

News Release



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BASF set to commercialize pro-t-action™ eliminating caries causing bacteria from the mouth

- **OrganoBalance GmbH and BASF developed pro-t-action™ product based on probiotic microorganisms**
- **Active ingredient easily integrated into consumer products for daily oral care**
- **Full research studies introduced at International Association of Dental Research annual conference in Miami, FL, April 1-4**

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With an eye to help remedy a main cause of tooth decay affecting an estimated 5 billion people world-wide, BASF SE, in collaboration with OrganoBalance GmbH, are set to commercialize pro-t-action™. Based on probiotic microorganisms (scientific name: *Lactobacillus*), the active ingredient in pro-t-action™ binds to and eliminates caries causing bacteria (*Streptococcus mutans*) from the mouth. The Berlin based OrganoBalance is specialized in microbial strain development and microbiological screening. Together the companies identified a very particular strain of *Lactobacillus paracasei* and BASF has since developed a proprietary production process enabling the active ingredient to be easily integrated into everyday consumer products like toothpaste, mouthwash, candies, lozenges and chewing gums used for daily oral care.

Caries causing bacteria in the oral cavity, like *Streptococcus mutans*, initiate the onset of tooth decay converting the sugar from food into acids. These acids ultimately destroy tooth enamel, reducing essential minerals protecting the teeth and thus leading to lesions or cavities. Shown in testing, the active

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ingredient, *L. paracasei*, in pro-t-action™ has the unique ability to very precisely target the caries causing bacteria and bind exclusively to them, and clumping them. When aggregated and grouped together in this way, the bacteria can be flushed out of the oral cavity by normal swallowing or rinsing. Needing to remain in the oral cavity for only a minimum of ten seconds to become active, pro-t-action™ is absolutely tasteless, odorless, pH-neutral and helps to maintain the healthy and beneficial microflora in the oral cavity.

“Working closely with OrganoBalance, we have been able to identify the *L. paracasei* strain that effectively and exclusively binds to the caries bacteria and in doing so improves elimination from the mouth,” said Dr. Markus Pompejus, Senior Manager BASF Future Business GmbH. “The effectiveness of the active ingredients combined with BASF’s ability to offer a product ready for incorporation into everyday oral care products, truly represents new and exciting possibilities in the way of significantly improving oral health.”

Research on *L. paracasei* for the development of pro-t-action™ was conducted as a joint effort by OrganoBalance and BASF, in collaboration with the School of Dental Medicine at the University of Connecticut Health Center. The findings of the research, led by Dr. Jason M. Tanzer, University of Connecticut Health Center, and those of Dr. Christine Lang, OrganoBalance, will be presented at the International Association of Dental Research (IADR) annual conference held in Miami, FL, April 1-4.

Dr. Lang will provide details into the research conducted to identify the appropriate strain of *Lactobacillus* with the unique ability to bind specifically to *Streptococcus mutans*. “OrganoBalance’s large proprietary strain collection and the unique screening capabilities were an important basis for this research”, said Dr. Lang. “Application testing together with BASF revealed the potential for improved oral care.”

Dr. Tanzer will present his work focusing on the blinded testing that was conducted to reveal a significant reduction, as much as 40 percent, in the

level of colonization of *Streptococcus mutans* on the teeth, along with a substantial reduction of caries.

“The laboratory tests conducted at the University of Connecticut Health Center demonstrated the ability of the *L. paracasei* used in pro-t-action™ to significantly reduce the levels of decay up to 27 percent on average,” said Dr. Tanzer. “These findings, which are the logical consequence of the ability of selected *L. paracasei* to specifically clump *Streptococcus mutans*, present an intriguing new approach to controlling this miserable, prevalent, and costly disease, tooth decay.”

The active ingredient in pro-t-action™, *L. paracasei*, is a natural active ingredient with a specific and selective mode of action. During production only selected natural ingredients, trace elements, salts and natural pro-t-action™ microorganisms are used. The microorganisms are fermented, and stabilized, pasteurized and dried after harvesting. Like with all BASF products, comprehensive safety and toxicological testing have been conducted in full.

The development of pro-t-action™ is part of BASF’s research and advancement in white biotechnology otherwise known as industrial biotechnology. In white biotechnology, BASF combines broad expertise in biocatalysis and fermentation technology with core competencies in chemistry, process know-how and application technology to create novel solutions for customers. The focus of this research is on: new enzyme-catalyzed products and processes, the development of new bio-based products, and the increased use of renewable raw materials.

Note to editors:

You can download a photo from the BASF homepage at www.basf.com/pressphoto-database, key word: “Research Development” search term: “pro-t-action”.

About BASF Future Business GmbH

BASF Future Business GmbH, a 100 percent subsidiary of BASF SE, was founded in April 2001. It aims to open 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. Other alternatives include the acquisition of direct stakes, joint ventures with partner companies or provision of venture capital via the subsidiary BASF Venture Capital GmbH. Further information on BASF Future Business is available on the Internet at www.basf-fb.de.

About BASF

BASF is the world's leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics and performance products to agricultural products, fine chemicals as well as oil and gas. As a reliable partner BASF helps its customers in virtually all industries to be more successful. With its high-value products and intelligent solutions, BASF plays an important role in finding answers to global challenges such as climate protection, energy efficiency, nutrition and mobility. BASF has approximately 97,000 employees and posted sales of more than €62 billion in 2008. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) 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 on the internet at www.organobalance.de.