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# Bioactive Fibre Nanoemulsion Delivery System for Functional Foods

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# Bioactive arabinoxylans for Health immunity

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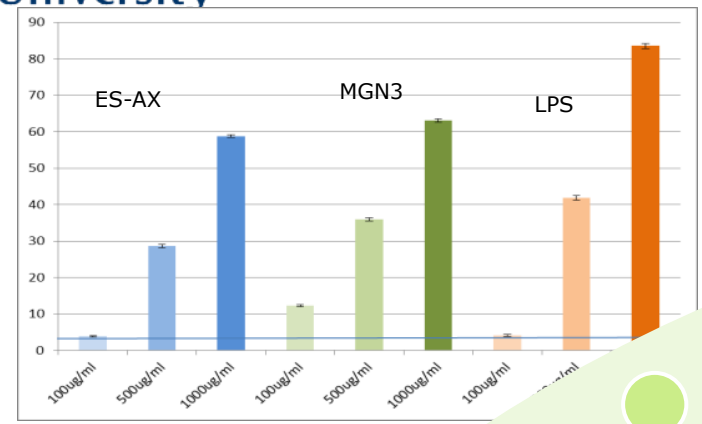


Seek collaboration for clinical trial and further in vitro testing to determine immune modulation activity and Functional food development

Immune modulation activity in *in vitro* testing

Approved health benefit for reducing post-prandial glyceamic response

Patented technology for preparing the bioactive fibre from cereal by-product

W. Li, Shuangyue Zhang and Smith C (2015) Journal of Cereal Science (http://dx.doi.org/10.1016/j.jcs.2014.12.002).

# Increasing the bioavailability of fat soluble nutrients using nanoemulsions

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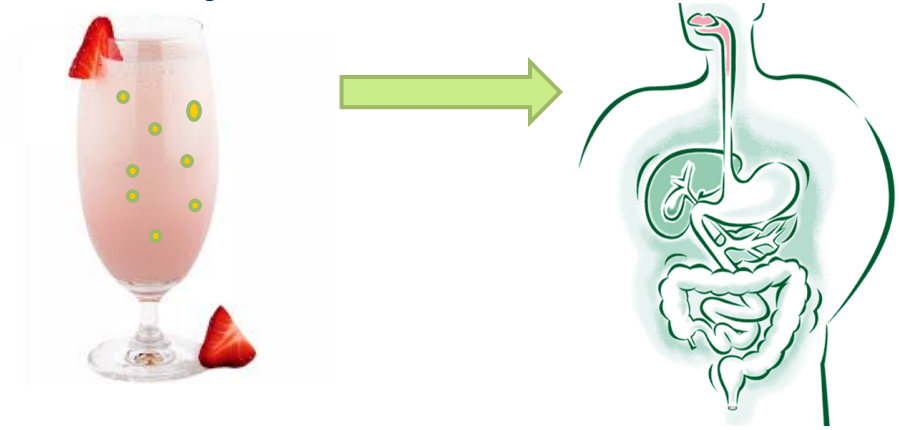
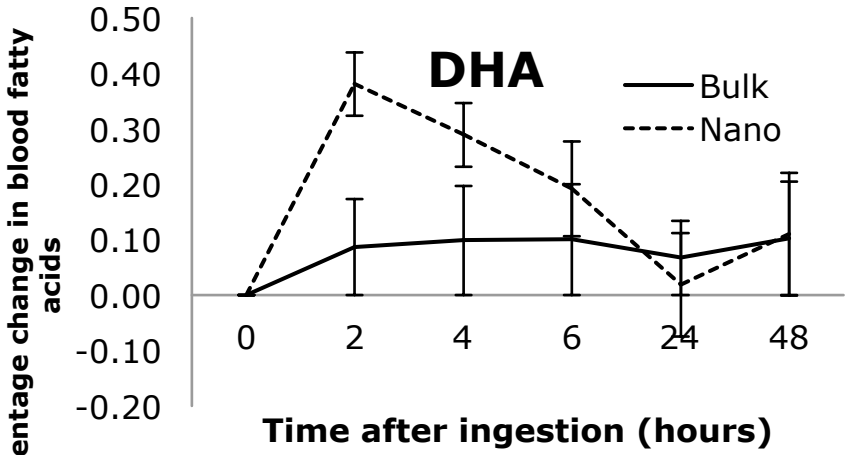


A novel method for producing oil in water nanoemulsions of fat soluble nutrients was patented by the research team in 2012

A recent human trial established that an omega-3 nanoemulsion in yogurt was up to 180 per cent more bioavailable than a bulk oil alternative yogurt.




Support is sought in developing functional foods with incorporating high bioavailable oil soluble nutrients.

