Innovation, Sciences et Développement économique Canada
Office de la propriété intellectuelle du Canada

Innovation, Science and Economic Development Canada
Canadian Intellectual Property Office

Avis du commissaire - Demande jugée acceptable
Commissioner's Notice - Application Found Allowable

PIASETZKI NENNIGER KVAS LLP
office@pnklaw.ca

Détails de l'avis / Notice Details	
Date de l'avis: / Notice Date:	2024-04-02
N° de la demande: / Application N°:	**3,197,959**
Votre n° de référence: / Your Reference N°:	FOX0219/AMK
Date d'échéance de l'avis: / Notice Due Date:	2024-08-02
Montant dû:	4,046,00$
Amount Due:	$4,046.00

Date de dépôt/Filing Date:	2021-11-09				
Demandeur(s)/Applicant(s):	ALBERT EINSTEIN COLLEGE OF MEDICINE				
Inventeur(s)/Inventor(s):	FRIEDMAN, JOEL M.				
Titre de l'invention:	FORMULATIONS POUR ADMINISTRATION TRANSDERMIQUE				
Title of invention:	TRANSDERMAL DELIVERY FORMULATIONS				
Revendications/Claims:	019				
Pages en sus : / Excess Pages:		Taxe:		Fee:	
Revendications excès:: / Excess Claims:	33	Taxe:	3,630,00$	Fee:	$3,630.00
Examinée tel que modifiée: / Examined as amended:	2024-03-01				

Le présent avis du commissaire aux brevets vise à informer le demandeur que la demande de brevet a été jugée acceptable et que le paiement de la taxe finale réglementaire doit être fait au plus tard le 2024-08-02.

Si la taxe finale, dont le montant est indiqué ci-dessus, n'est pas payée au plus tard le 2024-08-02, la demande sera réputée abandonnée.

Lorsque la taxe finale sera payée, votre demande de brevet donnera lieu à la délivrance d'un brevet.

Veuillez vous assurer de l'exactitude des renseignements au dossier avant de faire le paiement de la taxe finale, car peu de modifications sont autorisées après le paiement de la taxe finale et après la délivrance d'un brevet. Veuillez consulter le site web de l'OPIC concernant les taxes générales pour les brevets:

https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/fra/wr00142.html

Références pertinentes:
* par. 86(1) des *Règles sur les brevets*
* par. 87(1) des *Règles sur les brevets*

Pour de plus amples renseignements concernant cet avis ou la façon de rétablir une demande de brevet abandonnée, veuillez consulter le *Recueil des pratiques du Bureau des brevets* (RPBB) accessible au canada.ca/brevets ou téléphoner au 1 819 997-2839.

This is a Notice from the Commissioner of Patents to inform the applicant that the application for a patent has been found allowable and payment of the prescribed final fee is required before the end of 2024-08-02.

If the final fee, in the amount indicated above, is not paid before the end of 2024-08-02 , the application will be deemed to be abandoned.

Once the final fee is paid, your patent application will proceed to grant.

Please ensure the accuracy of the information on file before payment of the final fee as there are limited modifications that are allowed after payment of the final fee and post grant. For more information regarding fees, please refer to the CIPO Patent Fees website:

https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/wr00142.html

Relevant references:
* s.86(1) of the *Patent Rules*
* s.87(1) of the *Patent Rules*

For more information regarding this notice or on how to reinstate an abandoned patent application, please refer to the *Manual of Patent Office Practice* (MOPOP) at canada.ca/patents or phone 1-819-997-2839.

OCT262 October 2022

CLAIMS

1. The use of a transdermal formulation to treat a disease or condition in a subject, wherein the transdermal formulation comprises:

(a) an effective amount of an NO booster and optionally an NO precursor, wherein the NO booster comprises one or more agents selected from the group consisting of curcumin, demethoxycurcumin, bisdemethoxycurcumin, quercetin, berberine, resveratrol and vitamin D, and wherein the NO precursor comprises a S-nitrosothiol-containing molecule or a thiol-containing molecule and a nitrite source;

(b) a polyol, wherein the polyol and the NO booster are in a ratio ranging from about 8:1 to about 12:1, and the NO booster is dissolved in the polyol; and optionally

