# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Acheampong, et al. | Examiner: TBA

Serial No.: TBA Group Art Unit: TBA

Filed: Herewith Confirmation No. TBA

For: METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS

Customer No.: 51957

#### PRELIMINARY AMENDMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Prior to examining the above-referenced application, please amend the specification as described on page 2 of this paper, and please amend the claims as described on pages 3-6 of this paper. Remarks follow on page 7.

# Amendments to the Specification

Please replace page 1, lines 5-10 of the specification filed herewith with the following amended paragraph:

This application is a continuation of copending U.S. Application Serial No. 13/961,818 filed August 7, 2013, which is a continuation of copending U.S. Application Serial No. 11/897,177, filed August 28, 2007, which is a continuation of U.S. Application Serial No. 10/927,857, filed August 27, 2004, now abandoned, which claimed the benefit of U.S. Provisional Application No. 60/503,137 filed September 15, 2003, which is are incorporated in its their entirety herein by reference.

### Amendments to the claims

The following list of claims will replace all previous versions of claims presented in this application:

1-36. (Canceled)

37. (New) A method of treating dry eye disease, the method comprising topically administering to the eye of the human an emulsion at a frequency of twice a day, wherein the emulsion comprises cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen, water, and castor oil in an amount of about 1.25% by weight; and

wherein the topical ophthalmic emulsion is effective in treating dry eye disease.

- 38. (New) The method of Claim 37, wherein the emulsion further comprises a tonicity agent or a demulcent component.
- 39. (New) The method of Claim 38, wherein the tonicity agent or the demulcent component is glycerine.
- 40. (New) The method of Claim 37, wherein the emulsion further comprises a buffer.
- 41. (New) The method of Claim 40, wherein the buffer is sodium hydroxide.
- 42. (New) The method of Claim 37, wherein the topical ophthalmic emulsion further comprises glycerine and a buffer.
- 43. (New) The method of Claim 37, wherein the emulsion comprises polysorbate 80 in an amount of about 1.0% by weight.
- 44. (New) The method of Claim 37, wherein the emulsion comprises Pemulen in an amount of about 0.05% by weight.

- 45. (New) The method of Claim 37, wherein the emulsion further comprises glycerine in an amount of about 2.2% by weight and a buffer.
- 46. (New) The method of Claim 45, wherein the buffer is sodium hydroxide.
- 47. (New) The method of Claim 37, wherein, when the emulsion is administered to an eye of a human in an effective amount in treating dry eye syndrome, the blood of the human has substantially no detectable concentration of cyclosporin A.
- 48. (New) The method of Claim 42, wherein the emulsion has a pH in the range of about 7.2 to about 7.6.
- 49. (New) The method of Claim 37, wherein the emulsion is as substantially therapeutically effective as an emulsion comprising cyclosporin A in an amount of 0.1% by weight and castor oil in an amount of 1.25% by weight.
- 50. (New) The method of Claim 37, wherein the emulsion achieves at least as much therapeutic effectiveness as an emulsion comprising cyclosporin A in an amount of 0.1% by weight and castor oil in an amount of 1.25% by weight.
- 51. (New) The method of Claim 37, wherein the emulsion breaks down more quickly in the eye of a human, once administered to the eye of the human, thereby reducing vision distortion in the eye of the human as compared to an emulsion that contains only 50% as much castor oil.
- 52. (New) The method of Claim 37, wherein the emulsion, when administered to the eye of a human, demonstrates a reduction in adverse events in the human, relative to an emulsion comprising cyclosporin A in an amount of 0.1% by weight and castor oil in an amount of 1.25% by weight.
- 53. (New) The method of Claim 52, wherein the adverse events include side effects.

54. (New) A method of reducing side effects in a human suffering from dry eye syndrome, the method comprising the step of topically administering to the eye of the human an emulsion at a frequency of twice a day, wherein the emulsion comprises:

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cyclosporin A in an amount of about 0.05% by weight;
castor oil in an amount of about 1.25% by weight;
polysorbate 80 in an amount of about 1.0% by weight;
Pemulen in an amount of about 0.05% by weight;
a tonicity component or a demulcent component in an amount of about 2.2% by weight;
a buffer; and
water.
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- 55. (New) The method of Claim 54, wherein the buffer is sodium hydroxide.
- 56. (New) The method of Claim 54, wherein the tonicity component or the demulcent component is glycerine.
- 57. (New) The method of Claim 54, wherein, when the emulsion is administered to the eye of a human in an effective amount in treating dry eye syndrome, the blood of the human has substantially no detectable concentration of the cyclosporin A.
- 58. (New) The method of Claim 54, wherein the emulsion has a pH in the range of about 7.2 to about 7.6.
- 59. (New) The method of Claim 54, wherein the emulsion is effective in treating dry eye disease.
- 60. (New) A method of treating dry eye disease, the method comprising the step of topically administering to an eye of a human an emulsion, the emulsion comprising:

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cyclosporin A in an amount of about 0.05% by weight; castor oil in an amount of about 1.25% by weight; polysorbate 80 in an amount of about 1.0% by weight;
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Pemulen in an amount of about 0.05% by weight; glycerine in an amount of about 2.2% by weight; sodium hydroxide; and water; wherein the emulsion is effective in treating dry eye disease.

61. (New) The method of Claim 60, wherein the emulsion has a pH in the range of about 7.2 to about 7.6.

**REMARKS** 

The applicants have canceled Claims 1-36 and have added Claims 37-61. Support for the

limitations recited in the new claims may be found throughout the specification, and at least at

page 4, line 25 – page 5, line 14, page 10, lines 1-7, page 26, lines 5-19, and page 27, lines 4-31

of the application specification filed herewith. No new matter has been added.

The claims of the present application may vary in scope from the claims pursued in the

parent applications. To the extent any prior amendments or characterizations of the scope of any

claim, or the specification, or referenced art could be construed as a disclaimer of any subject

matter supported by the present disclosure, the Applicants hereby rescind and retract such

disclaimer.

Specifically, the Applicants would like to bring to the Examiner's attention comments

made in the Response filed on June 15, 2009 in U.S. Patent Application Serial No. 10/927,857

(now abandoned) and comments made in the Amendment filed on June 15, 2009 in U.S. Patent

Application Serial No. 11/897,177 (currently pending) regarding U.S. Patent No. 5,474,979 and

the present application specification. Since these comments have been filed, the Applicants have

collected evidence that supports the patentability of the pending claims.

The Commissioner is hereby authorized to charge any fees required or necessary for the

filing, processing or entering of this paper or any of the enclosed papers, and to refund any

overpayment, to deposit account 01-0885.

Respectfully submitted,

/Laura L. Wine/

Date: August 14, 2013

Laura L. Wine

Attorney of Record

Registration Number 68,681

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**Document Description: TrackOne Request** 

PTO/AIA/424 (03-13)

# CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

l						
	First Named Inventor:	Andrew Acheampong	Nonprovisional Application Number (if known):			
I	Title of Invention:	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS				

# APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

- 1. The processing fee set forth in 37 CFR 1.17(i)(1), the prioritized examination fee set forth in 37 CFR 1.17(c), and if not already paid, the publication fee set forth in 37 CFR 1.18(d) have been filed with the request. The basic filing fee, search fee, examination fee, and any required excess claims and application size fees are filed with the request or have been already been paid.
- 2. The application contains or is amended to contain no more than four independent claims and no more than thirty total claims, and no multiple dependent claims.
- 3. The applicable box is checked below:
  - I. Original Application (Track One) Prioritized Examination under § 1.102(e)(1)
- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a).
   This certification and request is being filed with the utility application via EFS-Web.
   ---OR--
  - (b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. The executed inventor's oath or declaration is filed with the application. (37 CFR 1.63 and 1.64)
  - II. Request for Continued Examination Prioritized Examination under § 1.102(e)(2)
- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature/Laura L. Wine/	Date August 14, 2013				
Name (Print/Typed) Laura L. Wine	Practitioner 68681 Registration Number				
Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*					
*Total of forms are submitted.					

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- 6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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- 8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
- 9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal						
Application Number:						
Filing Date:						
Title of Invention:		THODS OF PROVID MPONENTS	ING THERAPEU	TIC EFFECTS USING	i CYCLOSPORIN	
First Named Inventor/Applicant Name:	An	drew Acheampong				
Filer:	Lau	ura Lee Wine/Laure	n Barberena			
Attorney Docket Number:		17618CON5B (AP)				
Filed as Large Entity						
Track I Prioritized Examination - Nonprovision	onal	Application (	under 35 U	SC 111(a) Fili	ng Fees	
Description		Fee Code	Quantity	Amount	Sub-Total in USD(\$)	
Basic Filing:						
Utility application filing		1011	1	280	280	
Utility Search Fee		1111	1	600	600	
Utility Examination Fee		1311	1	720	720	
Request for Prioritized Examination		1817	1	4000	4000	
Pages:						
Claims:						
Claims in Excess of 20		1202	5	80	400	
Independent claims in excess of 3		1201	1	420	420	

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous-Filing:				
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300
OTHER PUBLICATION PROCESSING FEE	1808	1	130	130
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD (\$)		

Electronic Acknowledgement Receipt					
EFS ID:	16593100				
Application Number:	13967179				
International Application Number:					
Confirmation Number:	8654				
Title of Invention:	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS				
First Named Inventor/Applicant Name:	Andrew Acheampong				
Customer Number:	51957				
Filer:	Laura Lee Wine/Lauren Barberena				
Filer Authorized By:	Laura Lee Wine				
Attorney Docket Number:	17618CON5B (AP)				
Receipt Date:	14-AUG-2013				
Filing Date:					
Time Stamp:	18:49:39				
Application Type:	Utility under 35 USC 111(a)				

# **Payment information:**

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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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File Listin	g:				
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		17618CON_SPEC.pdf	4360450	yes	34
'		17618CON_SFEC.pdi	9b080e02f8cb41c5b767d994b15dca09f38 dd180	yes	
	Multip	part Description/PDF files in .	zip description	·	
	Document De	Start	End		
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	Claims	5	29	33	
	Abstrac	ct	34	ā	34
Warnings:					
Information:					
2	Application Data Sheet	17618CON5B_ADS.pdf	1509913	no	8
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Warnings:					
Information:					
3	Oath or Declaration filed	17618CON5B_DECS.pdf	645090	no	6
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	Preliminary Amendment		1	1	
	Specificat	2	2		

	Claims	3	6	6	
	Applicant Arguments/Remarks	7	7		
Warnings:					
Information:					
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#### New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

#### National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

#### New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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# METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS

## 5 Related Application

This application is a continuation of U.S. Application Serial No. 10/927,857, filed August 27, 2004, which claimed the benefit of U.S. Provisional Application No. 60/503,137 filed September 15, 2003, which is incorporated in its entirety herein by reference.

# Background of the Invention

The present invention relates to methods of providing desired therapeutic effects to humans or animals using compositions including cyclosporin components. More particularly, the invention relates to methods including administering to an eye of a human or animal a therapeutically effective amount of a cyclosporin component to provide a desired therapeutic effect, preferably a desired ophthalmic or ocular therapeutic effect.

The use of cyclosporin-A and cyclosporin A derivatives to treat ophthalmic conditions has been the subject of various patents, for example Ding et al U.S. Patent 5,474,979; Garst U.S. Patent 6,254,860; and Garst U.S. 6,350,442, this disclosure of each of which is incorporated in its entirely herein by reference. In addition. cyclosporin A compositions used in treating ophthalmic conditions is the subject of a number of publications. Such publications include, for example, concentrations of cyclosporin a during long-term treatment with cyclosporin a ophthalmic emulsions in patients with moderate to severe dry eye disease," Small et al, J Ocul Pharmacol Ther, 2002 Oct, 18(5):411-8; "Distribution of

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cyclosporin A in ocular tissues after topical administration to albino rabbits and beagle dogs," Acheampong et al, Curr Eye Res, 1999 Feb, 18(2):91-103b; "Cyclosporine distribution into the conjunctiva, cornea, lacrimal gland, and systemic blood following topical dosing of cyclosporine to rabbit, dog, and human eyes," Acheampong et al, Adv Exp Med Biol, 1998, 438:1001-4; "Preclinical safety studies of cyclosporine ophthalmic emulsion," Angelov et al, Adv Exp Med Biol, 1998, 438:991-5; "Cyclosporin & Emulsion & Eye," Stevenson Ophthalmology, 2000 May, 107(5):967-74; and multicenter, randomized studies of the efficacy and safety of cyclosporine ophthalmic emulsion in moderate to severe dry eye disease. CsA Phase 3 Study Group," Sall et al, Ophthalmology, 2000 Apr, 107(4):631-9. Each of these publications is incorporated in its entirety herein by reference. In addition, cyclosporin A-containing oil-inwater emulsions have been clinically tested, under conditions of confidentiality, since the mid 1990's in order to obtain U.S. Food and Drug Administration (FDA) regulatory approval.

Examples of useful cyclosporin A-containing emulsions are set out in Ding et al U.S. Patent 5,474,979. Example 1 of this patent shows a series of emulsions in which the ratio of cyclosporin A to castor oil in each of these compositions was 0.08 or greater, except for Composition B, which included 0.2% by weight cyclosporin A and 5% by weight castor oil. The Ding et al patent placed no significance in Composition B relative to Compositions A, C and D of Example 1.

Over time, it has become apparent that cyclosporin A emulsions for ophthalmic use preferably have less than 0.2%

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by weight of cyclosporin A. With cyclosporin A concentrations less than 0.2%, the amount of castor oil employed has been reduced since one of the functions of the castor oil is to solubilize the cyclosporin A. Thus, if reduced amounts of cyclosporin are employed, reduced amounts of castor oil are needed to provide effective solubilization of cyclosporin A.

There continues to be a need for providing enhanced methods of treating ophthalmic or ocular conditions with cyclosporin-containing emulsions.

# Summary of the Invention

New methods of treating a human or animal using cyclosporin component-containing emulsions have been Such methods provide substantial overall discovered. efficacy in providing desired therapeutic effects. addition, other important benefits are obtained employing the present methods. For example, patient safety is enhanced. In particular, the present methods provide for reduced risks of side effects and/or drug interactions. Prescribing physicians advantageously have increased flexibility in prescribing such methods and compositions useful in such methods, for example, because of the reduced risks of harmful side effects and/or drug interactions. The present methods can be easily practiced. In short, the present methods provide substantial and acceptable overall efficacy, together with advantages, such as increased safety and/or flexibility.

In one aspect of the present invention, the present methods comprise administering to an eye of a human or animal a composition in the form of an emulsion comprising water, a hydrophobic component and a cyclosporin component

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in a therapeutically effective amount of less than 0.1% by weight of the composition. The weight ratio of the cyclosporin component to the hydrophobic component is less than 0.08.

It has been found that the relatively increased amounts of hydrophobic component together with relatively reduced, yet therapeutically effective, amounts cyclosporin component provide substantial and advantageous benefits. For example, the overall efficacy of the present 10 compositions, for example in treating dry eye disease, is substantially equal to an identical composition in which the cyclosporin component is present in an amount of 0.1% by weight. Further, a relatively high concentration of hydrophobic component is believed to provide for a more 15 quick or rapid breaking down or resolving of the emulsion in the eye, which reduces vision distortion which may be caused by the presence of the emulsion in the eye and/or therapeutic effectiveness facilitates the Additionally, and importantly, using reduced composition. 20 amounts of the active cyclosporin component mitigates against undesirable side effects and/or potential drug interactions.

In short, the present invention provides at least one advantageous benefit, and preferably a plurality of advantageous benefits.

The present methods are useful in treating any suitable condition which is therapeutically sensitive to or treatable with cyclosporin components. Such conditions preferably are ophthalmic or ocular conditions, that is relating to or having to do with one or more parts of an eye of a human or animal. Included among such conditions without are, limitation, dry eye syndrome,

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phacoanaphylactic endophthalmitis, uveitis, vernal conjunctivitis, atopic kerapoconjunctivitis, corneal graft rejection and the like conditions. The present invention is particularly effective in treating dry eye syndrome.

Employing reduced concentrations of cyclosporin component, as in the present invention, is advantageously effective to provide the blood of the human or animal under treatment with reduced concentrations of cyclosporin component, preferably with substantially no detectable concentration of the cyclosporin component. cyclosporin component concentration of blood can be usina validated advantageously measured a chromatography/mass spectrometry-mass spectrometry (VLC/MS-MS) analytical method, such as described elsewhere herein.

In one embodiment, in the present methods the blood of the human or animal has concentrations of clyclosporin component of 0.1 ng/ml or less.

Any suitable cyclosporin component effective in the present methods may be used.

Cyclosporins are a group of nonpolar cyclic oligopeptides with known immunosuppressant activity. Cyclosporin A, along with several other minor metabolites, cyclosporin B through I, have been identified. In addition, a number of synthetic analogs have been prepared.

In general, commercially available cyclosporins may contain a mixture of several individual cyclosporins which all share a cyclic peptide structure consisting of eleven amino acid residues with a total molecular weight of about 1,200, but with different substituents or configurations of some of the amino acids.

The term "cyclosporin component" as used herein is intended to include any individual member of the

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cyclosporin group and derivatives thereof, as well as mixtures of two or more individual cyclosporins and derivatives thereof.

Particularly preferred cyclosporin components include, without limitation, cyclosporin A, derivatives of cyclosporin A and the like and mixtures thereof. Cyclosporin A is an especially useful cyclosporin component.

Any suitable hydrophobic component may be employed in the present invention. Advantageously, the cyclosporin component is solubilized in the hydrophobic component. The hydrophobic component may be considered as comprising a discontinuous phase in the presently useful cyclosporin component-containing emulsions.

The hydrophobic component preferably is present in the emulsion compositions in an amount greater than about 0.625% by weight. For example, the hydrophobic component may be present in an amount of up to about 1.0% by weight or about 1.5% by weight or more of the composition.

Preferably, the hydrophobic component comprises one or more oily materials. Examples of useful oil materials include, without limitation, vegetable oils, animal oils, mineral oils, synthetic oils and the like and mixtures thereof. In a very useful embodiment, the hydrophobic component comprises one or more higher fatty acid glycerides. Excellent results are obtained when the hydrophobic component comprises castor oil.

The presently useful compositions may include one or more other components in amounts effective to facilitate the usefulness and effectiveness of the compositions. Examples of such other components include, without limitation, emulsifier components, tonicity components,

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polyelectrolyte components, surfactant components. viscosity inducing components, acids and/or bases to adjust the pH of the composition, buffer components, preservative components and the like. Components may be employed which are effective to perform two or more functions in the presently useful compositions. For example, components which are effective as both emulsifiers and surfactants may be employed, and/or components which are effective as both polyelectrolyte components and viscosity inducing components may be employed. The specific composition chosen for use in the present invention advantageously is selected taking into account various factors present in the specific application at hand, for example, the desired therapeutic effect to be achieved, the desired properties of the compositions to be employed, the sensitivities of the human or animal to whom the composition is to be administered, and the like factors.

The presently useful compositions advantageously are ophthalmically acceptable. A composition, component or material is ophthalmically acceptable when it is compatible with ocular tissue, that is, it does not cause significant or undue detrimental effects when brought into contact with ocular tissues.

Such compositions have pH's within the physiological range of about 6 to about 10, preferably in a range of about 7.0 to about 8.0 and more preferably in a range of about 7.2 to about 7.6.

