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(12) **United States Patent**  
**Casteel et al.**

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(54) **SOLID FORMS OF AN ANTIVIRAL COMPOUND**

*A61K 31/7072* (2013.01); *C07F 9/65586* (2013.01); *C07H 19/06* (2013.01)

(71) Applicant: **Gilead Pharmasset LLC**, Foster City, CA (US)

(58) **Field of Classification Search**  
None  
See application file for complete search history.

(72) Inventors: **Melissa Jean Casteel**, Foster City, CA (US); **Kathleen Dashner**, Foster City, CA (US); **Hyuk-Jun Jung**, Shiheung-si (KR); **Mun Sik Seo**, Shiheung-si (KR); **Bing Shi**, Redwood City, CA (US); **Fang Wang**, Foster City, CA (US); **Vahid Zia**, Foster City, CA (US)

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(73) Assignee: **GILEAD PHARMASSET LLC**, Foster City, CA (US)

OTHER PUBLICATIONS

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

Int'l Search Report—Written Opinion Dated Jul. 2, 2015 For PCT/US2014/069123.

\* cited by examiner

(21) Appl. No.: **14/563,639**

*Primary Examiner* — Patrick Lewis

(22) Filed: **Dec. 8, 2014**

(57) **ABSTRACT**

(65) **Prior Publication Data**

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Crystalline solid forms of the anti-HCV compound (S)-isopropyl 2-((S)-(((2R,3R,4R,5R)-5-(2,4-dioxo-3,4-dihydropyrimidin-1(2H)-yl)-4-fluoro-3-hydroxy-4-methyltetrahydrofuran-2-yl)methoxy)(phenoxy)phosphorylamino)propanoate (Compound I) are described

**Related U.S. Application Data**

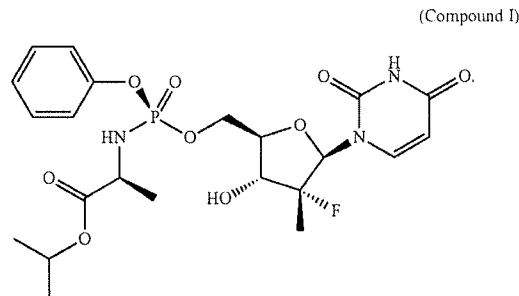
(60) Provisional application No. 61/920,371, filed on Dec. 23, 2013.

(51) **Int. Cl.**

*A01N 43/04* (2006.01)  
*A61K 31/70* (2006.01)  
*C07H 19/10* (2006.01)  
*A61K 31/7052* (2006.01)  
*A61K 31/7064* (2006.01)  
*A61K 31/706* (2006.01)  
*A61K 31/7068* (2006.01)  
*A61K 31/7072* (2006.01)  
*C07F 9/6558* (2006.01)  
*C07H 19/06* (2006.01)

(52) **U.S. Cl.**

CPC ..... *C07H 19/10* (2013.01); *A61K 31/706* (2013.01); *A61K 31/7052* (2013.01); *A61K 31/7064* (2013.01); *A61K 31/7068* (2013.01);



Also provided are processes of making and methods of using the crystalline forms.