(c) a fatty acid, wherein the polyol and the fatty acid when present are in a ratio ranging from about 10:1 to about 50:1 by weight,

wherein the amounts of the polyol and the fatty acid are selected for transdermal delivery of the effective amount of the NO booster;

wherein the disease or condition is selected from the group consisting of hypertension, inflammation, osteoarthritis, rheumatoid arthritis, endothelial dysfunction, dermatological condition, ophthalmological condition, bacterial infection, viral infection, ischemia reperfusion injury, hypoxia reoxygenation injury, cytokine storm phenomena, cerebral malaria, Chagas disease, hemoglobinopathies, type 2 diabetes, neurodegenerative disease, Lupus, long Covid, COVID-19 infection, clinical manifestations of long Covid, sepsis, systemic inflammatory response syndrome and vascular leakage.

2. The use of claim 1, wherein the disease or condition is cytokine storm phenomena caused by an infectious disease.

3. The use of claim 2, wherein the infectious disease is selected from the group consisting of Coronaviruses, Ebola, Dengue fever, hemorrhagic shock, endotoxic shock, Rift valley fever, Marburg, Crimean-Congo hemorrhagic fever (CCHF), South American hemorrhagic fever, dengue, yellow fever, Omsk hemorrhagic fever virus, Kyasanur Forest, Junin, Machupo, Sabia, Guanarito, Garissa, Ilesha, and Lassa fever viruses.

4. The use of claim 1, wherein the disease or condition is cytokine storm phenomena caused by COVID-19 infection or systemic inflammatory response syndrome (SIRS).

5. The use of claim 1, wherein the inflammation is a pulmonary inflammation disease selected from the group consisting of cystic fibrosis, acute respiratory distress syndrome,

pulmonary fibrosis, chronic obstructive pulmonary disease (COPD), bronchiectasis, pulmonary infections, and pulmonary hypertension.

6. The use of claim 1, wherein the disease or condition is vascular leakage.

7. The use of claim 6, wherein the vascular leakage is caused by a disease selected from vascular leak syndrome, infectious disease, inflammatory diseases, inter alia, sepsis, lupus, irritable bowel disease, inflammatory bowel disease and inflammation of general vasculature.

8. The use of claim 1, wherein the disease or condition is neurodegenerative disease selected from the group consisting of Parkinson's disease, Alzheimer's disease, Huntington's disease, amyotrophic lateral sclerosis, and neurodegenerative consequences of traumatic brain injury or cerebral hemorrhage.

9. The use of claim 1, wherein the NO booster and its amount are selected to reduce one or more inflammatory makers by at least about 10%, wherein the one or more inflamatory makers are selected from the group consisting of TNF-α, TGFβ, MCP-1, IL-1α, IL-1β, IL-6, IL-10, MIF, TNF-β, MMP9, HIF-1, GLUT1, Hemox, PDK1, VEGF, CD11, and EMR1.

10. The use of claim 1, wherein the disease or condition is COVID-19 infection, clinical manifestations of long Covid, sepsis, or systemic inflammatory response syndrome (SIRS).

11. The use of claim 1, wherein the transdermal formulation comprises

(a) an effective amount of the one or more agents selected from the group consisting of curcumin, demethoxycurcumin, bisdemethoxycurcumin, and quercetin;

(b) PEG as the polyol having a molecular weight ranging from about 200 to about 600 in an amount sufficient to dissolve the effective amount of the one or more agents, wherein the PEG and the one or more agents are in a ratio ranging from about 8:1 to about 12:1; and

(c) myristic acid as the fatty acid, wherein the PEG and the myristic acid are in a ratio ranging from about 10:1 to about 50:1 by weight.

12. The use of claim 11, wherein the one or more agents comprise curcumin.

13. The use of claim 11, wherein the one or more agents and their amount are selected so that it increases a subject's systemic NO level or plasma nitrite level by at least 10%.

14. The use of claim 11, wherein the disease or condition is COVID-19 infection.

15. The use of claim 11, wherein the transdermal formulation is formulated for prophylactic administration.

16. The use of claim 1, wherein the NO booster is curcumin.

17. The use of claim 1, wherein the polyol is PEG.
18. The use of claim 1, wherein the transdermal formulation comprises the fatty acid.
19. The use of claim 18, wherein the fatty acid is myristic acid.