In particular, the inventors of the present invention found out that eprotirome clearly prolongs anagen as seen in hair staging histomorphometry following *in vitro* testing in a human hair follicle organ culture and confirmed by an increased proliferation of hair matrix keratinocytes and a significant reduced expression of TGFβ2. Furthermore, upregulation of tyrosinase activity and increased melanin content in treated hair follicles reflect pigmentation-stimulatory effects.

Summary of the Invention

Therefore, the subject-matter of the present invention is eprotirome for use in the prevention and/or treatment of hair disorders in a mammal.

In one aspect, there is provided the use of eprotirome in the manufacture of a medicament for the prevention and/or treatment of hair disorders in a mammal.

Further, the subject-matter of the present invention is also a pharmaceutical composition comprising:
(a) eprotirome as active ingredient for the prevention and/or treatment of hair disorders, and
(b) a pharmaceutically acceptable excipient, for use in the prevention and/or treatment of hair disorders in a mammal.

In one aspect, there is provided the use of a pharmaceutical composition in the manufacture of a medicament for the prevention and/or treatment of hair disorders comprising:

(a) eprotirome as active ingredient, and

(b) a pharmaceutically acceptable excipient.

Consequently, the present invention relates to eprotirome and to a pharmaceutical composition comprising eprotirome as active ingredient and pharmaceutically acceptable excipients for use in the prevention and/or treatment of hair disorders, in particular for preventing and/or treating hair graying and/or hair loss, including arresting and/or reversing hair loss and promoting hair growth.

In one aspect, there is provided a non-therapeutic use of eprotirome in the treatment and/or prevention of hair loss in mammals and/or in the prevention of hair conditions, preferably in the prevention and/or reversal of hair graying.

Detailed description of the invention

The chemical name of eprotirome, also known as KB2115, is 3-[[3,5-dibromo-4-[4-hydroxy-3-(1-methylethyl)phenoxy]phenyl]amino]-3-oxo-propanoic acid). The chemical structure of eprotirome is illustrated in the following:

Claims

1. Use of ~~E~~eprotirome in the manufacture of a medicament for ~~use in~~ the prevention and/or treatment of hair disorders in a mammal.

2. ~~Eprotirome for~~ The use according to claim 1 wherein the hair disorder is hair loss.

3. ~~Eprotirome for~~ The use according to any one of claims 1 and 2 wherein the hair loss is selected from alopecia areata, androgenetic alopecia including male pattern and female pattern baldness and chemotherapy-induced hair loss.

4. ~~Eprotirome for~~ The use according to any one of claims 1 to 3 wherein the mammal is a human being.

5. ~~Eprotirome for~~ The use according to any one of claims 1 to 3 wherein eprotirome is applied topically on the skin of a mammal.

6. Use of ~~A~~a pharmaceutical composition in the manufacture of a medicament for ~~use in~~ the prevention and/or treatment of hair disorders comprising:
(a) eprotirome as active ingredient, and
(b) a pharmaceutically acceptable excipient.

7. The ~~pharmaceutical composition for~~ use according to claim 6 wherein the hair disorder is hair loss, preferably selected from alopecia areata, androgenetic alopecia including male pattern and female pattern baldness and chemotherapy-induced hair loss.

8. The ~~pharmaceutical composition for~~ use according to claim 6 or 7, further comprising (c) a penetration enhancer, preferably selected from the group of isopropyl myristate, propylene glycol and dimethyl isosorbide.

9. The ~~pharmaceutical composition for~~ use according to any one of claims 6 to 8, which comprises 0.0001 to about 10 wt. % of eprotirome, based on the total weight of the phannaceutical composition.

10. The ~~pharmaceutical composition for~~ use according to any one of claims 6 to 9, wherein the pharmaceutically acceptable excipient is selected from the group consisting of solvents, gelling agents, buffers, surfactants, detergents, oils, alcohols, emulsifiers, solubilizers, humectants, fillers and bioadhesives.

11. The ~~pharmaceutical composition for~~ use according to any one of claims 6 to l0, further comprising an additional therapeutically active substance.

12. The ~~pharmaceutical composition for~~ use according to claim 1 l , wherein the additional therapeutically active substance is selected from caffeine, finasteride, minoxidil, cyproterone acetate.

13. The ~~pharmaceutical composition for~~ use according to any one of claims 6 to 12, further comprising an anti-graying enhancer.

14. The ~~pharmaceutical composition for~~ use according to claim 13, wherein the anti-graying enhancer is an extract of Echinacea.

15. Non-therapeutic use of eprotirome in the treatment and/or prevention of hair loss in mammals and/or in the prevention of hair conditions, preferably in the prevention and/or reversal of hair graying.