**10 Claims, 10 Drawing Sheets**

Gilead 2005  
I-MAK v. Gilead  
IPR2018-00126

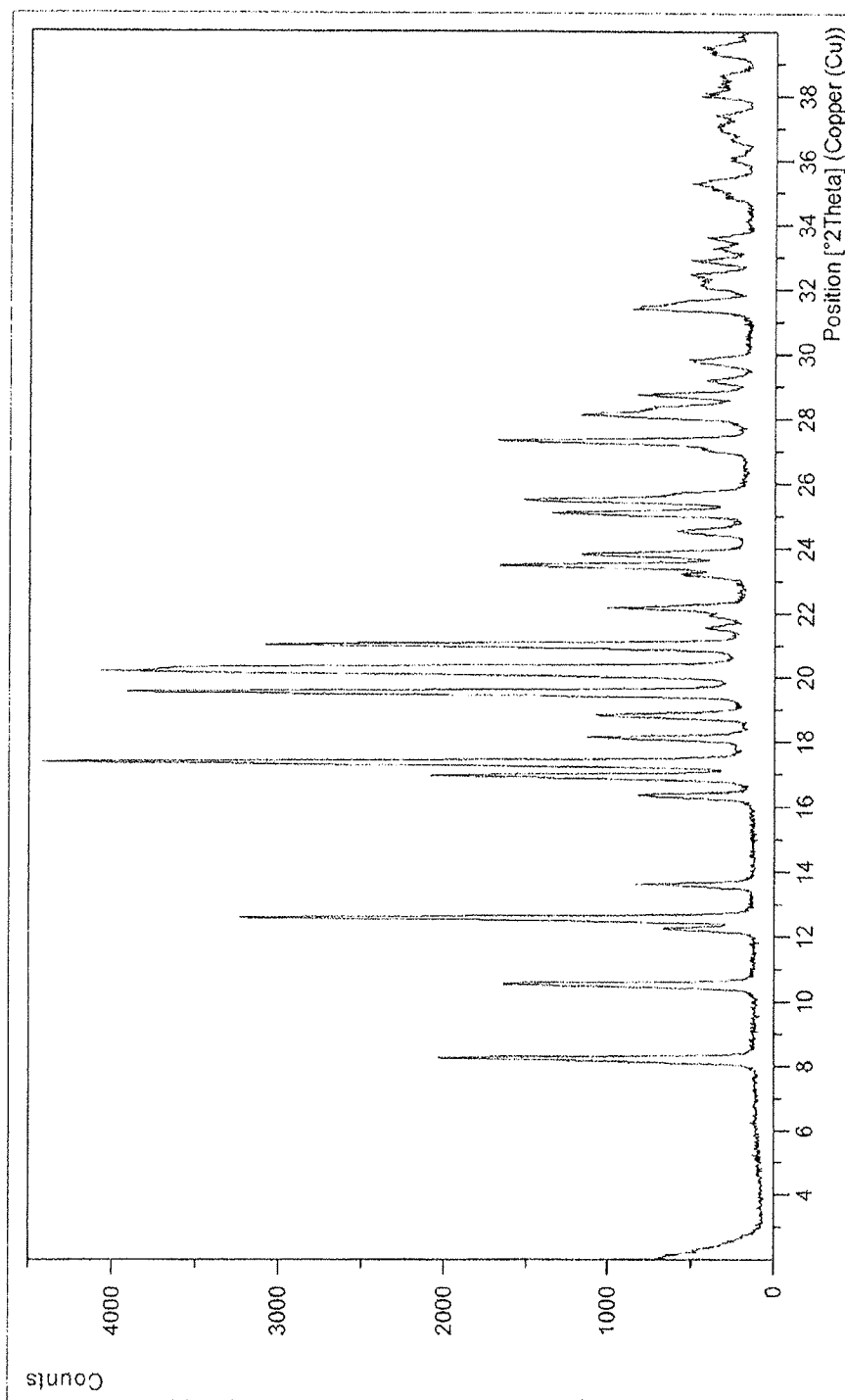


