

STARTUP A-MANSIA WANTS TO MARKET NUTRITIONAL SUPPLEMENTS

Eating bacteria to combat overweight



The universities of Louvain-la-Neuve (Belgium) and Wageningen are collaborating on a slimming bacterium. In three years' time, the startup A-Mansia aims to launch nutritional supplements or a yoghurt product with this bacterium to counteract overweight.



TEXT STIJN VAN GILS PHOTO GETTY IMAGES

The startup A-Mansia, a joint venture by Wageningen University & Research and the Université catholique de Louvain (UCL), has raised 13 million euros in initial capital. The new company will use this money to further refine a discovery made by Wageningen professor Willem de Vos. In three years' time, it hopes to introduce products such as nutritional supplements that can combat obesity. The company is using the bacterium *Akkermansia muciniphila* for this. This bacterium improves the intestinal barrier function, so that harm-

ful substances that ultimately cause obesity are less likely to be absorbed by the body. The ease with which the initial capital was arranged contrasts sharply with the problems De Vos had in getting funding for the research that led to the discovery of the bacterium. At the time, the Microbiology chair group professor wanted to look for bacteria that grow on materials our intestines produce themselves, such as mucus. 'I had a feeling there would be some useful species among them, but we had no evidence of this. That's why it was really diffi-

cult to find funding for this research on the digestive system. I submitted the research proposal three times.' It was only at the third time of asking that the funding was granted and his PhD candidate Muriel Derrien could get to work.

In 2004, this research resulted in the discovery of the bacterium *Akkermansia muciniphila*.

PREVENTING INTESTINAL INFLAMMATION

The *Akkermansia* bacterium produces a protein that other bacteria lack. This protein



improves the intestinal barrier function. After the bacterium has been administered, the intestines let through less of the toxic substances of the kind that ultimately cause obesity. It is not yet clear how strong this effect is. Administering the bacterium also helps prevent intestinal inflammation and may work against hepatic steatosis (fatty liver) too. The bacterium is found naturally in many people but overweight people often have a deficiency.

SAFE FOR HUMANS

Four years after the discovery, De Vos started a collaboration with the Belgian professor Patrice Cani, now at UCL, to get a better picture of the bacterium's health effects. The bacterium turned out to reduce obesity and type 2 diabetes in mice after they had been dosed with it. Later, the Belgian research group found that the bacterium could be used safely in humans too. The bacterium did not work when sterilized, but it did when pasteurized. 'That's what made us realize a protein is probably causing the effect.' Proteins become denatured and lose their effect when exposed to high temperatures. De Vos is very pleased that the bacterium still works after pasteurization. The bacterium does not need to still be alive and that makes it much easier to use in food products. They are considering nutritional supplements and powders, for example, as well as yoghurt drinks, nutrition bars and personalized medicines. The first nutritional products based on the bacterium are expected to be ready for market in around three years, but that is far from definite.

STARTING UP MULTIPLE COMPANIES

Professor Willem de Vos will soon be semi-retiring from Wageningen University & Research, and working part-time. He wants to free up more time for his startups. He has already set up four different companies in the course of his career. Some were a success, others were not. 'We decided to ditch MicroDish after ten years,' says De Vos. This company developed and marketed a simple method for cultivating individual bacteria, which would enable faster diagnosis of pathogens. 'But the hospital sector is more conservative than we realized.' The company will be ceasing operations. 'That's the way it goes. We learnt a lot and various postdocs worked there.' On the other hand, Caelus Health in Amsterdam is doing well. This company, which commercializes discoveries at Wageningen and the University Medical Centre in Amsterdam, is developing bacterial therapies that could help tackle diabetes, for instance. De Vos sees more new opportunities. 'Humans are the only species that heat their food. We have discovered an intestinal bacterium that is able to specifically convert the toxic compounds produced by heating into beneficial compounds.'



PHOTO BRAMI BELLONI

There are still many uncertainties surrounding the conversion into actual products. For example, it is still not clear exactly how usable the bacterium is in people with medical conditions. 'We therefore deliberately looked for an investor who will be prepared to give the company more cash later on,' says De Vos. That was the French investment fund Seventure, which manages over 600 million euros for companies including Danone and Novartis.

The additional research will mainly be carried out in the vicinity of Brussels, where A-Mansia has its offices. That is because UCL in Belgium has more experience with

preclinical trials and medical applications. 'Another part will probably be carried out in Wageningen and possibly the US as well,' says De Vos.

The potential target group for A-Mansia is huge. Being overweight is a significant and growing problem worldwide. Figures from Statistics Netherlands show that almost half of all adults in the Netherlands are overweight and almost 15 percent are obese. A-Mansia's future products combined with a healthy diet and more exercise could help fight the flab. ■

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