Lane K., Li W., Smith C. & Derbyshire E. (2014). International Journal of Food Science & Technology 49 (5) pp 1264–1271.

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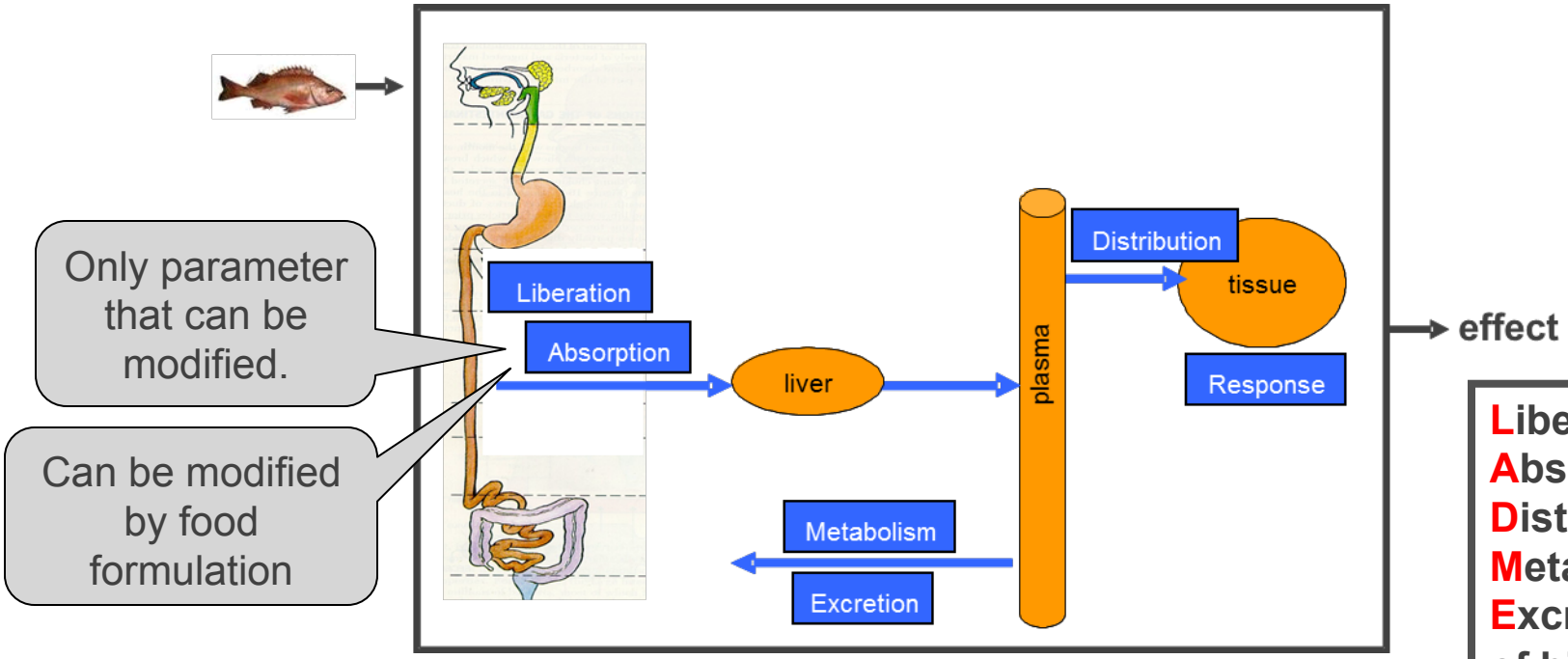
# Nutrikinetics: Are bioactive compounds reaching the target tissue?




**Liberation**
**Absorption**
**Distribution**
**Metabolism**
**Excretion**
**of bioactive food ingredients**

**Dr. Brigitte A. Graf (b.graf@mmu.ac.uk)**

1. **Research Project**

Production Model of Producing Bioactive Arabinoxylan From HPD (wheat gluten and starch) By-Product funded by Chinese Ministry of Science and Technology

2. **Current research students**

- The sensory properties and stability of Vitamin D and Omega-3 enriched two-step nano-emulsion delivery system for food application and In vitro digestion.
- The delivery system of phytosterols with the use of two steps emulsion for blood cholesterol control.
- Development of the delivery system of an amino acids based protein supplement for the dietary management of Phenylketonuria (PKU).
- Immunomodulatory potential of arabinoxylans derived from wheat pentosan and rice bran.
- Extraction, modification and immune stimulatory activity of arabinoxylans derived cereals.
- The control of type 2 diabetes with specific references to dietary factors.
- Vitamin D status in women living in KSA and the UK and dietary strategies to improve this (in the UK).