

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte PAUL D. HOEPRICH JR.

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Appeal No. 2001-0889  
Application No. 08/459,086

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ON BRIEF

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Before WINTERS, GRIMES, and GREEN, Administrative Patent Judges.

GRIMES, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 7-12, 18-22, 31, and 32, all of the claims remaining.

Claims 7 and 18 are representative and read as follows:

7. Polyclonal or monoclonal antibodies having binding affinity for peptides of the following amino acid sequence:

X-AA<sub>1</sub>-Pro-Glu-Glu-AA<sub>2</sub>-AA<sub>3</sub>-Gln-AA<sub>4</sub>-Y

where X is NH<sub>2</sub> or an amino acid sequence up to 10 amino acids long, selected in sequence from the following sequence:

Tyr-Cys-Leu-Lys-Asp- Arg-Met-Asn-Phe-Asp-;

Y is COOH or an amino acid sequence up to 13 amino acids long, selected in sequence from the following sequence:

-Gln-Gln-Phe-Gln-Lys-Glu-Asp-Ala-Ala-Leu-Thr-Ile-Tyr ;

AA<sub>1</sub> is Ile, Phe, Leu, Val, Arg, Tyr, or NorLeu;

AA<sub>2</sub> is Ile, Leu, Arg, Val, or NorLeu;

AA<sub>3</sub> is Lys, Ile, Leu, Arg, Val, or NorLeu; and

AA<sub>4</sub> is Leu, Phe, Tyr, Ile, Val, Arg or Met.

18. A method for detecting IFN- $\beta$  comprising:

A) contacting a sample of body fluid from the host with polyclonal or monoclonal antibodies having binding affinity for peptides of the following amino acid sequence:

X - AA<sub>1</sub> - Pro - Glu - Glu - AA<sub>2</sub> - AA<sub>3</sub> - Gln - AA<sub>4</sub> - Y

where X is NH<sub>2</sub> or an amino acid sequence up to 10 amino acids long, selected in sequence from the following sequence:

Tyr-Cys-Leu-Lys-Asp- Arg-Met-Asn-Phe-Asp-;

Y is COOH or an amino acid sequence up to 13 amino acids long, selected in sequence from the following sequence:

-Gln-Gln-Phe-Gln-Lys-Glu-Asp-Ala-Ala-Leu-Thr-Ile-Tyr ;

AA<sub>1</sub> is Ile, Phe, Leu, Val, Arg, Tyr, or NorLeu;

AA<sub>2</sub> is Ile, Leu, Arg, Val, or NorLeu;

AA<sub>3</sub> is Lys, Ile, Leu, Arg, Val, or NorLeu; and

AA<sub>4</sub> is Leu, Phe, Tyr, Ile, Val, Arg or Met; and

B) determining the level of binding of said antibodies to IFN- $\beta$  as diagnostic of the presence of IFN- $\beta$ .

The examiner relies on the following references:

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6,010,864

Jan. 04, 2000

Chow et al. (Chow), "Antibodies to Synthetic Peptides of Human Interferon- $\beta$ ," Journal of Biological Chemistry, Vol. 259, No. 19, pp. 12220-12225 (1984)

Kawade et al. (Kawade), "The nature of neutralization reaction between effector protein and monoclonal antibody: a quantitative study of neutralization characteristics of anti-interferon antibodies," Immunology, Vol. 56, pp. 489-495 (1985)

Claims 7-12, 18-22, 31, and 32 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement.

Claims 7-9, 11, 12, 18, 19, 21, 22, 31, and 32 stand rejected under 35 U.S.C. § 102(b) as anticipated by Chow.

Claims 7-9, 11, 12, and 31 stand rejected under 35 U.S.C. § 102(b) as anticipated by Kawade.

We reverse the enablement rejection, affirm the rejection based on Chow, and do not reach the rejection based on Kawade.

#### Background

"Human interferons (IFN's) are members of a biologically potent family of cytokines." Specification, page 1. The specification discloses "synthetic peptides which represent epitopic sites on both natural and recombinant human IFN- $\beta$  (HuIFN- $\beta$ )." Page 2. "Antibodies raised to or having specific binding affinity for the peptides . . . can be used to detect and monitor levels of IFN- $\beta$  in patients during the course of treatment." Id.

