

## **ALA and contribution to brain development**

### **Scientific substantiation of a health claim related to ALA and contribution to brain development pursuant to Article 14 of Regulation (EC) No 1924/2006<sup>1</sup>**

### **Scientific Opinion of the Panel on Dietetic Products, Nutrition and Allergies**

(Question No EFSA-Q-2008-666)

**Adopted on 13 March 2009**

#### **SUMMARY**

Following an application from Kraft Biscuits Europe R&D submitted pursuant to Article 14 of Regulation (EC) No 1924/2006 via the Competent Authority of Belgium, the Panel on Dietetic Products, Nutrition and Allergies was asked to deliver an opinion on the scientific substantiation of a health claim related to ALA and contribution to brain development.

The scope of the application was proposed to fall under a health claim referring to children's development and health.

The food constituent that is the subject of the health claim is alpha-linolenic acid (ALA), a well recognised nutrient that is measurable in foods by established methods. This fatty acid is well absorbed when consumed in the form of triglycerides. Sufficient information is provided on the stability of ALA in processed foods. This evaluation will apply to all appropriate sources of ALA in the specified amounts. The panel considers that ALA is sufficiently characterised.

The claimed effect is that ALA contributes to brain development and the target population is children aged 3 to 6 years. The Panel considers that normal brain development is beneficial for the development of children.

A total of one human study and 20 non-human studies were identified and considered as pertinent by the applicant.

The human study was a case report of ALA deficiency in a 6 year old girl maintained on total parenteral nutrition (TPN) containing safflower oil (devoid of ALA but with a very high content of linoleic acid) for five months. The girl developed neurological and visual problems: episodes of numbness, paresthesia, weakness, inability to walk, pain in the legs, blurring of vision. After switching to another TPN preparation containing soybean oil (adequate in both

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\* One member of the Panel did not participate in the discussion on the subject referred to above because of possible conflicts of interest.

ALA and linoleic acid), the neurological symptoms disappeared in a few months. The panel notes that this study does not provide any information on a dose-response relationship between ALA intake and brain development. The Panel also notes that no dietary epidemiological or intervention studies involving ALA were presented to substantiate the claimed effect.

Those non-human studies that the applicant identified as being pertinent to the claimed effect were concerned primarily with brain fatty acid synthesis, content and structural effects in the brain of rhesus monkeys and rats. The Panel considers that these data are sufficient to establish that ALA is a precursor of docosahexaenoic acid (DHA), the major fatty acid in mammalian brain. The Panel notes that no data are provided on the efficacy of conversion of dietary ALA to DHA and on the relative importance of dietary ALA (compared with other n-3 fatty acid sources) as a precursor of DHA in the target population.

On the basis of the data presented, the Panel concludes that a cause and effect relationship has been established between ALA and “contribution to brain development”. However, dietary deficiency of ALA leading to impaired brain development has never been demonstrated in human populations.

The wording “alpha-linolenic acid contributes to brain development” reflects the scientific evidence.

The Panel considers that the evidence provided does not establish a benefit for brain development in children of ALA intake greater than about 0.2% of total energy. This quantity is consumed as part of a balanced diet.

**Key words:** ALA, brain development, children