The present methods preferably provide for an administering step comprising topically administering the presently useful compositions to the eye or eyes of a human or animal.

Each and every feature described herein, and each and

every combination of two or more of such features, is included within the scope of the present invention provided that the features included in such a combination are not mutually inconsistent.

These and other aspects and advantages of the present invention are apparent in the following detailed description, example and claims.

## Detailed Description

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10 The present methods are effective for treating an eye of a human or animal. Such methods, in general, comprise administering, preferably topically administering, to an eye of a human or animal a cyclosporin component-containing The emulsion contains water, for example U.S. emulsion. pure water, a hydrophobic component and a cyclosporin 15 component in a therapeutically effective amount of less than 0.1% by weight of the emulsion. In addition, beneficial results have been found when the weight ratio of the cyclosporin component to the hydrophobic component is 20 less than 0.08.

As noted above, the present administering step preferably includes topically administering the emulsion to the eye of a patient of a human or animal. Such administering may involve a single use of the presently useful compositions, or repeated or periodic use of such compositions, for example, as required or desired to achieve the therapeutic effect to be obtained. The topical administration of the presently useful composition may involve providing the composition in the form of eye drops or similar form or other form so as to facilitate such topical administration.

The present methods have been found to be very

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effective in providing the desired therapeutic effect or effects while, at the same time, substantially reducing, or even substantially eliminating, side effects which may result from the presence of the cyclosporin component in the blood of the human or animal being treated, and eye irritation which, in the past, has been caused by the presence of certain components in prior art cyclosporincontaining emulsions. Also, the use of the present which include reduced compositions amounts the for cyclosporin components allow more frequent administration of the present compositions to achieve the desired therapeutic effect or effects without substantially increasing the risk of side effects and/or eye irritation.

The present methods are useful in treating any condition which is therapeutically sensitive to or treatable with cyclosporin components. Such conditions preferably are ophthalmic or ocular conditions, that is relating to or having to do with one or more parts of an eye of a human or animal. Included among such conditions are, without limitation. dry syndrome, eye endophthalmitis, phacoanaphylactic uveitis, vernal conjunctivitis, atopic kerapoconjunctivitis, corneal graft rejection and the like conditions. The present invention is particularly effective in treating dry eye syndrome.

The frequency of administration and the amount of the presently useful composition to use during each administration varies depending upon the therapeutic effect to be obtained, the severity of the condition being treated and the like factors. The presently useful compositions are designed to allow the prescribing physician substantial flexibility in treating various ocular conditions to achieve the desired therapeutic effect or effects with

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reduced risk of side effects and/or eye irritation. Such administration may occur on an as needed basis, for example, in treating or managing dry eye syndrome, on a one time basis or on a repeated or periodic basis once, twice, thrice or more times daily depending on the needs of the human or animal being treated and other factors involved in the application at hand.

of the important advantages of the present invention is the reduced concentration of the cyclosporin component in the blood of the human or animal as a result of administering the present composition as described One very useful embodiment of the present herein. administering step provides no substantial detectable concentration of cyclosporin component in the blood of the human or animal. Cyclosporin component concentration in determined blood preferably is using chromatography-mass spectroscopy-mass spectroscopy (LC-MS/MS), which test has a cyclosporin component detection limit of 0.1 ng/ml. Cyclosporin component concentrations below or less than 0.1 ng/ml are therefore considered substantially undetectable.

The LC-MS/MS test is advantageously run as follows.

One ml of blood is acidified with 0.2 ml of 0.1 N HCl solution, then extracted with 5 ml of methyl t-butyl ether. After separation from the acidified aqueous layer, the organic phase is neutralized with 2 ml of 0.1 N NaOH, evaporated, reconstituted in a water/acetonitrile-based mobil phase, and injected onto a 2.1 x 50 mm, 3µm pore size C-8 reverse phase high pressure liquid chromatography (HPLC) column (Keystone Scientific, Bellefonte, PA). Compounds are gradient-eluted at 0.2 mL/min and detected using an API III triple quadrupole mass spectrometer with a

turbo-ionspray source (PE-Sciex, Concord, Ontario, Canada). Molecular reaction monitoring enhances the sensitivity and selectivity of this assay. Protonated molecules for the analyte and an internal standard are collisionally dissociated and product ions at m/z 425 are monitored for the analyte and the internal standard. Under these conditions, cyclosporin A and the internal standard cyclosporin G elute with retention times of about 3.8 minutes. The lower limit of quantitation is 0.1 ng/mL, at which concentration the coefficient of variation and deviation from nominal concentration is <15%.

As noted previously, any suitable cyclosporin component effective in the present methods may be employed. Very useful cyclosporin components include, without limitation, cyclosporin A, derivatives of cyclosporin A and the like and mixtures thereof.

The chemical structure for cyclosporin A is represented by Formula 1

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#### Formula I

As used herein the term "derivatives" of a cyclosporing refer to compounds having structures sufficiently similar to the cyclosporin so as to function in a manner substantially similar to or substantially identical to the cyclosporin, for example, cyclosporin A, in the present methods. Included, without limitation, within the useful cyclosporin A derivatives are those selected from ((R)-methylthio-Sar)<sup>3</sup>-(4'-hydroxy-MeLeu) cyclosporin A, ((R)-(Cyclo)alkylthio-Sar)<sup>3</sup>-(4'-hydroxy-MeLeu)<sup>4</sup>-cyclosporin A, and ((R)-(Cyclo)alkylthio-Sar)<sup>3</sup>-cyclosporin A derivatives described below.

These cyclosporin derivatives are represented by the following general formulas (II), (III), and (IV) respectively:

# Formula II

# Formula III

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#### Formula IV

wherein Me is methyl; Alk is 2-6C alkylene or 3-6C cycloalkylene; R is OH, COOH, alkoxycarbonyl,  $-NR_1R_2$  or  $N(R_3)-(CH_2)-NR_1R_2$ ; wherein  $R_1,R_2$  is H, alkyl, 3-6C cycloalkyl, phenyl (optionally substituted by halo, alkoxy, alkoxycarbonyl, amino, alkylamino or dialkylamino), benzyl or saturated or unsaturated heterocyclyl having 5 or 6 members and 1-3 heteroatoms; or  $NR_1R_2$  is a 5 or 6 membered heterocycle which may contain a further N, O or S heteroatom and may be alkylated;  $R_3$  is H or alkyl and n is 2-4; and the alkyl moieties contain 1-4C.

In one embodiment, the cyclosporin component is effective as an immunosuppressant. Without wishing to be limited to any particular theory of operation, it is believed that, in certain embodiments of the present invention, the cyclosporin component acts to enhance or restore lacrimal gland tearing in providing the desired

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therapeutic effect.

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One important feature of the present invention is that the presently useful compositions contain less than 0.1% by weight of the cyclosporin component. The advantages of such low-concentrations of cyclosporin components have been discussed in some detail elsewhere herein. Low concentrations of cyclosporin component, together with concentrations of the hydrophobic component such that the weight ratio of cyclosporin component to hydrophobic component is greater than 0.08, provides one or more substantial advantages in the present methods.

Any suitable hydrophobic component may be employed in the present invention. Such hydrophobic component may be considered as comprising a discontinuous phase in the presently useful cyclosporin component-containing emulsions, with the water or aqueous phase being considered the continuous phase in such emulsion. The hydrophobic component is preferably selected so as to solubilize the cyclosporin component, which is often substantially insoluble in the aqueous phase. Thus, with a suitable hydrophobic component included in the presently useful emulsions, the cyclosporin component is preferably solubilized in the emulsions.

In one very useful embodiment, the hydrophobic component comprises an oily material, in particular, a material which is substantially not miscible in water. Examples of useful oily materials include, without limitation, vegetable oils, animal oils, mineral oils, synthetic oils, and the like and mixtures thereof. Thus, the present hydrophilic components may comprise naturally occurring oils, including, without limitation refined naturally occurring oils, or naturally occurring oils which

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have been processed to alter their chemical structures to some extent or oils which are substantially entirely synthetic. One very useful hydrophobic component includes higher fatty acid glycerides.

Examples of useful hydrophobic components include, without limitation, olive oil, arachis oil, castor oil, mineral oil, silicone fluid and the like and mixtures thereof. Higher fatty acid glycerides such as olive oil, peanut oil, castor oil and the like and mixtures thereof are particularly useful in the present invention. Excellent results are obtained using a hydrophobic component comprising castor oil. Without wishing to limit the invention to any particular theory of operation, it is believed that castor oil includes a relatively high concentration of ricinoleic acid which itself may be useful in benefitting ocular tissue and/or in providing one or more therapeutic effects when administered to an eye.

The hydrophobic component is preferably present in the presently useful cyclosporin component-containing emulsion compositions in an amount greater than about 0.625% by weight. For example, the hydrophobic component may be present in an amount up to about 0.75% by weight or about 1.0% by weight or about 1.5% by weight or more of the presently useful emulsion compositions.

The presently useful compositions may include one or more other components in amounts effective to facilitate the usefulness and effectiveness of the present methods and/or the presently useful compositions. Examples of such other components include, without limitation, emulsifier components, surfactant components, tonicity components, poly electrolyte components, emulsion stability components, viscosity inducing components, demulcent components, acid

and/or bases to adjust the pH of the composition, buffer components, preservative components and the like.

In one very useful embodiment, the presently useful compositions are substantially free of preservatives. Thus, the presently useful compositions may be sterilized and maintained in a sterile condition prior to use, for example, provided in a sealed package or otherwise maintained in a substantially sterile condition.

Any suitable emulsifier component may be employed in the presently useful compositions, provided, that such emulsifier component is effective in forming maintaining the emulsion and/or in the hydrophobic component in emulsion, while having no significant or undue detrimental effect or effects on the compositions during storage or use.

In addition, the presently useful compositions, as well as each of the components of the present compositions in the concentration present in the composition advantageously are ophthalmically acceptable.

20 Useful emulsifier components may be selected from such component which are conventionally used and well known in the art. Examples of such emulsifier components include, without limitation, surface active components or surfactant components which may be anionic, cationic, nonionic or 25 amphorteric in nature. In general, the emulsifier component includes a hydrophobic constituent and a hydrophilic constituent. Advantageously, the emulsifier component is water soluble in the presently useful Preferably, the emulsifier component is compositions. 30 nonionic. Specific examples of suitable emulsifier components include, without limitation, polysorbate 80, polyoxyalkylene alkylene ethers, polyalkylene oxide ethers

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of alkyl alcohols, polyalkylene oxide ethers of alkylphenols, other emulsifiers/surfactants, preferably nonionic emulsifiers/surfactants, useful in ophthalmic compositions, and the like and mixtures thereof.

The emulsifier component is present in an amount effective in forming the present emulsion and/or in maintaining the hydrophobic component in emulsion with the water or aqueous component. In one preferred embodiment, the emulsifier component is present in an amount in a range of about 0.1% to about 5%, more preferably about 0.2% to about 2% and still more preferably about 0.5% to about 1.5% by weight of the presently useful compositions.

Polyelectrolyte or emulsion stabilizing components may be included in the presently useful compositions. Such components are believed to be effective in maintaining the electrolyte balance in the presently useful emulsions, thereby stabilizing the emulsions and preventing the emulsions from breaking down prior to use. In one embodiment, the presently useful compositions include a polyanionic component effective as an emulsion stabilizing component. Examples of suitable polyanionic components useful in the presently useful compositions include, without limitation, anionic cellulose derivatives, anionic acrylic acid-containing polymers, anionic methacrylic acid-containing polymers, anionic amino acid-containing polymers and the like and mixtures thereof.

A particularly useful class of polyanionic components include one or more polymeric materials having multiple anionic charges. Examples include, but are not limited to:

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metal carboxy methylcelluloses metal carboxy methylhydroxyethylcelluloses

metal carboxy methylstarchs metal carboxy methylhydroxyethylstarchs hydrolyzed polyacrylamides and polyacrylonitriles heparin 5 gucoaminoglycans hyaluronic acid chondroitin sulfate dermatan sulfate peptides and polypeptides 1.0 alginic acid metal alginates homopolymers and copolymers of one or more of: acrylic and methacrylic acids metal acrylates and methacrylates 15 vinylsulfonic acid metal vinylsulfonate amino acids, such as aspartic acid, glutamic acid and the like metal salts of amino acids 20 p-styrenesulfonic acid metal p-styrenesulfonate 2-methacryloyloxyethylsulfonic acids metal 2-methacryloyloxethylsulfonates 3-methacryloyloxy-2-hydroxypropylsulonic acids 25 metal 3-methacryloyloxy-2hydroxypropylsulfonates 2-acrylamido-2-methylpropanesulfonic acids metal 2-acrylamido-2-methylpropanesulfonates allylsulfonic acid

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One particularly useful emulsion stabilizing component

metal allylsulfonate and the like.

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includes crosslinked polyacrylates, such as carbomers and Pemulen® materials. Pemulen® is a registered trademark of B.F. Goodrich for polymeric emulsifiers and are commercially available from B.F. Goodrich Company, Specialty Polymers & Chemicals Division, Cleveland, Ohio. Pemulen® materials include acrylate/Cl0-30 alkyl acrylate cross-polymers, or high molecular weight co-polymers of acrylic acid and a long chain alkyl methacrylate cross-linked with allyl ethers of pentaerythritol.

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The presently useful polyanionic components may also be used to provide a suitable viscosity to the presently useful compositions. Thus, the polyanionic components may be useful in stabilizing the presently useful emulsions and in providing a suitable degree of viscosity to the presently useful compositions.

The polyelectrolyte or emulsion stabilizing component advantageously is present in an amount effective to at least assist in stabilizing the cyclosporin component-containing emulsion. For example, the polyelectrolyte/emulsion stabilizing component may be present in an amount in a range of about 0.01% by weight or less to about 1% by weight or more, preferably about 0.02% by weight to about 0.5% by weight, of the composition.

Any suitable tonicity component may be employed in accordance with the present invention. Preferably, such tonicity component is non-ionic, for example, in order to avoid interfering with the other components in the presently useful emulsions and to facilitate maintaining the stability of the emulsion prior to use. Useful tonicity agents include, without limitation, glycerine, mannitol, sorbitol and the like and mixtures thereof. The presently useful emulsions are preferably within the range

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of plus or minus about 20% or about 10% from being isotonic.

Ophthalmic demulcent components may be included in effective amounts in the presently useful compositions. For example, ophthalmic demulcent components such as carboxymethylcellulose, other cellulose polymers, dextran 70, gelatin, glycerine, polyethylene glycols (e.g., PEG 300 and PEG 400), polysorbate 80, propylene glycol, polyvinyl alcohol, povidone and the like and mixtures thereof, may be used in the present ophthalmic compositions, for example, compositions useful for treating dry eye.

The demulcent components are preferably present in the compositions, for example, in the form of eye drops, in an amount effective in enhancing the lubricity of the presently useful compositions. The amount of demulcent component in the present compositions may be in a range of at least about 0.01% or about 0.02% to about 0.5% or about 1.0% by weight of the composition.

Many of the presently useful polyelectrolyte/emulsion stabilizing components may also be effective as demulcent components, and vice versa. The emulsifier/surfactant components may also be effective as demulcent components and vice versa.

The pH of the emulsions can be adjusted in a conventional manner using sodium hydroxide and/or hydrochloric acid to a physiological pH level. The pH of the presently useful emulsions preferably is in the range of about 6 to about 10, more preferably about 7.0 to about 8.0 and still more preferably about 7.2 to about 7.6.

Although buffer components are not required in the presently useful compositions, suitable buffer components, for example, and without limitation, phosphates, citrates,

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acetates, borates and the like and mixtures thereof, may be employed to maintain a suitable pH in the presently useful compositions.

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The presently useful compositions may include an effective amount of a preservative component. Any suitable preservative or combination of preservatives may be employed. Examples of suitable preservatives include, without limitation, benzalkonium chloride, methyl and ethyl parabens, hexetidine, phenyl mercuric salts and the like and mixtures thereof. The amounts of preservative components included in the present compositions are such to be effective in preserving the compositions and can vary based on the specific preservative component employed, the specific composition involved, the specific application involved. and the like factors. Preservative concentrations often are in the range of about 0.00001% to about 0.05% or about 0.1% (w/v) of the composition, although other concentrations of certain preservatives may be employed.

20 Very useful examples of preservative components in the present invention include, but are not limited to, chlorite Specific examples of chlorite components components. useful as preservatives in accordance with the present invention include stabilized chlorine dioxide (SCD), metal 25 chlorites such as alkali metal and alkaline earth metal chlorites, and the like and mixtures thereof. grade (or USP grade) sodium chlorite is a very useful preservative component. The exact chemical composition of many chlorite components, for example, SCD. 30 completely understood. The manufacture or production of certain chlorite components is described in McNicholas U.S. Patent 3,278,447, which is incorporated in its entirety by

reference herein. Specific examples of useful SCD products include that sold under the trademark Dura Klor by Rio Linda Chemical Company, Inc., and that sold under the trademark Anthium Dioxide® by International Dioxide, Inc. An especially useful SCD is a product sold under the trademark Bio-Cide® by Bio-Cide International, Inc., as well as a product identified by Allergan, Inc. by the trademark Purite®.

Other useful preservatives include antimicrobial peptides. Among the antimicrobial peptides which may be employed include, without limitation, defensins, peptides related to defensins, cecropins, peptides related to cecropins, magainins and peptides related to magainins and other amino acid polymers with antibacterial, antifungal and/or antiviral activities. Mixtures of antimicrobial peptides or mixtures of antimicrobial peptides with other preservatives are also included within the scope of the present invention.

The compositions of the present invention may include viscosity modifying agents or components, such as cellulose polymers, including hydroxypropyl methyl cellulose (HPMC), hydroxyethyl cellulose (HEC), ethyl hydroxyethyl cellulose, hydroxypropyl cellulose, methyl cellulose and carboxymethyl cellulose; carbomers (e.g. carbopol, and the like); polyvinyl alcohol; polyvinyl pyrrolidone; alginates; carrageenans; and guar, karaya, agarose, locust bean, tragacanth and xanthan gums. Such viscosity modifying components are employed, if at all, in an amount effective to provide a desired viscosity to the present compositions. The concentration of such viscosity modifiers will typically vary between about 0.01 to about 5 % w/v of the

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total composition, although other concentrations of certain viscosity modifying components may be employed.

The presently useful compositions may be produced using conventional and well known methods useful in producing ophthalmic products including oil-in-water emulsions.

In one example, the oily phase of the emulsion can be combined with the cyclosporin component to solubilize the cyclosporin component in the oily material phase. The oily phase and the water may be separately heated to an appropriate temperature. This temperature may be the same in both cases, generally a few degrees to about 10°C above the melting temperature of the ingredient(s) having the highest melting point in the case of a solid or semi-solid oily phase for emulsifier components in the oily phase. Where the oily phase is a liquid at room temperature, a suitable temperature for preparation of a composition may be determined by routine experimentation in which the melting point of the ingredients aside from the oily phase is determined. In cases where all components of either the oily phase or the water phase are soluble at room temperature, no heating may be necessary. Non-emulsifying agents which are water soluble are dissolved in the water oil soluble components including the surfactant components are dissolved in the oily phase.

