

**DSM Nutritional Products publishes new positive findings about  $\beta$ -Carotene**

Kaiseraugst, CH, 16 November 2007

According to a study published today in the renowned Journal of Biological Chemistry (J. Biol. Chem., Vol. 282, Issue 46, 33553-33561, November 16, 2007), an increased consumption of  $\beta$ -carotene-rich feed may contribute to decreasing the risk of chronic diseases. A research collaboration team from DSM Nutritional Products and the Albert-Ludwigs-University of Freiburg (Germany) publish novel findings about  $\beta$ -carotene functions. This micronutrient is a major dietary precursor (pro-vitamin) of vitamin A, which is essential for gene regulation and vision.

For vitamin A production,  $\beta$ -carotene must be cleaved into the real vitamin. For the first time, researchers established a genetically modified mouse by knocking out the gene responsible for the pro-vitamin A cleaving enzyme. As expected, mice lacking the pro-vitamin-cleaving enzyme became vitamin A-deficient and accumulated  $\beta$ -carotene in several tissues. More surprisingly, these mice also showed characteristic changes in blood lipid levels and developed fatty liver. Feeding preformed vitamin A prevented vitamin A-deficiency in these mice, but not the disturbances in lipid metabolism. Furthermore, even when vitamin A was available with the diet, the genetically modified mice were more susceptible to obesity.

These findings may have some significant public health implications. Carotenoids such as  $\beta$ -carotene are not only important for well known vitamin A-dependent processes such as vision, but may also be beneficial for additional health aspects. Disturbances in lipid metabolism, as found in this mouse mutant, are causally linked to cardiovascular and liver disease. Such secondary disorders are prevalent in the increasing number of obese patients worldwide. The results of this new study imply that vitamin A cannot substitute for all physiological functions of the pro-vitamin. This finding positions  $\beta$ -carotene in close relation to other essential food ingredients, i.e., vitamins and polyunsaturated fatty acids. Considering the additional health effects of  $\beta$ -carotene described in this study, an increased consumption of  $\beta$ -carotene-rich food may contribute to lower the burden of chronic diseases encountered in both industrialized and developing countries.

On November 12th another study published in Archives of Internal Medicine (Vol 167(20):2184-2190) showed that long-term  $\beta$ -carotene supplementation may provide cognitive benefits in Men. Both findings further support the importance of  $\beta$ -carotene for human nutrition and health.

**About DSM Nutritional Products**

DSM Nutritional Products is the world's leading supplier of vitamins, carotenoids and other fine chemicals to the feed, food, pharmaceutical and personal care industries. The business has sales of about EUR 2 billion and a long tradition as a pioneer in the discovery of new products, new formulations and attractive applications for all industry segments. For further company information please visit [www.dsmnutritionalproducts.com](http://www.dsmnutritionalproducts.com)

**About DSM**

DSM is active worldwide in nutritional and pharma ingredients, performance materials and industrial chemicals. The company develops, produces and sells innovative products and services that help improve the quality of life. DSM's products are used in a wide range of end-markets and applications, such as human and animal nutrition and health, personal care, pharmaceuticals, automotive and transport, coatings and paint, housing and electronics & electronics (E&E). DSM's strategy, named Vision 2010 – Building on Strengths, focuses on accelerating profitable and innovative growth of the company's specialties portfolio. The key drivers of this strategy are market-driven growth and innovation plus an increased presence in emerging economies. The group has annual sales of over €8 billion and employs some 22,000 people worldwide. DSM ranks among the global leaders in many of its fields. The company is headquartered in the Netherlands, with locations in Europe, Asia, Africa, Australia and the Americas. More information about DSM can be found at [www.dsm.com](http://www.dsm.com)

**For more information:**  
DSM Nutritional Products  
Charlotte Frederiksen

Tel. +41 (0) 61 688 85 14

Fax +41 (0) 61 687 37 16

E-mail: [charlotte.frederiksen@dsm.com](mailto:charlotte.frederiksen@dsm.com)

## ***Forward-looking statements***

*This press release contains forward-looking statements. These statements are based on current expectations, estimates and projections of DSM management and information currently available to the company. The statements involve certain risks and uncertainties that are difficult to predict and therefore DSM does not guarantee that its expectations will be realized. Furthermore, DSM has no obligation to update the statements contained in this press release*