

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TIRUVETTIPURAM K. THIRUVENGADAM, CHOU-HONG TANN,  
JUNNING LEE, TIMOTHY MCALLISTER, CESAR COLON,  
DEREK H. R. BARTON, RONALD BRESLOW and ANANTHA SUDHAKAR

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Appeal No. 1996-2308  
Application 08/179,008<sup>1</sup>

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ON BRIEF

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Before PAK, WARREN and OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This is an appeal from the examiner's final rejection of

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<sup>1</sup> Application for patent filed January 7, 1994. According to the appellant, the application is a division of Application 07/962,768, filed October 19, 1992; which is a continuation-in-part of Application PCT/US92/05972, filed July 21, 1992, which is a continuation-in-part of Application 07/734,652, filed July 23, 1991, now abandoned; which is a continuation-in-part of Application 07/734,426, filed July 23, 1991, now abandoned.

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claims 1, 3, 5, 7, 9, 12 and 13. Claim 6, which was omitted from the final rejection, was added to the rejections in the examiner's answer.<sup>2</sup> These are all of the claims remaining in the application.

#### *THE INVENTION*

Appellants claim a process for producing a chiral compound having a recited formula. Appellants state that the compound is useful as a hypocholesterolemic agent and as an intermediate for the synthesis of penems (specification, page 1, lines 9-11). Claim 1 is illustrative and is appended to this decision.

#### *THE REJECTIONS*

Claims 1, 3, 5-7, 9, 12 and 13 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement, and under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the invention.

#### *OPINION*

We have carefully considered all of the arguments

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<sup>2</sup>Because appellants include claim 6 in their discussion of the rejections in their brief, we consider the rejections of this claim as set forth in the answer to be before us.

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advanced by appellants and the examiner and agree with appellants that the aforementioned rejections are not well founded. Accordingly, we do not sustain these rejections.

*Rejection under 35 U.S.C. § 112, second paragraph*

The relevant inquiry under 35 U.S.C. § 112, second paragraph, is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of appellants' specification and the prior art, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. See *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

The examiner points out (answer, page 3) that in each of appellants' independent claims 1 and 6, the hydroxyamide can be cyclized by treating it with:

(ii) a di- or tri-chlorobenzoylchloride, an aqueous solution of a base and a phase transfer catalyst; or

(iii) a di- or tri-chlorobenzoylchloride, an aqueous solution of a base and a phase transfer catalyst, isolating the resulting di- or tri-chlorobenzoate intermediate, then treating the intermediate with an aqueous solution of a base and a phase transfer

catalyst;<sup>[3]</sup>

The examiner argues that in (ii), the di- or tri-chlorobenzoylchloride, base and catalyst produce a final product, whereas in (iii) they produce an intermediate rather than a final product (answer, page 3). Thus, the examiner argues, there must be some difference between the treatments with the di- or tri-chlorobenzoylchloride, base and catalyst in (ii) and (iii), and because the claims fail to particularly point out this distinction, a rejection under 35 U.S.C. § 112, second paragraph, is proper (answer, pages 3-4).

The examiner's argument is deficient in that the examiner has not explained why the language in either (ii) or (iii), as it would have been interpreted by one of ordinary skill in the art in light of appellants' specification and the prior art, fails to set out and circumscribe a particular area with a

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<sup>3</sup>There is no issue in this case regarding treatment with "(v) a di- or tri-chlorobenzoyl chloride and a metal hydride" as recited in each of claims 1 and 6.

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reasonable degree of precision and particularity. The examiner's assertion that the treatment with the di- or tri-chlorobenzoylchloride, base and catalyst produce a final product in the one-step process (ii) and an intermediate in the two-step process (iii) is not such an explanation.

Appellants argue that one of ordinary skill in the art would have interpreted the recited one-step process (ii) as a process in which the di-or tri-chlorobenzoate intermediate is formed under conditions in which it is unstable with respect to cyclization and undergoes spontaneous cyclization to form the azetidinone, and would have interpreted the two-step process (iii) as one in which the intermediate is formed under conditions which allow its isolation, and the isolated intermediate is subsequently treated to bring about the cyclization (brief, page 13). This is a plausible argument which the examiner has not rebutted with evidence or technical

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reasoning.

