ABSTRACT:
For treating cancer or other human diseases. Chemical modifications of the FL18 structure are employed alone or in combination with other anti-cancer agents to preclude or reverse refractory cancer phenotypes and for unique personalized cancer treatment (personalized medicine or as Obama called precision medicine) through application of a series of structural relevant individual FL18 platform-derived analogues.
# INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/022095

## A. CLASSIFICATION OF SUBJECT MATTER

<table>
<thead>
<tr>
<th>IPC(8)</th>
<th>C07D 491/22 (2015.01)</th>
</tr>
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<tr>
<td>CPC</td>
<td>C07D 491/22 (2015.04)</td>
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</tbody>
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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)

<table>
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<tr>
<th>IPC(8)</th>
<th>A61K 31/475, 45/06, 47/10, 47/20, 47/40; C07D 491/22 (2015.01)</th>
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<tr>
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</table>

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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<tr>
<th>USPC</th>
<th>514/279; 47/10, 45/06, 27-29, 31-34, 48, 50-52</th>
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</tbody>
</table>

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

- Orbit, Google Patents, Google, Pubchem, Surechem.
- Search terms used: FL1-18, methylenedioxycamptothecin, cancer, lyophilize.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>X</td>
<td>US 2014/0066470 A1 (HEALTH RESEARCH INC) 06 March 2014 (06.03.2014) entire document</td>
<td>1, 3-6, 20, 22, 24, 25, 27-29, 31-34, 48, 50-52</td>
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* Further documents are listed in the continuation of Box C.

<table>
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<th>“T”</th>
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<tr>
<td>“A”</td>
<td>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</td>
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<td>“T”</td>
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<td>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</td>
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<tr>
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<td>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</td>
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<td>document member of the same patent family</td>
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</table>

### Date of the actual completion of the international search
18 May 2015

### Date of mailing of the international search report
18 JUN 2015

Name and mailing address of the ISA/US
P.O. Box 1450, Alexandria, Virginia 22313-1450

Authorized officer:
Blaine R. Copenhaver
PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)
**INTERNATIONAL SEARCH REPORT**

### 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.: 21, 26, 49
   - 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:
   
   Claims 21, 26, and 49 are omnibus claims as they are drawn to subject matter "described herein."

3. ☒ Claims Nos.: 7-19, 35-47
   - 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.

Form PCT/ISA/210 (continuation of first sheet (2)) (July 2009)