



(11) **EP 2 370 073 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

- (45) Date of publication and mention of the grant of the patent:
21.08.2013 Bulletin 2013/34
- (21) Application number: **09839768.0**
- (22) Date of filing: **18.12.2009**
- (51) Int Cl.:
A61K 9/20 (2006.01) A61P 17/00 (2006.01)
A61K 31/198 (2006.01)
- (86) International application number:
PCT/RU2009/000701
- (87) International publication number:
WO 2010/090546 (12.08.2010 Gazette 2010/32)

(54) **COMPOSITION OF AMINO ACIDS FOR SUBLINGUAL APPLICATION FOR ENHANCED SKIN INTEGUMENT REPIGMENTATION IN VITILIGO**

ZUSAMMENSETZUNG AUS AMINOSÄUREN ZUR SUBLINGUALEN ANWENDUNG FÜR VERSTÄRKTRE HAUTREPIGMENTIERUNG BEI VITILIGO

COMPOSITION D'ACIDES AMINÉS POUR APPLICATION SUBLINGUALE DESTINÉE À LA REPIGMENTATION DU TÉGUMENT CUTANÉ DANS LE VITILIGO

- (84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
- (30) Priority: **26.12.2008 EA 200900146**
- (43) Date of publication of application:
05.10.2011 Bulletin 2011/40
- (73) Proprietor: **NEKOMMERCHESKOE UCHREZHDENIE "NAUCHNO- ISSLEDOVATEL'SKIY INSTITUT TSITOKHIMII I MOLEKULYARNOYJ FARMAKOLOGII" Moscow 115404 (RU)**
- (72) Inventors:
• **KOMISSAROVA Irina Alekseevna Moscow 115304 (RU)**
• **KORSUNSKAYA Irina Markovna Chekhov 142301 (RU)**
• **NARTISSOV Yaroslav Ryurikovich Moscow 115304 (RU)**
- (74) Representative: **Käosaar, Jüri et al Käosaar & Co Patent Agency Tähe 94 50107 Tartu (EE)**
- (56) References cited:
WO-A2-2004/052388 RU-C1- 2 096 034 US-A1- 2004 258 717
- **ORECCHIA G. ET AL.: 'Cystine in the treatment of vitiligo' G ITAL DERMATOL VENEREOL. vol. 124, no. 11-12, November 1998, pages 529 - 31, XP008142066**
 - **ISHIKAWA M. ET AL.: 'Combination of amino acids reduces pigmentation in B16F0 melanoma cells' BIOL PHARM BULL. vol. 30, no. 4, April 2007, pages 677 - 81, XP008142035**
 - **REISH O. ET AL.: 'Tyrosinase inhibition due to interaction of homocyst(e)ine with copper: the mechanism for reversible hypopigmentation in homocystinuria due to cystathionine beta-synthase deficiency' AM J HUM GENET. vol. 57, no. 1, July 1995, pages 127 - 32, XP008142058**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 2 370 073 B1

Description

Field of application

[0001] The invention relates to medicine, ortho-molecular medicine, pharmaceuticals, nutrition, biochemistry of amino acids, in particular to composition of amino acids for sublingual applying for enhanced repigmentation of skin integument in vitiligo and its administration.

Background of invention

[0002] Individuals of various ethnicities and races may suffer from chronic dermatosis (vitiligo) characterized by appearance of depigmentation focuses on the skin. Histologic studies of such focuses show absence or reduction of melanine.

[0003] Etiology, pathogenesis and vitiligo treatment has been one of the unresolved issues of dermatology. Wide spread of vitiligo in many ethnic groups and areas, its significant influence on psychosocial status, lack of efficient methods of treatment and information about possible interrelation of vitiligo pathogenesis and skin melanoma indicate to topicality of fundamental studies, research and elaboration of new means contributing to normalization of melanogenesis.

