Medical News

- Invisible helpers: how probiotic bacteria protect against inflammatory bowel diseases

ScienceDaily (Apr. 26, 2012) — Some lactic acid bacteria can alleviate inflammation and therefore prevent intestinal disorders. Scientists have now decoded the biochemical mechanism that lies behind the protective effect of the bacteria. This new evidence might lead to new approaches for the treatment of inflammatory bowel diseases.

Yoghurt has been valued for centuries for its health-promoting effects. These effects are thought to be mediated by the lactic acid bacteria typically contained in yoghurt. Evidence from recent scientific studies show that some bacterial strains actually have a probiotic effect and can thus prevent disease.

In experiments with mice, the scientists observed that lactocepin -- an enzyme produced from the lactic acid bacterium Lactobacillus paracasei -- can selectively interrupt inflammatory processes. As the scientists observed, lactocepin degrades messengers from the immune system, known as chemokines, in the diseased tissue. As a part of the "normal" immune response, chemokines are needed to guide defense cells to the source of the infection. In chronic intestinal disorders like Crohn's disease and ulcerative colitis, the otherwise highly effective defense mechanism against infectious agents is malfunctioning. Chemokines such as "IP-10" then contribute to the tissue damage due to chronic inflammatory processes, preventing the tissue from healing.

Marie-anne von schillde, et al. Lactocepin secreted by lactobacillus exerts anti-inflammatory effects by selectively degrading proinflammatory chemokines. Cell host & microbe, 2012; 11 (4): 387

- Soy protein alleviates symptoms of fatty liver disease, study suggests

ScienceDaily (Apr. 22, 2012) — University of Illinois researchers have shown how soy protein could significantly reduce fat accumulation and triglycerides in the livers of obese patients by partially restoring the function of a key signaling pathway in the organ.

"When fat accumulates in an organ that's not supposed to store fat -- like the liver, that organ's vital function can be dangerously compromised."

Eating soy protein, from such sources as tofu and yogurt, appears to alleviate some of the stress on fatty livers. For her study, Hong Chen compared fat accumulation in the livers of lean and obese rats, which were assigned to either a diet containing casein, a milk-based protein, or a diet containing soy protein, for 17 weeks after weaning.

While diet had no effect on the liver profiles of lean animals, the obese rats that were fed soy showed a 20 percent reduction in triglycerides and overall fat accumulation in the liver, leading Chen to believe that soy protein could be used to alleviate the symptoms of fatty liver disease.

Furthermore, the scientists discovered that soy protein isolate partially restored the Wnt/β-catenin signaling pathway, a crucial player in fat metabolism. "In many obese persons, there's a sort of traffic problem, and when more fat can make its way out of the liver, there is less pressure on that organ," Chen said.

American society for biochemistry and molecular biology. "Soy protein alleviates symptoms of fatty liver disease, study suggests." Science daily, 22 apr. 2012. Web. 28 Jun. 2012.

- Increasing dosage of clopidogrel for patients with genetic variation improves response to medication

ScienceDaily (Nov. 16, 2011) — Among patients with stable cardiovascular disease who have a genetic variation that diminishes the response to the antiplatelet drug clopidogrel, tripling the standard daily dosage of this medication resulted in improved platelet reactivity, according to a study appearing in JAMA.

"Variants in the CYP2C19 gene influence the pharmacologic and clinical response to the standard 75-mg daily maintenance dose of the antiplatelet drug clopidogrel," according the article. Variability in the pharmacodynamic response to clopidogrel is well recognized, and patients with higher platelet reactivity while receiving clopidogrel are at increased risk of adverse cardiovascular events. ." ..data are needed to offer guidance as to what might constitute optimal treatment strategies in patients with loss-of-function CYP2C19 alleles [one of a number of alternative forms of the same gene occupying a given position on a chromosome; an alternative form of a gene]."

A multicenter, randomized trial was conducted to test whether maintenance doses of up to 300 mg daily of clopidogrel can improve platelet reactivity in the setting of loss-of-function CYP2C19 genotypes, particularly among heterozygotes, who constitute approximately 25 percent to 45 percent of the population, depending on racial background. The trial (ELEVATE-TIMI 56) enrolled and genotyped 333 patients with cardiovascular disease across 32 sites from October 2010 until September 2011. Patients received maintenance doses of clopidogrel for 4 treatment periods, each lasting approximately 14 days, based on genotype. In total, 247 noncarriers of a CYP2C19*2 loss-of-function allele were randomized to receive 75 and 150 mg daily of clopidogrel (2 periods each), whereas 86 carriers (80 heterozygotes, 6 homozygotes) were randomized to receive 75, 150, 225, and 300 mg daily. Two methods were used to measure platelet function. The average age of the patients was 60 years, 75 percent were male, 57 percent had a history of heart attack, and 97 percent had a history of percutaneous coronary intervention.

Among the main findings of the researchers was that higher maintenance doses of clopidogrel in patients carrying a CYP2C19*2 allele significantly reduced platelet reactivity. Also, daily maintenance doses of 225 mg of clopidogrel or greater in CYP2C19*2 heterozygotes improved platelet reactivity levels that were at least equivalent to what is achieved with 75 mg daily of clopidogrel in noncarrier patients with cardiovascular disease. When evaluating the CYP2C19*2 homozygotes, the researchers saw a trend toward less platelet reactivity with higher maintenance doses of clopidogrel; however, even with 300 mg daily of clopidogrel, these individuals were unlikely to achieve optimal degrees of platelet inhibition.

There were no deaths, cerebrovascular events, or major or minor bleeding events as measured by TIMI (Thrombolysis in Myocardial Infarction) scales.

"These data help define how patients with different CYP2C19 genotypes respond to clopidogrel maintenance dosing strategies and provide useful information to guide further clinical studies," the authors conclude.

Dosing clopidogrel based on cyp2c19 genotype and the effect on platelet reactivity in patients with stable cardiovascular disease. Jama, 2011 doi: 10.1001/Jama.2011.1703