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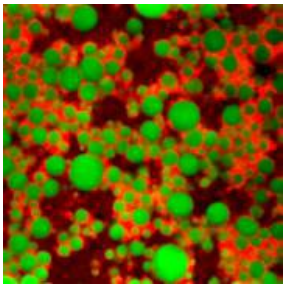
Food, health and nutrition



Dietary related diseases such as obesity and hypertension are major 21st century chronic diseases reaching epidemic levels and still increasing. The problems caused threaten to overwhelm the health service and is already costing the economy billions of pounds a year. It is commonly accepted that a major part of the solution to this problem is to get the general population to change their diet and to reduce their calorific intake by reducing fat and sugar and to reduce salt consumption.

A major thrust of our work is to design foods which deliver 'unhealthy' functionality whilst being significantly healthier than current convenience foods. As such our efforts are currently focused on understanding and manipulating the microstructure of foods to engineer products to deliver all the desired consumer attributes but with controlled energy and salt delivery so as to give a dramatic reduction in the amounts of fat, sugar and salt consumed in the diet.

In order to do this we are developing an engineering understanding of eating and digestion and how the design of foods can be used to get specific performance in the human process including consumer psychology and sensory attributes (in collaboration with University of Bangor).

We are studying:

- The design of low-fat and low-salt foods, using process science to construct novel microstructures to deliver new foods with novel textures and flavour release without compromising consumer attributes. BBSRC, Technology Strategy Board (TSB) and Industry are currently funding projects in this area having an overall value of ~£ 2.5million.
- The understanding of eating and digestion as an engineering process, developing models of the processes in the mouth and stomach. Industry funding in the area is currently ~£ 0.5million.

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