

News Release



Probiotic bacteria revolutionize the fight against caries and body odor

➤ **BASF Future Business GmbH together with OrganoBalance GmbH is developing innovative personal care and oral hygiene products based on lactic acid bacteria.**

In a cooperative venture launched in 2002, BASF Future Business GmbH, Ludwigshafen and OrganoBalance GmbH, Berlin identify probiotic cultures for use in innovative personal care and hygiene products. The lactic acid bacteria (lactobacilli) suitable for this purpose are filtered out from OrganoBalance's extensive collection of cultures and jointly developed to market. Promising applications for probiotic bacteria include the fight against cariogenic microorganisms, prevention of body odor and regeneration of the skin's protective microbial flora.

Being responsible for caries, the bacterium *Streptococcus mutans* persistently colonizes the surface of the teeth, where it converts sugar into aggressive acids that breaks down the enamel. To substantially diminish the risk of caries, it is important to significantly reduce the concentration of harmful bacteria in the oral cavity. "With *Lactobacillus anti-caries* we have found an antagonist which effectively binds to the caries germs and prevents them adhering to the surface of the teeth", emphasizes Dr. Andreas Reindl, Project

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Leader at BASF Future Business. The antagonistic cultures make these caries-inducing bacteria clump together into larger agglomerates no longer capable of causing damage and are rinsed out of the oral cavity. “The effectiveness has been demonstrated and the first oral hygiene products containing probiotic lactobacilli are scheduled to appear in 2007”, explains Reindl.

Our skin is naturally populated with different types of microorganisms. Ideally, those with beneficial health effects, known as commensal microorganisms, dominate over likewise occurring harmful bacteria. If this system gets out of balance, the appearance, health and well-being of the skin are adversely affected. “From a large number of microorganisms, we select the ones that can create a protective microbial barrier and compensate imbalances”, explains Dr. Christine Lang, Managing Director of OrganoBalance. These disorders can occur, for example, after washing or showering. In such cases *Lactobacillus stimulans* can promote the rapid regeneration of the skin's protective microbial flora. By secreting growth-promoting substances, it stimulates colonization by its healthful relatives. Since the rapid remediation of skin irritations is of high cosmetic relevance, these microorganisms are interesting candidates for use in lotions or creams and also in medicinal ointments or plasters.

A third application for beneficial lactobacilli is the prevention of body odor. Certain undesired germs are responsible for creating odor, for example in the armpits or on the feet. *Lactobacillus pes-odoris*, which specifically inhibits the odor-producing bacteria of the feet, and *Lactobacillus ala-odoris*, which prevents the formation of odor in the armpits, provide the remedy for these situations. Both lactobacillus cultures can improve the effectiveness of deodorants, foot sprays or lotions.

The attractive markets for these future products are open for innovations and exhibit stable growth rates. For example, in 2005 the world market for toothpaste and mouthwash reached a volume of around €13 billion with a growth rate of about two per cent. The world market for face cream in 2005 was around €24 billion, the market for body lotions just under €8 billion and the market for deodorants almost €6 billion. These three markets show annual growth rates of about three per cent. Probiotic lactic acid bacteria can be used in either a live or dead freeze-dried form – depending on the application, desired effect and formulation required for a cosmetic product.

In the exclusive cooperative enterprise of the two project partners, OrganoBalance conducts screening for suitable microorganism cultures in its own collection of microbial strains as well as the fundamental scientific research, while BASF Future Business is responsible for fermentation of the strains and their further processing, customer-specific formulation and marketing. The groundbreaking concept of using natural cultures to provide natural defense against harmful organisms allows the cooperation partners to rapidly develop products that are both innovative and offer novel actions. “Negotiations are currently in progress with various manufacturers”, explains Reindl.

About BASF Future Business GmbH

BASF Future Business GmbH opens up business areas with above-average growth rates that lie outside BASF’s mainstream activities. The company focuses on chemistry-based new materials, technologies and system solutions. BASF Future Business GmbH commissions research from BASF’s R&D units but also cooperates with startup companies, industrial partners, universities and potential customers. Further activities include acquisition of direct stakes, joint ventures with partner

companies or provision of venture capital via the subsidiary BASF Venture Capital GmbH.

About BASF

BASF is the world's leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics, performance products, agricultural products and fine chemicals to crude oil and natural gas. As a reliable partner to virtually all industries, BASF's intelligent system solutions and high-value products help its customers to be more successful. BASF develops new technologies and uses them to open up additional market opportunities. It combines economic success with environmental protection and social responsibility, thus contributing to a better future. In 2005, BASF had approximately 81,000 employees and posted sales of more than €42.7 billion. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA), New York (BF) and Zurich (AN). Further information on BASF is available on the Internet at www.basf.com.

About OrganoBalance GmbH

OrganoBalance GmbH is a company specializing in microbial strain development and microbiological screening. OrganoBalance taps into the potential of beneficial microorganisms, known as specific probiotic cultures, to compensate imbalances in the microflora on a natural basis and restore the microbial equilibrium. In close cooperation with leading industry partners, OrganoBalance develops new biological products in the areas of nutrition, cosmetics and preventive health care. In its development activities, the company draws on its own collection of microorganism strains suitable for food applications and its own OASSYS® screening systems.

OrganoBalance was founded in 2001 and is headquartered in Berlin. Information in the internet at www.organobalance.de.