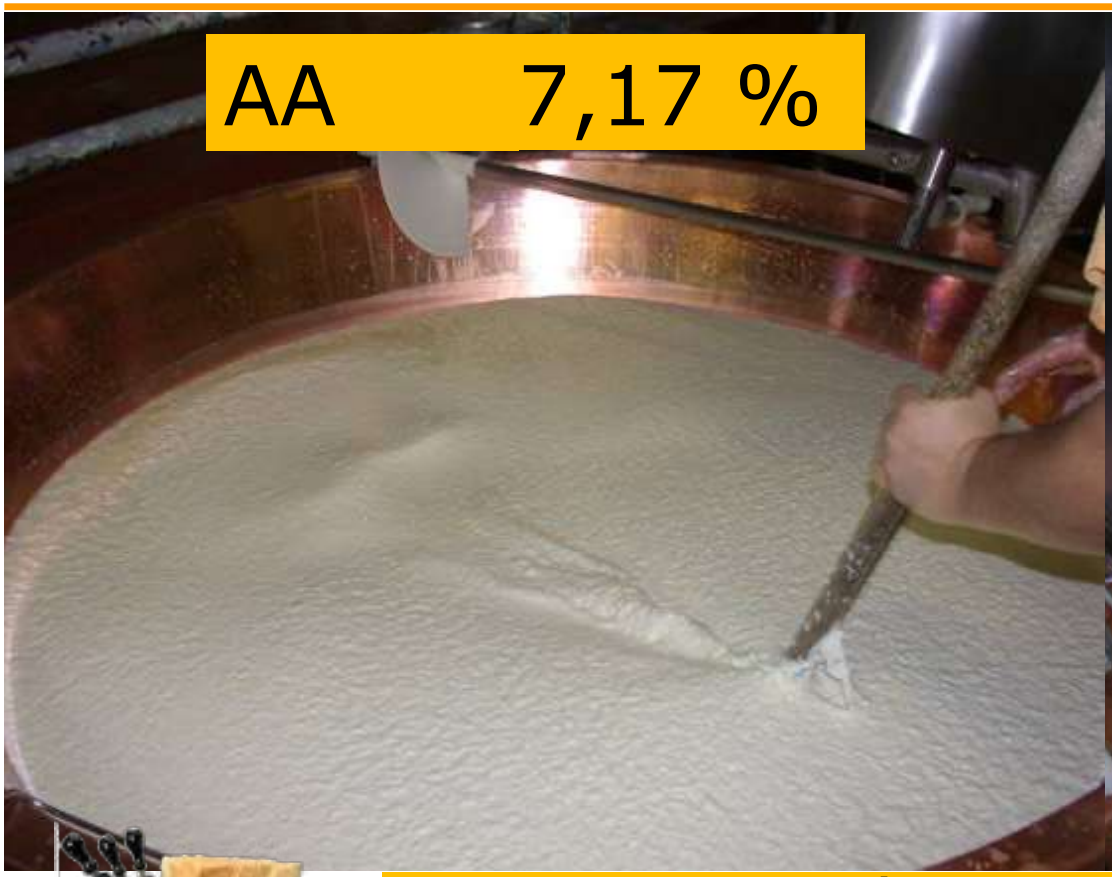
Le frazioni azotate del latte

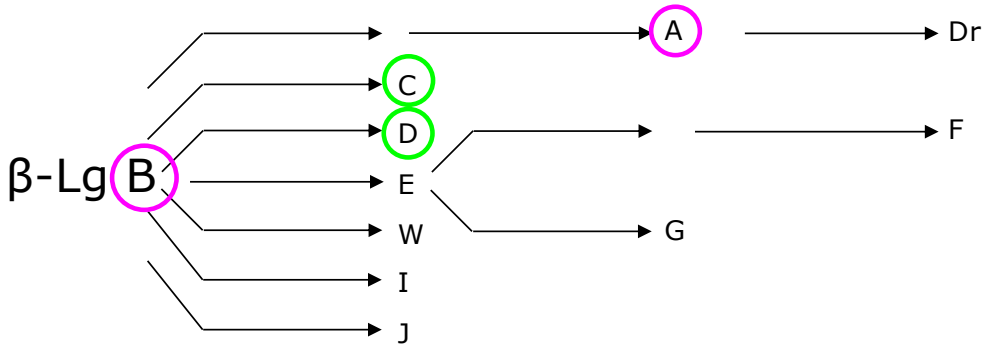


Con β-lattoglobulina B maggiore resa in Parmigiano-Reggiano



+ 2 kg di formaggio per 1000 kg latte

Polimorfismo β-lattoglobulina

