

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board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. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD A. HOUGHTEN
and CLEMENCIA PINILLA

Appeal No. 1997-0093
Application No. 08/157,562

Heard: November 14, 2000

Before WINTERS, ROBINSON, and ADAMS, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-29, which are all the claims pending in the application.

Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

1. A dimeric oligopeptide mixture set comprised of dimer molecules having two bonded portions in which the oligopeptide chains of a first oligopeptide portion are bonded by a disulfide bond to the oligopeptide chains of a second oligopeptide mixture portion, wherein

(A) each oligopeptide in said first oligopeptide portion has

(a) a chain that contains the same number of 3 to about 10 amino acid residues, including an oxidized mercaptan-containing residue that is located at the same position in each oligopeptide chain and forms part of said disulfide bond, said oxidized mercaptan-containing residue being the only mercaptan-containing residue in the chain,

(b) an amino acid residue sequence, in addition to said oxidized mercaptan-containing residue, that contains one of at least six predetermined amino acid residues at the same, one or more predetermined positions of the oligopeptide chain;
and

(B) each oligopeptide in said second oligopeptide mixture portion bonded to said first oligopeptide portion has

(a) a chain that contains the same number of 3 to about 10 amino acid residues, including an oxidized mercaptan-containing residue that is located at the same position in each oligopeptide chain and forms a part of said disulfide bond, said oxidized mercaptan-containing residue being the only mercaptan-containing residue present in the chain, and

said second oligopeptide mixture having equimolar amounts of said at least six different amino acid residues at the same one or more other positions of the oligopeptide chain;

said dimeric oligopeptide mixture set being substantially free of oligopeptide molecules having no disulfide bond.

The references relied upon by the examiner are:

Houghten et al. (Houghten I), "Generation and use of synthetic peptide combinatorial libraries for basic research and drug discovery," Nature, Vol. 354, pp. 84-86 (1991)

Kim et al. (Kim)	WO 89/01943	Mar. 9, 1989
Houghten et al. (Houghten II)	WO 92/09300	Jun. 11, 1992

GROUND OF REJECTION¹

Claims 1-29 are rejected under 35 U.S.C. § 103 as being unpatentable over Houghten I or Houghten II in view of Kim.

We reverse.

DISCUSSION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, and to the respective positions articulated by the appellants and the examiner. We make reference to the examiner's Answer², and the examiner's Supplemental Answer³ for the examiner's reasoning in support of the rejection. We further reference appellants' Brief⁴, and appellants' Reply Brief⁵ for the appellants' arguments in favor of patentability.

¹ Those rejections maintained in the Final Rejection (Paper No. 11, mailed June 12, 1995), and not presented in the Examiner's Answer are considered withdrawn by the examiner. Ex parte Emm, 118 USPQ 180, 181 (Bd.App. 1958).

² Paper No. 20, mailed May 15, 1996.

³ Paper No. 23, mailed October 15, 1996.

⁴ Paper No. 18, received January 11, 1996.

⁵ Paper No. 22, received July 12, 1996

THE REJECTION UNDER 35 U.S.C. § 103:

The initial burden of presenting a prima facie case of obviousness rests on the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In meeting this initial burden, it is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion or motivation to lead an inventor to combine those references. Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996).

The examiner finds (Answer, bridging paragraph, pages 4-5) that:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to introduce disulfide bonds as taught by Kim et al. in the library of Houghten et al. because Kim et al. teach that dimeric peptides are more conformationally stable at physiologic pH and such synthetic ligands are especially useful in investigating protein binding sites and may be used as artificial proteins in a therapeutic context. ... In addition, it would have also been prima facie obvious ... to place the mercaptan containing residue, such as cysteine at any position along the peptide chain because this would also expand the diversity of the peptide library.

With respect to both the first oligopeptide portion and the second oligopeptide mixture portion, claim 1 requires, inter alia, for each portion the “oxidized mercaptan-containing residue is the only mercaptan-containing residue in the chain.”

We find nothing in Houghten I, or Houghten II, nor does the examiner identify a teaching, that specifically excludes the presence of more than one mercaptan-containing residue in a chain. In fact Houghten II clearly illustrates (page 123, line19) the occurrence of two cysteine residues in the same chain as “RRWWCC.”

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Similarly, we find nothing, and the examiner fails to identify, a suggestion in Kim that only one disulfide bond be present in the dimer. Kim states (page 13, lines 11-14) that “[b]onding of the two units will generally be covalent in nature and, in particular, will be disulfide bonding (between at least one cysteine residue on each of the peptide units)” [emphasis added]. Thus, Kim contemplates the presence of more than one mercaptan residue in a chain.

While a person of ordinary skill in the art may possess the requisite knowledge and ability to modify the Houghten oligopeptides, the modification is not obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d 900, 902, 211 USPQ 1125, 1127 (Fed. Cir. 1984). Here, the examiner has provided no reason or suggestion to modify the prior art to obtain the claimed dimeric oligopeptide mixture wherein only one oxidized mercaptan-containing residue is present in a chain.

On these facts, we are constrained to reach the conclusion that the examiner has failed to provide the evidence necessary to support a prima facie case of obviousness. Where the examiner fails to establish a prima facie case, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

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Accordingly, we reverse the rejection of claims 1-29 under 35 U.S.C.
§ 103 as being unpatentable over Houghten I or Houghten II in view of Kim.

REVERSED

Sherman D. Winters)
Administrative Patent Judge)
)
) BOARD OF PATENT
Douglas W. Robinson)
Administrative Patent Judge) APPEALS AND
)
) INTERFERENCES
)
Donald E. Adams)
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