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PATENT AND TRADEMARK
BOARD OF PATENT APPEALS
AND INTERFERENCES

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(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PETER R. PARADISO,
STEPHEN W. HILDRETH, BRANDA T. HU,
ANTONIA MARTIN-GALLARDO,
RASAPPA ARUMUGHAM AND
EDWARD E. WALSH

Appeal No. 95-1856
Application 07/409,915¹

ON BRIEF

Before WINTERS, SOFOCLEOUS, and GRON, Administrative Patent
Judges.

WINTERS, Administrative Patent Judge.

¹ Application for patent filed September 20, 1989.
According to applicants, this application is a continuation-in-
part of Application 07/247,017, filed September 20, 1988, which
is a continuation of Application 07/102,180, filed September 29,
1987.

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DECISION ON APPEAL

This appeal was taken from the examiner's decision refusing to allow claims 13 through 16, which are all of the claims remaining in the application.

REPRESENTATIVE CLAIMS

Claims 15 and 16, which are illustrative of the subject matter on appeal, read as follows:

15. An isolated and substantially pure polypeptide, comprising a polypeptide having a purity of greater than 75% by weight and a molecular weight between about 700 to about 2500 daltons and having the amino acid sequence Glu - Glu - Val - Leu - Ala - Tyr - Val.

16. An isolated and substantially pure unglycosylated polypeptide related to a neutralizing epitope of Respiratory Syncytial Virus G protein having a purity of greater than 75% by weight.

THE REFERENCES

The references cited and relied on by the examiner are:

Collins et al. (Collins), "Nucleotide Sequence Of The Gene Encoding The Fusion (F) Glycoprotein Of Human Respiratory Syncytial Virus," Proc. Natl. Acad. Sci. USA, Vol. 81, pages 7683-7687 (December 1984).

Elango et al. (Elango), "Respiratory Syncytial Virus Fusion Glycoprotein: Nucleotide Sequence Of mRNA, Identification Of Cleavage Activation Site And Amino Acid Sequence Of N-Terminus Of F₁ Subunit," Nucleic Acids Research, Vol. 13, Number 5 (1985).

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Walsh et al. (Walsh), "Purification And Characterization Of The Respiratory Syncytial Virus Fusion Protein," J. Gen. Virol., Vol. 66, pages 409-415 (1985).

Satake et al. (Satake), "Respiratory Syncytial Virus Envelope Glycoprotein (G) Has A Novel Structure," Nucleic Acids Research, Vol. 13, Number 21, pages 7795-7812 (October 7, 1985).

The following reference is relied on by appellants as evidence of non-obviousness:

Hopp et al. (Hopp), "Prediction Of Protein Antigenic Determinants From Amino Acid Sequences", Proc. Natl. Acad. Sci. USA, Vol. 78, No. 6, pages 3824-3828 (June 1981).

THE ISSUES

The issues presented for review are:

(1) whether the examiner correctly rejected claims 13 through 15 under 35 U.S.C. § 103 as unpatentable over Walsh in view of Collins or Elango;

(2) whether the examiner correctly rejected claim 16 under 35 U.S.C. § 102 as anticipated by or, in the alternative, under 35 U.S.C. § 103 as unpatentable over Satake.

DELIBERATIONS

Our deliberations in this matter have included evaluation and review of the following materials:

(1) the instant specification, including Figures 1 through 14, and all of the claims on appeal;

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- (2) appellants' Brief before the Board;
- (3) the Examiner's Answer;
- (4) the prior art references cited and relied on by the examiner; and
- (5) the above-cited Hopp reference, relied on by appellants as evidence of non-obviousness.

On consideration of the record, including the above-listed materials, we reverse the examiner's § 103 rejection of claims 13 through 15. We vacate the examiner's decision refusing to allow claim 16 and, for reasons discussed infra, we enter a new ground of rejection of that claim under 35 U.S.C. § 112, second paragraph.

CLAIMS 13 THROUGH 15

For the reasons succinctly stated by appellants in their Brief before the Board, pages 6 through 20, we hold that the subject matter sought to be patented in claims 13 through 15 would not have been obvious at the time the invention was made to a person having ordinary skill in the art, based on the combined disclosures of Walsh and Collins or Walsh and Elango. Where, as here, we agree with the position set forth in appellants' Brief, we shall adopt that position as our own. We add the following remarks for emphasis only.