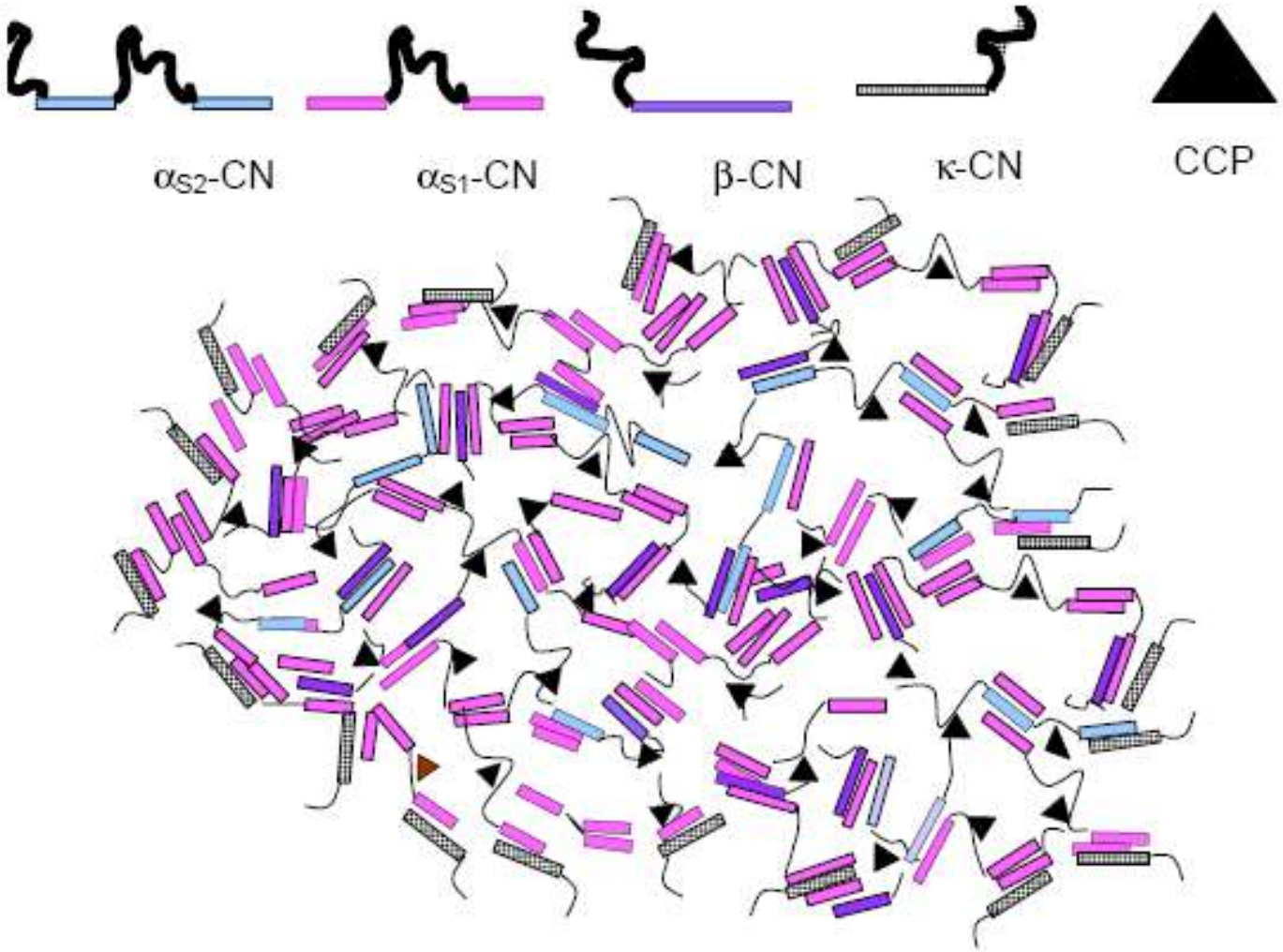


Variazione rispetto a A	B
Contenuto caseina	
Indice caseina	
Tempo coagulazione	
Consistenza coagulo	
Resa in formaggio	

Di cosa parleremo

Punti chiave per la qualità del latte:

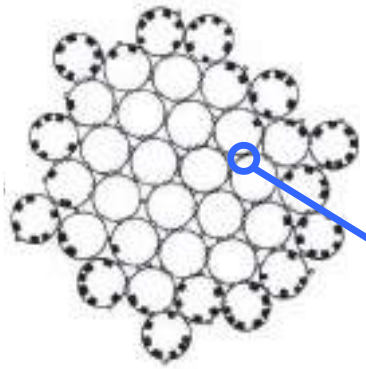
- ✓ La caseina
- ✓ Il polimorfismo delle caseine e non solo
- ✓ **I minerali del latte**
- ✓ La selezione genetica: ICS PR

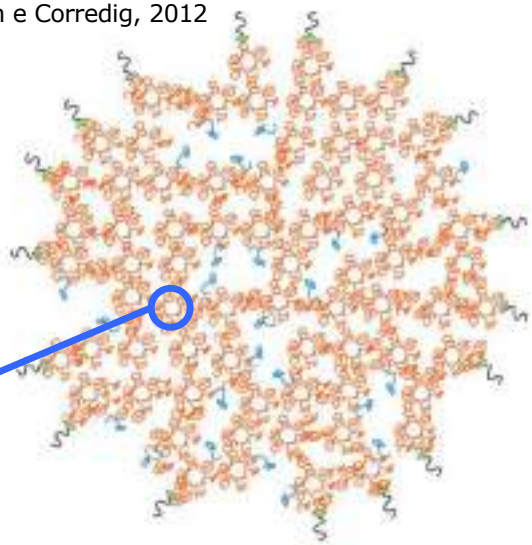

αS2-CN
αS1-CN
β-CN
κ-CN
CCP

Micella di caseina

