



Towards the evidence for immune support of food fibres

Food fibres are considered as beneficial for our immune system. However 'considered' is not good enough; the European guard dog EFSA needs sound scientific evidence based on effects on healthy human people before health claims for these compounds are approved. This is why this month the EU FibeBiotics project starts in which, during a period of 4.5 year, a consortium will study the effect of food fibres on the human immune system. The consortium is coordinated by Wageningen UR Food & Biobased Research, The Netherlands, and financially supported by the EU with 6M€.

The food industry therefore needs sufficient supporting data before the claim can be substantiated and such health effects can be claimed for their products. A consortium of four universities, five research institutes and eight companies will perform these studies and in the meantime develop methods that accelerate similar research in the future for other immune supporting products.

It is known for a long time that polysaccharides (other than easy digestible starch) and the immune system are connected. The immune response towards invading pathogens like bacteria, fungi and yeast is often initiated by the recognition of the intruder via the sugar chains that are located on the outside of the pathogen. After this recognition the immune system is activated and attempts to remove the pathogen as fast as possible. Research indicated that some specific polysaccharides, for example those from the cell wall of yeast or those that are present in various plant products, can activate the immune system starting from the intestine, even when no intruders are present. Various polysaccharides have been shown to activate macrophages which can 'digest' pathogens and unwanted cells. An activated, warned or primed first layer of defence can help to improve the overall resistance of humans.

Another mechanism of defence is the 'adaptive' immune system which is used during vaccination. This system recognizes and remembers specific pathogens and mounts stronger attacks each time the pathogen is encountered. It has been shown that this memory-based defence, in the elderly, is only somewhat activated during the regular vaccination, probably because of a senescent immune system. An important part of the EU FibeBiotics concerns intervention research amongst elderly people to study the effect of polysaccharides and polysaccharide-containing products on vaccination efficiency.

Other parts of the EU FibeBiotics project support product development to be sure that the final products still contain the bioactive polysaccharides and that these are not degraded or inactivated because of enzymes or other suppressors in the food matrix. Besides that, it is important to classify the different types of polysaccharides into groups with different levels of activity, as not all will have identical effects on the immune system. Polysaccharides are also known to stimulate the 'good' bacteria in the gut and, consequently, have an indirect effect on the immune system and support maintenance of health. Also these effects will be studied in the laboratory and during the large scale human trials.

Researcher Jurriaan Mes from Food & Biobased Research who leads the consortium, expects many new results that unravel the effects of polysaccharides and based on that the development of many standardized methods. In the future, these methods can be used to support other companies that have an interest to study the possible effects of their favourite food compounds towards the gut and immune system.

Note for editorial office:

More information:

- Lotte Kerkhoven, manager Marketing & Communication Wageningen UR. +31 0 317 480303
lotte.kerkhoven@wur.nl
- Jurriaan Mes, research leader Wageningen UR Food & Biobased Research,
Jurriaan.mes@wur.nl

[Website Wageningen UR Food & Biobased Research](#)

[Twitter Food & Biobased Research](#)

[Website FibeBiotics \(under construction\)](#)

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