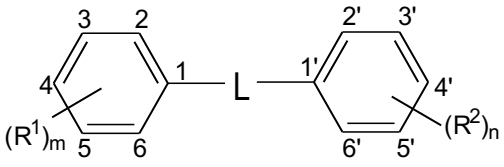
CLAIMS

1. Use of a first autophagy modulating compound having the structure (I) in the preparation of a medicament for promoting wound healing in a patient having a wound or skin condition:



(I)

in which L is–C≡C–;

R^1 and R^2 are independently substituents at any available position of the phenyl rings;

m and n are, independently, 0, 1, 2, or 3 representing the number of substituents on the rings, respectively, and at least one of m or n must be ≥1;

in which each of R^1 and R^2 is independently selected from:

-R^5, in which R^5 is selected from methyl, -n-propyl, isopropyl, -n-butyl, sec-butyl, isobutyl, tert-butyl, (C_2- C_6)alkenyl, or (C_2- C_6)alkynyl; optionally substituted with 1 to 3 substituents selected from –OH, -SH, -halo, -NH_2, or NO_2;

-YR^6, in which Y is O, S, or NH; and R^6 is selected from H or R^5;

-ZR^5, in which Z is –N(C=O)- or -O(C=O)-;

-halo;

-NO_2;

-SO_3Na;

-azide; and

-glycosides

-and salts thereof;

with the proviso that the first autophagy modulating compound is not 4,4′- (ethyne-1,2-diyl)diphenol (TOLECINE, also known as 4,4′-dihydroxytolan); and with the proviso that at least one R^1 or at least one R^2 is hydroxy or methoxy.

2. Use according to Claim 1, in which the first autophagy modulating compound is a hydroxylated tolan, having from 1 to 4 hydroxyl substituents.

3. Use according to Claim 2, in which the tolan is selected from 2,4,4′-trihydroxytolan; 4,3′,5′-trihydroxytolan; 2,2′,4,4′-tetrahydroxytolan; 3,3′,5,5′-tetrahydroxytolan; and 4-hydroxy-4′-(trifluoro)methyltolan or from 4,4′-dihydroxy-3-methoxytolan; 2,4,4′-trihydroxytolan-beta-D- glucoside; and 4-hydroxy-4′-methoxytolan.

4. Use according to Claim 1, further comprising use of an auxiliary autophagy modulating compound.

5. Use according to Claim 4, in which the auxiliary autophagy modulating compound is selected from the group consisting of substituted or unsubstituted parabenzoquinone; substituted or unsubstituted orthobenzoquinone; and substituted or unsubstituted anthraquinone.

6. Use according to Claim 4, in which the auxiliary autophagy modulating compound is selected from the group consisting of an amino acid, an acidic monosaccharide, an oxygen-containing vitamin, an isoprenoid-containing vitamin and a vitamin or a salt thereof.

7. Use according to Claim 1, in which the first autophagy modulating compound upregulates autophagy activity.

8. Use according to Claim 7, in which the wound or skin condition is one or more selected from aging, autoimmune diseases with inflammation, avascular necrosis, bacterial infection, cancers, diabetic neuropathies, endometriosis, fungal infection, gout, hairloss, infectious arthritis, inflammation, inflammatory bowel, ischemia, Lyme disease, organ/tissue transplant, parasitic infection, psoriatic arthritis, psoriasis, pseudogout, rheumatoid arthritis, scleraderma, scurvy, sepsis, skin diseases, surgical scars, surgical adhesions, transfection procedures, ulcerative colitis, ulcers, viral infection, warts, surgical wounds, incisions, lacerations, cuts and scrapes donor site wounds from skin transplants, traumatic wounds, infectious wounds, ischemic wounds, burns, bullous wounds, aseptic wounds, contused wounds, incised wounds, lacerated wounds, non-penetrating wounds, open wounds, penetrating wounds, perforating wounds, puncture wounds, septic wounds, subcutaneous wounds, chronic ulcers, gastric ulcers, skin ulcers, peptic ulcer, duodenal ulcer, gastric ulcer, gouty ulcer, hypertensive

ischemic ulcer, stasis ulcer, sublingual ulcer, submucous ulcer, symptomatic ulcer, trophic ulcer, tropical ulcer and veneral ulcer.