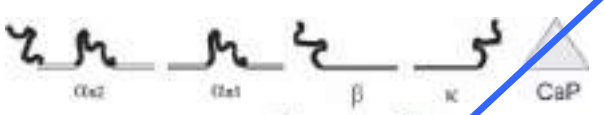
Dalgleish e Corredig, 2012

Schmidt, 1982



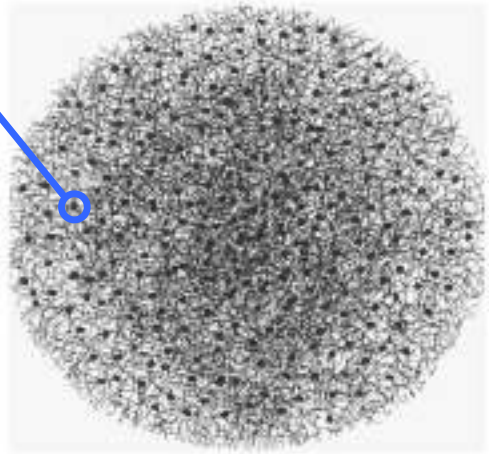


$Ca_9 (PO_4)_6$



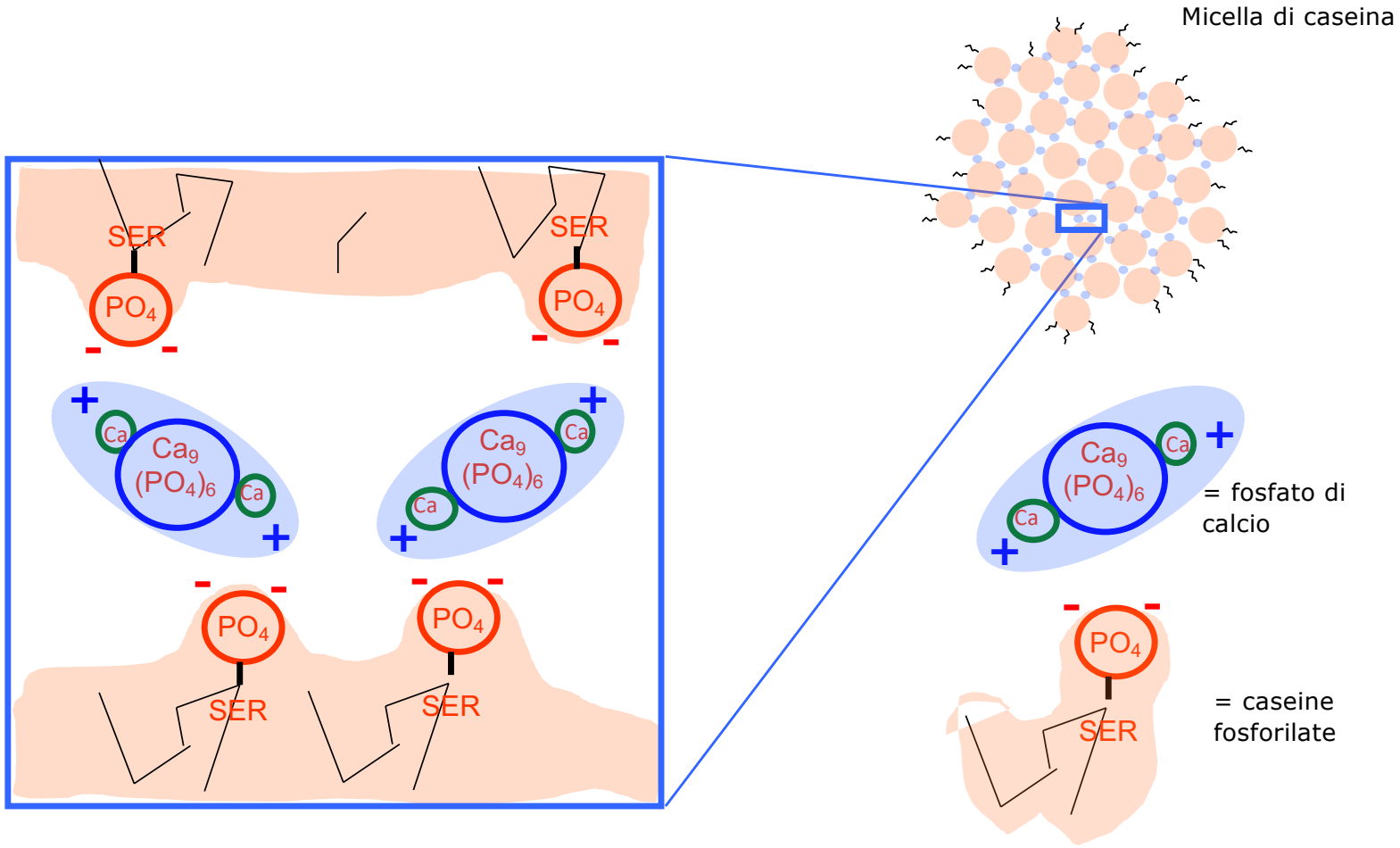
Horne, 1998

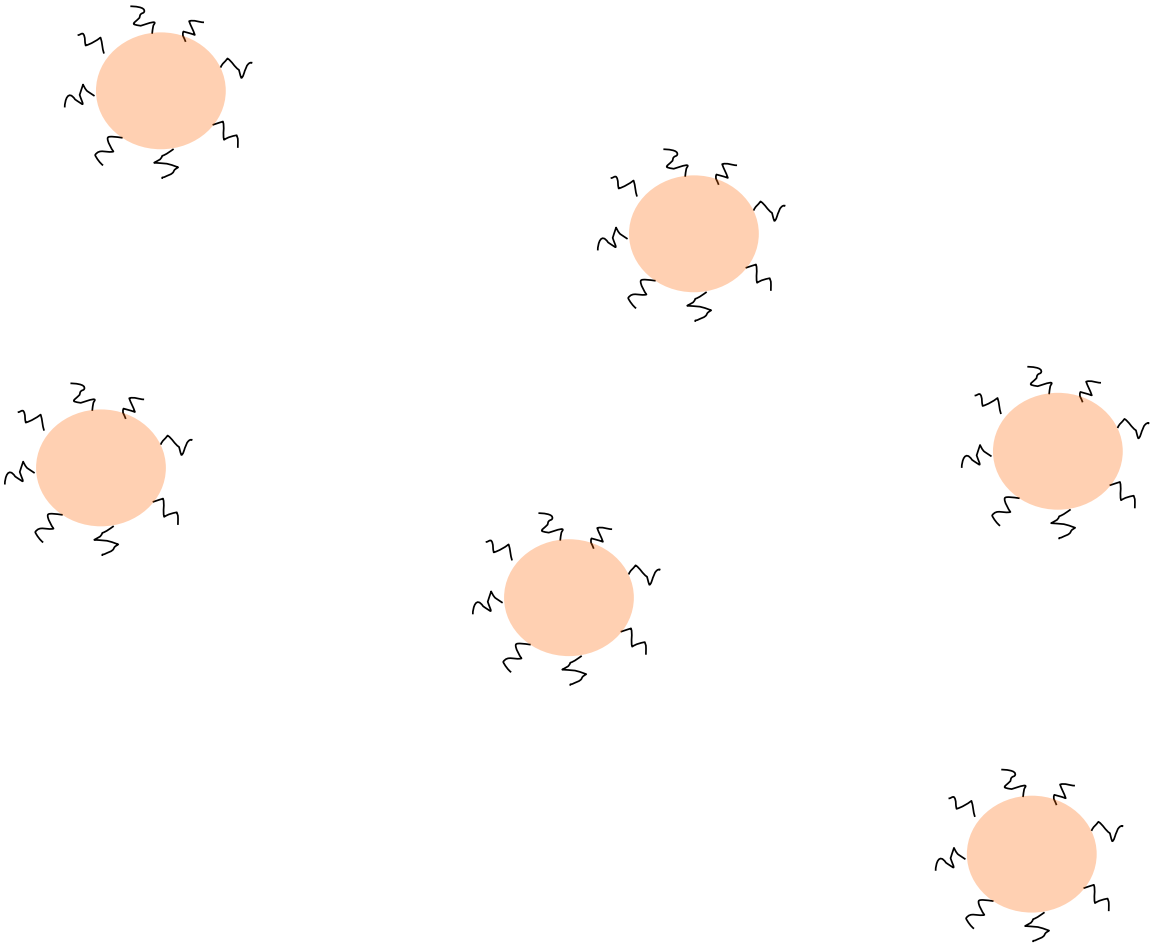
(b)