To create an oil-in-water emulsion, the final oil phase is gently mixed into either an intermediate, preferably de-ionized water, phase or into the final water phase to create a suitable dispersion and the product is allowed to cool with or without stirring. In the case where the final oil phase is first gently mixed into an intermediate water phase, the resulting emulsion

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concentrate is thereafter mixed in the appropriate ratio with the final aqueous phase. In such cases, the emulsion concentrate and the final aqueous phase may not be at the same temperature or heated above room temperature, as the emulsion may be already formed at this point.

The oil-in-water emulsions of the present invention can be sterilized after preparation using heat, for example, autoclave steam sterilization or can be sterile filtered using, for example, a 0.22 micron sterile filter. 10 Sterilization employing a sterilization filter can be used when the emulsion droplet (or globule or particle) size and characteristics allows this. The droplet size distribution of the emulsion need not be entirely below the particle size cutoff of the 0.22 micron sterile filtration membrane 15 to be sterile-filtratable. In cases wherein the droplet size distribution of the emulsion is above the particle size cutoff of the 0.22 micron sterile filtration membrane, the emulsion needs to be able to deform or change while passing through the filtration membrane and then reform 20 after passing through. This property is easily determined by routine testing of emulsion droplet size distributions and percent of total oil in the compositions before and after filtration. Alternatively, a loss of a small amount of larger droplet sized material may be acceptable.

The present oil-in-water emulsions preferably are thermodynamically stable, much like microemulsions, and yet may not be isotropic transparent compositions as are microemulsions. The emulsions of the present invention advantageously have a shelf life exceeding one year at room temperature.

The following non-limiting examples illustrate certain aspects of the present invention.

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### EXAMPLE 1

Two compositions are selected for testing. These compositions are produced in accordance with well known techniques and have the following make-ups:

5		Composition I	Composition II
		wt%	wt %
	Cyclosporin A	0.1	0.05
	Castor Oil	1.25	1.25
	Polysorbate 80	1.00	1.00
10	Premulen®	0.05	0.05
	Glycerine	2.20	2.20
	Sodium hydroxide	qs	qs
	Purified Water	qs	qs
	рН	7.2-7.6	7.2-7.6
15	Weight Ratio of Cyclo A to Castor Oil	sporin 0.08	0.04

These compositions are employed in a Phase 3, double-20 masked, randomized, parallel group study for the treatment of dry eye disease.

The results of this study indicate that Composition II, in accordance with the present invention, which has a reduced concentration of cyclosporin A and a cyclosporin A to castor oil ratio of less than 0.08, provides overall efficacy in treating dry eye disease substantially equal to that of Composition I. This is surprising for a number of reasons. For example, the reduced concentration of cyclosporin A in Composition II would have been expected to result in reduced overall efficacy in treating dry eye disease. Also, the large amount of castor oil relative to the amount of cyclosporin A in Composition II might have been expected to cause increased eye irritation relative to

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Composition I. However, both Composition I and Composition II are found to be substantially non-irritating in use.

Using relatively increased amounts of castor oil, with reduced amounts of cyclosporin component, as in Composition II, is believed to take advantage of the benefits, for example the ocular lubrication benefits, of castor oil, as well as the presence of ricincleic acid in the castor oil, to at least assist in treating dry eye syndrome in combination with cyclosporin A.

In addition, it is found that the high concentration of castor oil relative to cyclosporin component, as in Composition II, provides the advantage of more quickly or rapidly (for example, relative to a composition which includes only 50% as much castor oil) breaking down or 15 resolving the emulsion in the eye, for example, as measured by split-lamp techniques to monitor the composition in the eye for phase separation. Such rapid break down of the emulsion in the eye reduces vision distortion as the result of the presence of the emulsion in the eye, as well as facilitating the therapeutic effectiveness of the composition in treating dry eye disease.

Using reduced amounts of cyclosporin A, Composition II, to achieve therapeutic effectiveness mitigates even further against undesirable side effects and potential drug interactions. Prescribing physicians can provide (prescribe) Composition II to more patients and/or with fewer restrictions and/or with reduced risk of the occurrence of adverse events, e.q., side effects, drug like, relative to interactions and the providing Composition I.

While this invention has been described with respect to various specific examples and embodiments, it is to be understood that the invention is not limited thereto and that it can be variously practiced within the scope of the following claims.

### WHAT IS CLAIMED IS:

 A method of treating an eye of a human or animal comprising:

administering to an eye of a human or animal a composition in the form of an emulsion comprising water, a hydrophobic component and a cyclosporin component in a therapeutically effective amount of less than 0.1% by weight of the composition, the weight ratio of the cyclosporin component to the hydrophobic component is less than 0.08.

- 2. The method of claim 1 wherein the administering step is effective in treating a condition selected from the group consisting of dry eye syndrome, phacoanaphylactic endophthalmitis, uveitis, vernal conjunctivitis, atopic keratoconjunctivitis and corneal graft rejection.
- 3. The method of claim 1 wherein the administering step is effective in treating dry eye syndrome.
- 4. The method of claim 1 wherein the blood of the human or animal has substantially no detectable concentration of the cyclosporin component.
- 5. The method of claim 1 wherein the blood of the human or animal has substantially no detectable concentration of the cyclosporin component as measured using a validated liquid chromatography/mass spectrometry-mass spectrometry analytical method.

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6. The method of claim 1 wherein the blood of the human or animal has a concentration of the cyclosporin component of 0.1 ng/ml or less.

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- 7. The method of claim 1 wherein the cyclosporin component comprises a material selected from cyclosporin A, derivatives of cyclosporin A and mixtures thereof.
- 8. The method of claim 1 wherein the cyclosporin component comprises cyclosporin A.
- 9. The method of claim 1 wherein the cyclosporin component is solubilized in the hydrophobic component present in the composition.
- 10. The method of claim 1 wherein the hydrophobic component is present in the composition in an amount greater than 0.625% by weight of the composition.
- 11. The method of claim 1 wherein the hydrophobic component comprises an oily material.
- 12. The method of claim 1 wherein the hydrophobic component comprises an ingredient selected from the group consisting of vegetable oils, animal oils, mineral oils, synthetic oils and mixtures thereof.
- 13. The method of claim 1 wherein the hydrophobic component comprises castor oil.

- 14. The method of claim 1 wherein the administering step comprises topically administering the composition to the eye of the human.
- 15. The method of claim 1 wherein the composition comprises an effective amount of an emulsifier component.
- 16. The method of claim 1 wherein the composition comprises an effective amount of a tonicity component.
- 17. The method of claim 1 wherein the composition comprises an effective amount of an organic tonicity component.
- 18. The method of claim 1 wherein the composition comprises a polyelectrolyte component in an amount effective in stabilizing the composition.
- 19. The method of claim 1 wherein the composition has a pH in the range of about 7.0 to about 8.0.
- 20. The method of claim 1 wherein the composition has a pH in the range of about 7.2 to about 7.6.
- 21. A composition for treating an eye of a human or animal comprising an emulsion comprising water, a hydrophobic component, and a cyclosporin component in a therapeutically effective amount of less than 0.1% by weight, the weight ratio of the cyclosporin component to the hydrophobic component being less than 0.08.
- 22. The composition of claim 21 having a make-up so that when the composition is administered to an eye of a

human in an effective amount in treating dry eye syndrome, the blood of the human has substantially no detectable concentration of the cyclosporin component.

- 23. The composition of claim 21 wherein the cyclosporin component comprises a material selected from cyclosporin A, derivatives of cyclosporin A and mixtures thereof.
- 24. The composition of claim 21 wherein the cyclosporin component comprises cyclosporin A.
- 25. The composition of claim 21 in the form of an emulsion.
- 26. The composition of claim 21 wherein the hydrophobic component is present in an amount greater than 0.625% by weight of the composition.
- 27. The composition of claim 21 wherein the hydrophobic component is an oily material.
- 28. The composition of claim 21 wherein the hydrophobic component comprises an ingredient selected from the group consisting of vegetable oils, animal oils, mineral oils, synthetic oils, and mixtures thereof.
- 29. The composition of claim 21 wherein the hydrophobic component comprises castor oil.

- 30. The composition of claim 21 wherein the administering step comprises topically administering the composition to the eye of the human.
- 31. The composition of claim 21 wherein the composition comprises an effective amount of an emulsifier component.
- 32. The composition of claim 21 wherein the composition comprises an effective amount of a tonicity component.
- 33. The composition of claim 21 wherein the composition comprises an effective amount of an organic tonicity component.
- 34. The composition of claim 21 wherein the composition comprises a polyelectrolytic component in an amount effective in stabilizing the composition.
- 35. The composition of claim 21 wherein the composition includes water and has a pH in the range of about 7.0 to about 8.0.
- 36. The composition of claim 21 wherein the composition includes water and has a pH in the range of about 7.2 to about 7.6.

# METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS

### Abstract of the Disclosure

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Methods of treating an eye of a human or animal include administering to an eye of a human or animal a composition in the form of an emulsion including water, a hydrophobic component and a cyclosporin component in a 10 therapeutically effective amount of less than 0.1% by weight of the composition. The weight ratio of the cyclosporin component to the hydrophobic component is less than 0.8.

Application Data Sheet 37 CFR 1.7			1 76	Attorney Docket Number			17618CON5B (AP)						
Appli	cation	Data On	CCLO7 OI K	1.70	Application	n Nu	mber						
Title of	e of Invention METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS												
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Invent	Inventor 3												
Legal I													
Prefix	Given	Name		N	/liddle Name	<u> </u>			Family Name				Suffix
	James			N					Chang				
Resid		ormation	(Select One)		S Residency	0	Non	US Res	sidency	Active	e US Mili	itary Service	<u> </u>

Annli	icatio	n Data	a Sha	eet 37 CFR	1 76	Attorney	Docke	et Number	17618C	ON5B (AP	')		
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Application Da	ta Sheet 37 CFR 1.76	Attorney Docket Number	17618CON5B (AP)						
Application Da	ita Sileet 37 CFK 1.70	Application Number							
Title of Invention	METHODS OF PROVIDING	THERAPEUTIC EFFECTS USIN	IG CYCLOSPORIN COMPONENTS						
Publication I	Publication Information:								
Request Early	Publication (Fee required a	t time of Request 37 CFR 1.2	219)						
Request Not to Publish. I hereby request that the attached application not be published under  35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.									
Representative Information:									
Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.									

## **Domestic Benefit/National Stage Information:**

**Customer Number** 

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51597

Please Select One:

**Customer Number** 

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

US Patent Practitioner

specific reference required	by 35 U.S.C. 119(e) or 120, and	137 CH (1.76.	
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13961818	2013-08-07
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13961818	Continuation of	11897177	2007-08-28
Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11897177	Continuation of	10927857	2004-08-27
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
10927857	non provisional of	60503137	2003-09-15
Additional Domestic Benefi	it/National Stage Data may be g	enerated within this form	Add

## **Foreign Priority Information:**

by selecting the Add button.

Application Da	ata Shaat 37 CED 1 76	Attorney Docket Number	17618CON5B (AP)
Application Data Sheet 37 CFR 1.76		Application Number	
Title of Invention	METHODS OF PROVIDING 1	THERAPEUTIC EFFECTS USIN	IG CYCLOSPORIN COMPONENTS

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) <sup>i</sup>the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country <sup>i</sup>	Filing Date (YYYY-MM-DD)	Access Code <sup>i</sup> (if applicable)
Additional Foreign Priority  Add button.	Data may be generated wit	hin this form by selecting the	Add

# Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also
contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March
16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March
16, 2013, will be examined under the first inventor to file provisions of the AIA.

### **Authorization to Permit Access:**

Authorization to Permit Access to the Instant Application by the Participating Offices
Addition to 1 chilit 760633 to the instant 7 ppiloation by the 1 articipating offices

Application Da	ata Sheet 37 CFP 1 76	Attorney Docket Number	17618CON5B (AP)
Application Data Sheet 37 CFR 1.76		Application Number	
Title of Invention	METHODS OF PROVIDING	THERAPEUTIC EFFECTS USIN	IG CYCLOSPORIN COMPONENTS

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

### **Applicant Information:**

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.							
Applicant 1				Remove			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.							
<ul><li>Assignee</li></ul>		C Legal Representative un	nder 35 U.S.C. 117	Joint Inventor			
Person to whom the inv	entor is oblig	ated to assign.	Person who sho	ows sufficient proprietary interest			
If applicant is the legal re	epresentativ	ve, indicate the authority to	file the patent applicat	ion, the inventor is:			
Name of the Deceased	or Legally I	ncapacitated Inventor :					
If the Applicant is an O	rganization	check here.					
Organization Name	Allergan, Ir	nc.					
Mailing Address Infor	mation:						
Address 1	2525 [	Dupont Drive					
Address 2	Address 2						
City Irvine State/Province CA							
Country i US			Postal Code	92612			
Phone Number Fax Number							

Application Data Sheet 37 CFR 1.76			Attorney Docket Number 1		r 176180	17618CON5B (AP)				
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Title of Inven	tion ME	THODS OF	PROVIDING T	HERAPEUTIC I	EFFECTS US	SING CYCL	OSPORIN COM	MPONENTS		
Email Addres	s	paten	t_ip@allergan.c	om						
dditional Applicant Data may be generated within this form by selecting the Add button.										
Non-Appl	icant A	ssigne	e Informa	ition:						
Providing assigr nave an assignr				not subsitute for	compliance	wi <b>th any re</b> q	uirement of pa	rt 3 of Title 37 of CFR to		
Assignee	1									
accordance with	37 CFR 1.ated to assign	215(b). Do gn, or perso	not include in th	nis section an ap	plicant under	37 CFR 1.4	l6 (assignee, p	ation publication in erson to whom the oplication publication will		
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If the Assigne	e is an Or	ganization	check here.							
Prefix		Given N	ame	Middle Nam	ie	Family N	ame	Suffix		
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Additional Ass	signee Dat	a may be	generated witl	nin this form by	selecting t	he Add but	ton. [	Add		
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		be signed	in accordance	e with 37 CFR	1.33. See	37 CFR 1.4	for signature	e requirements and		
Signature	/Laura L. W	/ine/				Date (	YYYY-MM-D	D) 2013-08-14		
First Name	Laura		Last Name	Wine		Regist	ration Numbe	er 68681		
Additional Sig	gnature ma	ay be gene	erated within t	his form by sel	ecting the A	dd button.		Add		

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17618CON5B (AP)		
		Application Number			
Title of Invention	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS				

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.** 

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

- The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
- 2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
- 3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
- 4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
- 5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
- 6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
- 7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
- 8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
- A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS  Docket No.: 17618CON5(AP)
As the belo	w named inventor, I hereby declare that:
This declar	
	V United States application or PCT international application number
	filed on $8/7/2013$
The above-i	dentified application was made or authorized to be made by me.
I believe that	t I am the original inventor or an original joint inventor of a claimed invention in the application.
I hereby ack by fine or im	nowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 prisonment of not more than five (5) years, or both.
	WARNING:
contribute to (other than a to support a petitioners/ap USPTO. Pet application (upatent. Furth referenced in	plicant is cautioned to avoid submitting personal information in documents filed in a patent application that may identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO petition or an application. If this type of personal information is included in documents submitted to the USPTO, applicants should consider redacting such personal information from the documents before submitting them to the itioner/applicant is advised that the record of a patent application is available to the public after publication of the inless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a nermore, the record from an abandoned application may also be available to the public if the application is a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms abmitted for payment purposes are not retained in the application file and therefore are not publicly available.
LEGAL NA	ME OF INVENTOR
Inventor: _A	Andrew Acheampong  Date (Optional):
Note: An applic Use an additior	ration data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form.  al PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS Docket No.: 17618CON5(AP)								
As the below	w named inventor, I hereby declare that:								
This declaration is directed to									
	✓ United States application or PCT international application number 13/961,818  filed on 8/7/2013								
The above-io	dentified application was made or authorized to be made by me.								
I believe that	I am the original inventor or an original joint inventor of a claimed invention in the application.								
I hereby ackn by fine or imp	nowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 prisonment of not more than five (5) years, or both.								
other than a consistency of the constant of th	warning:  blicant is cautioned to avoid submitting personal information in documents filed in a patent application that may dentity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO etition or an application. If this type of personal information is included in documents submitted to the USPTO, plicants should consider redacting such personal information from the documents before submitting them to the tioner/applicant is advised that the record of a patent application is available to the public after publication of the nless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a termore, the record from an abandoned application may also be available to the public if the application is a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms omitted for payment purposes are not retained in the application file and therefore are not publicly available.								
LEGAL NAM	ME OF INVENTOR								
Inventor: D	IANE TANG-LIU  Date (Optional):								
ote: An applica se an additiona	tion data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form.  I PTO/SB/AIA01 form for each additional inventor.								

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

	Title of Invention	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS Docket No.: 17618CON5(AP)
	As the belo	w named inventor, I hereby declare that:
	This declaration is directed t	
		X United States application or PCT international application number 13/961, 818
		filed on $8/7/2013$
		dentified application was made or authorized to be made by me.
	I believe that	I am the original inventor or an original joint inventor of a claimed invention in the application.
	hereby ackr by fine or imp	nowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 orisonment of not more than five (5) years, or both.
() to plap rep	other than a consumption of support a potentioners/application (unique) polication (un	WARNING: Discant is cautioned to avoid submitting personal information in documents filed in a patent application that may identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO retition or an application. If this type of personal information is included in documents submitted to the USPTO, plicants should consider redacting such personal information from the documents before submitting them to the tioner/applicant is advised that the record of a patent application is available to the public after publication of the nless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a termore, the record from an abandoned application may also be available to the public if the application is a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms omitted for payment purposes are not retained in the application file and therefore are not publicly available.
	LEGAL NAM  Inventor: D  Signature:	AVID F. POWER  Date (Optional): 8-12-2013
No Us	ote: An applica se an additiona	ation data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form.  al PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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## SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	The state of the s							
The atta OR United S LEGAL NA (E.g., Given James Residence (e	The attached application,  OR  United States application or PCT international application number 13/961,818 filed on 8-7-13  EGAL NAME of inventor to whom this substitute statement applies:  E.g., Given Name (first and middle (if any)) and Family Name or Sumame)  James N. Chang  esidence (except for a deceased or legally incapacitated inventor):  Newport Beach  State CA  Country  Country							
36 Cervar	***************************************	***************************************	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***************************************				
ay Nev	wport Beach	State CA	<sub>Zip</sub> 92660	Country US				
in the app The above-id I hereby ackr	believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.  The above-identified application was made or authorized to be made by me.  Thereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.							
Leg Ass	to the inventor to whom this substituted that inventor to whom this substituted is the signer of the	gally incapacitated inventor obligation to assign,		FR 1.46 is required), or				

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commence, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

### SUBSTITUTE STATEMENT

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Circumstances permitting execution of this subs	titute statement:		and the second s						
Inventor is deceased.									
Inventor is under legal incapacity,									
Inventor cannot be found or reached after diligent effort, or									
Inventor has refused to execute the oat	h or declaration under 37 C	FR 1.63.							
If there are joint inventors, please check the app	ropriate box below:								
An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.									
OR									
An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).									
	WARNING:	•••••••••••••••••••••••••••••••••••••••	***************************************						
Petitioner/applicant is cautioned to avoid submittin contribute to identity theft. Personal information so (other than a check or credit card authorization for to support a petition or an application. If this type petitioners/applicants should consider redacting su USPTO. Petitioner/applicant is advised that the reapplication (unless a non-publication request in conjugation for petent. Furthermore, the record from an abandone referenced in a published application or an issued PTO-2038 submitted for payment purposes are no	uch as social security numb m PTO-2038 submitted for of personal information is in uch personal information fro cord of a patent application mpliance with 37 CFR 1.21: ad application may also be patent (see 37 CFR 1.14). t retained in the application	ers, bank account number payment purposes) is never cluded in documents subm in the documents before a is available to the public a 3(a) is made in the applica available to the public if the Chacks and cradit card as	s, or credit card numbers or required by the USPTO nitted to the USPTO, ubmitting them to the after publication of the tion) or issuance of a application forms.						
PERSON EXECUTING THIS SUBSTITUTE STAT	\$\text{\frac{1}{2}} \text{\frac{1}{2}} \text{\frac}	observation of the state of the	***************************************						
Name: Debra D. Condino	ries inssidina. Menov <u>i Ausre</u>	AN, INC. CASS	( NGES ) le (Optional):						
Signature: Dandury									
Residence (unless provided in an application data	sheet, PTO/AIA/14 or equiv	eient):	MANAGARANGARANGARANGARANGARANGARANGARANG						
<sub>cay</sub> Irvine		Country US							
Mailing Address (unless provided in an application data al 2525 Dupont Drive-T2-7H	heet, PTO/AIA/14 or equivalen	)							
<sub>cny</sub> Irvine	<sub>State</sub> CA	<sub>zı,</sub> 92612	Country US						
Note: Use an additional PTO/AIA/02 form for each reached after diligent effort, or has refused to exec	inventor who is deceased, Lute the oath or declaration	legally incepacitated, can under 37 CFR 1.63.	not be found or						

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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- A record from this system of records may be disclosed, as a routine use, in the course of
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  opposing counsel in the course of settlement negotiations.
- A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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- 6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
- 7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
- 8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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## TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

·	-					
Application Number		unknown				
Filing Date		herewith				
First Named Inventor		Andrew Acheampong				
Title		METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS				
Art Unit						
Examiner Name						
Attorney Docket	Number	17618CON5B (AP)				
	SIGNAT	URE of Applicant or Patent Practitioner				
Signature	/Laura L. V	Vine/	Date	August 14, 2013		
Name	Laura L.	Wine	Telephone	714-246-6996		
Registration Number 68,681						
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.						
*Total of 1	forms are	submitted.				

