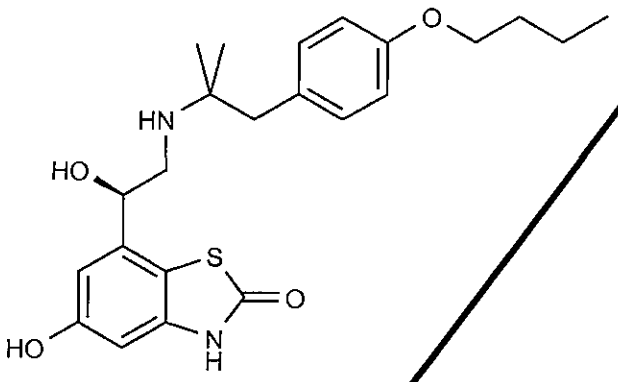
Claims

1. A compound of formula (I) in free form or in pharmaceutically acceptable salt form which is



(I).

2. A compound according to claim 1 which is (*R*)-7-(2-(1-(4-butoxyphenyl)-2-methylpropan-2-ylamino)-1-hydroxyethyl)-5-hydroxybenzo[d]thiazol-2(3H)-one in free form.

3. A compound according to claim 1 which is (*R*)-7-(2-(1-(4-butoxyphenyl)-2-methylpropan-2-ylamino)-1-hydroxyethyl)-5-hydroxybenzo[d]thiazol-2(3H)-one in acetate salt form.

4. A compound according to claim 1 which is (*R*)-7-(2-(1-(4-butoxyphenyl)-2-methylpropan-2-ylamino)-1-hydroxyethyl)-5-hydroxybenzo[d]thiazol-2(3H)-one in glycolate salt form.

5. A pharmaceutical composition comprising a therapeutically effective amount of a compound according to any one of claims 1 to 4 and one or more pharmaceutically acceptable carriers.

6. A pharmaceutical composition according to claim 5 wherein one of the pharmaceutically acceptable carriers is benzyl alcohol.

7. A combination comprising a therapeutically effective amount of a compound according to any one of claims 1 to 4 and one or more therapeutically active co-agents.

8. A method of treatment or prevention of muscular dystrophy, disuse-related atrophy, cachexia or sarcopenia comprising administering a therapeutically effective amount of a compound according to any one of claims 1 to 4 to a subject in need thereof.

9. A method according to claim 8, wherein the compound is administered by subcutaneous infusion or injection.

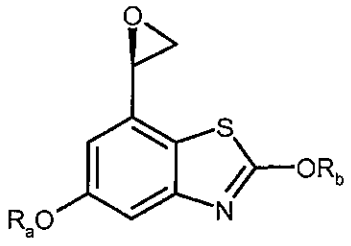
10. A compound according to any one of claims 1 to 4 for use as a medicament.

11. A compound according to any one of claims 1 to 4 for use in the treatment or prevention of muscular dystrophy, disuse-related atrophy, cachexia or sarcopenia.

12. Use of a compound according to any one of claims 1 to 4 in the manufacture of a medicament for the treatment or prevention of muscular dystrophy, disuse-related atrophy, cachexia or sarcopenia.

13. A process for the manufacture of a compound of formula (I) in free form or in pharmaceutically acceptable salt form which includes the steps of:

   a. the reaction of a compound of formula (IIa) in free form or in pharmaceutically acceptable salt form



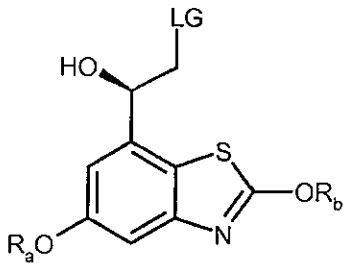
(IIa)

   in which R_a and R_b are protecting groups with 2-(4-butoxy-phenyl)-1,1-dimethyl-ethylamine;

   b. the cleavage of any protecting groups still present;

   c. the recovery of the so obtainable compound of formula (I) in free form or in pharmaceutically acceptable salt form.