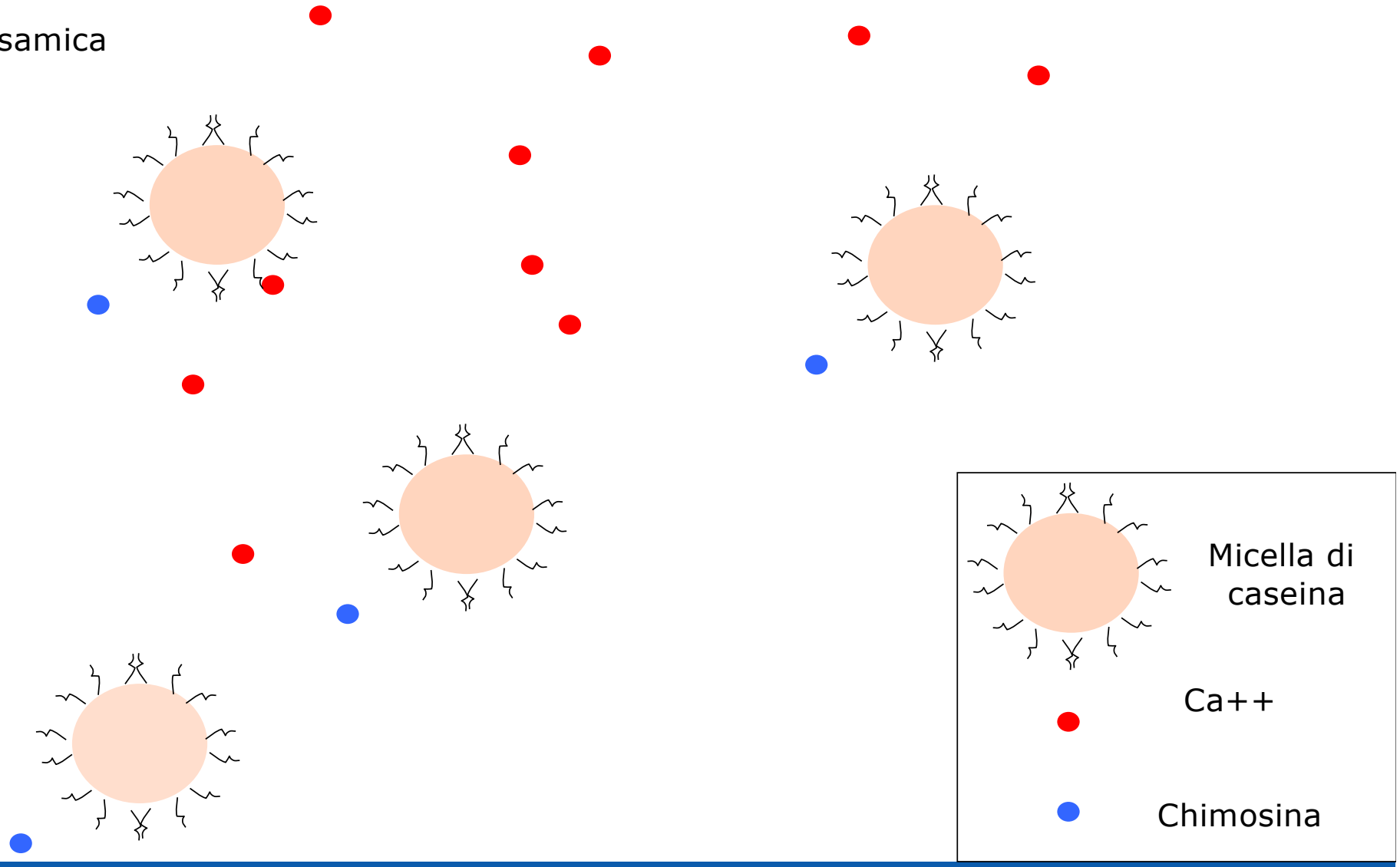
Holt, 2003

Fosfato di calcio colloidale