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.** 

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## POWER OF ATTORNEY BY APPLICANT

I hereby revoke all	previous powers of attorn	ney given in the a	pplication i	identified in t	he attached tr	ansmittal letter.
transact all bus	nt Practitioner(s) associated visiness in the United States Patransmittal letter (form PTO)	atent and Tradema	rk Office cor	nnected therev	ur attorney(s) owith for the appl	r agent(s), and to ication referenced
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	- t Mthital manned halo		/\			
United States F	nt Practitioner(s) named belo Patent and Trademark Office er (form PTO/AIA/82A or equi	connected therewi				
	Name	Registration Number		Name		Registration Number
Please recognize	or change the correspo	ondence addres	s for the a	application i	dentified in th	ne attached
transmittal letter t	<b>:</b> 0:					
X The address a	associated with the above-mentic	oned Customer Numb	er.			
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Telephone			Email			
I am the Applicant:						
Inventor or Joi	nt Inventor					
Legal Represe	entative of a Deceased or Le	egally Incapacitate	d Inventor			
X Assignee or P	erson to Whom the Invento	or is Under an Obl	ligation to A	Assign		
6-4-4I	Otherwise Shows Sufficient		•	•	37 CFR 1.46(	b)(2) was
	application or is concurren					
	<u> </u>	NATURE of Applica	nt for Patent			
Signature	LXU Condu		or Contract of the Contract of	Date		
Name	Debra D. Condino, Reg. No. 31,007	7		Telephone	714-246-2388	
	Assistant Secretary, Allergan, Inc.					
	form must be signed by the appli nultiple forms for more than one s			.33. See 37 CF	R 1.4 for signatur	e requirements and
*Total of	forms are submitted.					

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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United States Patent and Trademark Office Sales Receipt for Accounting Date: 09/04/2013

ABALINAN SALE #00000009 Mailroom Dt: 08/14/2013 010885 13967179

01 FC: 1830 140.00 DA

Document code: WFEE

United States Patent and Trademark Office Sales Receipt for Accounting Date: 09/04/2013

ABALINAN ADJ #00000010 Mailroom Dt: 08/14/2013

Seq No: 6223 Sales Acctg Dt: 08/15/2013 010885 13967179 06 FC: 1201 420.00 CR

Document code: WFEE

United States Patent and Trademark Office Sales Receipt for Accounting Date: 09/04/2013

ABALINAN ADJ #00000011 Mailroom Dt: 08/14/2013

Seq No: 6223 Sales Acctg Dt: 08/15/2013 010885 13967179 08 FC: 1808 130.00 CR

P	ATENT APPL		FEE DETE e for Form P1		N RECORD		n or Docket Nu 3/967,179	mber	Filing Date 08/14/2013	To be Mailed
							ENTITY:	×L	ARGE SMA	LL MICRO
				APPLICA	ATION AS FIL	ED – PAR	T I			,
			(Column 1	)	(Column 2)					
	FOR		NUMBER FIL	.ED	NUMBER EXTRA		RATE	(\$)	F	EE (\$)
	BASIC FEE (37 CFR 1.16(a), (b), (	or (c))	N/A		N/A		N//	4		
	SEARCH FEE (37 CFR 1.16(k), (i), c	or (m))	N/A		N/A		N/A	۹		
	EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N//	4		
	TAL CLAIMS CFR 1.16(i))		min	us 20 = *			X \$	=		
	DEPENDENT CLAIM CFR 1.16(h))	S	mi	inus 3 = *			X \$	=		
	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
	MULTIPLE DEPEN	IDENT CLAIM	PRESENT (37	7 CFR 1.16(j))						
* If	the difference in colu	ımn 1 is less th	han zero, entei	r "0" in column 2.			ТОТ	AL		
		(Column 1	)	APPLICATION (Column 2)	ION AS AMEN		ART II			
AMENDMENT	08/14/2013	CLAIMS REMAINING AFTER AMENDMEN		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EX	TRA	RATE	(\$)	ADDITIO	ONAL FEE (\$)
)ME	Total (37 CFR 1.16(i))	* 25	Minus	** 25	= 0		x \$80 =			0
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AM	Application Si	ize Fee (37 CF	R 1.16(s))				<u> </u>			
	FIRST PRESEN	TATION OF MU	JLTIPLE DEPENI	DENT CLAIM (37 CFF	R 1.16(j))					
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		(Column 1	)	(Column 2)	(Column 3	)		_		
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ENT	Total (37 CFR 1.16(i))	*	Minus	**	=		X \$	=		
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AMENDM	Application Si	ize Fee (37 CF	R 1.16(s))							
A	FIRST PRESEN	NTATION OF MU	JLTIPLE DEPENI	DENT CLAIM (37 CFF	R 1.16(j))					
* If	the entry in column	1 is less than t	the entry in col	umn 2 write "0" in	column 3		TOTAL AD	D'L FEI		
** If	f the "Highest Numbe If the "Highest Numb • "Highest Number P	er Previously P oer Previously I	Paid For" IN TH Paid For" IN TI	IIS SPACE is less HIS SPACE is less	than 20, enter "20" s than 3, enter "3".		LIE /RAMON			

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APPLICATION	FILING or	GRP ART				
NUMBER	371(c) DATE	UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/967 179	08/14/2013	1653	2300	17618CON5B (AP)	25	3

**CONFIRMATION NO. 8654** 

51957 ALLERGAN, INC. 2525 DUPONT DRIVE, T2-7H IRVINE, CA 92612-1599

FILING RECEIPT

Date Mailed: 09/09/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

### Inventor(s)

Andrew Acheampong, Irvine, CA; Diane D. Tang-Liu, Las Vegas, NV; James N. Chang, Newport Beach, CA; David F. Power, Hubert, NC;

### Applicant(s)

Allergan, Inc., Irvine, CA

### **Assignment For Published Patent Application**

Allergan, Inc., Irvine, CA

Power of Attorney: The patent practitioners associated with Customer Number 51957

### Domestic Priority data as claimed by applicant

This application is a CON of 13/961,818 08/07/2013 which is a CON of 11/897,177 08/28/2007 which is a CON of 10/927,857 08/27/2004 ABN which claims benefit of 60/503,137 09/15/2003

**Foreign Applications** for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <a href="http://www.uspto.gov">http://www.uspto.gov</a> for more information.) - None. Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 08/29/2013

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/967,179** 

**Projected Publication Date:** 12/19/2013

Non-Publication Request: No

Early Publication Request: No

Title

METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS

**Preliminary Class** 

435

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

### PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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### Title 35, United States Code, Section 184

### Title 37, Code of Federal Regulations, 5.11 & 5.15

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	PATI	ENT APPLI		ON FEE DE titute for Form		ION RECORI	D		tion or Docket Num 7,179	ber
	APPI	LICATION A			umn 2)	SMALL	ENTITY	OR	OTHER SMALL	
	FOR	NUMBE	R FILE	NUMBE	R EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))  SEARCH FEE (37 CFR 1.16(k), (i), or (m))  EXAMINATION FEE  N/A  N/A  N/A						N/A		1	N/A	280
		N	/A	N	J/A	N/A		1	N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) TOTAL CLAIMS		N	/A	١	J/A	N/A		1	N/A	720
	AL CLAIMS FR 1.16(i))	25	minus	20= *	5			OR	x 80 =	400
	PENDENT CLAIN FR 1.16(h))	<sup>/S</sup> 3	minus	3 = *				1	x 420 =	0.00
FEE	PLICATION SIZE E CFR 1.16(s))	If the spec sheets of p \$310 (\$15 50 sheets 41(a)(1)(G			0.00					
MUL	TIPLE DEPENDE	NT CLAIM PRE	SENT (37	7 CFR 1.16(j))						0.00
* If th	ne difference in co	lumn 1 is less th	an zero,	enter "0" in colur	nn 2.	TOTAL		1	TOTAL	2000
AMENDMENT A	Total (37 CFR 1.16(i))	(Column 1) CLAIMS REMAINING AFTER AMENDMENT	Minus	(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3)  PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	OR	SMALL RATE(\$)	ADDITIONAL FEE(\$)
	Independent (37 CFR 1.16(h))	*	Minus	***	=	х =		OR	x =	
¥ W	Application Size Fe	e (37 CFR 1.16(s))				-		1		
Ì	FIRST PRESENTA	TION OF MULTIPL	E DEPEN	DENT CLAIM (37 C	CFR 1.16(j))			OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
_		(Column 1) CLAIMS		(Column 2) HIGHEST	(Column 3)		I	٦ .		
N N B		REMAINING AFTER AMENDMENT		NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
ME	Total (37 CFR 1.16(i))	*	Minus	**	=	X =		OR	x =	
AMENDMENT	Independent (37 CFR 1.16(h))	*	Minus	***	=	X =		OR	x =	
₽	Application Size Fe	e (37 CFR 1.16(s))						]	_	
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APPLICATION NUMBER FILING OR 371(C) DATE FIRST NAMED APPLICANT ATTY. DOCKET NO./TITLE 13/967,179 08/14/2013 Andrew Acheampong 17618CON5B (AP)

51957 ALLERGAN, INC. 2525 DUPONT DRIVE, T2-7H IRVINE, CA 92612-1599

**CONFIRMATION NO. 8654** POA ACCEPTANCE LETTER



Date Mailed: 09/09/2013

#### NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/14/2013.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/dberios/							

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

### INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Application Number		13967179	
Filing Date		2013-08-14	
First Named Inventor	ACHE	EAMPONG, ANDREW	
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Examiner Name TBD			
Attorney Docket Number		17618-US-BCON5-AP	

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Filing Date		2013-08-14	
First Named Inventor ACHE		AMPONG, ANDREW	
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International Application Number:		
Confirmation Number:	8654	
Title of Invention:	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS	
First Named Inventor/Applicant Name:	Andrew Acheampong	
Customer Number:	51957	
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		31pgs2001.pai	55c1ea8f4cfcf4343e8d36c01dadadf7516e0 c55			
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54		LyonsInfluenceofThreeEmulsio	59547	no	1	
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Warnings:					
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Warnings:					
Information:					
57	Non Patent Literature	Present_1993.pdf	1624134	no	4
3,	Non ratem Eneratare	I I	baefc9d58e2e27ac5b6a99bd9151eb6a41e 80d81	110	<b>-</b>
Warnings:					
Information:					
58	Non Patent Literature	Restasis Product Info Sheets.pdf	56377	no	5
	36 Non Faterit Literature Nes	, restants restation restations	844b6588f9ea989c6c37ffe4c0b220c950ffa dea		
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59	Non Patent Literature	Restasis_Increasing_tear_Prod	332259	no	3
		uction_2009.pdf	0a1285bcf642f927562ba180ba3ba5446eb 2afe4		
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Information:					
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Warnings:					
Information:					
		Total Files Size (in bytes)	9238	36804	

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#### New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

#### National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

#### New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt			
EFS ID:	16830268		
Application Number:	13967179		
International Application Number:			
Confirmation Number:	8654		
Title of Invention:	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS		
First Named Inventor/Applicant Name:	Andrew Acheampong		
Customer Number:	51957		
Filer:	Laura Lee Wine/Ken Dinh		
Filer Authorized By:	Laura Lee Wine		
Attorney Docket Number:	17618CON5B (AP)		
Receipt Date:	11-SEP-2013		
Filing Date:	14-AUG-2013		
Time Stamp:	21:27:33		
Application Type:	Utility under 35 USC 111(a)		

#### **Payment information:**

Submitted with Payment	no
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#### File Listing:

1 Non Patent Literature RudingerPeptideHormones 1_71976.pdf 2488192 no 11	Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
	1	Non Patent Literature		b6fc18b6ad98c34de41f2d461a1f5736500b		11

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Information:						
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Second	2	Non Patent Literature		872000		7
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Non Patent Literature   Small_2002.pdf   Trad03fbdb 19562a66c525571bB108210c   R29a2	Information:					
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Information:	0		311a11_2002.pdf			
9 Non Patent Literature Smilek_1991.pdf \( \frac{1645292}{\alpha 604ec/f03b90bf8fd3c8882dedce3c7b3fc} \) no 5  Warnings:  Information:  10 Non Patent Literature Stephenson_The_latest_uses_ of_Restasis.pdf \( \frac{2875746}{\cdot 605d56d6d2f333c39c173e5e665d5bacd0} \) no 7  Warnings:	Warnings:					
9 Non Patent Literature Smilek_1991.pdf no 5  Warnings:  Information:  10 Non Patent Literature Stephenson_The_latest_uses_ of_Restasis.pdf csdscdd66d2i333c39c173e5e665d5bacd0 dedad no 7  Warnings:	Information:					
Marnings:	9	Non Patent Literature	Smilek_1991.pdf	1645292		5
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<del>_</del>	Total Files Size (in bytes		2262		
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#### New Applications Under 35 U.S.C. 111

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#### National Stage of an International Application under 35 U.S.C. 371

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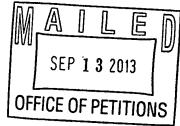
#### New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



Commissioner for Patents United States Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450 www.uspto.gov

ALLERGAN, INC. 2525 DUPONT DRIVE, T2-7H IRVINE CA 92612-1599



Doc Code: TRACK1.GRANT

	Prio	n Granting Request for ritized Examination ack I or After RCE)  Application No.: 13/967,179	_		
1.	THE F	REQUEST FILED 8/14/13 IS GRANTED.			
	The above A. B.	e-identified application has met the requirements for prioritized examination for an original nonprovisional application (Track I). for an application undergoing continued examination (RCE).			
2.	The all accorded s	bove-identified application will undergo prioritized examination. The application will be special status throughout its entire course of prosecution until one of the following occurs:			
	A.	filing a <b>petition for extension of time</b> to extend the time period for filing a reply;	l		
	B.	filing an amendment to amend the application to contain more than four independent	l		
		claims, more than thirty total claims, or a multiple dependent claim;			
	C.	filing a request for continued examination;	l		
	D. filing a notice of appeal;				
	E. filing a request for suspension of action;				
	F.	mailing of a notice of allowance;	l		
	G.	mailing of a final Office action;			
	H.	completion of examination as defined in 37 CFR 41.102; or	ĺ		
	I.	abandonment of the application.	l		
	Telephone inquiries with regard to this decision should be directed to Cheryl Gibson-Baylor at (571)272-3213, Office of Petitions. In his/her absence, calls may be directed to Brian W. Brown, (571)272-5338.				
		pson-Baylor pson-Baylor/ Petitions Paralegal Specialist (Title)			

U.S. Patent and Trademark Office PTO-2298 (Rev. 02-2012)

Docket No. 17618CON5B (AP)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Acheampong, et al. | Examiner: Marcela M. Cordero Garcia

Serial No.: 13/967,179 Group Art Unit: 1658

Filed: August 14, 2013 Confirmation No. 8654

For: METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS

Customer No.: 51957

### **COMMUNICATION UNDER MPEP 502.03**

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.

Respectfully submitted,

/Laura L. Wine/

Date: October 1, 2013

Laura L. Wine Attorney of Record Registration Number 68,681

Please direct all inquiries and correspondence to:

Laura L. Wine, Esq.

Allergan, Inc.