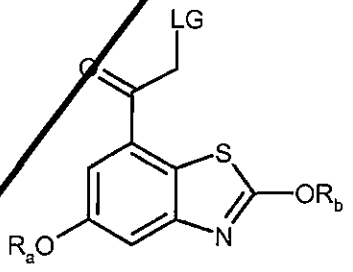
14. A process for the manufacture of a compound of formula (I) in free form or in pharmaceutically acceptable salt form according to claim 13 in which compound (IIa) is obtained by the reaction of a compound of formula (IIIa) in free form or in pharmaceutically acceptable salt form



(IIIa)

in which in which R_a and R_b are protecting groups and LG is a leaving group with a base and optionally a phase transfer catalyst.

15. A process for the manufacture of a compound of formula (I) in free form or in pharmaceutically acceptable salt form according to claim 14 in which compound (IIIa) is obtained by the stereoselective reduction of a compound of formula (IVa-2) in free form or in pharmaceutically acceptable salt form

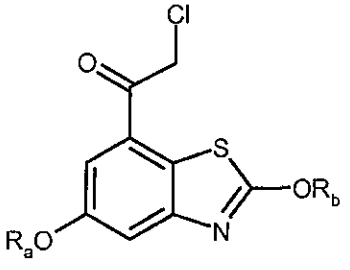


(IVa-2)

in which R_a and R_b are protecting groups and LG is a leaving group.

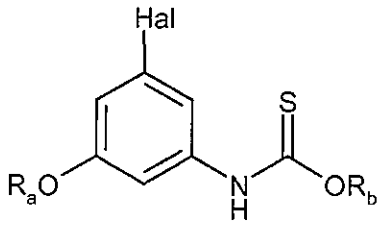
16. A process according to claim 15 wherein the LG is chloro.

17. A process according to claim 16 in which compound (IVa'-2) in free form or in pharmaceutically acceptable salt form



(IVa'-2)

is obtained by the reaction of a compound of formula (Va) in free form or in pharmaceutically acceptable salt form

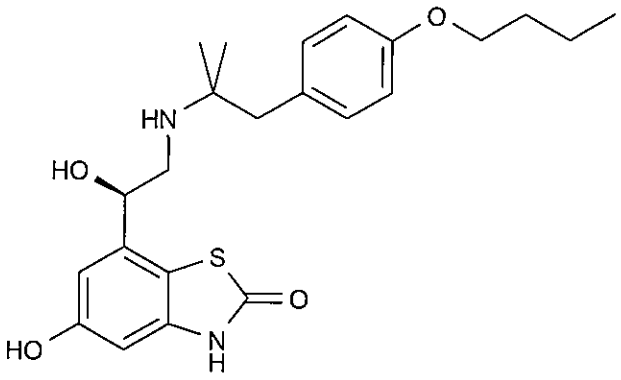


(Va)

in which R_a and R_b are protecting groups and Hal is a halogen with 2-chloro-N-methoxy-N-methyl-acetamide in the presence of a strong base.

Claims

1. A compound of formula (I) in free form or in pharmaceutically acceptable salt form which is



(I).

2. A compound according to claim 1 which is (*R*)-7-(2-(1-(4-butoxyphenyl)-2-methylpropan-2-ylamino)-1-hydroxyethyl)-5-hydroxybenzo[d]thiazol-2(3H)-one in free form.

3. A compound according to claim 1 which is (*R*)-7-(2-(1-(4-butoxyphenyl)-2-methylpropan-2-ylamino)-1-hydroxyethyl)-5-hydroxybenzo[d]thiazol-2(3H)-one in acetate salt form.

4. A pharmaceutical composition comprising a therapeutically effective amount of a compound according to any one of claims 1 to 3 and one or more pharmaceutically acceptable carriers.