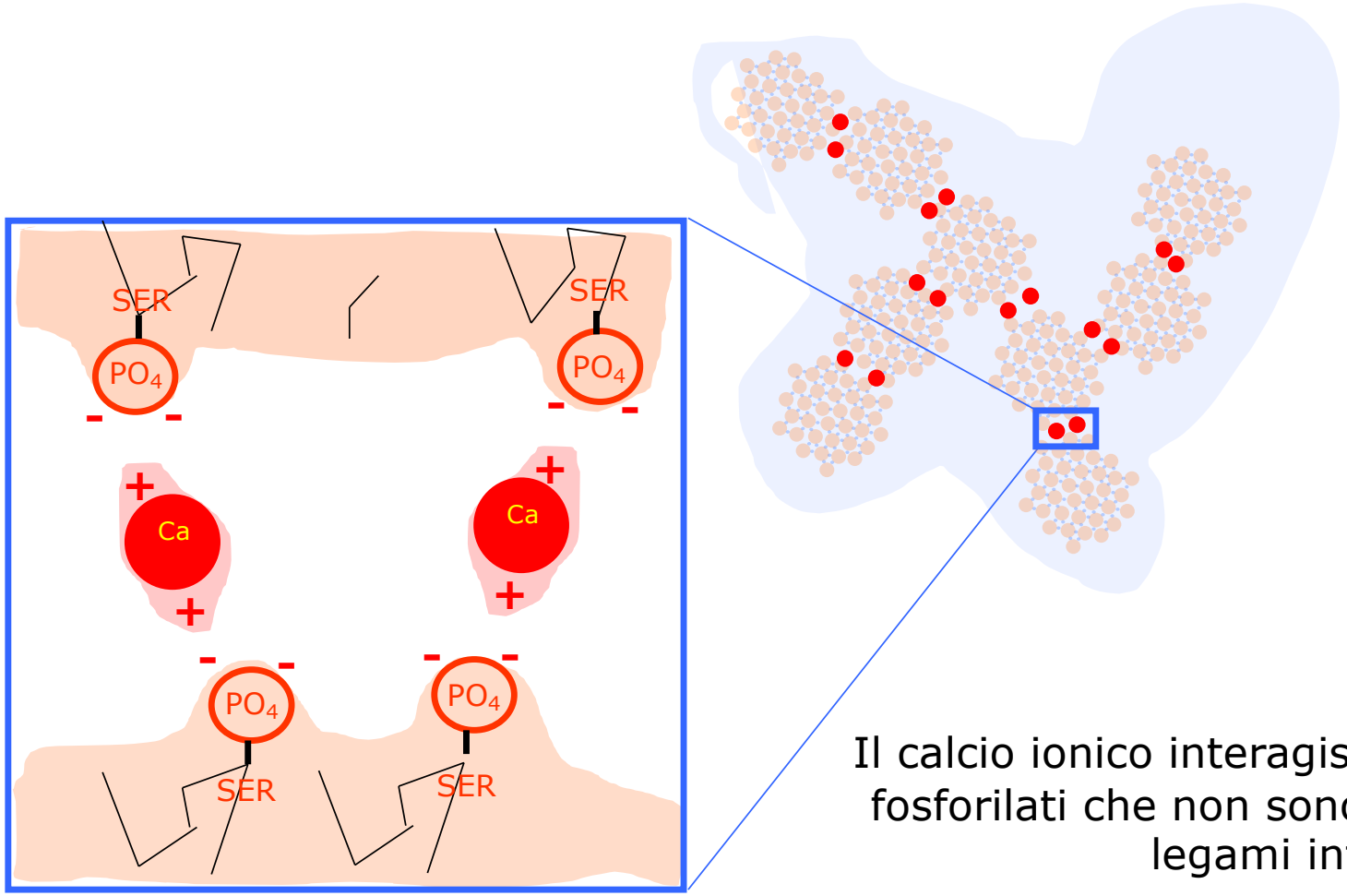




Coagulazione presamica



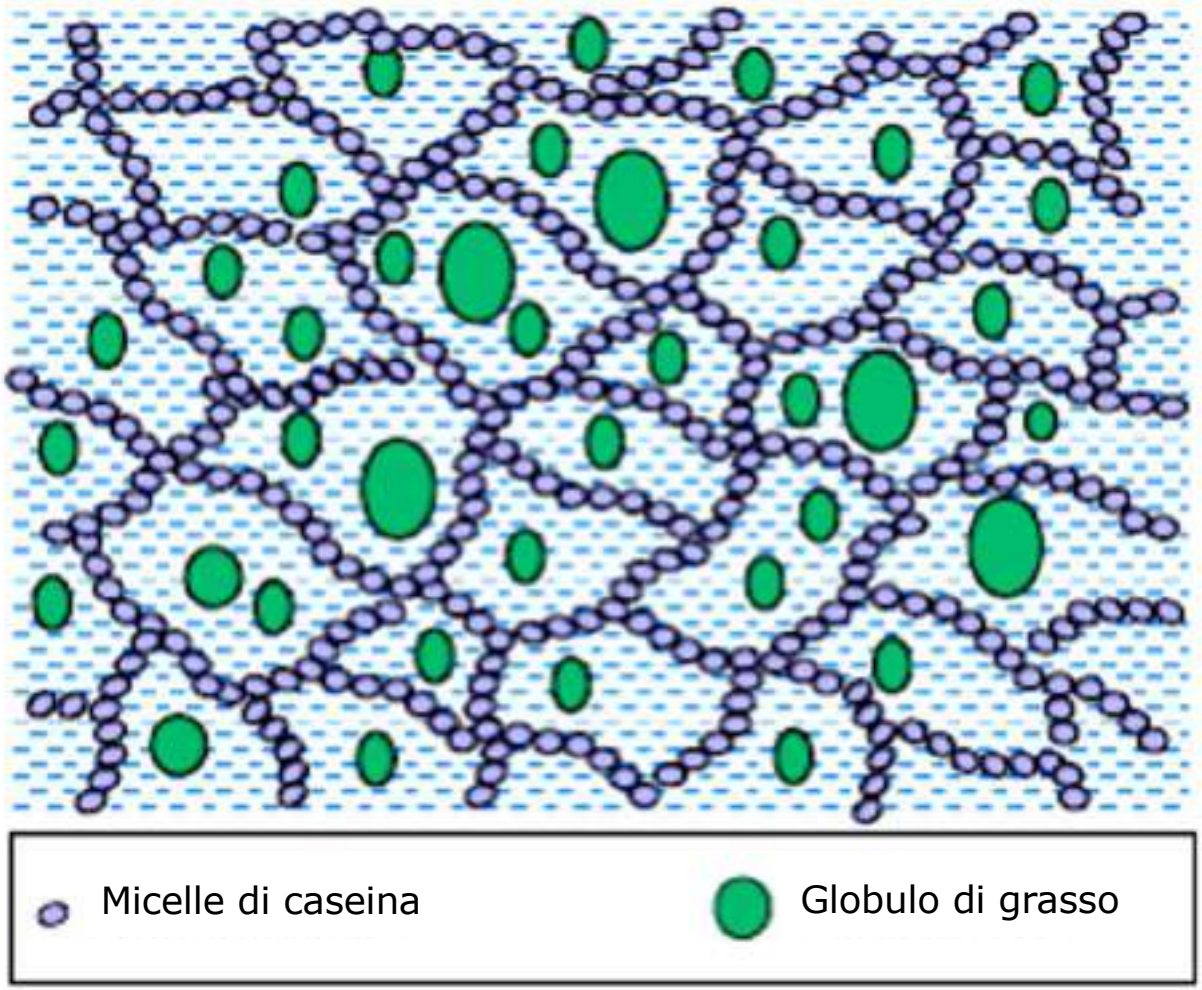
Minerali e coagulazione del latte – ruolo del Ca ionico solubile



