Claims

1. Use of glyceryl tri-[4-phenylbutyrate] (HPN-100) in the manufacture of a pharmaceutical composition for use in:

A) a method of treating a nitrogen retention disorder selected from the group consisting of urea cycle disorders (UCD), hepatic encephalopathy (HE), and end-stage renal disease (ESRD) in a subject, wherein glyceryl tri-[4-phenylbutyrate] (HPN-100) to be administered to the subject with a second dosage is determined based on an *ex vivo* method comprising:

(a) measuring plasma phenylacetic acid (PAA) and phenylacetylglutamine (PAGN) levels, after an administration of a first dosage of glyceryl tri-[4-phenylbutyrate] (HPN-100),

(b) calculating a plasma PAA:PAGN ratio,

(c) determining whether the glyceryl tri-[4-phenylbutyrate] (HPN-100) dosage needs to be adjusted based on whether the PAA:PAGN ratio falls within a target range of 1 to 2.5, where a PAA:PAGN ratio below the target range indicates that the dosage needs to be increased and a PAA:PAGN ratio above the target range indicates that the dosage needs to be decreased;

or

B) a method of treating a nitrogen retention disorder selected from the group consisting of urea cycle disorders (UCD), hepatic encephalopathy (HE), and end-stage renal disease (ESRD) in a subject who has previously been administered a first dosage of glyceryl tri-[4-phenylbutyrate] (HPN-100), wherein glyceryl tri-[4-phenylbutyrate] (HPN-100) to be administered to the subject with a second dosage is determined based on an *ex vivo* method comprising:

(a) measuring plasma PAA and PAGN levels,

(b) calculating a plasma PAA:PAGN ratio,

(c) determining whether the first glyceryl tri-[4-phenylbutyrate] (HPN-100) dosage needs to be adjusted based on whether the PAA:PAGN ratio falls within a target range of 1 to 2.5, where a PAA:PAGN ratio below the target range indicates that the dosage needs to be increased and a PAA:PAGN ratio above the target range indicates that the dosage needs to be decreased.

2. Use of glyceryl tri-[4-phenylbutyrate] (HPN-100) as in claim 1, wherein the target range is 1 to 2.

3. Use of glyceryl tri-[4-phenylbutyrate] (HPN-100) as in claim 1, wherein measurement of PAA and PAGN levels is carried out 48 hours to 1 week after the first dosage of glyceryl tri-[4-phenylbutyrate] (HPN-100) is administered.

4. Use of glyceryl tri-[4-phenylbutyrate] (HPN-100) as in claim 1, wherein the treated subject has hepatic impairment.

5. Use of glyceryl tri-[4-phenylbutyrate] (HPN-100) as in claim 5, wherein the hepatic impairment is moderate or severe hepatic impairment.

6. Use of glyceryl tri-[4-phenylbutyrate] (HPN-100) as in claim 5, wherein the treated subject is two months of age or older.