#### Discussion

Claims 7-12 and 31 are directed to antibodies having binding affinity for peptides corresponding to a particular IFN- $\beta$  peptide, optionally with one of several substitutions at each of several positions. Claims 18-22 and 32 are directed to a method of detecting IFN- $\beta$  using these antibodies. The examiner

rejected all of the claims as nonenabled and rejected some of the claims as anticipated.

### 1. Enablement

The examiner rejected the claims on the basis that the specification “is enabling only for claims limited [to] antibodies which specifically bind disclosed epitopes and have been shown to be antigenic or where specific guidance has been provided to show that alterations of the epitope would be antigenic given the changes claimed.” Examiner’s Answer, page 4. The examiner’s principal concern seems to be that the redundant peptide sequence recited in the claims includes what she characterizes as “non-conservative substitutions.” See the Examiner’s Answer, pages 5-6:

[T]he specification must provide some guidance as to how to make peptides which will be recognized as foreign and will generate antibodies given the proposed changes to an epitope. As the claims embrace discrete non-conservative substitutions, it is not reasonable to expect the epitope to evidence the same activity for the generation of antibodies. The use of non-conservative substitutions would very likely abolish activity of the peptide to generate antibodies to this location and would be expected to not conserve the activity of the original sequence.

The examiner concludes that “[i]t would therefore require undue experimentation to obtain antibodies to epitopes, which are significantly dissimilar, from the naturally occurring peptide which has be[en] shown to generate antibodies.” Examiner’s Answer, page 7.

Appellant argues that “given the teachings of the Specification, the experimentation required by one skilled in the art to identify functional antibodies would not be undue, but rather would merely encompass routine screening.”

Appeal Brief, page 8. Appellant notes that the specification provides guidance regarding how to make the recited peptides and how to raise antibodies.

According to Appellant, the specification “provides the information necessary to enable the skilled worker to routinely and without undue experimentation make and screen antibodies for the detection of IFN- $\beta$ .” Appeal Brief, page 9.

“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 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.” In re Wright, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

As we understand it, the examiner’s position is that the claims encompass antibodies to peptides having non-conservative substitutions with respect to the naturally occurring  $\beta$ -interferon sequence, and such substitutions “would very likely abolish activity of the peptide to generate antibodies.” Therefore, she concluded that the claims encompass inoperative embodiments and undue experimentation would be required to practice their full scope.

The examiner has not met the initial burden of showing nonenablement. First, the examiner has provided no evidence or scientific reasoning to support her position that certain peptides recited by the claims would be “very likely” to be ineffective in raising antibodies. The specification states that the peptides recited

in the claims “represent epitopic sites on both natural and recombinant human IFN- $\beta$  (HuIFN- $\beta$ ),” page 2, and that “[a]ntibodies raised to or having specific binding affinity for the peptides . . . can be used to detect and monitor levels of IFN- $\beta$  in patients during the course of treatment.” Id. The examiner has provided no evidence to the contrary.

“[A] specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph of § 112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.” In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971), emphasis in original. “[It] is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement.” Id. at 224, 169 USPQ at 370. Here, the examiner has not provided “acceptable evidence or reasoning which is inconsistent” with the specification, and therefore has not met the initial burden of showing nonenablement.

In addition, the fact that the claims may encompass inoperative embodiments is not enough, by itself, to show nonenablement. See Atlas Powder Co. v. E.I. Du Pont De Nemours & Co., 750 F.2d 1569, 1576, 224 USPQ 409, 414 (Fed. Cir. 1984) (“Even if some of the claimed combinations were

inoperative, the claims are not necessarily invalid. 'It is not a function of the claims to specifically exclude \* \* \* possible inoperative substances \* \* \*' In re Dinh-Nguyen, 492 F.2d 856, 858-59, 181 USPQ 46, 48 (CCPA 1974)."). In such a case, the burden is on the examiner to show that the claims are nonenabled because "the number of inoperative combinations [is] significant, and in effect forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention." Id. That has not been shown. The rejection under 35 U.S.C. § 112, first paragraph, is reversed.