2525 Dupont Drive, T2-7H

Irvine, California 92612

Tel: (714) 246-6996 Fax: (714) 246-4249

Electronic Acknowledgement Receipt			
EFS ID:	17013211		
Application Number:	13967179		
International Application Number:			
Confirmation Number:	8654		
Title of Invention:	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS		
First Named Inventor/Applicant Name:	Andrew Acheampong		
Customer Number:	51957		
Filer:	Laura Lee Wine/Alexis Swan		
Filer Authorized By:	Laura Lee Wine		
Attorney Docket Number:	17618CON5B (AP)		
Receipt Date:	01-OCT-2013		
Filing Date:	14-AUG-2013		
Time Stamp:	19:16:20		
Application Type:	Utility under 35 USC 111(a)		

# **Payment information:**

Submitted with Payment	no
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# File Listing:

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l 1 I Miscellaneous Incominal etter I I no I	1	no	104507	17618CON5B-Comm-	Miscellaneous Incoming Letter	1
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Information:

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#### New Applications Under 35 U.S.C. 111

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#### National Stage of an International Application under 35 U.S.C. 371

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Doc Code: DIST.E.FILE Document Description: Electro	nic Terminal Disclaimer - Filed	PTO/SB/25 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request		OBVIATE A PROVISIONAL DOUBLE PATENTING G "REFERENCE" APPLICATION
Application Number	13967179	
Filing Date	14-Aug-2013	
First Named Inventor	Andrew Acheampong	
Attorney Docket Number	17618CON5B (AP)	
Title of Invention	METHODS OF PROVIDING TI	HERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS
Office Action	r does not obviate requirement for r sclaimer is not being used for a Joint	esponse under 37 CFR 1.111 to outstanding  Research Agreement.
Owner		Percent Interest
Allergan, Inc.		100%
part of the statutory term of any		on hereby disclaims, except as provided below, the terminal cation which would extend beyond the expiration date of the ication Number(s)
13967168 filed on 08/14/201	3	
13967163 filed on 08/14/201		
13967189 filed on 08/14/201		
13961835 filed on 08/07/201		
13961828 filed on 08/07/201		
13961818 filed on 08/07/201		
13961808 filed on 08/07/201	3	

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

by a	ny terminal disclaimer filed prior	to its grant.	
•	Terminal disclaimer fee under	37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.	
0	I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.		
0	Applicant claims SMALL ENTITY	f status. See 37 CFR 1.27.	
0	Applicant is no longer claiming	SMALL ENTITY status. See 37 CFR 1.27(g)(2).	
0	Applicant(s) status remains as S	SMALL ENTITY.	
•	Applicant(s) status remains as o	other than SMALL ENTITY.	
belie the	ef are believed to be true; and fu like so made are punishable by fi	made herein of my own knowledge are true and that all statements made on information and rther that these statements were made with the knowledge that willful false statements and ne or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and y jeopardize the validity of the application or any patent issued thereon.	
TH	IS PORTION MUST BE COMPLETE	D BY THE SIGNATORY OR SIGNATORIES	
l ce	ertify, in accordance with 37 CFR	1.4(d)(4) that I am:	
•	An attorney or agent registered this application	I to practice before the Patent and Trademark Office who is of record in	
	Registration Number 68681		
0	A sole inventor		
0	A joint inventor; I certify that I a	am authorized to sign this submission on behalf of all of the inventors	
0	A joint inventor; all of whom ar	e signing this request	
0	The assignee of record of the e	ntire interest that has properly made itself of record pursuant to 37 <u>CFR 3.7</u> 1	
Sig	Signature /Laura Wine/		
Na	me	Laura Wine	

\*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal					
Application Number:	139	967179			
Filing Date:	14-	Aug-2013			
Title of Invention:		THODS OF PROVIDI MPONENTS	ING THERAPEU <sup>-</sup>	FIC EFFECTS USING	5 CYCLOSPORIN
First Named Inventor/Applicant Name:	An	drew Acheampong			
Filer:	Lau	ıra Lee Wine/Laureı	n Barberena		
Attorney Docket Number:	Attorney Docket Number: 17618CON5B (AP)				
Filed as Large Entity					
Utility under 35 USC 111(a) Filing Fees					
Description		Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:					
Statutory or Terminal Disclaimer		1814	1	160	160
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
	Tot	al in USD	(\$)	160

Doc Code: DISQ.E.FILE Document Description: Electronic Terminal Disclaimer – Approved
Application No.: 13967179
Filing Date: 14-Aug-2013
Applicant/Patent under Reexamination: Acheampong et al.
Electronic Terminal Disclaimer filed on October 7, 2013
This patent is subject to a terminal disclaimer
DISAPPROVED
Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web
U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt			
EFS ID:	17062332		
Application Number:	13967179		
International Application Number:			
Confirmation Number:	8654		
Title of Invention:	METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS		
First Named Inventor/Applicant Name:	Andrew Acheampong		
Customer Number:	51957		
Filer:	Laura Lee Wine/Lauren Barberena		
Filer Authorized By:	Laura Lee Wine		
Attorney Docket Number:	17618CON5B (AP)		
Receipt Date:	07-OCT-2013		
Filing Date:	14-AUG-2013		
Time Stamp:	19:31:16		
Application Type:	Utility under 35 USC 111(a)		

## **Payment information:**

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$160
RAM confirmation Number	5957
Deposit Account	010885
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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Information:					
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UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, Virginia 22313-1450 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/967,179	08/14/2013	Andrew Acheampong	17618CON5B (AP)	8654
51957 ALLERGAN, I	7590 10/11/201 <b>NC</b> .	3	EXAM	IINER
*	DRIVE, T2-7H	CORDERO GARCIA, MARCELA M		
IK VINE, CA 92	2012-1399		ART UNIT	PAPER NUMBER
			1658	
			NOTIFICATION DATE	DELIVERY MODE
			10/11/2013	ELECTRONIC

## Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents\_ip@allergan.com pair\_allergan@firsttofile.com

	Application No.	Applicant(s)	
Examiner-Initiated Interview Summary	13/967,179	ACHEAMPONG	ET AL.
Examiner-initiated interview Summary	Examiner	Art Unit	
	MARCELA M. CORDERO GARCIA	1658	
All participants (applicant, applicant's representative, PTO	personnel):		
(1) MARCELA M. CORDERO GARCIA.	(3)		
(2) <u>LAURA WINE</u> .	(4)		
Date of Interview: <u>9/27/2013</u> .			
Type: ⊠ Telephonic □ Video Conference ⊠ Personal [copy given to: □ applicant [	applicant's representative]		
Exhibit shown or demonstration conducted: Yes If Yes, brief description:	□ No.		
Issues Discussed 101 112 1102 1103 1106 (For each of the checked box(es) above, please describe below the issue and detail			
Claim(s) discussed: <u>37 and 60</u> .			
Identification of prior art discussed: Ding et al. (US 5,474,9	<u>79)</u> .		
Substance of Interview (For each issue discussed, provide a detailed description and indicate if agreement reference or a portion thereof, claim interpretation, proposed amendments, arguments.)		dentification or clarific	cation of a
See Continuation Sheet.			
Applicant recordation instructions: It is not necessary for applicant to p	rovide a separate record of the substa	ance of interview.	
<b>Examiner recordation instructions</b> : Examiners must summarize the substance of an interview should include the items listed in MPEP 713. general thrust of each argument or issue discussed, a general indication of general results or outcome of the interview, to include an indication as to we	04 for complete and proper recordation any other pertinent matters discusse	on including the ident d regarding patentab	tification of the pility and the
Attachment			
/MARCELA M CORDERO GARCIA/ Primary Examiner, Art Unit 1658			

Paper No. 20131007

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicants' representative contacted Examiner to request an inperson interview to discuss the case and also indicated that Applicants would be willing to amend the trademark Pemulen in the claims for acrylate/C10-30 alkyl acrylate cross-polymer (see attachment). This potential amendment was not deemed sufficient to make the claims allowable. During the in-person interview on 10/3/2013 the following attendees were present: Laura Wine, Debra Condino, Dr. Rhett Schiffman, Dr. Maysa Attar, and Examiner Cordero Garcia. Applicant's representatives described the backroung of dry eye disease, the process of arriving at the claimed invention and discussed: a) unexpected results, b) commercial success and c) long felt need. Further, the Ding et al. patent (US 5,474,979) was discussed with regards to its contents and relation to the claimed invention. With regards to the presented unexpected results, Examiner indicated that it would be necessary to include in a 37 CFR 1.32 declaration all the experimental conditions for the various clinical trials used in the 'unexpected results' evidence, in order to determine whether these clinical trials can be effectively used in the comparison of therapeutic effects of the cyclosporin compositions of Ding et al. with the claimed invention. Examiner also indicated that a first Office Action on the merits would be provided shortly after the interview since the proposed amendment would not obviate all rejections deemed necessary (see attached Office Action) and also briefly discussed potential statutory and non-statutory double patenting issues for the instant application. A courtesy draft of the Office Action for a related case was provided to Applicant's representatives. .

	<b>Application No.</b> 13/967,179				
Office Action Summary	Examiner	Art Unit	AIA (First Inventor to File)		
	MARCELA M. CORDERO GARCIA	1658	Status No		
The MAILING DATE of this communication appears on the cover sheet with the correspondence address					
Period for Reply					
A SHORTENED STATUTORY PERIOD FOR RE WHICHEVER IS LONGER, FROM THE MAILING  - Extensions of time may be available under the provisions of 37 CFF after SIX (6) MONTHS from the mailing date of this communication.  - If NO period for reply is specified above, the maximum statutory per  - Failure to reply within the set or extended period for reply will, by state Any reply received by the Office later than three months after the mearned patent term adjustment. See 37 CFR 1.704(b).	C DATE OF THIS COMMUNICATI R 1.136(a). In no event, however, may a reply be riod will apply and will expire SIX (6) MONTHS finature, cause the application to become ABANDO	ION. e timely filed rom the mailing date o DNED (35 U.S.C. § 13	of this communication.		
Status					
1) Responsive to communication(s) filed on 8/	<u>/14/2013</u> .				
A declaration(s)/affidavit(s) under 37 CFR	<b>1.130(b)</b> was/were filed on	<u> </u>			
2a) This action is <b>FINAL</b> . 2b) ☑ T	This action is non-final.				
3) An election was made by the applicant in re	esponse to a restriction requireme	nt set forth durin	ng the interview on		
; the restriction requirement and elec-	tion have been incorporated into t	his action.			
4) Since this application is in condition for allo		•			
closed in accordance with the practice unde	er <i>Ex parte Quayle</i> , 1935 C.D. 11,	, 453 O.G. 213.			
Disposition of Claims					
5)⊠ Claim(s) <u>37-61</u> is/are pending in the applica	ation.				
5a) Of the above claim(s) is/are without	drawn from consideration.				
6) Claim(s) is/are allowed.					
7)⊠ Claim(s) <u>37-61</u> is/are rejected.					
8) Claim(s) is/are objected to.					
9) Claim(s) are subject to restriction an					
* If any claims have been determined <u>allowable</u> , you may b		_	iway program at a		
participating intellectual property office for the corresponding					
http://www.uspto.gov/patents/init_events/pph/index.jsp or s	end an inquiry to PPHTeedback@usp	<u>to.gov</u> .			
Application Papers					
10) ☐ The specification is objected to by the Exam					
11) The drawing(s) filed on is/are: a) a					
Applicant may not request that any objection to	- ,		` '		
Replacement drawing sheet(s) including the cor	rection is required if the drawing(s) is	objected to. See	37 CFR 1.121(d).		
Priority under 35 U.S.C. § 119					
12) Acknowledgment is made of a claim for fore	ign priority under 35 U.S.C. § 119	9(a)-(d) or (f).			
Certified copies:					
a) ☐ All b) ☐ Some * c) ☐ None of the:					
1. Certified copies of the priority documents have been received.					
2. Certified copies of the priority documents have been received in Application No					
3. Copies of the certified copies of the priority documents have been received in this National Stage					
application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.					
See the attached detailed Office action for a lis	st of the certified copies not received.				
Attachment(s)					
1) Notice of References Cited (PTO-892)	3) 🔀 Interview Summ	ary (PTO-413)			
2) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/11/2013.	Paper No(s)/Mai 4)	il Date. <u>20131007</u> .			

#### **DETAILED ACTION**

1. The present application is being examined under the pre-AIA first to invent provisions.

#### Status of the claims

2. Claims 37-61 are pending in the application. Claims 37-61 are presented for examination on the merits.

## Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 37, 54 and 60 (and dependent claims thereof, i.e., 38-53, 55-59 and 61) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for containing the trademark/trade name Pemulen ®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph (see MPEP 2173.05 (u)). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the

goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe acrylate/C10-30 alkyl acrylate cross-polymers, or high molecular weight co-polymers of acrylic acid and a long chain alkyl methacrylate cross-linked with allyl ethers of pentaerythritol (see paragraph bridging pages 19-20 of the disclosure) and, accordingly, the identification/description is indefinite.

## Claim Rejections - 35 USC § 103

- 4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 5. Claims 37-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ding et al. (US 5,474,979, cited in the IDS dated 12/27/2004).

Ding et al. disclose topical ophthalmic emulsions for treating an eye of human having KCS (dry eye disease), and a method comprising topically administering to the eye the human emulsion (see next page):

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	Example 1				
	A	B	c	D	E
Cyclosperin A	0.40%	0.20%	0.20%	0.10%	0.05%
Castor oil	5.00%	5.00%	2,50%	1.25%	0.625%
Polysorbate 80	1.00%	1.00%	1.00%	1.00%	1.00%
Pemulen ®	0.05%	0.05%	0.05%	0.05%	0.05%
Glycerine	2.20%	2.20%	2.20%	2.20%	2.20%
NaOH	ជន្	Q5	QS	Qs	qs.
Purified water	qs	Q3	Q3	Q3	gs
pН	7.2-7.6	7.2-7.5	7.2-7.6	7.2-7.6	7.2-7.6

Thus, a comparison of the instantly claimed and some of the Ding et al. embodiments is presented below:

	DING et al. 1-D	instant invention	DING et al. 1-E
Cyclosporin	0.10%	0.05%	0.05%
Castor oil	1.25%	1.25%	0.625%
Polysorbate 80	1.00%	1.00%	1.00%
Pemulen	0.05%	0.05%	0.05%
Glycerine	2.20%	2.20%	2.20%
NaOH	qs	qs	qs
Purified water	qs	qs	qs
рН	7.2-7.6	7.2-7.6	7.2-7.6

Furthermore, the claims of Ding et al. disclose ranges for the components (e.g., claims 1-8). For example, Ding et al. discloses a pharmaceutical emulsion comprising

cyclosporin A, castor oil, Pemulen, glycerine, polysorbate 80, water in amounts sufficient to prevent crystallization of cyclosporin A for a period of up to about nine months, said pharmaceutical emulsion being suitable for topical application to ocular tissue, wherein the cyclosporin A is present in an amount between about 0.05 to and about 0.40%, by weight, the castor oil is present in an amount of between about 0.625%, by weight, and about 5.0%, by weight, the polysorbate 80 is present in an amount of about 1.0%, by weight, the Pemulen is present in an amount of about 0.05%, by weight, and the glycerine is present in an amount of about 2.2%, by weight (e.g., claims 7-8).

The formulations set forth in Examples 1-4 were made for treatment of keratoconjunctivitis sicca (dry eye) syndrome with Examples 2, 3 and 4 without the active ingredient cyclosporin utilized to determine the toxicity of the emulsified components.

Ding et al. teach that the formulations in Examples 1-4 were applied to rabbit eyes eight times a day for seven days and were found to cause only slight to mild discomfort and slight hyperemia in the rabbit eyes. Slit lamp examination revealed no changes in the surface tissue. In addition, the cyclosporin containing castor oil emulsion, as hereinabove set forth in Examples 1A-1D, was also tested for ocular bioavailability in rabbits; and the therapeutic level of cyclosporin was found in the tissues of interest after dosage. Ding et al. go on to teach that this substantiates that cyclosporin in an ophthalmic delivery system is useful for treating dry eye.

One of ordinary skill in the art at the time the invention was made would have been motivated to modify the invention of Ding et al., e.g., Example 1E, by making any composition (and method thereof) encompassed by the ranges disclosed in Ding et al. One of ordinary skill in the art at the time the invention was made would have been motivated to do so given the guidance provided by Ding et al., i.e., the amount of castor oil in the emulsions is taught to be cyclosporin to castor oil is between 0.12 and 0.02, which, for 0.05% corresponds to 0.4% to 2.5% of castor oil (which encompasses 1.25%). See, e.g., col. 3. One of ordinary skill in the art, at the time the invention was made, would have had a reasonable expectation of success for doing so because 1.25% was known to be non-irritating as shown in Example 1D, because such modifications are routinely determined and optimized in the art through routine experimentation [see MPEP 2144.05 (I) regarding optimization of ranges] and because the active ingredients, cyclosporin A and castor oil were present at overlapping concentrations between the instant invention and the invention of Ding et al. [see MPEP 2144.05 (I) regarding overlapping ranges]. Moreover, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical [see MPEP 2144.05 (II)]. Furthermore, to establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range (MPEP 716.02). Furthermore, one of ordinary skill in the art would have been motivated to determine adequate daily frequency of administration in order to find suitable administration

regimes (e.g., twice a day.), one of ordinary skill in the art at the time the invention was made would have had reasonable expectation of success given that the 0.1% containing cyclosporin emulsion was effective in treating KCS (see Examples).

Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. However, examples of claim language, although not exhaustive, that may raise a question as to the limiting effect of the language in a claim are:

- (A) "adapted to" or "adapted for" clauses;
- (B) "wherein" clauses; and
- (C) "whereby" clauses.

The determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case. In the instant case, the limitations ", [..] the blood of the human has substantially no detectable concentration of cyclosporin A", "wherein the emulsion breaks down more quickly in the eye of a human, once administered to the eye of the human, thereby reducing vision distortion in the eye of the human as compare to an emulsion that contains only 50% as much castor oil", "wherein the ophthalmic emulsion, when administered to the eye of a human, demonstrates a reduction in adverse events in the human", "wherein the adverse events include side effects" and "wherein the emulsion is effective in increasing tear production in the human having KCS", it is noted that such functional effects would necessarily flow

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from the compositions of Ding et al. and methods thereof which comprise administration of all the claimed components and amounts in the claimed method, as set forth above.

From the teaching of the reference, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

## Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

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double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

7. Claims 37-61 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 5,474,979. Although the conflicting claims are not identical, they are not patentably distinct from each other because Ding et al. (US 5,474,979) claims pharmaceutical emulsions comprising of cyclosporine A, castor oil, Pemulen ® (crosslinked polyacrylate stabilizer), glycerine and water as instantly claimed (see claims 6-8 of Ding et al.) for topical application comprising to ocular tissue wherein the cyclosporine A is presents in an amount of between about 0.05 to and about 0.40% by weight (which encompasses about 0.05% cyclosporin A), castor oil from about 0.625% to about 5.0% (which encompasses 1.25% of castor oil), Pemulen ® at about 0.05%, and glycerin at about 2.2%. (see, e.g., claim 8). Additionally, a different emulsifier, i.e., polysorbate 80, is

taught at about 1.0% (see also claim 8). The emulsion contains water as set forth in claims 6-8 of Ding et al. The specification of Ding et al. was used as dictionary and it was determined that the compositions were used to treat dry eye (KCS) and that the compositions encompassed Examples 1A-E, wherein 1E comprises all the components and ranges instantly claimed except for the castor oil, which is encompassed by the claimed ranges to cyclosporin to castor oil.

One of ordinary skill in the art at the time the invention was made would have been motivated to modify the invention of Ding et al. by making any compositions encompassed by the ranges taught by Ding et al. One of ordinary skill in the art would have been motivated to do so in order to create nonirritating emulsions of cyclosporin suitable for topical application to ocular tissue. One of ordinary skill in the art, at the time the invention was made, would have had a reasonable expectation of success for doing so because such modifications are routinely determined and optimized in the art through routine experimentation [see MPEP 2144.05 (I) regarding optimization of ranges] and because the active ingredients, cyclosporin A and castor oil were present at overlapping concentrations between the instant invention and the invention of Ding et al. [see MPEP 2144.05 (I) regarding overlapping ranges]. Moreover, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical [see MPEP 2144.05 (II)]. Furthermore, to establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range

(MPEP 716.02). Furthermore, one of ordinary skill in the art would have been motivated to determine adequate daily frequency of administration (e.g., once, twice, thrice, etc.) in order to find suitable administration regimes, one of ordinary skill in the art at the time the invention was made would have had reasonable expectation of success given that the 0.1% containing cyclosporin emulsion was effective in treating KCS (see Examples).

Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. However, examples of claim language, although not exhaustive, that may raise a question as to the limiting effect of the language in a claim are:

- (A) "adapted to" or "adapted for" clauses;
- (B) "wherein" clauses; and
- (C) "whereby" clauses.

The determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case. In the instant case, the limitations "wherein the topical ophthalmic emulsion is therapeutically effective in treating KCS", "wherein, when the topical ophthalmic emulsion is administered to an eye of a human, [..] the blood of the human has substantially no detectable concentration of cyclosporin A", "wherein the emulsion breaks down more quickly in the eye of a human, once administered to the eye of the human, thereby reducing vision distortion in the eye of the human as compare to an emulsion that contains only 50% as much castor oil", "wherein the ophthalmic emulsion, when administered to the eye of a human,

demonstrates a reduction in adverse events in the human", "wherein the adverse events include side effects" and "wherein the emulsion is effective in increasing tear production in the human having KCS"; it is noted that such functional effects would necessarily flow from the compositions and methods claimed and exemplified by Ding et al. which comprise all the claimed components, amounts and methods as set forth above.

From the teaching of the reference, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

8. Claims 37-61 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 37-60 of copending Application No. 13/961,168. Although the claims at issue are not identical, they are not patentably distinct from each other because US '168 is drawn to a method which encompasses a method comprising topically administering to the eye of the human in need thereof an emulsion at a frequency of twice a day, wherein the emulsion comprises cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, acrylate/C10-30 alkyl acrylate cross-polymer, water and castor oil in an amount of about 1.25% by weight.

The other claims in US '168 are also drawn to the corresponding methods.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

9. Claims 37-61 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 37-60 of copending Application No. 13/961,835. Although the claims at issue are not identical, they are not patentably distinct from each other because US '835 is drawn to a method comprising topically administering to the eye of the human an emulsion at a frequency of twice a day, wherein the emulsion comprises cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen, water, and castor oil in an amount of about 1.25% by weight.

The other claims in US '835 are also drawn to the corresponding methods.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

10. Claims 37-61 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 37-61 of copending Application No. 13/967,163. Although the claims at issue are not identical, they are not patentably distinct from each other because US' 163 is drawn to an emulsion comprising cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen, water, and castor oil in an amount of about 1.25% by weight; and wherein the topical ophthalmic emulsion is effective in treating dry eye disease. Thus, it inherently discloses a method of treating dry eye disease/increasing tear production (claim 37 of the instant application). The other claims in US '163 are also inherently drawn to the corresponding claimed methods. Moreover, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical [see MPEP 2144.05 (II)].

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Furthermore, to establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range (MPEP 716.02).

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

11. Claims 37-61 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 37-61 of copending Application No. 13/961,828. Although the claims at issue are not identical, they are not patentably distinct from each other because US' 828 is drawn to an emulsion comprising cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen, water, and castor oil in an amount of about 1.25% by weight; and wherein the topical ophthalmic emulsion is effective in treating dry eye disease. Thus, it inherently discloses a method of treating dry eye disease/increasing tear production (claim 37 of the instant application). The other claims in US '828 are also inherently drawn to the corresponding claimed methods. Moreover, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is <u>critical</u> [see MPEP 2144.05 (II)]. Furthermore, to establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range (MPEP 716.02).

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

12. Claims 37-61 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 37-60 of copending Application No. 13/967,189. Although the claims at issue are not identical, they are not patentably distinct from each other because US' 189 is drawn to an emulsion comprising cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen, water, and castor oil in an amount of about 1.25% by weight; and wherein the topical ophthalmic emulsion is effective in treating dry eye disease/increasing tear production. Thus, it inherently discloses a method of treating dry eye disease (claim 37 of the instant application). The other claims in US '189 are also inherently drawn to the corresponding claimed methods. Moreover, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical [see MPEP 2144.05 (II)]. Furthermore, to establish unexpected results over a claimed range. applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range (MPEP 716.02).

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

13. Claims 37-61 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 37-60 of copending Application No. 13/961,808. Although the claims at issue are not identical, they are not patentably distinct from each other because US' 808 is drawn to an emulsion comprising cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen, water,

and castor oil in an amount of about 1.25% by weight; and wherein the topical ophthalmic emulsion is effective in treating dry eye disease. Thus, it inherently discloses a method of treating dry eye disease/increasing tear production (claim 37 of the instant application). The other claims in US '808 are also inherently drawn to the corresponding claimed methods. Moreover, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical [see MPEP 2144.05 (II)].

Furthermore, to establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range (MPEP 716.02).

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

#### Statutory double patenting

14. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no

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longer coextensive in scope. The filing of a terminal disclaimer <u>cannot</u> overcome a double patenting rejection based upon 35 U.S.C. 101.

15. Claims 37-61 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 37-61 of copending Application No. 13/961,818. The claims are identical too each other, i.e., claim 37 in both applications are drawn to method of increasing tear production in the eye of a human, the method comprising topically administering to the eye of the human in need thereof an emulsion at a frequency of twice a day, wherein the emulsion comprises cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, acrylate/C10-30 alkyl acrylate cross-polymer, water and castor oil in an amount of about 1.25% by weight; and wherein the topical ophthalmic emulsion is effective in increasing tear production. The other claims in US '818 are identical to the corresponding claims in the instant invention.

This is a <u>provisional</u> statutory double patenting rejection since the claims directed to the same invention have not in fact been patented.

#### Conclusion

16. No claim is currently allowed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCELA M. CORDERO GARCIA whose telephone number is (571)272-2939. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karlheinz R. Skowronek can be reached on (571)-272-9047. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARCELA M CORDERO GARCIA/ Primary Examiner, Art Unit 1658

MMCG 10/2013

	Application No.	Applicant(s)		
Examiner-Initiated Interview Summary	13/967,179	ACHEAMPONG ET AL.		
Examiner-initiated interview Summary	Examiner	Art Unit		
	MARCELA M. CORDERO GARCIA	1658		
All participants (applicant, applicant's representative, PTO	personnel):			
(1) MARCELA M. CORDERO GARCIA.	(3)			
(2) <u>LAURA WINE</u> .	(4)			
Date of Interview: 9/27/2013.				
Type: ⊠ Telephonic □ Video Conference ⊠ Personal [copy given to: □ applicant [	applicant's representative]			
Exhibit shown or demonstration conducted:	□ No.			
Issues Discussed 101 112 102 103 10the (For each of the checked box(es) above, please describe below the issue and detail				
Claim(s) discussed: <u>37 and 60</u> .				
Identification of prior art discussed: Ding et al. (US 5,474,9	<u>79)</u> .			
Substance of Interview (For each issue discussed, provide a detailed description and indicate if agreement reference or a portion thereof, claim interpretation, proposed amendments, arguments.)		dentification or clarification of a		
See Continuation Sheet.				
Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.				
<b>Examiner recordation instructions</b> : Examiners must summarize the substance of an interview should include the items listed in MPEP 713. general thrust of each argument or issue discussed, a general indication of general results or outcome of the interview, to include an indication as to we	04 for complete and proper recordation fany other pertinent matters discusse	on including the identification of the dregarding patentability and the		
Attachment				
/MARCELA M CORDERO GARCIA/ Primary Examiner, Art Unit 1658				

U.S. Patent and Trademark Office PTOL-413B (Rev. 8/11/2010)

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicants' representative contacted Examiner to request an inperson interview to discuss the case and also indicated that Applicants would be willing to amend the trademark Pemulen in the claims for acrylate/C10-30 alkyl acrylate cross-polymer (see attachment). This potential amendment was not deemed sufficient to make the claims allowable. During the in-person interview on 10/3/2013 the following attendees were present: Laura Wine, Debra Condino, Dr. Rhett Schiffman, Dr. Maysa Attar, and Examiner Cordero Garcia. Applicant's representatives described the backroung of dry eye disease, the process of arriving at the claimed invention and discussed: a) unexpected results, b) commercial success and c) long felt need. Further, the Ding et al. patent (US 5,474,979) was discussed with regards to its contents and relation to the claimed invention. With regards to the presented unexpected results, Examiner indicated that it would be necessary to include in a 37 CFR 1.32 declaration all the experimental conditions for the various clinical trials used in the 'unexpected results' evidence, in order to determine whether these clinical trials can be effectively used in the comparison of therapeutic effects of the cyclosporin compositions of Ding et al. with the claimed invention. Examiner also indicated that a first Office Action on the merits would be provided shortly after the interview since the proposed amendment would not obviate all rejections deemed necessary (see attached Office Action) and also briefly discussed potential statutory and non-statutory double patenting issues for the instant application. A courtesy draft of the Office Action for a related case was provided to Applicant's representatives. .

#### Interview Agenda

# U.S. Patent Application Nos. 13/967,189; 13/967,179; 13/967,163; and 13/967,168 – METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS Examiner Marcela Cordero Garcia – (410) 262-3037

- Introduction
- Discussion of Claimed Subject Matter
  - o Background on Dry Eye Disease
  - o The Development and Innovation of the Claimed Formulation
- Presentation of Objective Evidence of Non-Obviousness
  - Unexpected Results
  - Commercial Success
  - Long Felt Need/Failure of Others
- Brief Discussion of Prior Art
  - Ding (U.S. Patent No. 5,474,979)
- Discussion of Clarifying Amendments

## Search Notes

Application/Control No.	Applicant(s)/Patent Under Reexamination
13967179	ACHEAMPONG ET AL.
Examiner	Art Unit
MARCELA M CORDERO GARCIA	1658

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARC	CHED	
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED						
Class	Subclass	Date	Examiner			
none	none	10/7/2013	MMCG			

SEARCH NOTES						
Search Notes	Date	Examiner				
STN search (attached)	10/7/2013	MMCG				
EAST search (attached)	10/7/2013	MMCG				
also ran PALM Inventor searchh	10/7/2013	MMCG				

	INTERFERENCE SEARCH						
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner				
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U.S. Patent and Trademark Office Part of Paper No.: 20131007

13967179 - GAU: 1658

Beceipt date: 09/11/2013

Doc description: Information Disclosure Statement (IDS) Filed

	Application Number		13967179	
NEODIATION DIOCE COLIDE	Filing Date		2013-08-14	
INFORMATION DISCLOSURE	First Named Inventor	ACHE	EAMPONG, ANDREW	
(Not for submission under 37 CFR 1.99)	Art Unit		1653	
(Not for submission under 57 Of K 1.33)	Examiner Name	TBD		
	Attorney Docket Number		17618-US-BCON5-AP	

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(Not for submission under 37 CFR 1.99)	Art Unit		1653		
(Not for Submission ander 57 STR 1.55)	Examiner Name	TBD			
	Attorney Docket Number		17618-US-BCO	N5-AP	

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(Not for Submission under or of it 1.00)	Examiner Name	TBD	BD	
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	Attorney Docket Numb	er	17618-US-BCON	15-AP

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Application Number 13967179 13967179 - GAU: 1658

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First Named Inventor ACHEAMPONG, ANDREW

Art Unit 1653

Examiner Name TBD

17618-US-BCON5-AP

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	First Named Inventor ACHE		HEAMPONG, ANDREW	
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	Examiner Name	TBD		
	Attorney Docket Numb	er	17618-US-BCON	5-AP

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	First Named Inventor ACHE		IEAMPONG, ANDREW	
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Application Number 13967179 13967179 - GAU: 1658

Filing Date 2013-08-14

First Named Inventor ACHEAMPONG, ANDREW

Art Unit 1653

Examiner Name TBD

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17618-US-BCON5-AP

Attorney Docket Number

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Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup> i	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	<b>T</b> 5
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Art Unit 1653

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	foreign patent of after making rea any individual de	information contained in the information diffice in a counterpart foreign application, ar sonable inquiry, no item of information contaesignated in 37 CFR 1.56(c) more than the 37 CFR 1.97(e)(2).	nd, to the knowledge of that ained in the information di	e person signing the certification sclosure statement was known to					
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Nan	ne/Print	Laura L. Wine	Registration Number	68,681					
pub 1.14	lic which is to file  1. This collection	rmation is required by 37 CFR 1.97 and 1.98 (and by the USPTO to process) an application is estimated to take 1 hour to complete, include USPTO. Time will vary depending upon th	on. Confidentiality is gover uding gathering, preparing	rned by 35 U.S.C. 122 and 37 CFR and submitting the completed					

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## **EAST Search History**

## **EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S3	377	cyclosporin same castor	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/10/04 16:09
S4	12	cyclosporin same castor same polysorbate same pemulen	US-PGPUB; USPAT; EPO; JPO; DERWENT	<b>A</b> DJ	ON	2013/10/05 09:54
S5	19	cyclosporin same "0.05" same castor same "1.25"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/10/05 09:59
S6	89	cyclosporin same castor same polysorbate	US-PGPUB; USPAT; EPO; JPO; DERWENT	<b>A</b> DJ	ON	2013/10/05 10:21
S7	4	cyclosporin same castor same polysorbate same pemulen same hydroxide	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/10/05 10:21
S8	104	"5474979"	US-PGPUB; USPAT; EPO; JPO; DERWENT	<b>A</b> DJ	ON	2013/10/05 12:06
S9	2	"5474979".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	<b>A</b> DJ	ON	2013/10/05 12:06

10/7/2013 2:09:53 PM

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NEWS 31 SEP 27 Application Numbers for U.S. Patents in CA/CAplus and USPATFUL/USPAT2 Enhanced with U.S. Series Code Information

NEWS 32 OCT 04 Impacts of U.S. Government Shutdown on STN Databases

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=> (cyclosporin or cyclosporine) (10a) ("castor oil") (10a) polysorbate THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

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ENTER A FILE NAME OR (IGNORE):ignore

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SINCE FILE TOTAL
ENTRY SESSION
FULL ESTIMATED COST
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2.16

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ENTRY SESSION
FULL ESTIMATED COST
3.67
5.83

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L1 ANSWER 1 OF 12 BIOSIS COPYRIGHT (c) 2013 The Thomson Corporation on STN

ACCESSION NUMBER: 2006:456121 BIOSIS DOCUMENT NUMBER: PREV200600453000

TITLE: Stable bioavailability of cyclosporin A, regardless of food

intake, from soft gelatin capsules containing a new

self-nanoemulsifying formulation.

AUTHOR(S): Yang, S. G.; Kim, D. D.; Chung, S. J.; Shim, C. K. [Reprint

Author]

CORPORATE SOURCE: Seoul Natl Univ, Coll Pharm, Dept Pharmaceut, San

56-1, Shinlim Dong, Seoul 151742, South Korea

shimck@snu.ac.kr

SOURCE: International Journal of Clinical Pharmacology and

Therapeutics, (MAY 2006) Vol. 44, No. 5, pp. 233-239.

ISSN: 0946-1965.

DOCUMENT TYPE: Article LANGUAGE: English

ENTRY DATE: Entered STN: 13 Sep 2006

Last Updated on STN: 13 Sep 2006

Aim: We recently succeeded in preparing soft gelatin capsules containing a AB new self-nanoemulsifying formulation consisting of cyclosporin A (CsA), triacetin, polyoxyl 40 hydrogenated castor oil, polysorbate 20, medium chain triglycerides and medium chain mono- and diglycerides. soft capsules containing the new formulation exhibited a significantly improved physical stability in terms of the appearance of the gelatin capsule shells and the composition of the fill mass during long-term storage, compared to commercially available soft capsules containing CsA, in which ethanol was employed as a cosolvent of CsA. In the present study, the influence of a fat-rich meal on the bioavailability of CsA from the soft capsule containing the new formulation (test drug) was evaluated and the results compared to those obtained with a representative soft capsule of CsA. Volunteers and methods: A randomized, open-label, 3-way crossover study was performed in the test capsules and reference soft capsules, in a fasted state or after a fat-rich breakfast. 18 healthy male volunteers received a single dose of the reference formulation (Neoral, Novartis AG, Basel, Switzerland) or test formulation (2 capsules each, 200 mg as CsA) with 240 ml of water with a 1-week washout period between the treatments, after a fat-rich (670 kcal, 45 g fat) breakfast (for the test drug, Treatment A; for the reference drug, Treatment B) or a 12-h fasting (for the test drug, Treatment Q. Serial blood samples, collected over a 24-h period after the administration, were assayed for blood CsA concentrations using a specific monoclonal radioimmunoassay. Results: The differences in bioavailability parameters (i.e., AUC(0-24h), AUC(0-infinity) and C-max) between the treatments were within the range of 80 - 125% of the reference treatment. An analysis of variance (ANOVA) revealed no significant differences (p > 0.05) between subjects, formulations or periods. The 90% confidence intervals (CI) indicated that the differences between the treatments (Treatments A and B, Treatments A and Q were also within the criteria. Conclusion: These results indicate that the bioavailability of CsA from the test drug is equivalent to reference in the fed state, and is likely to be less influenced by a fat-rich meal. Therefore, the new formulation of CsA using triacetin

appears to have an advantage over the commercial soft capsules of CsA using a volatile cosolvent such as ethanol.

L1 ANSWER 2 OF 12 EMBASE COPYRIGHT (c) 2013 Elsevier B.V. All rights reserved on STN

ACCESSION NUMBER: 2006216678 EMBASE

TITLE: Stable bioavailability of cyclosporin A, regardless of food

intake, from soft gelatin capsules containing a new

self-nanoemulsifying formulation.

AUTHOR: Yang, S.G.; Kim, D.D.; Chung, S.J.; Shim, C.-K., Dr.

(correspondence)

CORPORATE SOURCE: Research Institute of Pharmaceutical Sciences, College of

Pharmacy, Seoul National University, San 56-1,

Shinlim-dong, Kwanak-gu, Seoul 151-742, Korea, Republic of.

shimck@snu.ac.kr

AUTHOR: Shim, C.-K., Dr. (correspondence)

CORPORATE SOURCE: Department of Pharmaceutics, College of Pharmacy, Seoul

National University, San 56-1, Shinlim-dong, Kwanak-gu,

Seoul 151-742, Korea, Republic of. shimck@snu.ac.kr

International Journal of Clinical Pharmacology and

Therapeutics, (May 2006) Vol. 44, No. 5, pp. 233-239.

Refs: 22

ISSN: 0946-1965 CODEN: ICTHEK

COUNTRY: Germany

SOURCE:

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 030 Clinical and Experimental Pharmacology

037 Drug Literature Index 038 Adverse Reactions Titles

LANGUAGE: English SUMMARY LANGUAGE: English

ENTRY DATE: Entered Embase: 30 May 2006

Last Updated on Embase: 6 Sep 2007

Aim: We recently succeeded in preparing soft gelatin capsules containing a AB new self-nanoemulsifying formulation consisting of cyclosporin A (CsA), triacetin, polyoxyl 40 hydrogenated castor oil, polysorbate 20, medium chain triglycerides and medium chain mono- and diglycerides. The soft capsules containing the new formulation exhibited a significantly improved physical stability in terms of the appearance of the gelatin capsule shells and the composition of the fill mass during long-term storage, compared to commercially available soft capsules containing CsA, in which ethanol was employed as a cosolvent of CsA. In the present study, the influence of a fat-rich meal on the bioavailability of CsA from the soft capsule containing the new formulation (test drug) was evaluated and the results compared to those obtained with a representative soft capsule of CsA. Volunteers and methods: A randomized, open-label, 3-way crossover study was performed in the test capsules and reference soft capsules, in a fasted state or after a fat-rich breakfast. 18 healthy male volunteers received a single dose of the reference formulation (Neoral, Novartis AG, Basel, Switzerland) or test formulation (2 capsules each, 200 mg as CsA) with 240 ml of water with a 1-week washout period between the treatments, after a fat-rich (670 kcal, 45 q fat) breakfast (for the test drug, Treatment A; for the reference drug, Treatment B) or a 12-h fasting (for the test drug, Treatment C). Serial blood samples, collected over a 24-h period after the administration, were assayed for blood CsA concentrations using a specific monoclonal radioimmunoassay. Results: The differences in bioavailability parameters (i.e., AUC0-24h, AUC0- $\infty$ and Cmax) between the treatments were within the range of 80-125% of the reference treatment. An analysis of variance (ANOVA) revealed no significant differences (p > 0.05) between subjects, formulations or periods. The 90% confidence intervals (CI) indicated that the differences between the treatments (Treatments A and B, Treatments A and C) were also within the criteria. Conclusion: These results indicate that the

bioavailability of CsA from the test drug is equivalent to reference in the fed state, and is likely to be less influenced by a fat-rich meal. Therefore, the new formulation of CsA using triacetin appears to have an advantage over the commercial soft capsules of CsA using a volatile cosolvent such as ethanol. .COPYRGT. 2006 Dustri-Verlag Dr. K. Feistle.