FIG 1

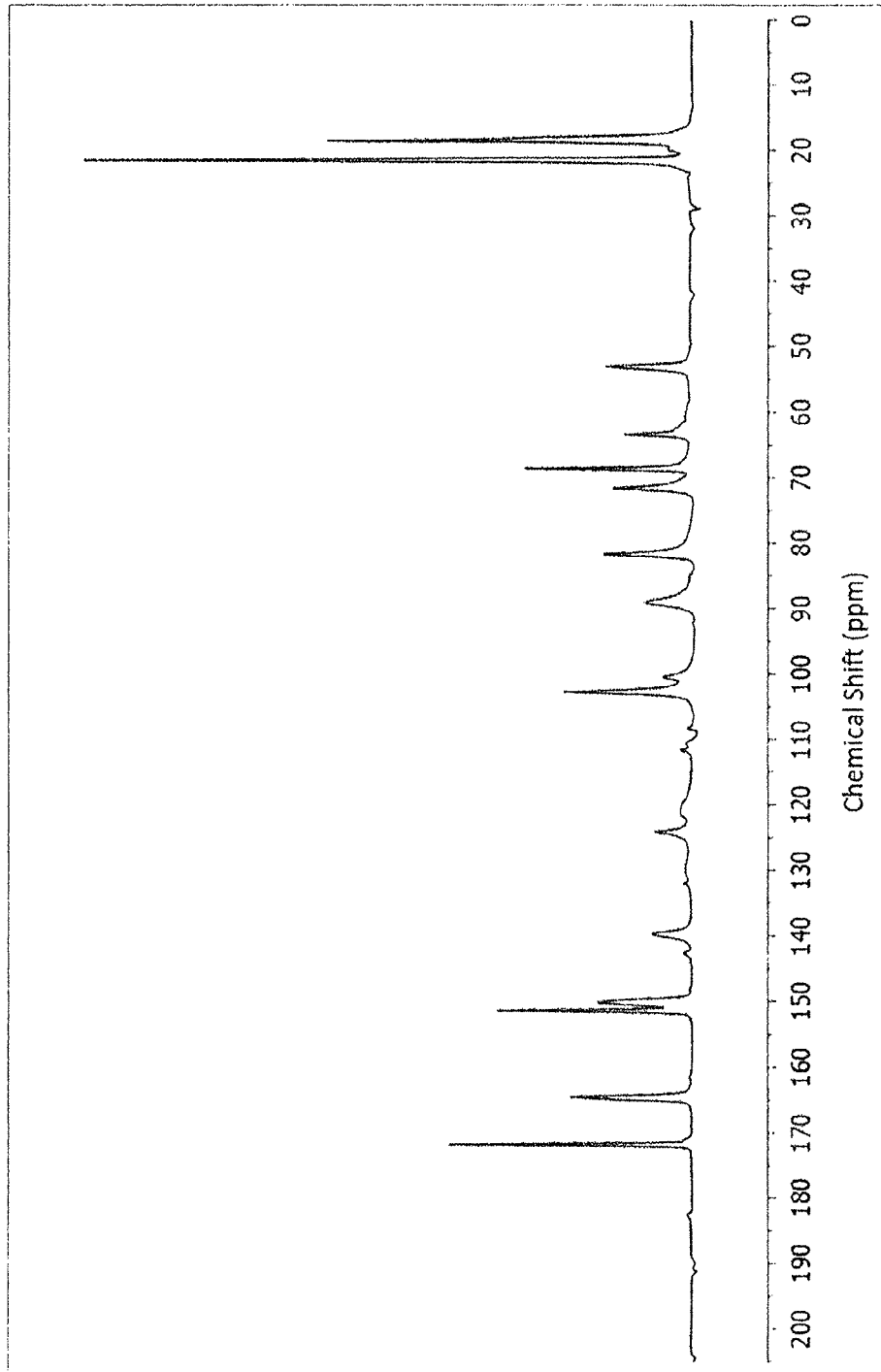


FIG 2

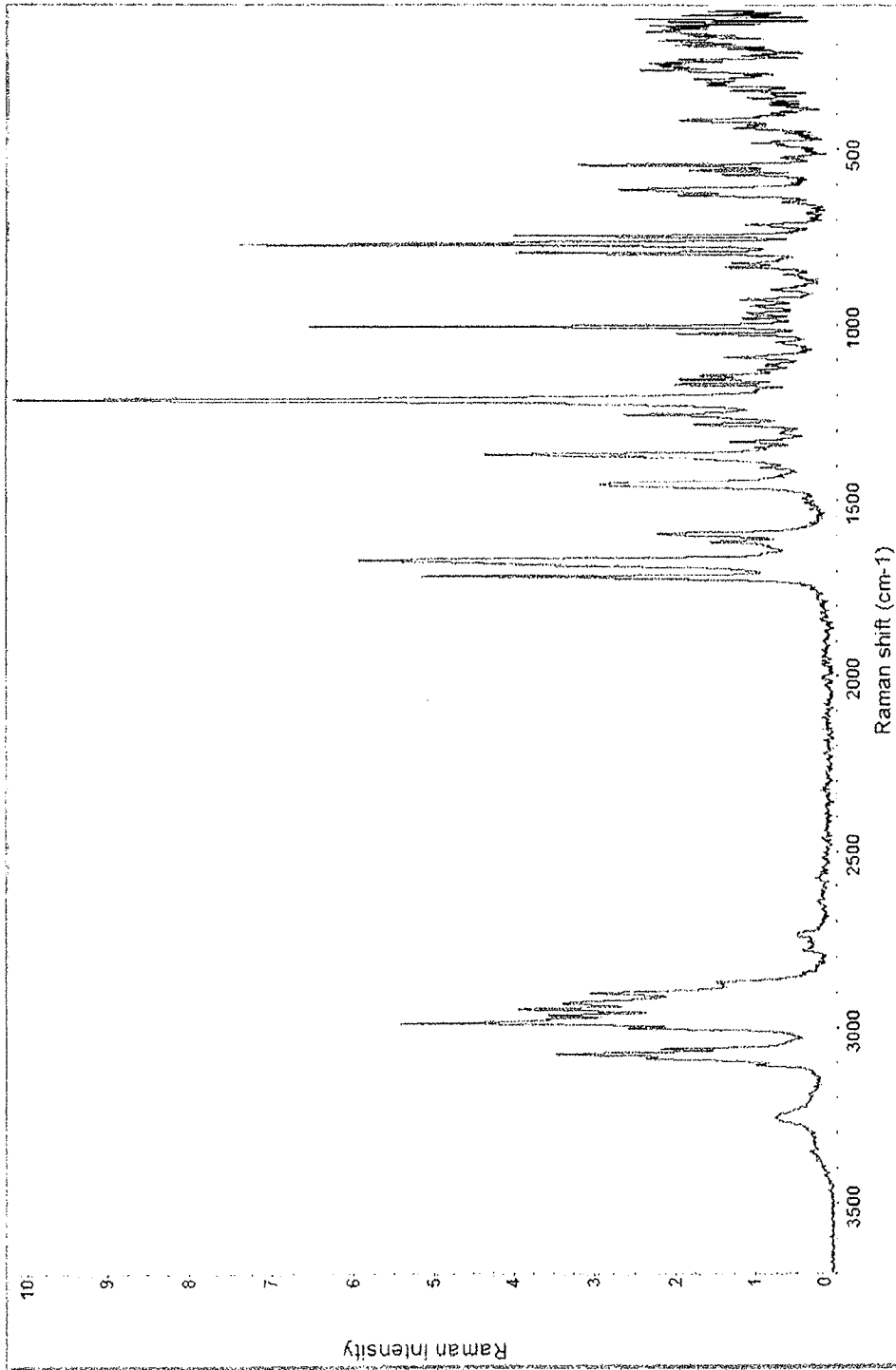