## 2. Anticipation

The examiner rejected claims 7-9, 11, 12, 18, 19, 21, 22, 31, and 32 under 35 U.S.C. § 102(b) as anticipated by Chow. Appellant has not stated that the claims subject to this rejection should be considered separately, nor has he presented separate arguments. Therefore, the claims stand or fall together and we have considered claim 7 to be representative. See 37 CFR § 1.192(c)(7).

Claim 7 is directed to antibodies (either polyclonal or monoclonal) that have "binding affinity" for a peptide of a particular redundant sequence. As the examiner notes, Chow discloses antibodies to a synthetic peptide corresponding to amino acids 18-45 of human IFN- $\beta$ . See page 12220, right-hand column. Chow's peptide comprises a sequence corresponding to most of the peptide of claim 7 where X is the full, 10-amino acid recited sequence, AA1 is Ile, AA2 is Ile, and AA3 is Lys. Chow's peptide differs from the peptide recited in claim 7 in that it includes an additional 12 amino acids at the N-terminus and is missing the C-terminal Gln and AA4 residues.

We agree with the examiner that Chow anticipates the rejected claims. The peptide used by Chow is not precisely the same as the peptide recited in the instant claims, in that it has an additional 12 amino acids at one end and is missing two amino acids from the other end. However, the two peptides share 16 amino acids of exactly matching sequence. Thus, the common amino acid sequence represents 16/28 (57%) of Chow's peptide and 16/18 (89%) of the peptide recited in the instant claims. Based on this high degree of sequence identity, a person skilled in the art would expect that the antibodies disclosed by Chow would have the property of binding to the peptide recited in the instant claims. We conclude that a preponderance of the evidence shows that Chow's antibodies would inherently meet the claim limitation of "having binding affinity" for the peptide recited in the instant claims.

"In response to the PTO's asserted prima facie case the applicant may argue that the inference of lack of novelty was not properly drawn, for example if the PTO did not correctly apply or understand the subject matter of the reference, or if the PTO drew unwarranted conclusions therefrom. However, when the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not."

In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

"When the claimed compositions are not novel they are not rendered patentable by recitation of properties, whether or not these properties are shown or suggested in the prior art." Id. at 709, 15 USPQ2d at 1658.

Appellant argues that

the claimed antibodies . . . are raised to peptides which contain, in addition to some overlap with the amino acid sequence used by Chow et al., at least amino acids 46 and 47 (if not more) at the C-terminal end. . . . [T]he presence of other amino acids at the C-terminal end of the peptides used for antibody generation could produce altered three-dimensional conformations within the peptides, leading to the presentation of different epitopes, and thus antibodies with different binding specificities.

Appeal Brief, page 10 (emphasis in original).

This argument is not persuasive. Granted, the presence of additional amino acids could lead to the presence of other epitopes and produce antibodies with different binding specificities. But where, as here, the peptides in question share a high degree of identical sequence, those skilled in the art would reasonably expect that antibodies that bound one of them would bind the other as well. Appellant has presented no evidence to the contrary, and “[a]ttorney’s argument in a brief cannot take the place of evidence.” In re Pearson, 494 F.2d 1399, 1405, 181 USPQ 641, 646 (CCPA 1974).

Appellant also argues that “the antibodies of the claimed invention and those described in Chow et al. can be clearly distinguished by their neutralizing capabilities.” Appeal Brief, page 10 (emphasis in original). That is, the antibodies disclosed by Chow bind to IFN- $\beta$  but do not neutralize its activity, whereas “the antibodies of the claimed invention, as described throughout the specification, possess neutralizing activity toward IFN- $\beta$ .” Id., page 11 (emphasis in original). Appellant concedes that claim 7 does not expressly limit the claimed

antibodies to those having neutralizing activity,<sup>1</sup> but argues that the claim would be so understood when read in light of the specification. See id.

