

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2019/016419

**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.: **19-20**  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 19-20 pertain to a method for treatment of the human body by therapy (PCT Article 17(2)(a)(i) and PCT Rule 39.1 (iv)).
  
- 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:

- 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.:


**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.

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> <i>G01N 33/68(2006.01)i, A61K 38/17(2006.01)i, A61K 48/00(2006.01)i, A61P 25/28(2006.01)i, A61P 35/00(2006.01)i, A61P 31/12(2006.01)i</i> According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) G01N 33/68; C07D 265/38; C07D 403/12; G01N 21/64; A61K 38/17; A61K 48/00; A61P 25/28; A61P 35/00; A61P 31/12 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models: IPC as above Japanese utility models and applications for utility models: IPC as above Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS (KIPO internal) & Keywords: JULGI, JUL, protein, mutation, G-quadruplex, neurodegenerative disease, cancer, virus, detection, diagnosis, therapy		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHO, H. Translational control of phloem development by rna g-quadruplex-julgi determines plant sink strength. Nature Plants. (Electronic publication) 28 May 2018, vol. 4, pages 376-390 See abstract; pages 380, 386-388; figures 6, 8(f); supplementary figure 6.	1,3
Y		2,4-18,21-22
Y	NCBI. Genbank accession no. AEE75713.1 (20 July 2017) See all sequences.	2,7,10,15
Y	WU, Y. G-quadruplex nucleic acids and human disease. FEBS J. 2010, vol. 277, pages 3470-3488 See abstract; pages 3471, 3473, 3481.	4-18,21-22
A	KR 10-2013-0131828 A (RESEARCH & BUSINESS FOUNDATION SUNGKYUNKWAN UNIVERSITY) 04 December 2013 See the entire document.	1-18,21-22
A	US 2013-0288380 A1 (PANASONIC CORPORATION) 31 October 2013 See the entire document.	1-18,21-22
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "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 "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 "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 "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 "&" document member of the same patent family		
Date of the actual completion of the international search <b>06 APRIL 2020 (06.04.2020)</b>		Date of mailing of the international search report <b>06 APRIL 2020 (06.04.2020)</b>
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578		Authorized officer  Telephone No.

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

**PCT/KR2019/016419**

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-2013-0131828 A	04/12/2013	KR 10-1455452 B1	31/10/2014
US 2013-0288380 A1	31/10/2013	CN 103403158 A	20/11/2013
		CN 103403158 B	28/01/2015
		JP 5216943 B1	08/03/2013
		US 8691589 B2	08/04/2014
		WO 2013-021536 A1	14/02/2013