FIG 3

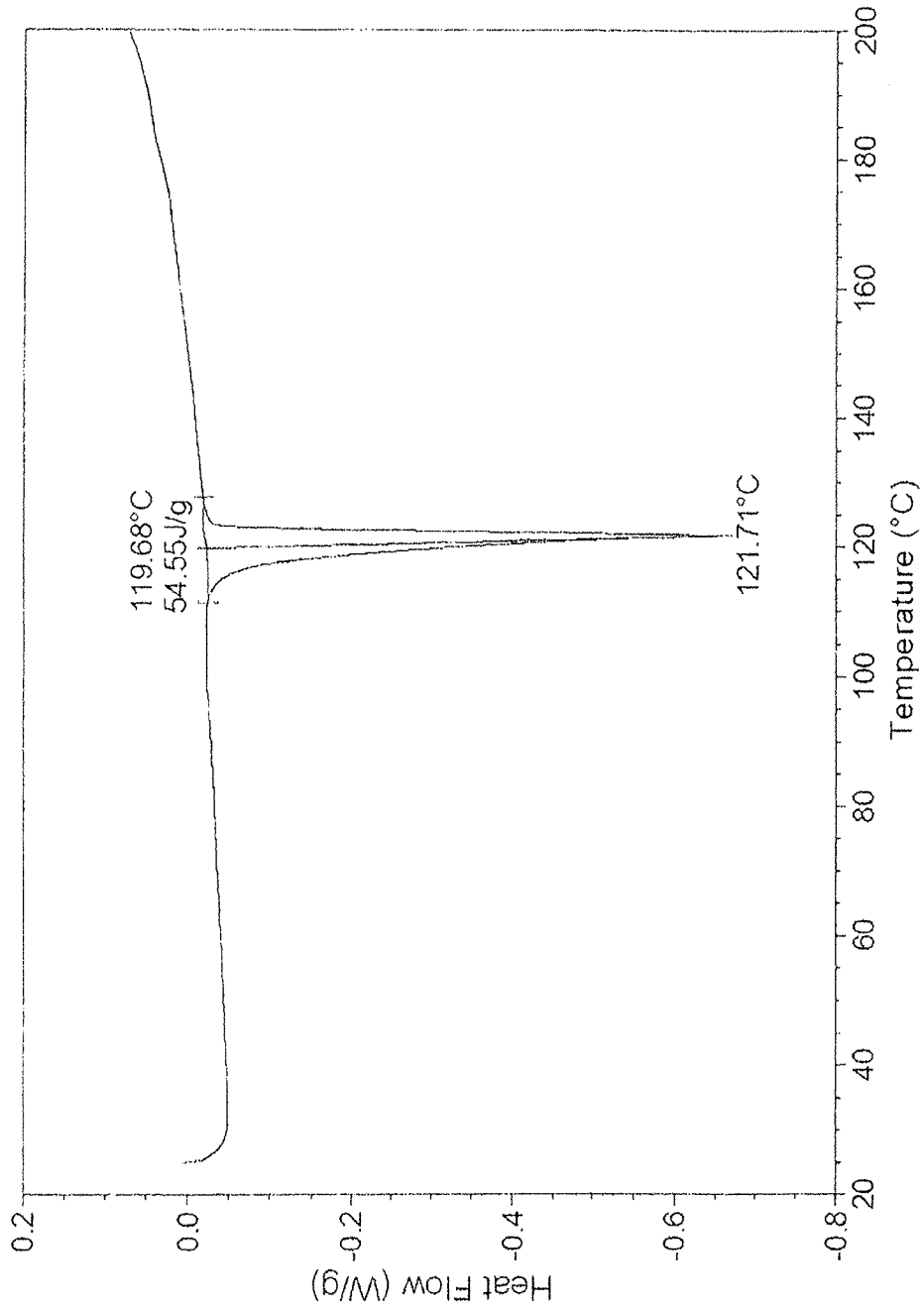


FIG 4

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