L1 ANSWER 3 OF 12 MEDLINE ® on STN ACCESSION NUMBER: 2006296965 MEDLINE DOCUMENT NUMBER: PubMed ID: 16724578

TITLE: Stable bioavailability of cyclosporin A, regardless of food

intake, from soft gelatin capsules containing a new

self-nanoemulsifying formulation.

AUTHOR: Yang S G; Kim D D; Chung S J; Shim C K

CORPORATE SOURCE: Research Institute of Pharmaceutical Sciences and College

of Pharmacy, Seoul National University, Seoul, Korea.

SOURCE: International journal of clinical pharmacology and

therapeutics, (2006 May) Vol. 44, No. 5, pp. 233-9.

Journal code: 9423309. ISSN: 0946-1965. L-ISSN: 0946-1965.

PUB. COUNTRY: Germany: Germany, Federal Republic of DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

(RANDOMIZED CONTROLLED TRIAL)

(CLINICAL TRIAL)

LANGUAGE: English

FILE SEGMENT: MEDLINE; Priority Journals

ENTRY MONTH: 200707

ENTRY DATE: Entered STN: 27 May 2006

Last Updated on STN: 12 Dec 2006 Entered Medline: 20 Jul 2007

AB AIM: We recently succeeded in preparing soft gelatin capsules containing a new self-nanoemulsifying formulation consisting of cyclosporin A (CsA), triacetin, polyoxyl 40 hydrogenated castor oil, polysorbate 20, medium chain triglycerides and medium chain mono- and diglycerides. The soft capsules containing the new formulation exhibited a significantly improved physical stability in terms of the appearance of the gelatin capsule shells and the composition of the fill mass during long-term storage, compared to commercially available soft capsules containing CsA, in which ethanol was employed as a cosolvent of CsA. In the present study, the influence of a fat-rich meal on the bioavailability of CsA from the soft capsule containing the new formulation (test drug) was evaluated and the results compared to those obtained with a representative soft capsule of CsA.

VOLUNTEERS AND METHODS: A randomized, open-label, 3-way crossover study was performed in the test capsules and reference soft capsules, in a fasted state or after a fat-rich breakfast. 18 healthy male volunteers received a single dose of the reference formulation (Neoral, Novartis AG, Basel, Switzerland) or test formulation (2 capsules each, 200 mg as CsA) with 240 ml of water with a 1-week washout period between the treatments, after a fat-rich (670 kcal, 45 g fat) breakfast (for the test drug, Treatment A; for the reference drug, Treatment B) or a 12-h fasting (for the test drug, Treatment C). Serial blood samples, collected over a 24-h period after the administration, were assayed for blood CsA concentrations using a specific monoclonal radioimmunoassay.

RESULTS: The differences in bioavailability parameters (i.e., AUC(0-24h), AUC(0-infinity) and C(max)) between the treatments were within the range of 80-125% of the reference treatment. An analysis of variance (ANOVA) revealed no significant differences (p > 0.05) between subjects, formulations or periods. The 90% confidence intervals (CI) indicated that the differences between the treatments (Treatments A and B, Treatments A and C) were also within the criteria.

CONCLUSION: These results indicate that the bioavailability of CsA from the test drug is equivalent to reference in the fed state, and is likely to be less influenced by a fat-rich meal. Therefore, the new formulation of CsA using triacetin appears to have an advantage over the commercial soft capsules of CsA using a volatile cosolvent such as ethanol.

ANSWER 4 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 2013:569214 CAPLUS

DOCUMENT NUMBER: 158:545244

TITLE: Topical oil-in-water emulsion compositions for

enhancing nail health comprising immunomodulator such

as cyclosporine

INVENTOR(S): Walt, John G.

PATENT ASSIGNEE(S): Allergan, Inc., USA SOURCE: PCT Int. Appl., 115pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent English LANGUAGE:

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.					KIND DATE			APPLICATION NO.				DATE						
	WO	2013	 0524	 24		A2	2	0130	411	W	0 20	12-U	S583	33		20121001			
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			PA,	PE,	PG,	PH,	PL,	PT,	QA,	RO,	RS,	RU,	RW,	SC,	SD,	SE,	SG,	SK,	
			SL,	SM,	ST,	SV,	SY,	TH,	ΤJ,	TM,	TN,	TR,	TT,	TZ,	UA,	UG,	US,	UZ,	
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			SE,	SI,	SK,	SM,	TR,	BF,	ВJ,	CF,	CG,	CI,	CM,	GΑ,	GN,	GQ,	GW,	ML,	
			MR,	ΝE,	SN,	TD,	ΤG,	BW,	GH,	GM,	ΚE,	LR,	LS,	MW,	MZ,	NA,	RW,	SD,	
			SL,	SZ,	TZ,	UG,	ZM,	ZW,	ΑM,	ΑZ,	ΒY,	KG,	KΖ,	RU,	ΤJ,	TM			
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ANSWER 5 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 2007:119452 CAPLUS

146:190563 DOCUMENT NUMBER:

Pharmaceutical compositions comprising cyclosporins TITLE: Tien, Walter L.; Graham, Richard; Chang, James N. Allergan, Inc., USA INVENTOR(S):

PATENT ASSIGNEE(S):

U.S. Pat. Appl. Publ., 4pp. SOURCE:

CODEN: USXXCO

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

KIND DATE APPLICATION NO. PATENT NO. DATE \_\_\_\_

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20050727
     US 20070027072 A1 20070201 US 2005-161218
     US 7501393 B2 20090310
WO 2007016073 A1 20070208 WO 2006-US28788
                                                                   20060725
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             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
             KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN,
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             US, UZ, VC, VN, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
             IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
             CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
             GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM
                                          US 2009-361335 20090128
US 2005-161218 A 20050727
     US 20090131307 A1 20090521
PRIORITY APPLN. INFO.:
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
     A composition is described herein comprising cyclosporin A, Polysorbate 80, a
     polyoxyethylene stearate, and an oil; wherein the composition is an emulsion
     which is ophthalmically acceptable. Methods of treating diseases or
     conditions using the compns., and medicaments related thereto, are also
     disclosed herein. Thus, a composition contains purite 100 ppm cyclosporin A
     0.1, castor oil 0.5, PEG stearate 1.0, Polysorbate-80 0.5, glycerin
     1.4, boric acid 0.6, CM-cellulose 0.5, and water qs to 100\%.
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD
                                (3 CITINGS)
                                THERE ARE 108 CITED REFERENCES AVAILABLE FOR
REFERENCE COUNT:
                         108
                                THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
                                FORMAT
    ANSWER 6 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN
ACCESSION NUMBER: 2007:63260 CAPLUS
DOCUMENT NUMBER:
                        146:149038
TITLE:
                        Opthalmic emulsion comprising cyclosporin
INVENTOR(S):
                        Chang, James N.; Olejnik, Orest; Firestone, Bruce A.
                      Allergan, Inc., USA
PATENT ASSIGNEE(S):
SOURCE:
                         U.S. Pat. Appl. Publ., 24pp., Cont.-in-part of U.S.
                         Ser. No. 181,409.
                         CODEN: USXXCO
DOCUMENT TYPE:
                         Patent
LANGUAGE:
                         English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:
     PATENT NO. KIND DATE
                                          APPLICATION NO. DATE
     US 20070015694
                        A1 20070118
                                            US 2005-255821
                                                                     20051019
                         B2 20071030
     US 7288520
                    B2 20071033
A1 20070118
B2 20071120
     US 20070015690
                                            US 2005-181178
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     US 7297679
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US 20070015710

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US 7276476

US 20070015691

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                                            US 2005-181187
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                                            US 2005-181409
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                                            US 2005-181428
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    US 20070015693 A1 20070118 US 20070149447 A1 20070628
                                            US 2007-679934
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    US 8536134 B2 20130917

US 20080009436 A1 20080110

US 8211855 B2 20120703

US 20080070834 A1 20080320
                                            US 2007-857223
                                                                     20070918
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US 2007-940652

20071115

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US 2012-13536479 20120628

US 2005-181178 A2 20050713

US 2005-181409 A2 20050713

US 2005-181409 A2 20050713
     US 20120270805 A1 20121025
PRIORITY APPLN. INFO.:
                                                 US 2005-181428
                                                                        A2 20050713
                                                 US 2005-181509
                                                                        A2 20050713
                                                                    A3 20051019
                                                 US 2005-255821
                                                 US 2007-857223
                                                                        A1 20070918
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
     A composition is disclosed herein comprising from about 0.001% to about 0.4%
     cyclosporin A, castor oil, and a surfactant selected from the group
     consisting of alc. ethoxylated, alcs., alkyl glycosides, alkyl
     polyglycosides, alkylphenol ethoxylates, amine oxides, block polymers,
     carboxylated alc. or alkylphenol ethoxylates, carboxylic adds/fatty acids,
     cellulose derivs., ethoxylated alcs., ethoxylated alkylphenols,
     ethoxylated aryl phenols, ethoxylated fatty acids, ethoxylated fatty
     acids, ethoxylated fatty esters and oils, fatty alcs., fatty esters,
     glycol esters, lanolin-based derivs., lecithin and lecithin derivs.,
     lignin and lignin derivs., Me esters, monoglycerides and derivs.,
     phospholipids, polyacrylic acids, polyethylene glycols, polyethylene
     oxide-polypropylene oxide copolymers, polyethylene oxides, polymeric
     surfactants, polypropylene oxides, propoxylated alcs., propoxylated alkyl
     phenols, propoxylated fatty acids, protein-based surfactants, sarcosine
     derivs., silicone-based surfactants, sorbitan derivs., stearates, sucrose
     and glucose esters and derivs., and combinations thereof. For example,
     emulsion was prepared containing cyclosporin A 0.1%, castor oil 1%, clove
     oil 0.7%, Polysorbate-80 1%, diglycerol 0.7%, glycerin 2%, CM-cellulose
     0.5%, sodium hydroxide to adjust pH (7.2) and water as needed.
                                   THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
OS.CITING REF COUNT:
                            1
                                    (2 CITINGS)
REFERENCE COUNT:
                             89
                                   THERE ARE 89 CITED REFERENCES AVAILABLE FOR THIS
                                   RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
     ANSWER 7 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN
ACCESSION NUMBER: 2007:58577 CAPLUS
DOCUMENT NUMBER:
                            146:149007
TITLE:
                           Composition comprising cyclosporin A
INVENTOR(S):
                           Chang, James N.; Olejnik, Orest; Firestone, Bruce A.
PATENT ASSIGNEE(S):
                         Allergan, Inc., USA
                            PCT Int. Appl., 32 pp.
SOURCE:
                            CODEN: PIXXD2
DOCUMENT TYPE:
                            Patent
LANGUAGE:
                            English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:
                     KIND DATE APPLICATION NO. DATE
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     WO 2007008894 A2 20070118 WO 2006-US26881 WO 2007008894 A3 20070628
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               US, UZ, VC, VN, ZA, ZM, ZW
          RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
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KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

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US 20070015690 A1 20070118
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                        A1 20070118 AU 2006-268264
    AU 2006268264
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    CA 2602452 A1 20070118 CA 2006-2602452
EP 1901711 A2 20080326 EP 2006-786892
                                                                   20060712
         R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
             IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR
                              20090115 JP 2008-521528
     JP 2009501228 T
     BR 2006013533
                         A2 20110118
                                          BR 2006-13533
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                        A1 20070628 US 2007-679934
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     US 8536134
                        B2 20130917
                                           US 2007-940652
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PRIORITY APPLN. INFO.:
                                           US 2005-181178
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W 20060712
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                                           US 2005-181428
                                           US 2005-181509
                                           WO 2006-US26881
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ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Cyclosporin A compns. are disclosed herein comprising an oil and a surfactant. These are useful in the treatment of dry eye disease. Thus, composition was prepared containing cyclosporin A 0.1, castor oil 1, clove oil

0.7, polysorbate-80 1, diglycerol 0.7, glycerin 2, CM-cellulose 0.5 and water as needed.

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L1 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 2006:590857 CAPLUS

DOCUMENT NUMBER: 145:443655

TITLE: Stable bioavailability of cyclosporin A, regardless of food intake, from soft gelatin capsules containing a

new self-nanoemulsifying formulation

AUTHOR(S): Yang, S. G.; Kim, D. D.; Chung, S. J.; Shim, C. K. CORPORATE SOURCE: Research Institute of Pharmaceutical Sciences and

College of Pharmacy, Seoul National University, Seoul,

S. Korea

SOURCE: International Journal of Clinical Pharmacology and

Therapeutics (2006), 44(5), 233-239

CODEN: ICTHEK; ISSN: 0946-1965 Dustri-Verlag Dr. Karl Feistle

PUBLISHER: Dustri-Verl
DOCUMENT TYPE: Journal

DOCUMENT TYPE: Journal LANGUAGE: English

AB Aim: We recently succeeded in preparing soft gelatin capsules containing a new self-nanoemulsifying formulation consisting of cyclosporin A (CsA), triacetin, polyoxyl 40 hydrogenated castor oil, polysorbate 20, medium chain triglycerides and medium chain mono- and diglycerides. The soft capsules containing the new formulation exhibited a significantly improved phys. stability in terms of the appearance of the gelatin capsule shells and the composition of the fill mass during long-term storage, compared to com. available soft capsules containing CsA, in which ethanol was employed as a cosolvent of CsA. In the present study, the influence of a fat-rich meal on the bioavailability of CsA from the soft capsule containing the new formulation (test drug) was evaluated and the results compared to those

obtained with a representative soft capsule of CsA. Volunteers and methods: A randomized, open-label, 3-way crossover study was performed in the test capsules and reference soft capsules, in a fasted state or after a fat-rich breakfast. 18 Healthy male volunteers received a single dose of the reference formulation (Neoral, Novartis AG, Basel, Switzerland) or test formulation (2 capsules each, 200 mg as CsA) with 240 mL of water with a 1-wk washout period between the treatments, after a fat-rich (670 kcal, 45 q fat) breakfast (for the test drug, Treatment A; for the reference drug, Treatment B) or a 12-h fasting (for the test drug, Treatment C). Serial blood samples, collected over a 24-h period after the administration, were assayed for blood CsA concns. using a specific monoclonal RIA. Results: The differences in bioavailability parameters (i.e., AUC0-24h,  $AUC0-\infty$  and Cmax) between the treatments were within the range of 80 - 125% of the reference treatment. An anal. of variance (ANOVA) revealed no significant differences (p > 0.05) between subjects, formulations or periods. The 90% confidence intervals (CI) indicated that the differences between the treatments (Treatments A and B, Treatments A and C) were also within the criteria. Conclusion: These results indicate that the bioavailability of CsA from the test drug is equivalent to reference in the fed state, and is likely to be less influenced by a fat-rich meal. Therefore, the new formulation of CsA using triacetin appears to have an advantage over the com. soft capsules of CsA using a volatile cosolvent such as ethanol.

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD

(4 CITINGS)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 2000:494420 CAPLUS

DOCUMENT NUMBER: 133:198474

TITLE: Effect of Polyoxyl 35 castor oil and Polysorbate 80 on

the intestinal absorption of digoxin in vitro

AUTHOR(S): Cornaire, Gilles; Woodley, John F.; Saivin, Sylvie;

Legendre, Jean-Yves; Decourt, Sylvie; Cloarec, Alix;

Houin, Georges

CORPORATE SOURCE: Laboratoire de Cinetique des Xenobiotiques, Faculte

des Sciences Pharmaceutiques, Toulouse, Fr.

SOURCE: Arzneimittel-Forschung (2000), 50(6), 576-579

CODEN: ARZNAD; ISSN: 0004-4172

PUBLISHER: Editio Cantor Verlag

DOCUMENT TYPE: Journal LANGUAGE: English

AB Surfactants are classically used to improve the solubilization of lipophilic drugs such as digoxin. Polysorbate 80 and Cremophor EL (Polyoxyl 35 castor oil) are such surfactants but they may also modulate the action of P-glycoprotein, an energy-dependent "counter-transport" system implicated in the phenomenon of multidrug resistance in cancer cells. P-glycoprotein is also present in the intestine on the apical membrane of mature enterocytes and can potentially reduce the absorption of a wide range of drugs. In this study, using the improved everted gut sac method, the effects of Polysorbate 80, Cremophor EL and cyclosporin on the absorption of digoxin were studied. An increase in the uptake of digoxin in the presence of these 3 products was shown. Cremophor EL and Polysorbate 80 had no toxic effects at the concns. used. Surfactants such as Cremophor EL and Polysorbate 80 should not only support solubilization but can also modulate the P-glycoprotein system to improve the bioavailability of poorly absorbed drugs.

OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 1996:38846 CAPLUS

DOCUMENT NUMBER: 124:66660

ORIGINAL REFERENCE NO.: 124:12317a,12320a

TITLE: Lacrimal gland-specific emulsions for topical

application to ocular tissue

INVENTOR(S): Ding, Shulin; Tien, Walter L.; Olejnik, Orest

PATENT ASSIGNEE(S): Allergan, Inc., USA SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.								APPLICATION NO.									
	9531 W:	211 AM, GB, MN,	AT, GE, MW,	AU, HU,	A1 BB, JP,	BG, KE,	9951 BR, KG,	123 BY, KP,	CA, KR, RO,	O 19 CH, KZ,	95-U CN, LK,	S630 CZ, LR,	DE, LT,	DK, LU,	EE, LV,	MD,	FI, MG,	
	RW:		MW,	NL,					CH, CF,									
CA	5474 2190	979 485	ŕ		A A1 C	1	9951 9951	123				4327 1904				9940 9950		
CA CA	2190485 2309033 2309033 9526409			A1	19951123			CA 1995-2309033				19950517						
AU	9526409 693213 759773				19980625			AU 1995-26409 EP 1995-921294				19950517 19950517						
	7597 R: 1152	ΑT,	BE,	CH,	B1 DE, A	DK,	0010 ES, 9970	FR,				IT, 9407		LU,		NL, 9950		SE
CN	1229136 9507664 10500414 3441462 1044678			C	20051130 19971007 19980113 20030902 20001018			BR 1995-7664 JP 1995-529895					19950517					
EP				B2 A1				EP 2000-202069										
AT ES PT AT ES MX CN CN HK GR KR JP	2039 2161 7597 2340 1044 2194 2002 1288 1198 1034 3036 4507 2003 4119	AT, 11 895 73 76 678 670 0007 722 587 190 945 03 2316 284	24 46		T T3 E T A A C A1 T3 B1	DK, 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0030 ES, 0010 0011 0020 0030 0031 0030 0050 0051 0020 0041 0030	FR, 815 216 228 315 829 201 425 328 427 209 131 001 819	A' E' A' P' E' M' CI HI GI KI	T 19 19 19 19 20 1	95-9 95-9 95-9 00-2 00-2 00-2 00-1 01-1 01-4 01-8 03-6	2129 2129 2129 0206 0206 0206 24 2012 0471 0181 8637 3234	4 4 4 9 9 9 9 6 0 4		1 1 1 1 1 2 2 2 2 2 2	9950 9950 9950 9950 9950 9961 0000 0011 0011	517 517 517 517 517 517 517 115 714 709 018 229 310	IE
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WO 1995-US6302 W 19950517 KR 1996-706523 A3 19961118

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A pharmaceutical composition is disclosed in the form of a nonirritating emulsion which includes at least one cyclosporin in admixt. with a higher fatty acid glyceride and polysorbate 80. More particularly, the cyclosporin may be cyclosporine A and the higher fatty acid glyceride may be castor oil. The composition allows a high comfort level and low irritation potential suitable for delivery of medications to sensitive areas such as ocular tissues with enhanced absorption in the lacrimal gland. In addition, the composition has stability for up to 9 mo without crystallization of cyclosporin.

