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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/023,165	03/18/2016	Alex Loukas	FAK-10202/47	7025
25006	7590	01/23/2019	EXAMINER	
DINSMORE & SHOHL LLP			MIKNIS, ZACHARY J	
900 Wilshire Drive			ART UNIT	
Suite 300			PAPER NUMBER	
TROY, MI 48084			1654	
			NOTIFICATION DATE	
			DELIVERY MODE	
			01/23/2019	
			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):

MichiganPatTM@dinsmore.com

<b>Office Action Summary</b>	<b>Application No.</b> 15/023,165	<b>Applicant(s)</b> Loukas et al.	
	<b>Examiner</b> ZACHARY J MIKNIS	<b>Art Unit</b> 1654	<b>AIA Status</b> Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1)  Responsive to communication(s) filed on 12 October 2018.  
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.
- 2a)  This action is **FINAL**.    2b)  This action is non-final.
- 3)  An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims\*

- 5)  Claim(s) 1-3,5,8-10,14-16,18-28,31-42 and 45-48 is/are pending in the application.  
5a) Of the above claim(s) 1-3,5,14-16,18-28,31-33 and 41-42 is/are withdrawn from consideration.
- 6)  Claim(s) \_\_\_\_\_ is/are allowed.
- 7)  Claim(s) 8-10,34-40,45 and 47 is/are rejected.
- 8)  Claim(s) 46 and 48 is/are objected to.
- 9)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

### Application Papers

- 10)  The specification is objected to by the Examiner.
- 11)  The drawing(s) filed on 18 March 2016 is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction 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 foreign priority under 35 U.S.C. § 119(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.

### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)  
Paper No(s)/Mail Date \_\_\_\_\_
- 3)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4)  Other: \_\_\_\_\_

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

### *Claim Status*

Claims 4, 6, 7, 11-13, 17, 29, 30, 43, and 44 have been canceled. Claims 1-3, 5, 8-10, 14-16, 18-28, 31-42, and 45-48 are pending. Claims 1-3, 5, 14-16, 18-28, 31-33, 41, and 42 are withdrawn with traverse. Claims 8-10, 34-40, and 45-48 are being examined on the merits.

### *Election/Restrictions*

Applicant's election with traverse of Group II (claims 8-10 and 34-40) in the reply filed on 15 November 2016 is acknowledged. The traversal is on the ground(s) that the '822 application as cited to break unity of invention is commonly owned, and thus not prior art. This is not found persuasive because even allowing for the '822 application to be disqualified as prior art under 35 U.S.C. 102(b)(2) owing to the common ownership statement as filed, the special technical feature (a modified Ac-TMP-2 protein) is still known as found in the rejection presented below under 35 U.S.C. 103.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-3, 5, 14-16, 18-28, 31-33, 41, and 42 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention,

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there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 15 November 2016.

**I. Modified Rejections:**

***Claim Rejections - 35 USC § 103***

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**1. Claims 8 and 47** are rejected under 35 U.S.C. 103 as being unpatentable over **Zhan** et al. (Mol. & Biochem. Parasitology 162:142-148, published 2008, hereafter referred to as Zhan).

The Zhan art teaches the cloning of *Ac*-TMP-2 (see e.g. Abstract). Zhan teaches that the protein is 244 amino acids in length, and contains a N-terminal 16 amino acid-long signal sequence that is cleaved between Ala16 and Ala17 of full-length *Ac*-TMP-2 (see e.g. Section 3.1, Figure 1). An N-linked glycosylation site is taught at position 64 (see e.g. Section 3.1). The recombinant *Ac*-TMP-2 peptide of Zhan is taught to inhibit MMP-13, MMP-7, and MMP-2 strongly (see e.g. Figure 5 and Section 3.5). The *Ac*-TMP-2 peptide is taught to contain the canonical C-X-C sequence found in other nematode TIMPs (see e.g. Section 4). In discussing the strong inhibition of MMP-2, MMP-7, and MMP-13 by *Ac*-TMP-2, Zhan teaches that MMPs play roles in modulating host inflammatory reactions (see e.g. p.147 Col.1 ¶2). In particular, Zhan suggests that hookworms secrete *Ac*-TMP-2 to inhibit proinflammatory MMPs to down-regulate host immune responses (see e.g. p.147 Col.1 ¶2).

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