[0004] Given views of the role of vitiligo genetic disposition, immunopathology (I.M Karsunskaya., Vitiligo Genetic and metabolic features of the disease, treatment method. Abstract for a thesis for a doctor's of medicine degree, Moscow, 2004) of biochemical disorders in the form of decrease of catalase and tiriodin - reductase activity (K.U. Schallreuter, The society for Investigate Dermatology, International journal of derm. 2008, Jul. 47(7): 743-53) inspiring oxidative stress, treatment methods have symptomatic character. They are not efficient enough, may cause traumas and they are quite limited because of adverse by-effects.

[0005] There is known vitiligo treatment method characterized by use of ultraviolet radiation, ultraviolet radiation with reflexotherapy and photosensitizing drugs in particular, for melanogenesis stimulation. (D.V. Proshutinskaya, Selective phototherapy of vitiligo-ill children taking into account role of immune changes, abstract of a thesis for a candidate of medicine, Moscow, 2004, p.19; R.N. Voloshin., Clinico-pharmacologic features of complex vitiligo treatment by methods of psoralen ultraviolet radiation of A band) and reflexotherapy, abstract of a thesis for doctor's of medicine degree, 14.0025, Volgograd, 2006; U.N. Koshevenko, Phototherapy of vitiligo: substantiation, characteristics, clinical effect, Russian journal of skin and veneral diseases, 2001, No3., p. 58-66). Contraindications to such exposures in most of coexistent diseases, total and local side effects including increase possibility of squamous cell carcinoma formation restrict using long-wave ultraviolet rays.

[0006] ORECCHIA G. ET AL.: "Cystine in the treatment of vitiligo", G ITAL DERMATOL VENEREOL., vol.

124, no. 11-12, November 1998 (1998-11), pages 529-31 discloses a topical cosmetic or dermatological composition comprising from 0,001 % to 30% by weight creatine or a precursor thereof or a derivative thereof and at least one osmolyte, particularly, glycine and glutamate. The composition is used for the treatment of skin, particularly, vitiligo.

[0007] For immune disorders correction there are used polyoxidonium and amixin. However administration of the mentioned drugs does not ensure full, intense and persistent repigmentation. Polyoxidonium is administered in the form of injections which is attended by undesirable everyday (10-week) injury of skin integuments and risk of local infection. Amixin is administered only since 14 years of age and is contraindicated in affected thyroid.

Substance of invention

[0008] The task of this invention is the use of composition containing natural metabolites - amino acids, and its administration which makes it possible to increase skin repigmentation through sulfurcontaining compounds rise and activation of endogenic metabolic reactions, and to get persistent normalization of melanogenesis thus improving skin integument and as a consequence patient's quality of life.

[0009] The given task is accomplished by composition of amino acids for sublingual applying for enhanced skin integument repigmentation in vitiligo which includes L cystine, L glutamic acid and glycine in the following quantity, mg:

L cystine	85 ± 10%,
L glutamic acid	85 ± 10%,
Glycine	85 ± 10%

[0010] The amino acid composition mentioned above must be administered 3 times a day during 5 weeks independent of meal in accordance with method of increase of skin integument repigmentation in vitiligo.

[0011] The course can be repeated in 4-5 weeks. Composition can be administered in the form of a tablet or powder obtained by tablet porphyriizing.

[0012] Composition in the form of a tablet contains additionally ether of cellulose and stearate as adjuncts in the quantity of 1%-10% of tablet weight for each agent.

Realization of invention

[0013] For quite a long time there have been conducted studies of medical possibilities of amino acids composition of L cystine, L glutamic acid and glycine. Amino acids composition of L cystine, L glutamic acid and glycine is known to be used in components mass ratio 1:1:1 and with quantity content of 0.1 g. for each component as a means inducing glutathione biosynthesis, glutathione

transferase activity and having detoxifying, antiradiation and antihypoxic action (RU 2096034 C1, IPC 6 A61K 31/195, 1997).

