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PARTIALLY HYDROLYZED CASEIN-WHEY NUTRITIONAL COMPOSITIONS FOR REDUCING THE ONSET OF ALLERGIES

BACKGROUND

1. Technical Field

This disclosure relates generally to the field of nutritional compositions, such as infant formulas, human milk fortifiers, children's dietary supplements, and the like, that contain a fat or lipid source, a carbohydrate source, and a protein source comprising whey and casein proteins as well as to methods of administering such compositions.

2. Background

Children and infants are susceptible to a number of different allergies, including, without limitation, allergic colitis, allergic enterocolitis, allergic esophagitis, allergic gastroesophagitis, allergic urticaria, atopic dermatitis, allergic reactions to cow's milk, allergic reactions to egg, allergic reactions to soy, allergic reactions to house dust, allergic reactions to mites, and gut inflammation. Allergies can lead to a number of adverse health events, including trouble breathing and even death in particularly vulnerable children and infants. Thus, it is particularly important that nutritional compositions for children and infants be formulated so as to reduce the onset of allergies.

Accordingly, it is an object of the present disclosure to provide nutritional compositions for children and infants that reduce the onset of allergies.

In addition, nutritional compositions containing high levels of lactose can cause a variety of symptoms, such as abdominal bloating, gas, cramps and diarrhea, in infants and children that do not produce sufficient amounts of the enzyme lactase. Thus, in certain embodiments, the nutritional compositions of the present disclosure have a low level of lactose.

BRIEF SUMMARY

Briefly, the present disclosure is directed, in an embodiment, to a method of reducing the onset of allergies in a human, such as a child or infant.

In one embodiment, the present disclosure provides a method of reducing the onset of allergies in a human comprising administering to a human, when the human is an infant, a nutritional composition including:

- a. a fat or lipid source;
- b. a protein source; and
- c. a carbohydrate source.

In certain embodiments, the protein source of the nutritional compositions comprises whey and casein proteins and the whey and casein proteins are partially hydrolyzed. Preferably, the weight ratio of whey to casein proteins is, for example, from about 50:50 to about 70:30, more preferably about 60:40, and the degree of hydrolysis of the whey and casein proteins included in the protein source is from about 4% to about 10%, more preferably about 6% to about 9%.

Preferably, the nutritional composition is a nutritionally complete composition. In particular embodiments, the nutritional composition is a weaning formula. Preferably, the nutritional composition is administered to an infant who has a family history of allergies as a method of reducing the onset of allergic manifestations when the infant becomes a child of about 2 years of age or older. Preferably, the infant is at risk of developing one or more allergic manifestations in childhood. In certain embodiments, the allergic manifestations include allergic colitis, allergic enterocolitis, aller-

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gic esophagitis, allergic gastroesophagitis, allergic urticaria, atopic dermatitis, allergic reactions to cow's milk, allergic reactions to egg, allergic reactions to soy, allergic reactions to house dust, allergic reactions to mites, gut inflammation, and combinations thereof. It is also preferred that the administration of the nutritional composition increases the concentration of fecal secretory IgA (sIgA) in the human.

Preferably, the nutritional composition comprises a probiotic source. In certain embodiments, the probiotic source comprises *Lactobacillus rhamnosus* GG and *Lactobacillus rhamnosus* GG is present in the nutritional composition in an amount such that the human is administered between about 10^4 to about 10^{10} colony forming units (cfu) per kg body weight per day. In certain embodiments, the nutritional composition comprises between about 10^4 to about 10^{10} cfu of *Lactobacillus rhamnosus* GG per 100 kcal.

In certain embodiments, the carbohydrate source comprises between about 15% to about 55%, more preferably between about 20% and about 30%, lactose, by weight. The carbohydrate source may further comprise about 0.1 g/100 kcal to about 1 g/100 kcal of a prebiotic composition. More preferably, the carbohydrate source comprises about 0.1 g/100 kcal to about 1 g/100 kcal of a prebiotic composition which comprises a combination of polydextrose and galactooligosaccharide.

In certain embodiments, the whey and casein proteins in the protein source have the molecular weight distribution set forth in Table 1.

TABLE 1

Molar Mass (in Daltons)	% Molecular Weight Distribution
<500	11-20
500-1000	25-38
1000-2000	27-30
2000-3000	8-16
3000-5000	3-10
>5000	2-11

It is especially preferred that the whey and casein proteins in the protein source have the molecular weight distribution set forth in Table 2.

TABLE 2

Molar Mass (in Daltons)	% Molecular Weight Distribution
<500	17
500-1000	35.1
1000-2000	30.9
2000-3000	9.6
3000-5000	4.2
>5000	2.8

DETAILED DESCRIPTION

In one embodiment, the present disclosure provides a method of reducing the onset of allergies in a human comprising administering to the human, when the human is an infant, a nutritional composition including a fat or lipid source, a carbohydrate source, and a protein source comprising partially hydrolyzed whey and casein proteins.

In an embodiment, the nutritional composition is administered to an infant as a method of reducing the onset of allergic manifestations when the infant becomes a child of about 2 years of age or older. As used herein, "a child" and