We disagree with Appellant's interpretation of the claims. The claim language requires only that the antibodies have "binding affinity" for the recited peptides. The specification does not define "binding affinity" for an IFN- $\beta$ -derived peptide to also require neutralizing the activity of IFN- $\beta$ . "Without evidence in the patent specification of an express intent to impart a novel meaning to a claim term, the term takes on its ordinary meaning." Optical Disc Corp. v. Del Mar Avionics, 208 F.3d 1324, 1334, 54 USPQ2d 1289, 1295 (Fed. Cir. 2000). Thus, the phrase "binding affinity" is given its ordinary meaning – claim 7 encompasses antibodies that bind to the recited peptides with any degree of affinity, and is not limited to those that bind with sufficient affinity to neutralize the activity of IFN- $\beta$ .

The examiner also rejected claims 7-9, 11, 12, and 31 as anticipated by Kawade. We have concluded, supra, that all of these claims are unpatentable under 35 U.S.C. § 102(b) because they are anticipated by Chow. We therefore need not consider whether they are also anticipated by Kawade.

#### Other Issues

##### 1. Amendments to the specification

During prosecution, Appellant requested certain amendments to the specification, which the examiner refused to enter on the basis that the amendments were new matter. See, e.g., Paper No. 6, filed June 2, 1995

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<sup>1</sup> "Appellants [sic], in an Amendment after Final . . . , amended Claims 7 and 18, so that they would contain language describing the antibodies as having neutralizing activity against IFN- $\beta$ . This Amendment was not entered by the Examiner." Appeal Brief, page 11.

(requesting amendment of, inter alia, pages 5 and 12 of the specification) and Paper No. 8, mailed Dec. 24, 1996 (refusing to enter the amendments to pages 5 and 12). In the Appeal Brief, Appellant argues that the requested amendments are not new matter and therefore the refusal to enter the amendments was improper. See pages 4-7. The examiner responded to Appellant's argument in the Examiner's Answer. See pages 7-8.

We decline to address this issue because we have no jurisdiction to do so. The amendments that are allegedly new matter concern only the specification; the claims have not been rejected on the basis of new matter or lack of written description. Therefore, the new matter issue can only be reviewed via petition, not appeal. See MPEP § 2163.06:

#### I. TREATMENT OF NEW MATTER

If new matter is added to the disclosure . . . , the examiner should object to the introduction of new matter under 35 U.S.C. 132 or 251 as appropriate, and require applicant to cancel the new matter. If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph – written description requirement. . . .

. . .

#### II. REVIEW OF NEW MATTER OBJECTIONS AND/OR REJECTIONS

A rejection of claims is reviewable by the Board of Patent Appeals and Interferences, whereas an objection and requirement to delete new matter is subject to supervisory review by petition under 37 CFR 1.181. If . . . there has been both a rejection and objection by the examiner, the issue becomes appealable.

We note that Appellant petitioned the refusal of the examiner to enter a proffered amendment-after-final, which again presented the amendments that the examiner had denied entry. See Paper No. 14, filed April 3, 1998. The petition

was denied based on amendments requested in the claims. See Paper No. 15, mailed May 14, 1998. The record does not show that the specification amendments, by themselves, have been the subject of a petition.

## 2. U.S. Patent 6,010,864

A continuation of the present application has issued as U.S. Patent 6,010,864. The claims of the '864 patent are very similar to the claims of the present application. For example, claim 1 of the '864 application appears to be directed to antibodies having the same binding affinity as the instantly claimed antibodies, although the '864 patent also requires that the antibodies be "[m]onoclonal antibodies having neutralizing activity against IFN- $\beta$ ."

On return of this application, and if the application is re-filed or subject to further prosecution, the examiner should consider whether the instant claims are patentably distinct from the claims of the '864 patent. In this regard, we note that "[a] later . . . claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or anticipated by, the earlier claim." Eli Lilly & Co. v. Barr Labs., Inc., 251 F.3d 955, 968, 58 USPQ2d 1869, 1878 (Fed. Cir. 2001). If the examiner concludes that the present claims are not patentably distinct from the patented claims, a rejection for obviousness-type double patenting would be appropriate in the absence of a terminal disclaimer.

### Summary

We reverse the rejection for nonenablement but affirm the rejection of claims 7-9, 11, 12, 18, 19, 21, 22, 31, and 32 as anticipated by Chow. Therefore, claims 10 and 20 are free of any outstanding rejection.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED IN PART

Sherman D. Winters	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
Eric Grimes	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
Lora M. Green	)	
Administrative Patent Judge	)	

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