5. A pharmaceutical composition according to claim 4 wherein one of the pharmaceutically acceptable carriers is benzyl alcohol.

6. A combination comprising a therapeutically effective amount of a compound according to any one of claims 1 to 3 and one or more therapeutically active co-agents.

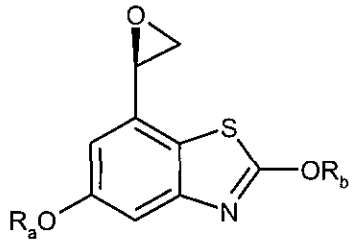
7. A compound according to any one of claims 1 to 3 for use as a medicament.

8. A compound according to any one of claims 1 to 3 for use in the treatment or prevention of muscle-wasting diseases.

9. A compound for use according to claim 8 in the treatment or prevention of muscular dystrophy, disuse-related atrophy, cachexia or sarcopenia.

10. A process for the manufacture of a compound of formula (I) in free form or in pharmaceutically acceptable salt form which includes the steps of:

    a. the reaction of a compound of formula (IIa) in free form or in pharmaceutically acceptable salt form



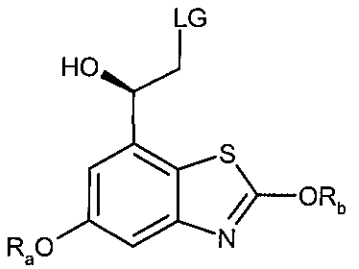
(IIa)

    in which R_a and R_b are protecting groups with 2-(4-butoxy-phenyl)-1,1-dimethyl-ethylamine;

    b. the cleavage of any protecting groups still present;

    c. the recovery of the so obtainable compound of formula (I) in free form or in pharmaceutically acceptable salt form.

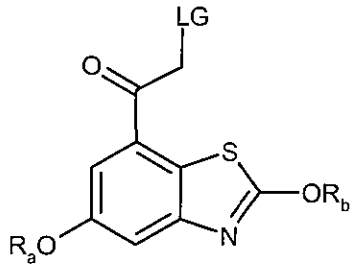
11. A process for the manufacture of a compound of formula (I) in free form or in pharmaceutically acceptable salt form according to claim 10 in which compound (IIa) is obtained by the reaction of a compound of formula (IIIa) in free form or in pharmaceutically acceptable salt form



(IIIa)

in which in which R_a and R_b are protecting groups and LG is a leaving group with a base and optionally a phase transfer catalyst.

12. A process for the manufacture of a compound of formula (I) in free form or in pharmaceutically acceptable salt form according to claim 11 in which compound (IIIa) is obtained by the stereoselective reduction of a compound of formula (IVa-2) in free form or in pharmaceutically acceptable salt form

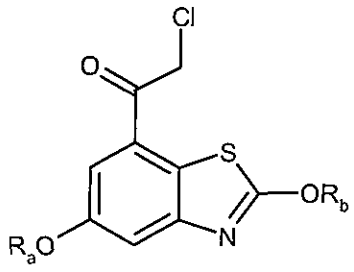


(IVa-2)

in which R_a and R_b are protecting groups and LG is a leaving group.

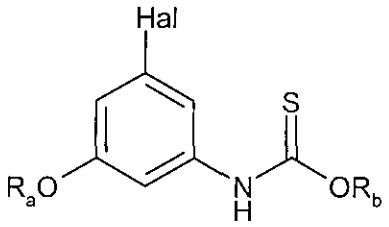
13. A process according to claim 12 wherein the LG is chloro.

14. A process according to claim 13 in which compound (IVa'-2) in free form or in pharmaceutically acceptable salt form



(IVa'-2)

is obtained by the reaction of a compound of formula (Va) in free form or in pharmaceutically acceptable salt form



(Va)

in which R_a and R_b are protecting groups and Hal is a halogen with 2-chloro-N-methoxy-N-methyl-acetamide in the presence of a strong base.