infant a preterm infant nutritional composition comprising HMB at from about 60 μg per liter of the composition to about 6,000 mg per liter the composition, the composition having an energy density of from about 676 to about 1014 kcal per liter.

[0013a] In some embodiments, there is provided a use of a preterm infant nutritional composition comprising from about 60 μg to about 6,000 mg beta-hydroxy-beta-methylbutyric acid, wherein the preterm infant nutritional composition has an energy density of from about 676 kcal to about 1014 kcal per liter, in the manufacture of a medicament for promoting protein synthesis, promoting growth and accretion of lean body mass, or both in a preterm infant

BRIEF DESCRIPTION OF THE FIGURES

[0014] Fig. 1 shows a plot of the blood plasma concentration of HMB vs. the amount of HMB infused in piglets.

[0015] Fig. 2 shows a plot of plasma concentrations of various compounds vs. the amount of HMB infused in piglets.

[0016] Fig. 3 is a plot of amino acid concentration vs. plasma BCAA, EAA, NEAA and leucine concentrations in piglets infused with HMB or leucine.

[0017] Fig. 4 shows a plot of plasma glucose concentrations in piglets infused with HMB.

[0018] Fig. 5 shows a plot of the fractional rate of protein synthesis in skeletal muscles of piglets infused with HMB.

[0019] Fig. 6 shows a plot of the fractional protein synthesis in the lung of piglets infused with HMB.

[0020] Fig. 7 shows a plot of the fractional protein synthesis in the spleen of piglets infused with HMB.

[0021] Fig. 8 shows the protein synthesis rate in various muscles of piglets in response to infusion of HMB or leucine.

8. The preterm infant nutritional composition according to claim 2, wherein the composition is a liquid protein supplement comprising an energy density of from about 2 kcal to about 10 kcal per 6 mL of the supplement.

9. ~~A method for promoting protein synthesis, promoting growth and accretion of lean body mass, or both in a preterm infant, the method comprising the step of administering to the preterm infant a~~ Use of a preterm infant nutritional composition comprising from about 60 μg to about 6,000 mg beta-hydroxy-beta-methylbutyric acid, wherein the preterm infant nutritional composition has an energy density of from about 676 kcal to about 1014 kcal per liter, in the manufacture of a medicament for promoting protein synthesis, promoting growth and accretion of lean body mass, or both in a preterm infant.

10. The ~~method~~ use of claim 9, wherein the preterm infant nutritional composition is selected from the group of: liquid infant formula; liquid human milk fortifier; and liquid protein supplement.

11. The ~~method~~ use of claim 10, further comprising the step of preparing the preterm infant nutritional composition by reconstituting a nutritional powder comprising beta-hydroxy-beta-methylbutyric acid.

12. The ~~method~~ use of claim 11, wherein the weight percentage of the beta-hydroxy-beta-methylbutyric acid in the nutritional powder is from about 0.000004% to about 25% by weight of the nutritional powder.

13. The ~~method~~ use of claim 11, wherein the weight percentage of the beta-hydroxy-beta-methylbutyric acid in the nutritional powder is from about 0.01% to about 10% by weight of the nutritional powder.

14. The ~~method~~ use of any one of claims 9-13, wherein the preterm infant nutritional composition comprises protein in an amount of from about 15 grams to about 35 grams of protein per liter of the composition.

15. The ~~method~~ use of any one of claims 9-13, wherein the preterm infant nutritional composition comprises protein in an amount of from about 18 grams to about 32 grams of protein per liter of the composition.

16. The ~~method~~ use of any one of claims 9-15, wherein the preterm infant nutritional composition is administered to the preterm infant orally or parenterally.