For the above reasons, we do not sustain the rejection under 35 U.S.C. § 112, second paragraph.

*Rejection under 35 U.S.C. § 112, first paragraph*

A specification complies with the 35 U.S.C. § 112, first paragraph, enablement requirement if it allows those of ordinary skill in the art to make and use the claimed invention without undue experimentation. See *In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); *Atlas Powder Co. v. E.I. du*

*Pont De Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984). As stated by the court in *Wright*, 999 F.2d at 1561-62, 27 USPQ2d at 1513:

Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples. [Citation omitted.]

When rejecting a claim under the enablement requirement of section 112, the PTO bears an initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection

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provided by that claim is not adequately enabled by the description of the invention provided in the specification of the application; this includes, of course, providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement. If the PTO meets this burden, the burden then shifts to the applicant to provide suitable proofs indicating that the specification is indeed enabling. [Citation omitted.]

The examiner argues that appellants' specification provides no guidance as to how to carry out the one-step process (answer, pages 4 and 6). Specifically, the examiner argues that the specification does not disclose what combination of solvent, quantities of base and phase transfer catalyst, and composition of the base are required (answer, pages 5 and 8).

To establish a *prima facie* case of lack of enablement, it is not sufficient for the examiner to merely state what appellants' specification does not disclose. The examiner must provide sufficient reasons for doubting appellants' assertion in their specification (page 8, lines 27-32) that

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the hydroxyamide can be cyclized by the one-step (ii) process discussed above. The examiner has provided no evidence or reasoning which shows that appellants' assertion is incorrect, i.e., which shows that given appellants' specification, one of ordinary skill in the art could not have carried out appellants' one-step (ii) process without undue experimentation. Thus, the burden has not shifted to appellants to provide proof that the specification is enabling.

Accordingly, we do not sustain the rejection under 35 U.S.C. § 112, first paragraph.

*DECISION*

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The rejections of claims 1, 3, 5-7, 9, 12 and 13 under 35 U.S.C. § 112, first paragraph, for lack of enablement, and under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the invention, are reversed.

*REVERSED*

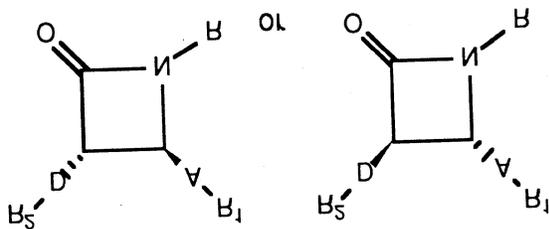
CHUNG K. PAK	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
CHARLES F. WARREN	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
TERRY J. OWENS	)	
Administrative Patent Judge	)	

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APPENDIX

1. A  
productin  
of the



process for  
g a chiral compound  
formula

wherein

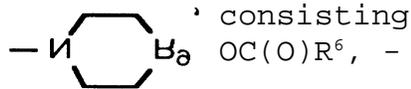
R is phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl and W-substituted benzofused heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furnayl, and for nitrogen-containing heteroaryls, the N-oxides thereof;

R<sup>1</sup> and R<sup>2</sup> are independently selected from H or R;

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, alkoxyalkonylalkoxy, (lower alkoxyimino)-lower alkyl, lower alkanedioyl, lower alkyl lower alkanedioyl, allyloxy,

-CF<sub>3</sub>, -OCF<sub>3</sub>, benzyl, R<sup>3</sup>-benzyl, benzyloxy, R<sup>3</sup>-benzyloxy, phenoxy, R<sup>3</sup>-phenoxy, dioxolanyl, NO<sub>2</sub>, NR<sup>4</sup>R<sup>5</sup>(lower alkyl)-, NR<sup>4</sup>R<sup>5</sup>(lower alkoxy)-, OH, halogeno, -NHC(O)OR<sup>6</sup>, -NHC(O)R<sup>6</sup>, R<sup>7</sup>O<sub>2</sub>SNH-, (R<sup>7</sup>O<sub>2</sub>S)<sub>2</sub>N-, -S(O)<sub>2</sub>NH<sub>2</sub>, -S(O)<sub>0-2</sub>R<sup>4</sup>, tert-butyldimethylsilyloxymethyl,

