

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte HENRY WONG  
and  
MARK D. WHITTMAN

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Appeal No. 1996-2419  
Application No. 08/282,129<sup>1</sup>

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ON BRIEF

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Before WINTERS, WILLIAM F. SMITH and LIEBERMAN, Administrative Patent Judges.

WINTERS, Administrative Patent Judge.

DECISION ON APPEAL

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<sup>1</sup> Application for patent filed July 28, 1994.

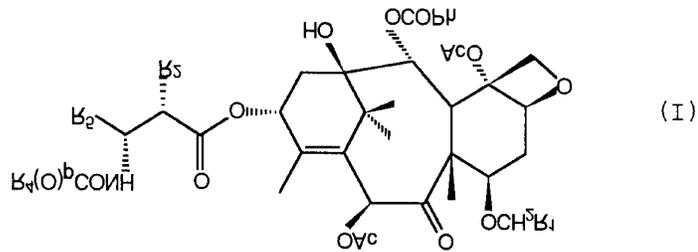
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This appeal was taken from the examiner's decision finally rejecting claims 1 through 23, which are all of the claims in the

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application. In the Examiner's Answer, paragraph bridging pages 2 and 3, the examiner withdrew all rejections of claims 5, 7, 9, and 12 through 19. This leaves for our review claims 1 through 4, 6, 8, 10, 11 and 20 through 23.

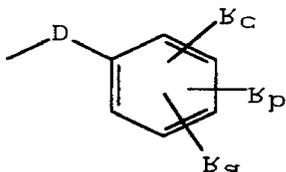
Claims 1, 22, and 23, which are illustrative of the subject matter appearing in the foregoing application, are set forth as follows:



1. A compound of the formula (I):

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wherein R<sup>1</sup> is hydrogen, C<sub>1-8</sub> alkyloxy, C<sub>2-8</sub> alkenyloxy, or C<sub>2-8</sub> alkynyloxy, each can be optionally substituted with hydroxy; R<sup>2</sup> is hydroxy, -OC(O)R<sup>x</sup> or -OC(O)OR<sup>x</sup>; R<sup>4</sup> and R<sup>5</sup> are independently C<sub>1-8</sub> alkyl, C<sub>2-8</sub> alkenyl, C<sub>2-8</sub> alkynyl, or -Z-R<sup>6</sup>; p is zero or one; Z is a direct bond, C<sub>1-8</sub> alkenediyl; R<sup>6</sup> is aryl, substituted aryl, C<sub>3-8</sub> heteroaryl; and R<sup>x</sup> is cycloalkyl or C<sub>1-8</sub> alkyl optionally substituted with one to six same or different halogen atoms, C<sub>3-8</sub> cycloalkyl or C<sub>2-8</sub> alkenyl; or R<sup>x</sup> is a radical of the formula



wherein D is a bond or C<sub>1-8</sub> alkyl; and R<sup>a</sup>, R<sup>b</sup> and R<sup>c</sup> are independently hydrogen, amino, C<sub>1-8</sub> alkylamino, di-C<sub>1-8</sub> alkylamino, halogen, C<sub>1-8</sub> alkyl, or C<sub>1-8</sub> alkyloxy.

22. A pharmaceutical composition which comprises an antitumor effective amount of a compound of claim 1 and a pharmaceutically acceptable carrier.



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meaning of 35 U.S.C. § 102(b). We answer that question in the negative.

For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference. Diversitech Corp. v. Century Steps Inc., 850 F.2d 675, 677, 7 USPQ2d 1315, 1317 (Fed. Cir. 1988); Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1379, 231 USPQ 81, 90 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987). That is not the case here. The examiner relies on Holton's description of intermediate compounds 6 in column 12, lines 20 through 38. Those compounds, however, are said to carry "a hydroxy protecting group" at the 7-position of the taxane molecule (see Holton's definition of T<sub>1</sub> in column 12, line 36). The generic expression "hydroxy protecting group" does not identically describe applicants' CH<sub>2</sub>R<sup>1</sup> groups attached at the 7-position of formula (I) in claim 1. Holton also describes triethylsilyl as exemplary of a hydroxy protecting group at the 7-position (column 11, lines 60 through 68). Again, "a triethylsilyl group" does not identically describe

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applicants'  $\text{CH}_2\text{R}^1$  groups attached at the 7-position of formula (I) in claim 1.