Il calcio ionico interagisce con i residui fosforilati che non sono impegnati nei legami interni con il CCP

Schema della matrice del formaggio

(da Fox et al., 2000 modificato)



Ca e P micellari e coagulazione del latte

Malacarne et al., 2014

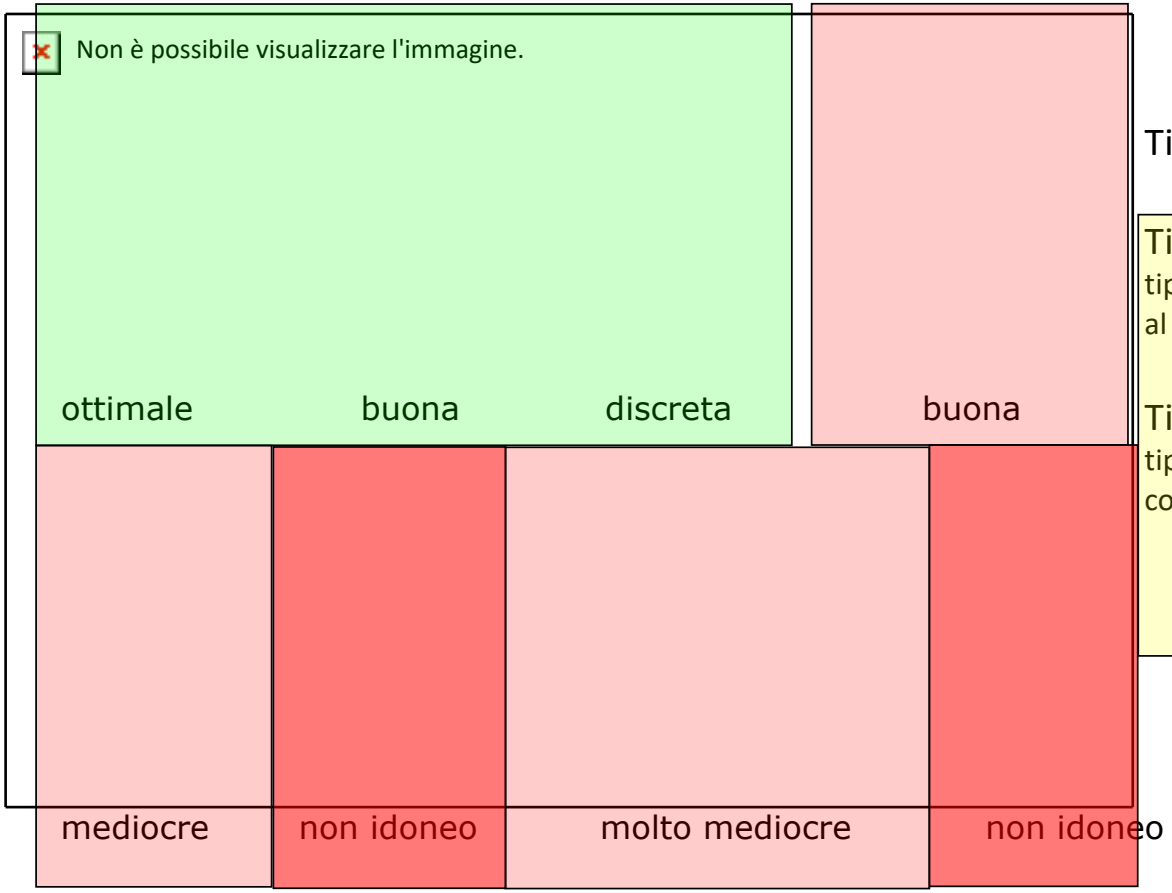
Non è possibile visualizzare l'immagine.

Evidenziare il ruolo del calcio e del fosforo micellari sui parametri di coagulazione del latte

- 118 Latti di allevamento
- Con meno di 400 mila cellule
- Comprensorio Parmigiano-Reggiano
- Latte della mungitura della mattina

- Divisi per la diversa attitudine casearia

Lattodinamogrammi dei tipi identificati



Tipi intermedi:

Tipo AE
tipo A con tempi lunghi tendenti al tipo E

Tipo EA
tipo E con consistenza del coagulo vicina a quella del tipo A

A, B, C	ottimali
AE, EA	discreti
D, E, DD	mediocri
F, FF	anomali