

The Claims:

1. A process for preparing N-[2-[2-(4-Chlorophenyl)-4-thiazolyl] ethyl]-butanamide,
5 comprising the steps of
 - a. refluxing 4- chlorobenzathiomide with a suitable reagent for esterification;
 - b. reducing the ester as obtained
 - c. reacting the reduced intermediate (alcohol or aldehyde) with a suitable reagent to obtain
a thiazole
 - 10 d. optionally reducing the intermediate as obtained with a reducing agent or reacting the
said inetrmediate with a suitable reagent to obtain to obtain [2-[2-(4-chlorophenyl)-4-
thiazolyl] ethyl]-butanamide.
2. The process of preparing N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide; as claimed in
15 claim 1, comprising the steps of:
 - (1) Refluxing 4- chlorobenzathiomide with the adding chloroacetoacetate to obtain
Ethyl 2-(2-(4-chlorophenyl)thiazol-4-yl)acetate;
 - (2) Reducing ethyl 2-(2-(4-chlorophenyl)thiazol-4-yl)acetate with the addition of
sodium borohydride to obtain 2-(2-(4-chlorophenyl)thiazol-4-yl)ethan-1-ol;
 - 20 (3) Reacting 2-(2-(4-chlorophenyl)thiazol-4-yl)ethan-1-ol as obtained in step (2)
with methylsulphonyl chloride and then with NaN_3 to obtain 4-(2-azidoethyl)-
2-(4-chlorophenyl) thiazole; and
 - (4) Reducing 4-(2-azidoethyl)-2-(4-chlorophenyl) thiazole as obtained in step (4)
with triphenyl phosphine to obtain [2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-
25 butanamide.
3. The process of preparing N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide; as claimed in
claim 1 comprising the steps of:
 - (1) Refluxing 4- chlorobenzathiomide adding Ethyl 3-bromo-2-oxopropanoate to
30 obtain Ethyl 2-(2-(4-chlorophenyl)thiazol-4-yl)acetate;
 - (2) Reducing ethyl 2-(2-(4-chlorophenyl)thiazol-4-yl)acetate as obtained in step (1)
with the addition of DIBAL-H solution to obtain 2-(4-chlorophenyl)thiazole-4-
carbaldehyde;

- (3) Reacting 2-(4-chlorophenyl)thiazole-4-carbaldehyde as obtained in step (2) was then reacted with nitromethane, pyrrolidine and acetic acid respectively;
- (4) Reducing the 2-(4-chlorophenyl)-4-(2-nitrovinyl) thiazole obtained from step(3) with Pd to obtain -(4-chlorophenyl)thiazole-4-yl)ethane-1-aminen;
- 5 (5) Reacting 2-(4-chlorophenyl)thiazole-4-yl)ethane-1-aminen as obtained in step (4) with triethyl amine and further with butyryl chloride to obtain [2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide.
- 10 4. A pharmaceutical formulation comprising N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide or pharmaceutically acceptable salts thereof, as the active compound wherein the strength of the said active compound is in the range of 0.1% to 90% along with suitable excipients in an acceptable range.
- 15 5. The pharmaceutical formulation as claimed in claim 4 wherein the strength of the active compound or pharmaceutically acceptable salts thereof, is preferably in the range of 0.1% to 20% along with suitable excipients in an acceptable range.
- 20 6. The pharmaceutical formulation as claimed in claim 4 for topical application comprising N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide or pharmaceutically acceptable salts thereof, in the range of 0.1 to 40 wt%, dissolved in a solvent added in an amount in the range of 8-25wt%, along with a gelling agent in an amount in the range of 45-65 wt% and a permeation enhancer which is in an amount in the range of 10 -25 wt%.
- 25 7. The pharmaceutical formulation as claimed in claim 6 optionally comprising a stiffening agent, emulsifying agent, gelling agent, humectant, preservative, antioxidant, chelating agent, buffer and a suitable solvent.
- 30 8. The pharmaceutical formulation as claimed in claim 6 wherein the solvent is selected from a group consisting of purified water, hexylene glycol, propylene glycol, oleyl alcohol and propylene carbonate.
- 35 9. The pharmaceutical formulation as claimed in claim 6 wherein the gelling agent is selected from a group consisting of carbomer, methyl cellulose, sodium carboxyl methyl cellulose, carrageenan, colloidal silicon dioxide, guar gum, hydroxypropyl

cellulose, hydroxypropyl methyl cellulose, gelatin, polyethylene oxide, alginic acid and Sodium alginate.

- 5 10. The pharmaceutical formulation as claimed in claim 6 wherein the permeation enhancer is selected from a group consisting of propylene glycol, ethanol, isopropyl alcohol, oleic acid and polyethylene glycol.
- 10 11. The formulation comprising active compound N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide or pharmaceutically acceptable salts thereof, for use as a medicament for the treatment of skin autoimmune diseases and pigmentation disorders including but not limited to Vitiligo, Psoriasis, Atopic dermatitis and eczema, lichen-planus, Scleroderma, Pemphigus, Bullous, Epidermolysis bullosa, Systemic lupus erythematosus, dermatomyositis, and Alopecia areata.
- 15 12. The formulation comprising active compound N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide for use as a medicament for the treatment of vitiligo.
- 20 13. The formulation as claimed in claim 4 administered by way of oral, parenteral, topical, transdermal, intravenous, rectal, sublingual, nasal, rectal, and local administration.
14. The formulation as claimed in claim 4 in the dosage form of a solution, gel, ointment, cream, lotion, spray or foam.
- 25 15. A method for the treatment of autoimmune diseases in a mammal diagnosed with the disease, the method comprising the step of administering to the mammal a therapeutically effective amount of N-[2-[2-(4-chlorophenyl)-4-thiazolyl] ethyl]-butanamide or pharmaceutically acceptable salts thereof.
- 30 16. The method as claimed in claim 13, wherein the subject is identified as being at risk of developing a skin autoimmune disease including but not limited to vitiligo, psoriasis, atopic dermatitis and eczema, lichen-planus, scleroderma, pemphigus, bullous, epidermolysis bullosa, systemic lupus erythematosus, dermatomyositis, and alopecia areata.

17. The method as claimed in claim 13, wherein the subject has one or more depigmented skin areas, and the compound is applied topically to at least one of the depigmented skin areas.
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18. The method for the treatment of autoimmune diseases as claimed in claim 13, wherein the treatment includes prophylactic and therapeutic treatments.
19. The method as claimed in claim 13, wherein the compound is administered either in combination or adjunctively with a second therapeutic treatment or active agent.
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