Each claim defines an epitopic region of the F or fusion protein of respiratory syncytial virus. Claim 13 recites an isolated and substantially pure polypeptide, comprising a polypeptide having a purity greater than 75% by weight and a molecular weight of about 700 to about 4000 daltons and having a specified amino acid sequence, corresponding to amino acids 283 through 315 of the native 574 amino acid F protein. In similar fashion, claim 14 recites an isolated and substantially pure polypeptide, comprising a polypeptide having a purity greater than 75% by weight and a molecular weight between about 700 to about 4000 daltons and having a specified amino acid sequence, corresponding to amino acids 289 through 315 of the F protein. Likewise, claim 15 recites an isolated and substantially pure polypeptide, comprising a polypeptide having a purity greater than 75% by weight and a molecular weight between about 700 to about 2500 daltons and having a specified amino acid sequence, corresponding to amino acids 294 through 300 of the F protein. It will be appreciated that these successive claims define epitopic regions which are successively smaller in size, i.e., the polypeptide of claim 14 is smaller than that of claim 13 and, likewise, the polypeptide of claim 15 is smaller than that of claim 14.

We agree with appellants that (1) the cited prior art would not have led a person having ordinary skill toward the polypeptides recited in claims 13, 14, or 15; (2) the examiner has not established a prima facie case of obviousness of those claims based on the combined disclosures of Walsh and Collins or Walsh and Elango; and (3) Collins or Elango, especially in view of Hopp, would have led a person having ordinary skill away from the polypeptides recited in claims 13, 14, and 15. The examiner states that it is unclear from appellants' Brief "which teachings lead away from the claimed invention." See the Answer, page 6, lines 3 and 4. On this point, however, we believe that appellants' Brief before the Board is entirely clear. See, for example, pages 7, 8, 9, 13, 14, 18, and 19 of the Brief.

CLAIM 16

Claim 16 defines an isolated and substantially pure unglycosylated polypeptide "related to" a neutralizing epitope of respiratory syncytial virus G protein having a purity of greater than 75% by weight. In view of the language "related to", we believe that this claim takes on an unreasonable degree of uncertainty. Having carefully reviewed claim 16 in light of the specification, we find that the metes and bounds of this claim and the full scope of the claim are unclear in view of the

recitation "related to." How does the isolated and substantially pure unglycosylated polypeptide bear relationship to the neutralizing epitope of respiratory syncytial virus G protein throughout the full scope of claim 16? What is the definition of "related to", as that expression is used in claim 16? Those questions arise from appellants' usage "related to" and, in view of that usage, the claim does not set out and circumscribe a particular area with a reasonable degree of precision and particularity.

Further with respect to claim 16, appellants acknowledge that Satake discloses the 33 kD unglycosylated form of the G protein. See appellants' Brief before the Board, page 22. It is unclear, however, whether that form of the G protein constitutes a "polypeptide" within the meaning of claim 16. In this regard, we observe that appellants distinguish between polypeptides and proteins as can be seen, for example, from a review of the specification, page 21, last paragraph. But what is the line of distinction between polypeptides and proteins, according to appellants' lexicon? Is the 33 kD unglycosylated form of the G protein, disclosed by Satake, a polypeptide or a protein according to appellants' lexicon? Those questions arise from appellants' usage "unglycosylated polypeptide" in claim 16 and,

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in view of that usage, the claim does not set out and circumscribe a particular area with a reasonable degree of precision and particularity.

Where, as here, the metes and bounds of claim 16 are unclear, we cannot meaningfully evaluate patentability of that claim over the prior art. We therefore vacate the examiner's decision refusing to allow claim 16 on prior art grounds. For the reasons expressed in this section of our opinion, we enter a new ground of rejection of claim 16 under 35 U.S.C. § 112, second paragraph. In any future prosecution of the subject matter of this application, when the meaning of claim 16 has been clarified on the record, the examiner should revisit the issue of patentability based on the Satake reference.

NEW GROUND OF REJECTION

Under the provisions of 37 CFR § 1.196(b), we enter the following new ground of rejection.

Claim 16 is rejected under 35 U.S.C. § 112, second paragraph, as indefinite. For the reasons set forth in the immediately preceding section of this opinion, we find that the metes and bounds of claim 16 are unclear.

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CONCLUSION

We reverse the examiner's § 103 rejection of claims 13 through 15. We vacate the decision refusing to allow claim 16 on prior art grounds, and we enter a new ground of rejection of claim 16 under 35 U.S.C. § 112, second paragraph.

Any request for reconsideration or modification of this decision by the Board of Patent Appeals and Interferences based upon the same record must be filed within one month from the date of the decision (37 CFR § 1.197). Should appellants elect to have further prosecution before the examiner in response to the new rejection under 37 CFR § 1.196(b) by way of amendment or showing of facts, or both, not previously of record, a shortened statutory period for making such response is hereby set to expire two months from the date of this decision.

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