A and D are independently a bond; C<sub>3</sub>-C<sub>6</sub> cycloalkylene; C<sub>1</sub>-C<sub>10</sub> alkylene; C<sub>1</sub>-C<sub>10</sub> alkenylene; C<sub>1</sub>-C<sub>10</sub> alkynylene; and alkylene, alkenylene or alkynylene chain as defined substituted by one or more substituents independently selected from the group consisting of phenyl, W-substituted phenyl, heteroaryl and W-substituted heteroaryl, wherein heteroaryl is as defined above; an alkylene, alkenylene or alkynylene chain as defined interrupted by one or more groups independently selected from the group consisting of -O-, -S-, -SO-, -SO<sub>2</sub>-, -NR<sub>8</sub>, -C(O)-, C<sub>3</sub>-C<sub>6</sub> cycloalkylene, phenylene, W-substituted phenylene, heteroarylene and W-substituted heteroarylene; or an interrupted alkylene, alkenylene or alkynylene chain as defined substituted by one or more substituents independently selected from the group consisting of phenyl, W-substituted phenyl, heteroaryl and W-substituted heteroaryl; of R<sup>2</sup>-D is selected from the group consisting of halogeno, OH, lower alkoxy, -NR<sup>4</sup>R<sup>5</sup>, -SH and -S(lower alkyl);

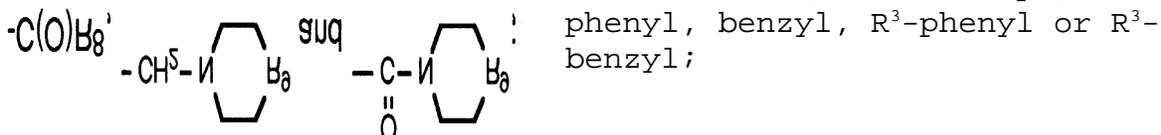


R<sup>3</sup> is 1-3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, -COOH, NO<sub>2</sub>, -NR<sup>4</sup>R<sup>5</sup>, OH or halogeno;

R<sup>4</sup> and R<sup>5</sup> are independently selected from H and lower alkyl;

R<sup>6</sup> is lower alkyl, phenyl, R<sup>3</sup>-phenyl, benzyl or R<sup>3</sup>-benzyl;

R<sup>7</sup> is OH, lower alkyl,



R<sup>8</sup> is H, OH, alkoxy, phenoxy, benzyloxy, -NR<sup>4</sup>R<sup>5</sup>, lower alkyl, phenyl or R<sup>3</sup>-phenyl;

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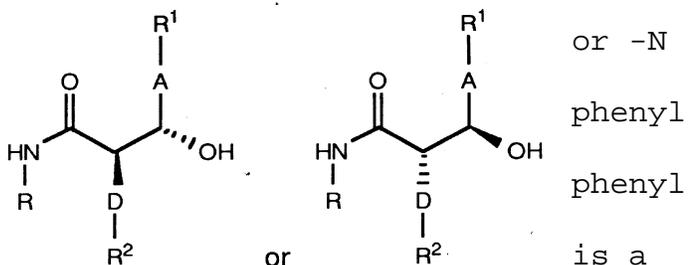
$R^9$  is -O-, -CH<sub>2</sub>-, -NH-  
 (lower alkyl)-;

$R^{10}$  is H, lower alkyl,  
 lower alkyl or -C(O) $R^{11}$ ;

$R^{11}$  is H, lower alkyl,  
 or phenyl lower alkyl;

provided that when A  
 bond,  $R^1$  is not H, and

ed that when  $R^1$  is W-substituted phenyl, W is not p-halogeno;  
 comprising cyclizing a hydroxyamide of the formula



or -N  
 phenyl  
 phenyl  
 is a  
 provid

wherein D, A,  $R^1$ ,  $R^2$  and R are as defined above, by  
 treating with:

(ii) a di- or tri-chlorobenzoyl chloride, an aqueous  
 solution of a base and a phase transfer catalyst; or

(iii) a di- or tri-chlorobenzoyl chloride, an aqueous  
 solution of a base and a phase transfer catalyst, isolating  
 the resulting di- or tri-chlorobenzoate intermediate, then  
 treating the intermediate with an aqueous solution of a base  
 and a phase transfer catalyst; or

(v) a di- or tri-chlorobenzoyl chloride and a metal  
 hydride.