[0014] However as a means of persistent repigmentation in vitiligo achievement amino acids composition of L cysteine, L glutamic acid and glycine in the form of monoimpact was first offered by the authors of the present invention Irina .Aleksееvna Komissarova, Irina Markovna Korsunskaya and Yaroslav Riurikovich Nartsissov. Clinical research and estimation of medicine efficiency were carried out through mediation of Marina Alexandrovna Gornostaeva and Ekaterina Viktorovna Zhavoronkova.

[0015] After the course of administration of elaborated composition there is reached an effect which induces changes in color of depigmentation focuses, appearance of pigmented areas akin to disseminations. Such result could not be achieved in such short terms and by use of other known methods earlier.

[0016] Further pigmentation augment takes place even after discontinuation of drugs in contrast to Polyoxidonium and Amixin treatment methods which require refresher treatment course in order to maintain the result.

[0017] The effect attained on composition administration is persistent and lasts for 2 years. Resolution of cosmetic problems in such period makes it possible to improve quality of life and social adaptation of a patient.

[0018] Composition does not have any contraindications or side effects and can be administered to a wide range of vitiligo-patients without limitations as well as to patients with concomitant and confounding pathologies.

[0019] Since each of composition amino acids is introduced in quantity 3-10 times less than its daily requirement its administration does not provoke any allergic or toxic reactions typical of various vitiligo treatment methods. Moreover there is no danger of squamous cell skin carcinoma, melanoma, cataract, and photoageing.

[0020] Composition influence has been tested on a group of 15 patients with vitiligo of spread and bounded form. Patients' age varied from 12 to 31. The group consisted of 9 women and 6 men. Depigmentation focuses were mostly on limbs and body.

[0021] Composition was taken 3 times a day in the form of a tablet or powder after tablet porphyrizing sublingually independent of meal in the morning, afternoon and evening. The course took 5 weeks.

[0022] Substantial life quality improvement and evident repigmentation can be considered as an effect which was attained by each patient on administration of this composition and lasted for 2 years. There were observed no side effects and complications.

[0023] Efficiency of this composition can be demonstrated on the following examples of particular patients.

Example 1

[0024] Patient A, 14 years of age diagnosed with vitiligo was under hospital treatment. When she was admitted to hospital there were noticed clear-cut sharply margin-

ated spots on knees, elbows and periorbital region. Composition was administered in accordance with the suggested method.

[0025] Composition was administered in the form of a tablet or powder after its porphyrizing 3 times a day for 5 weeks.

[0026] Chemistry panel before composition administration: cholesterol - 2.2, total bilirubin - 4.0, AST (Aspartate aminotransferase) - 11.7 u., ALT (Alanine aminotransferase) - 7.6 u., gamma GTP (gamma glutamyl transpeptidase) - 20.3 mol/l., ALP - 111.1 (Alkaline phosphatase) u/l, Trg - 0.7 (Triglycerides) mol/l, protein - 62.2, glucose - 3.1.

[0027] Vitiligo-patients suffered no hormonal or biochemical changes. There were noted interleukin IL-1 variations within normal limits.

[0028] There were revealed no side or any adverse effects on administration of the composition.

[0029] Amid 5-week composition administration partial repigmentation in depigmented focuses has been recorded.

[0030] The patient was discharged from hospital with significant improvements. The patient's follow-up has shown further pigmentation augment that testifies to intensity and durability of the effect achieved. Administration of composition was repeated in 5 months to nail down the result attained.

Example 2

[0031] Patient 26 years of age, vitiligo-patient since 1997. He sought medical attention about vitiligo in December of 2004. First examination showed multiple focuses sized from 1 to 10 cm. in diameter on facial skin, upper and lower limbs.

[0032] Concomitant diseases: chronic gastritis, cholangitis, reactive pancreatitis, syndrome of vegetative disfunction.

[0033] Thyroid ultrasound - norm.

[0034] Abdominal ultrasound revealed moderate hepatomegaly with diffusive change of vascular pattern. Moderate diffusive changes of pancreas.

[0035] Arterial blood pressure jumps up to 160/100 mmhg.