9. Use according to Claim 7, in which the wound or skin condition is one or more dermatological disorders selected from hyperkeratosis, photo-aging, psoriasis, skin rashes, sunburns and photoreactive processes.

10. Use according to Claim 7, in which the wound or skin condition is one or more selected from: (a) mouth sores and burns, post-extraction wounds, endodontic wounds, cysts, abscesses, ulcers and lesions of bacterial, viral or autoimmunological origin, mechanical, chemical, thermal, infectious and lichenoid wounds; herpes ulcers, stomatitis aphthosa, acute necrotizing ulcerative gingivitis and burning mouth syndrome, such as is amenable to treatment in form of a mouth wash or spray; or (b) oral and paraoral ulcers, resulting from radiation or chemotherapy, or both.

11. Use according to Claim 7, in which the wound or skin condition is one or more selected from corneal ulcers, radial keratotomy, corneal transplants, epikeratophakia and other surgically induced wounds in the eye, such as is amenable to treatment with ophthalmological preparations.

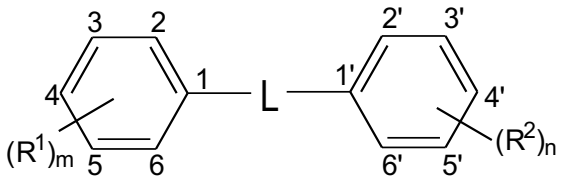
12. Use according to Claim 7, in which the wound or skin condition is one or more selected from anal pruritus, proctitis, anal fissures and hemorrhoids, such as are amenable to treatment with anorectal cream or suppositories.

13. Use according to Claim 7, in which the wound or skin condition is one or more selected from dry cracked skin; severe dry skin, venous dermatitis, UV light damage and seborrheic conditions.

14. Use according to Claim 7, in which the wound or skin condition is one or more selected from burns, anthrax, tetanus, gas gangrene, scalatina, erysipelas, sycosis barbae, folliculitis, impetigo contagiosa and impetigo bullosa.

15. Use according to Claim 7, in which the wound or skin condition is one or more associated with aging of the skin selected from elasticity of the skin, firmness of the skin and the appearance of wrinkles or cellulite on the skin and non-acne inflammation of the skin.

16. Use of a first autophagy modulating compound having the structure (I) in the preparation of a medicament for modulating autophagy in a patient in need of autophagy modulation:



(I)

in which L is–C≡C–;

R^1 and R^2 are independently substituents at any available position of the phenyl rings;

m and n are, independently, 0, 1, 2, or 3 representing the number of substituents on the rings, respectively, and at least one of m or n must be ≥1;

in which each of R^1 and R^2 is independently selected from:

-R^5, in which R^5 is selected from methyl, -n-propyl, isopropyl, -n-butyl, sec-butyl, isobutyl, tert-butyl, (C_2- C_6)alkenyl, or (C_2- C_6)alkynyl; optionally substituted with 1 to 3 substituents selected from –OH, -SH, -halo, -NH_2, or NO_2;

-YR^6, in which Y is O, S, or NH; and R^6 is selected from H or R^5;

-ZR^5, in which Z is –N(C=O)- or -O(C=O)-;

-halo;

-NO_2;

-SO_3Na;

-azide; and

-glycosides;

and salts thereof; with the proviso that at least one R1 or at least one R2 is hydroxyl or methoxy;

in which the medicament is directed to a condition in need of autophagy upregulation, and the condition comprises one or more of wound healing, hair regrowth, bacterial infections, inflammation, skin aging, dermatitis, retinal detachment, age-related macular degeneration, retinitis pigmentosa, lysosomal storage diseases, psoriasis, surgical scars, and surgical adhesions.

17. Use according to Claim 16, further comprising the use of a first autophagy modulating compound having the structure (I) in which at least one R^1 or at least one R^2 is methoxy.

18. Use according to Claim 1, further comprising the use of a first autophagy modulating compound having the structure (I) in which at least one R^1 or at least one R^2 is methoxy.