For example, an ophthalmic emulsion containing cyclosporin A 0.2, castor oil 2.5, Polysorbate-80 1.0, Pemulen 0.05, glycerol 2.2, NaOH q.s., and purified water to 100% was formulated to treat keratoconjunctivitis sicca.

OS.CITING REF COUNT: 36 THERE ARE 36 CAPLUS RECORDS THAT CITE THIS

RECORD (38 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 1993:588539 CAPLUS

DOCUMENT NUMBER: 119:188539

ORIGINAL REFERENCE NO.: 119:33511a,33514a

TITLE: Leaching of diethylhexyl phthalate from polyvinyl chloride containers by selected drugs and formulation

components

AUTHOR(S): Pearson, Stephen D.; Trissel, Lawrence A. CORPORATE SOURCE: Houston Biotechnol., Inc., Woodlands, TX, USA

SOURCE: American Journal of Hospital Pharmacy (1993), 50(7),

1405-9

CODEN: AJHPA9; ISSN: 0002-9289

DOCUMENT TYPE: Journal LANGUAGE: English

AB Diethylhexyl phthalate (DEHP) was leached from polyvinyl chloride

containers by polysorbate 80, poloxyethylated castor oil,

cyclosporine, miconazole, teniposide, chlordiazepoxide HCl, etoposide, and the vehicles used in the formulation of taxol and taxotere. DEHP was detectable immediately in some cases and increased in concentration over the

24-h

study period. Drugs that leach DEHP should be prepared in non-PVC

containers and administered through non-PVC tubing.

OS.CITING REF COUNT: 47 THERE ARE 47 CAPLUS RECORDS THAT CITE THIS RECORD (47 CITINGS)

L1 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2013 ACS on STN

ACCESSION NUMBER: 1993:261059 CAPLUS

DOCUMENT NUMBER: 118:261059

ORIGINAL REFERENCE NO.: 118:45259a,45262a

TITLE: Ophthalmic solutions containing cyclosporin and

surfactants

INVENTOR(S): Hata, Kunio; Murano, Masaru; Ueda, Shogo

PATENT ASSIGNEE(S): Sankyo Co, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

JP 05058906 A 19930309 JP 1991-226990 19910906 PRIORITY APPLN. INFO: JP 1991-226990 19910906

Aqueous ophthalmic solns. contain cyclosporin (I) and surfactants chosen from polysorbate, polyoxyethylene hydrogenated castor oil, and polyoxyethylene fatty acid esters. The solns. show good stability and do not irritate the eyes. I 0.5, polyoxyethylene hydrogenated castor oil 20,  ${\tt NaCl}$  8 g, antiseptic, and  ${\tt H2O}$  to 1000 mL were mixed to give an ophthalmic solution

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

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(FILE 'HOME' ENTERED AT 14:10:54 ON 07 OCT 2013)

FILE 'BIOSIS, EMBASE, MEDLINE' ENTERED AT 14:16:25 ON 07 OCT 2013

FILE 'BIOSIS, EMBASE, MEDLINE, CAPLUS' ENTERED AT 14:16:34 ON 07 OCT 2013 T.1 12 (CYCLOSPORIN OR CYCLOSPORINE) (10A) ("CASTOR OIL") (10A) POLYSO

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COST IN U.S. DOLLARS SINCE FILE TOTAL SESSION ENTRY ENTRY 55.99 FULL ESTIMATED COST 61.82

SESSION WILL BE HELD FOR 120 MINUTES STN INTERNATIONAL SESSION SUSPENDED AT 14:18:02 ON 07 OCT 2013



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, Virginia 22313-1450 www.uspto.gov

# **BIB DATA SHEET**

### **CONFIRMATION NO. 8654**

SERIAL NUMBER	FILING or 37 DATE	′1(c)	GROUP ART	T UNIT	ATTORNEY DOCKET NO.					
13/967,179	08/14/2013	3	514	1658		17618CON5B (AP)				
	RULE									
Andrew Acheam Diane D. Tang-L James N. Chang David F. Power,  ** CONTINUING DATA This application which is a which is a	A ************************************	V; , CA; ******* 61,818 08/07 77 08/28/20 557 08/27/20 503,137 09/1	7/2013 07 04 ABN 5/2003 *	;);						
Foreign Priority claimed  35 USC 119(a-d) conditions met  Verified and /MARCEL/ CORDERC Acknowledged Examiner's	A M D GARCIA/	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTA CLAIN 25	MS CLAIMS				
ADDRESS					<u> </u>	1				
ALLERGAN, INC 2525 DUPONT I IRVINE, CA 926 UNITED STATE	DRIVE, T2-7H 12-1599									
TITLE										
METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS										
RECEIVED No	VED No to charge/credit DEPOSIT ACCOUNT									

#### DRAFT CLAIM AMENDMENT

U.S. Patent Application No. 13/967,179 Attorney Ref: 17618CON5B (AP) FOR DISCUSSION PURPOSES ONLY

37. (**Currently Amended**) A method of treating dry eye disease, the method comprising topically administering to the eye of [[[the]] <u>a</u> human <u>in need thereof</u> an emulsion at a frequency of twice a day, wherein the emulsion comprises cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, <u>Pemulen-acrylate/C10-30 alkyl acrylate cross-polymer</u>, water, and castor oil in an amount of about 1.25% by weight; and

wherein the topical ophthalmic emulsion is effective in treating dry eye disease.

60. (Currently Amended) A method of treating dry eye disease, the method comprising the step of topically administering to an eye of a human <u>in need thereof</u> an emulsion, the emulsion comprising:

cyclosporin A in an amount of about 0.05% by weight;

castor oil in an amount of about 1.25% by weight;

polysorbate 80 in an amount of about 1.0% by weight;

Pemulen-acrylate/C10-30 alkyl acrylate cross-polymer in an amount of about 0.05% by weight;

glycerine in an amount of about 2.2% by weight;

sodium hydroxide; and

water;

wherein the emulsion is effective in treating dry eye disease.

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Acheampong, et al. Examiner: Marcela M Cordero Garcia

Serial No.: 13/967,179 | Group Art Unit: 1658

Filed: August 14, 2013 Confirmation No. 8654

For: METHODS OF PROVIDING THERAPEUTIC EFFECTS USING CYCLOSPORIN COMPONENTS

Customer No.: 51957

### **RESPONSE TO NON FINAL OFFICE ACTION DATED OCTOBER 11, 2013**

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

These papers are filed in reply to the Office Action mailed October 11, 2013.

Amendments to the claims begin at page 2;

Summary of the Interview begins at page 7;

Remarks follow on page 8.

#### **AMENDMENTS TO THE CLAIMS**

The following claims replace all prior versions of claims submitted in this application. Only those claims being amended herein show their changes in highlighted form, where insertions appear as underlined text (e.g., <u>insertions</u>) while deletions appear as strikethrough or surrounded by double brackets (e.g. deletions or [[deletions]]).

- 1-36. (Canceled)
- 37. (Currently Amended) A method of treating dry eye disease, the method comprising topically administering to the eye of the <u>a</u> human in need thereof an emulsion at a frequency of twice a day, wherein the emulsion comprises cyclosporin A in an amount of about 0.05% by weight, polysorbate 80, Pemulen <u>acrylate/C10-30 alkyl acrylate cross-polymer</u>, water, and castor oil in an amount of about 1.25% by weight; and wherein the topical ophthalmic emulsion is effective in treating dry eye disease.
- 38. (Previously Presented) The method of Claim 37, wherein the emulsion further comprises a tonicity agent or a demulcent component.
- 39. (Previously Presented) The method of Claim 38, wherein the tonicity agent or the demulcent component is glycerine.
- 40. (Previously Presented) The method of Claim 37, wherein the emulsion further comprises a buffer.
- 41. (Previously Presented) The method of Claim 40, wherein the buffer is sodium hydroxide.
- 42. (Previously Presented) The method of Claim 37, wherein the topical ophthalmic emulsion further comprises glycerine and a buffer.

- 43. (Previously Presented) The method of Claim 37, wherein the emulsion comprises polysorbate 80 in an amount of about 1.0% by weight.
- 44. (**Currently Amended**) The method of Claim 37, wherein the emulsion comprises Pemulen <u>acrylate/C10-30 alkyl acrylate cross-polymer</u> in an amount of about 0.05% by weight.
- 45. (Previously Presented) The method of Claim 37, wherein the emulsion further comprises glycerine in an amount of about 2.2% by weight and a buffer.
- 46. (Previously Presented) The method of Claim 45, wherein the buffer is sodium hydroxide.
- 47. (**Currently Amended**) The method of Claim 37, wherein, when the emulsion is administered to an eye of a human in an effective amount in treating dry eye syndrome, the blood of the human has substantially no detectable concentration of cyclosporin A.
- 48. (Previously Presented) The method of Claim 42, wherein the emulsion has a pH in the range of about 7.2 to about 7.6.
- 49. (Currently Amended) The method of Claim 37, wherein the emulsion is as substantially therapeutically effective as a[[n]] second emulsion administered to a human in need thereof at a frequency of twice a day, the second emulsion comprising cyclosporin A in an amount of 0.1% by weight and castor oil in an amount of 1.25% by weight.
- 50. (**Currently Amended**) The method of Claim 37, wherein the emulsion achieves at least as much therapeutic effectiveness as a[[n]] second emulsion administered to a human in need thereof a frequency of twice a day, the second emulsion comprising

cyclosporin A in an amount of 0.1% by weight and castor oil in an amount of 1.25% by weight.

- 51. (Currently Amended) The method of Claim 37, wherein the emulsion breaks down more quickly in the eye of a human, once administered to the eye of the human, thereby reducing vision distortion in the eye of the human as compared to a[[n]] second emulsion that contains only 50% as much castor oil.
- 52. (Currently Amended) The method of Claim 37, wherein the emulsion, when administered to the eye of a human, demonstrates a reduction in adverse events in the human, relative to a[[n]] second emulsion administered to a human in need thereof a frequency of twice a day, the second emulsion comprising cyclosporin A in an amount of 0.1% by weight and castor oil in an amount of 1.25% by weight.
- 53. (Currently Amended) The method of Claim 52, wherein the adverse events include are side effects.
- 54. (Currently Amended) A method of reducing side effects in a human suffering from being treated for dry eye syndrome, the method comprising the step of topically administering to the eye of the human in need thereof an emulsion at a frequency of twice a day, wherein the emulsion comprises:

cyclosporin A in an amount of about 0.05% by weight; castor oil in an amount of about 1.25% by weight; polysorbate 80 in an amount of about 1.0% by weight;

polysoloate 80 iii ali amount of about 1.0% by weight,

Pemulen <u>acrylate/C10-30 alkyl acrylate cross-polymer</u> in an amount of about 0.05% by weight;

a tonicity component or a demulcent component in an amount of about 2.2% by weight;

a buffer; and water;

wherein the topical ophthalmic emulsion has a pH in the range of about 7.2 to about 7.6.

- 55. (Previously Presented) The method of Claim 54, wherein the buffer is sodium hydroxide.
- 56. (Previously Presented) The method of Claim 54, wherein the tonicity component or the demulcent component is glycerine.
- 57. (**Currently Amended**) The method of Claim 54, wherein, when the emulsion is administered to the eye of a human in an effective amount in for treating dry eye syndrome, the blood of the human has substantially no detectable concentration of the cyclosporin A.
- 58. (Canceled)
- 59. (Previously Presented) The method of Claim 54, wherein the emulsion is effective in treating dry eye disease.
- 60. (**Currently Amended**) A method of treating dry eye disease, the method comprising the step of topically administering to an eye of a human <u>in need thereof</u> an emulsion <u>at a frequency of twice a day</u>, the emulsion comprising:

cyclosporin A in an amount of about 0.05% by weight; castor oil in an amount of about 1.25% by weight; polysorbate 80 in an amount of about 1.0% by weight;

Pemulen acrylate/C10-30 alkyl acrylate cross-polymer in an amount of about 0.05% by weight;

glycerine in an amount of about 2.2% by weight; sodium hydroxide; and water;

wherein the emulsion is effective in treating dry eye disease.

61. (Previously Presented) The method of Claim 60, wherein the emulsion has a pH in the range of about 7.2 to about 7.6.

#### **SUMMARY OF INTERVIEW**

### Attendees, Date and Type of Interview

An in-person interview was conducted on October 3, 2013 at the USPTO and was attended by Examiner Cordero Garcia, Laura L. Wine, Dr. Rhett Schiffman, Dr. Mayssa Attar, and Debra Condino.

### Exhibits and/or Demonstrations

Data demonstrating unexpected results and commercial success of the claimed method were presented. Data and information regarding the claimed method's satisfaction of a long felt need were also presented.

### Identification of Claims Discussed

The Claims were discussed, focusing on Claims 37 and 54.

### Identification of Prior Art Discussed

The prior art of record was discussed, focusing on Ding (U.S. Patent No. 5,474,979).

## Proposed Amendments

It was proposed to amend Claims 54 to recite a range of pH in the claimed method.

### Principal Arguments and Other Matters

The Applicants presented data demonstrating unexpected results, commercial success, and satisfaction of a long felt need of the claimed methods. While the Applicants do not acquiesce to any *prima facie* case of obviousness, the evidence of non-obviousness presented at the interview overcomes the *prima facie* obviousness rejection.

### Results of Interview

It was agreed that the evidence of non-obviousness presented rendered the claims allowable and overcame the prior art of record. It was agreed that the Applicants would file a response, presenting data and arguments discussed at the interview.

#### REMARKS

This Reply responds to the Office Action sent October 11, 2013, in which the Office Action rejected Claims 37-61. Claim 58 is newly cancelled. Claims 37, 44, 47, 49-54, 57, and 60 have been amended. Thus, Claims 37-57 and 59-61 are currently pending. No new matter has been added by this amendment, and all amendments to the claims are fully supported by the originally filed application. The Applicants respectfully submit that the claims are in condition for allowance.

### **Claim Rejections**

35 U.S.C. § 112, second paragraph

Claims 37-61 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Applicants submit that the amendments to the claims submitted herewith render the rejection under 35 U.S.C. § 112, second paragraph moot. Thus, the Applicants respectfully request that the claim rejections under 35 U.S.C. § 112, second paragraph be withdrawn.

### 35 U.S.C. 103(a)

The Office Action rejected Claims 37-61 under 35 U.S.C. 103(a) as being unpatentable as obvious in view of U.S. Patent No. 5,474,979 to Ding et al. ("Ding").

The Applicants submit that the *prima facie* case of obviousness has not been properly established against the pending claims. However, the Applicants submit that the unexpected results, commercial success, and satisfaction of long felt need obtained with the claimed methods and failure of others overcome the *prima facie* obviousness rejection asserted in the Office Action.

The Federal Circuit has held that objective evidence of nonobviousness must always be taken into account before a conclusion on obviousness is reached. Similarly, M.P.E.P. 716.01(a) states that "[a]ffidavits or declarations, when timely presented, containing evidence of criticality or unexpected results, commercial success, long-left but unsolved needs, failure of others, skepticism of experts, etc., must be considered by the

Patent Office in determining the issue of obviousness of claims for patentability under 35 U.S.C. 103." Thus, the *Graham* factors, including the use of objective evidence of secondary considerations to rebut a *prima facie* case of obviousness, remains the framework to be followed for a determination of obviousness. The Federal Circuit has even stated that "evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not." *See, Stratoflex Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

### The Claimed Methods Provide Surprising and Unexpected Results

As discussed in the interview with the Examiner, the claimed methods provide surprising and unexpected results in view of the prior art (e.g. Ding). According to MPEP § 2144.05 (III), the Applicants can rebut a presumption of obviousness based on a claimed invention that falls within a prior art range by showing "(1) [t]hat the prior art taught away from the claimed invention...or (2) **that there are new and unexpected results relative to the prior art**." *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1322, 73 USPQ2d 1225, 1228 (Fed. Cir. 2004).

In support of this position, the Applicants submit herewith as Exhibit 1 a Declaration of Dr. Rhett M. Schiffman under 37 C.F.R. § 1.132 (hereinafter, "Schiffman Declaration 1"), Chief Medical Officer at Neurotech, with over 12 years of experience as a clinician in the eye care field. The Applicants also submit herewith as Exhibit 2, a Declaration of Dr. Mayssa Attar under 37 C.F.R. § 1.132 (hereinafter, "Attar Declaration"), Research Investigator at Allergan, Inc., the assignee of record of the present application, with about 15 years of experience in the pharmacokinetics field.

As described by Dr. Schiffman and Dr. Attar in their respective declarations, supported by examples and experiments, the claimed methods provided unexpected results compared to the prior art with regards to two key objective testing parameters for dry eye or keratoconjunctivis sicca: Schirmer Tear Testing and decrease in corneal staining, and with regards to reduction in blurred vision and decreased use of artificial tears. Specifically, the claimed methods provided unexpected results compared to

formulations 1E and 1D disclosed in Ding, which included 0.05% by weight cyclosporin A and 0.625% by weight castor oil and 0.10% by weight cyclosporin A and 1.25% by weight castor oil, respectively. *See* Ding, col. 4, lines 34-43.

As described by Dr. Schiffman in paragraphs 17-20 of Schiffman Declaration 1 and as seen in Exhibits E and F to Schiffman Declaration 1, surprisingly, the claimed methods demonstrated an <u>8-fold</u> increase in relative efficacy for the Schirmer Tear Test ("STT") score in the first study of Allergan's Phase 3 trials compared to the relative efficacy for the 0.05% by weight cyclosporin A/0.625% by weight castor oil formulation disclosed in Example 1E of Ding, tested in Phase 2 trials. The data presented herewith represents the subpopulation of Phase 2 patients with the same reductions in tear production ( $\leq$ 5 mm/5 min) as those enrolled in the Phase 3 studies. Schiffman Declaration 1 at ¶8. Exhibits E and F also illustrate that the claimed methods also demonstrated a <u>4-fold</u> improvement in the relative efficacy for the Schirmer Tear Test score for the second study of Phase 3 and a <u>4-fold</u> increase in relative efficacy for decrease in corneal staining score in both of the Phase 3 studies compared to the 0.05% by weight cyclosporin A/0.625% by weight castor oil formulation tested in Phase 2 and disclosed in Ding (Ding 1E). This was clearly a very surprising and unexpected result.