

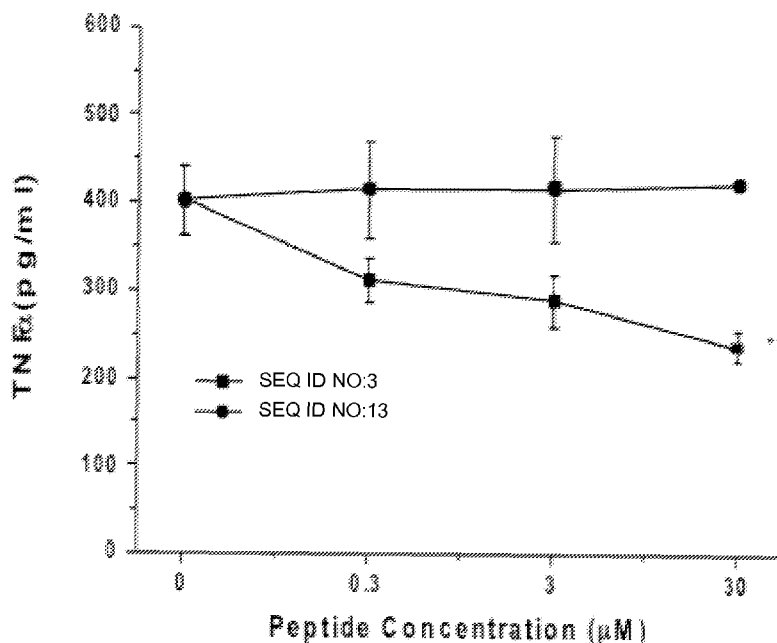


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- (71) Applicant (for all designated States except US): **DUKE UNIVERSITY** [US/US]; 2812 Erwin Road, Suite 306, Durham, NC 27705 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **LASKOWITZ, Daniel, T.** [US/US]; 214 Cobblestone Drive, Chapel Hill, NC 27516 (US). **DAWSON, Hana** [US/US]; 100 Bartica Court, Cary, NC 27519 (US). **KOLLS, Brad** [US/US]; 1319 Country Club Drive, Durham, NC 27712 (US).
- (74) Agent: **SINGER, Christopher, P.**; Michael Best & Friedrich Llp, 100 East Wisconsin Avenue, Suite 3300, Milwaukee, WI 53202-4108 (US).
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[Continued on next page]

(54) Title: PEPTIDES FOR SUPPRESSING INFLAMMATION

**Figure 1**



(57) Abstract: Provided herein are peptides that exhibit ApoE biological activity, as well as compositions and pharmaceutical formulations that include the peptides. The peptides, compositions, and methods disclosed herein have broad applications as they can be used to treat a broad spectrum of injury, diseases, disorders, and clinical indications.

WO 2012/129077 A3



**Published:**

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

— *with sequence listing part of description (Rule 5.2(a))*

**(88) Date of publication of the international search report:**  
15 November 2012

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US 12/29392

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) - C07K 14/00; A61K 38/00 (2012.01)

USPC - 530/300, 329; 514/21.8

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
USPC: 530/300, 329; 514/21.8

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
USPC: 530/300, 329; 514/21.8  
(keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
PubWEST (PGPB,USPT,USOC,EPAB,JPAB); Google; PubMed  
Search terms: vsrkr, val ser arg lys arg, microglial, apoE, NMDA, SEQ ID NO:2

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0072794 A1 (BOULIKAS) 17 April 2003 (17.04.2003) abstract; Table 3; para [0073]; SEQ ID NO: 30	1-3, 6-10, 17
A	US 7,482,328 B2 (YOSHIDA et al.) 27 January 2009 (27.01.2009) SEQ ID NO: 68	1-3, 6-10, 17

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
“A” document defining the general state of the art which is not considered to be of particular relevance	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
“E” earlier application or patent but published on or after the international filing date	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	“&” document member of the same patent family
“O” document referring to an oral disclosure, use, exhibition or other means	
“P” document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 26 August 2012 (26.08.2012)	Date of mailing of the international search report <b>07 SEP 2012</b>
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US 12/29392

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:  
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I+: claims 1-10, 15-20, drawn to an isolated peptide of Formula I. The first invention (claims 1-3, 6-10, 17) is restricted to SEQ ID NO:2. Should an additional fee(s) be paid, Applicant is invited to elect an additional SEQ ID NO(s) to be searched.

Group II: claims 11-14, drawn to a method comprising administering to the subject an effective amount of a peptide of Formula I.

- Please see extra sheet for continuation -

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-3, 6-10, 17, restricted to SEQ ID NO: 2

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

## Continuation of Box III: Lack of Unity of Invention

The inventions listed as Groups I+ and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions of Group I+ do not include the inventive concept of a method comprising administering to the subject an effective amount of a peptide of Formula I, as required by Group II.

The inventions of Group I+ and II share the technical feature of an isolated peptide of Formula I. However, this shared technical feature does not represent a contribution over prior art as being anticipated by US 2003/0072794 A1 (BOULIKAS) that discloses a peptide of Formula I (SEQ ID NO 30, amino acids 1-5 1 VSRKR 5). As said peptide was known in the art at the time of the invention, this cannot be considered a special technical feature that would otherwise unify the groups.

Another special technical feature of the inventions listed as Group I+ is the specific amino acid sequence recited therein. The inventions do not share a special technical feature, because BOULIKAS discloses the claimed SEQ ID NO: 2 (SEQ ID NO 30, amino acids 1-5). Without a shared special technical feature, the inventions lack unity with one another.