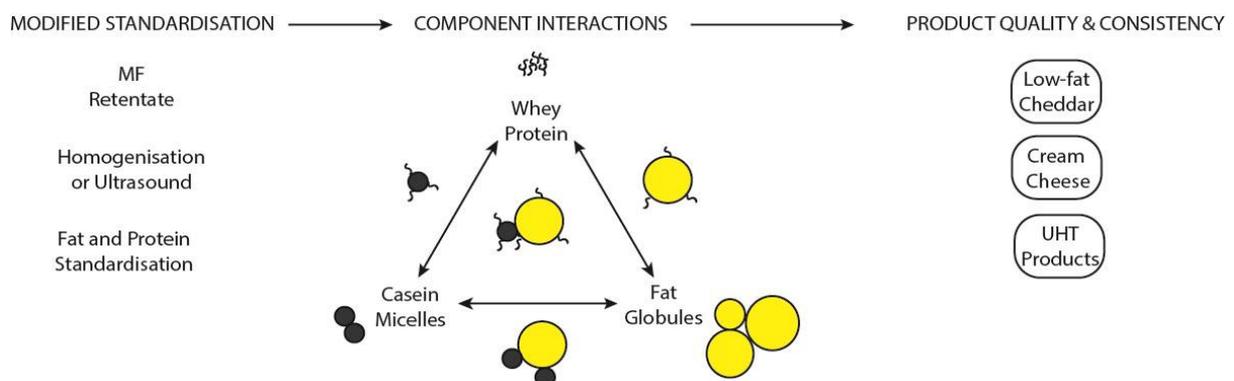


ARC Dairy Innovation Hub – Research Themes

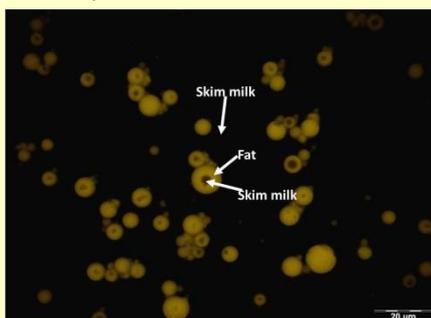
Milk Processing Streams

This project is investigating processing technologies that can be used on arrival of milk in a dairy factory to control the interactions of basic milk components such as casein micelles, whey protein, and fat globules. The objective is to use these upstream process interventions to improve the quality of dairy products currently in high demand in export markets, for example low-fat cheddar, cream cheese and UHT products. The team at University of Melbourne brings together Professor Muthupandian Ashokkumar and postdoc Dr Thomas Leong from the School of Chemistry, Dr Greg Martin from the Department of Chemical & Biomolecular Engineering and Dr Mike Weeks, head of Dairy Innovation's engineering team, who will explore dairy processing tools such as microfiltration, homogenisation and ultrasound, and protein and fat standardisation to modulate the interactions of milk components.



Improving the texture and flavour of reduced fat cheddar and cream cheese

The team is developing homogenisation and ultrasound technologies to create double emulsions of dairy fat. The double emulsion droplets contain less fat than normal milk fat globules whilst maintaining beneficial properties for taste and texture of the final product.

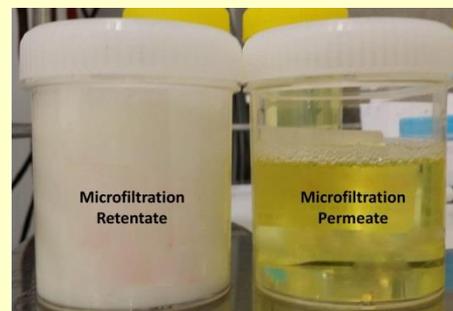


Trials will address how much fat can be displaced, the cost and properties of the reduced fat cheddar, and whether there are any side-effects.

Key Collaborations with other Hub projects

The team will draw on the processing expertise at DIAL to create process streams and the cheddar and cream cheese model systems developed by the Microstructure team.

Using microfiltration to improve yield and consistency of cheddar and cream cheese



Microfiltration will be trialled to create pure casein and whey streams. The separate streams will be used to increase protein concentration and control casein-to-whey ratios during rennet and acid gelation, and quality attributes of cheese products will be evaluated. The quality of by-product streams will be improved as well, because native whey is free of starter cultures, rennet and salts and has superior functional properties.

Contacts

Professor Muthupandian Ashokkumar, T +61 3 8344 7090, E masho@unimelb.edu.au

Dr Gregory Martin, T +61 3 8344 6613, E gimartin@unimelb.edu.au