

LACPRODAN® CGMP-10
- unique performance in special diets



Arla Foods Ingredients
The essence of quality



A whey protein unlike any other

Diets for special needs place exacting demands on the ingredients that go into appropriate foods and beverages. A highly bioactive casein-derived whey peptide, caseinoglycomacropeptide (CGMP) rises to the challenge, with unique properties that make it a valuable supplement in weight management diets, dietary treatment of the rare genetic disease phenylketonuria (PKU) and infant formula.

At Arla Foods Ingredients, our extensive knowledge of milk components and fractionation techniques has created the CGMP product LACPRODAN® CGMP-10 – produced using a patented process (1). For the specific values of LACPRODAN® CGMP-10 please request the product specification sheet.

General definition of CGMP

What makes CGMP so outstanding compared to other



whey proteins is its amino acid profile. Consisting of 64 amino acids originating from the C-terminal portion of κ -casein, the CGMP as a peptide is entirely free of the aromatic amino acids, phenylalanine, tyrosine and tryptophan. The essential amino acid threonine constitutes some 18% of the total amino acid content and a large portion is glycosylated – the sialic acid content being around 4.2%. Due to the low content of the essential amino acids histidine, leucine, phenylalanine and tryptophan, an additional protein source may have to be incorporated in some applications.

CGMP is obtained during cheese manufacture. An enzyme added to the milk, chymosin hydrolyses the κ -casein into para-casein, consisting of residues 1-105, and CGMP, consisting of residues 106-169. When calculated from the amino acid sequence, CGMP has a molecular weight of 6707 Daltons. CGMP exists in bovine milk in two genetic variations, variant A and variant B.

A valuable peptide

The highly specific benefits CGMP provides play an important and sometimes essential role in a number of application areas.

Weight management

In weight control diets, CGMP exhibits a rare ability to provoke an appetite-reducing effect. This occurs on digestion of the peptide, which nearly triples the release of the gut hormone cholecystokinin (CCK) from the wall of the duodenum and jejunum and into the blood. CCK slows gastric emptying and stimulates the release of digestive enzymes and insulin – the combination of which contributes to a long-lasting feeling of satiety.



CGMP is easily incorporated into various consumer products.



The sialic acid content and glycosylation in CGMP appear to play a major role in causing the increased CCK release (2,3).

PKU treatment

Phenylketonuria is a genetic disease caused by the absence or impaired activity of the hepatic enzyme phenylalanine hydroxylase, which means phenylalanine cannot be metabolised. The first clinical signs of PKU appear when an infant is 3-6 months of age, but treatment is required before the age of three weeks to prevent irreversible mental retardation.

Treatment of PKU is dietary and consists of a diet low in phenylalanine and supplemented with tyrosine, which is the amino acid normally synthesised from phenylalanine. The lack of the aromatic amino acid phenylalanine in CGMP makes it ideally suited for dietary treatment of PKU in supplementation with another protein source. Infants with classic PKU still require 20-50mg of phenylalanine per kilo bodyweight a day for growth. This requirement can be met by combining breastfeeding with phenylalanine-free infant formula based on CGMP. Infants, who are not breast-fed, are fed either phenylalanine-free infant formula or a whey-based infant formula with a low phenylalanine content. Adequate intake of energy, protein and other nutrients are critical in order to maintain a balanced blood phenylalanine concentration and allow normal growth and brain development (4).



of newborn infants is immature, suggesting a limited rate of endogenous sialic acid synthesis and a restriction on rapid growth and brain development (6,7). As the concentration of sialic acid in the brain and central nervous system is likely to be influenced by its dietary source, neonates and infants may benefit from a CGMP-supplemented infant formula (6).

Make the most of our experience

At Arla Foods Ingredients, we have considerable experience in nutrition bars, beverages and other applications supplemented with CGMP. Put our experience to good use by contacting our CGMP specialists for application assistance.

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