[0036] HBs -Ag (test for diagnosis and confirmation of hepatitis C), anti - HCV, IgM k HAV (immunoglobulins to hepatitis A) - none.

[0037] Total protein - 77, cholesterol - 4.6, total bilirubin - 13.5, ALP - 330, AST - 64.2, gamma GTP - 2.6, urea - 69, creatinine - 5.3.

[0038] Composition was administered in the form of a tablet or powder after its porphyrizing 3 times a day for 5 weeks. There were noted no side or any adverse effects on administration of composition.

[0039] After the first course progression of the process stopped that confirms composition high efficiency. However given process prevalence it was decided to repeat composition administration. After the third course posi-

tive dynamics was recorded. Pigment in focuses on facial skin and upper limbs appeared and grew that indicated to efficiency of its impact.

pour utilisation pour améliorer la repigmentation du tégument de la peau dans le traitement du vitiligo, par voie sublinguale.

Claims

1. Composition of amino acids which includes L cystine, L glutamic acid and glycine in the following quantity, mg:

L cystine	85 ± 10 %,
L glutamic acid	85 ± 10 %,
Glycine	85 ± 10 %

for use for enhanced skin integument repigmentation in the treatment of vitiligo, by sublingual application.

2. The composition for use according to claim 1, wherein composition is in the form of a tablet and additionally containing ether of cellulose and stearate as adjuncts in quantity of 1% - 10% of tablet weight for each agent.

Patentansprüche

1. Zusammensetzung von Aminosäuren, die L Cystin, L Glutaminsäure und Glycine in den folgenden Mengen (mg) enthalten:

L Cystin	85 ± 10 %,
L Glutaminsäure	85 ± 10 %,
Glycine	85 ± 10 %

als Verwendung für die verbesserte Haut-Repigmentierung bei der Behandlung der Weißfleckenkrankheit (Vitiligo), bei sublingualer Anwendung.

2. Zusammensetzung für die Anwendung nach Anspruch 1, wobei die Zusammensetzung in Tablettenform besteht und zusätzlich Ether von Zellulose und Stearat als Beigabe in der Menge von 1% - 10% des Tablettengewichts pro Wirkstoff beträgt.

Revendications

1. Composition d'acides aminés qui comprend L cystéine, L acide glutamique et glycine dans les quantités suivantes, en mg :

L cystéine	85 ± 10 %,
L acide glutamique	85 ± 10 %,
Glycine	85 ± 10 %

2. La composition pour l'utilisation selon la revendication 1, où la composition est sous la forme d'un comprimé et contient de plus éther de cellulose et stéarate comme compléments dans les quantités de 1% - 10 % du poids du comprimé pour chaque agent.

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- RU 2096034 C1 [0013]

Non-patent literature cited in the description

- **I.M. KARSUNSKAYA.** Vitiligo Genetic and metabolic features of the disease, treatment method. *Abstract for a thesis for a doctor's of medicine degree*, 2004 [0004]
- **K.U. SCHALLREUTER.** International journal of derm. The society for Investigate Dermatology, 04 July 2008, vol. 7, 743-53 [0004]
- **D.V. PROSHUTINSKAYA.** Selective phototherapy of vitiligo-ill children taking into account role of immune changes. *abstract of a thesis for a candidate of medicine*, 2004, 19 [0005]
- **R.N. VOLOSHIN.** Clinico-pharmacologic features of complex vitiligo treatment by methods of psoralen ultraviolet radiation of A band) and reflexotherapy. *abstract of a thesis for doctor's of medicine degree*, 2006 [0005]
- **U.N. KOSHEVENKO.** Phototherapy of vitiligo: substantiation, characteristics, clinical effect. *Russian journal of skin and venereal diseases*, 2001, 58-66 [0005]
- **ORECCHIA G. et al.** Cystine in the treatment of vitiligo. *G ITAL DERMATOL VENEREOL.*, November 1998, vol. 124 (11-12), 529-31 [0006]