The examiner's rejection under 35 U.S.C. § 102(b) is reversed.

35 U.S.C. § 103

In setting forth the rejection of claims 1 through 4, 6, 8, 10, 11, and 20 through 23 under 35 U.S.C. § 103, the examiner begins with intermediate compounds 6 disclosed by Holton, column 12, lines 20 through 38 where the C-7 hydroxyl group is protected with triethylsilyl (see Holton, column 11, lines 60 through 68). According to the examiner, Greene discloses the art-recognized equivalence of triethylsilyl and various  $\text{CH}_2\text{R}^1$  groups attached at the 7-position of formula (I) in claim 1. The examiner argues that it would have been prima facie obvious "to modify the compound of Holton by replacing the prior art triethylsilyl group with the instant -  $\text{CH}_2\text{R}^1$  group as taught by Greene et al. to form the claimed invention" because the art recognized, at the time applicants' invention was made, that triethylsilyl and the aforementioned  $\text{CH}_2\text{R}^1$  groups

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are "interchangeable" hydroxy protecting groups. See the Examiner's Answer, paragraph bridging pages 3 and 4. The argument lacks merit.

First, the examiner relies on pages 10 through 12 of Greene. Those pages, as well as page 13 furnished by the applicants, provide no textual description whatsoever. Rather, pages 10 through 13 form part of Greene's Table of Contents and list a large number of hydroxy protecting groups for use in organic synthesis. Given only the information imparted by Greene, a person having ordinary skill in the art would not have considered triethylsilyl and applicants'  $\text{CH}_2\text{R}^1$  groups "interchangeable" for the purposes described by Holton in column 11, lines 60 through 68. In this regard, Holton discloses that triethylsilyl attached at the 7-position of the taxane molecule is "then hydrolyzed under mild conditions so as not to disturb the ester linkage or the taxane substituents" (Holton, column 11, lines 65 through 68). In our judgment, given the limited quantum of information imparted by Greene, a person having ordinary skill would not have recognized that triethylsilyl and applicants'  $\text{CH}_2\text{R}^1$  groups

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hydrolyze under mild conditions in the manner disclosed by Holton. Rather, this rejection relies on the impermissible use of hindsight by selecting applicants'  $\text{CH}_2\text{R}^1$  groups from a long list in Greene's Table of Contents, and equating those groups with triethylsilyl, using applicants' specification as a blueprint or guide.

Second, as pointed out in the Appeal Brief, page 6, it is well known that not all hydroxy protecting groups are "interchangeable." With respect to the chemistry of Taxol® and related taxoids, the most commonly used protecting groups are triethylsilyl, 2,2,2-trichloroethyloxycarbonyl (Troc) and acetate groups, which can be removed under mild conditions. Even with those groups, however, care must be exercised during the removal. See APPENDIX V attached to the Appeal Brief, page 297, last full paragraph. In light of applicants' argument in the Appeal Brief, page 6, supported by the teaching in APPENDIX V, page 297, we believe that the preponderance of evidence rebuts the examiner's position. The examiner's position to the contrary, notwithstanding, the preponderance of evidence indicates that triethylsilyl and applicants'  $\text{CH}_2\text{R}^1$

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groups would not have been recognized as "interchangeable" at the time the invention was made, i.e., hydrolyzable under mild conditions in the manner taught by Holton in column 11, lines 60 through 68.

The examiner's rejection under 35 U.S.C. § 103 is reversed.

#### CONCLUSION

In conclusion, for the reasons set forth in the body of this opinion, we do not sustain the examiner's rejection of claims 1 through 4, 6, 8, 10, 11, and 20 through 22 under 35 U.S.C. § 102(b) as anticipated by Holton. Nor do we sustain the rejection of claims 1 through 4, 6, 8, 10, 11, and 20 through 23 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Holton and Greene.

The examiner's decision is reversed.<sup>2</sup>

#### REVERSED

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<sup>2</sup> In view of our disposition of this appeal, we find it unnecessary to discuss whether Holton's intermediate compounds 6 distinguish from the claimed compounds at the 2N position of the taxane molecule; or whether Holton discloses or suggests that intermediate compounds 6 possess pharmaceutical activity.

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SHERMAN D. WINTERS	)	
Administrative Patent Judge	)	
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WILLIAM F. SMITH	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
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