



Fighting against infections with beneficial bacteria

By using mouse models, the EU-funded DEPROHEALTH-project has demonstrated that some lactobacilli can have a beneficial effect on intestinal inflammation and infections. The major target disease in these mouse studies has been inflammation of the bowel. For this purpose, engineered lactobacilli were constructed. The modified strains that are most promising produce fair levels of an effective compound (an interleukine) that helps preventing the inflammation caused by bacteria. Four of the most promising candidate strains have been selected for future studies. These studies will test the effect of these strains in mice, in order to prepare future studies in humans.

Finding the effective bacteria has required a lot of background work. The research started with examining a number of wild strains of lactobacilli to find out about their potential capacity to interact with the host immune system. Ideally the beneficial bacteria should be taken orally, so their ability to survive passage through the upper part of the intestinal tract is important and was indeed investigated. The acidic conditions in the stomach or the bile salts in the intestine may destroy their potential favourable influences.

DEPROHEALTH-project aims to design specific beneficial probiotic strains to avert intestinal illnesses. The project is developing new ways to tackle these illnesses by oral treatment which is much easier to administer than injections. Diseases targeted in the project are stomach ulcers linked with *Helicobacter pylori*, and infant diarrhoea, which is commonly caused by rotavirus. It also seeks to develop a new treatment against life long malign intestinal inflammation, such as Crohn's disease, which severely affect the patient's quality of life.

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