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for publication and is not binding precedent of the Board.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. 76

# UNITED STATES PATENT AND TRADEMARK OFFICE

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# BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Ex parte WAYNE R. THOMAS and KAW-YAN CHUA

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Appeal No. 2004-0735
Application No. 08/081,540

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ON BRIEF[1]

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Before WINTERS, ADAMS, and MILLS, 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 47-49, which are all the claims pending in the application.

Claims 47-49 are reproduced below:

47. An isolated nucleic acid encoding a peptide comprising at least one epitope recognized by a T or a B cell receptor specific for a Der p VII protein allergen comprising the amino acid sequence shown in Figure 3 (SEQ ID NO: 2).

48. The isolated nucleic acid of claim 47, wherein the epitope is a T cell epitope.

49. The isolated nucleic acid of claim 47, wherein the epitope is a B cell epitope.

The examiner relies on the following reference:

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[1] Appellants waived their request for oral hearing. Paper No. 75, received March 17, 2004. Accordingly, we considered this appeal on Brief.

Gearing et al. (Gearing) 5,427,925 Jun. 27, 1995

GROUND OF REJECTION

Claims 47-49 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gearing.

We affirm.

CLAIM CONSTRUCTION

Claim 47 is drawn to an isolated nucleic acid that encodes a peptide. The only restriction on the peptide encoded by the claimed nucleic acid is that the peptide must comprise at least one epitope recognized by a T or a B cell receptor specific for a Der p VII protein allergen. According to claim 47, the Der p VII protein allergen comprises the amino acid sequence shown in Figure 3 (SEQ ID NO: 2). We find claim 47 to be broader that the statement in appellants' disclosure (page 4), wherein "one aspect of the present invention pertains to an isolated nucleic acid having a nucleotide sequence coding for Der p VII, fragments thereof or equivalents thereof."

Claim 47 does not require the peptide encoded by the claimed nucleic acid to be in the "context" of the naturally occurring Der p VII protein. Stated differently, the claim reads on a Der p VII "epitope" embedded in a protein other than a Der p VII protein allergen. In addition, there is no requirement in claim 47 for the claimed nucleic acid to encode a peptide that is recognized by a T or a B cell receptor specific for a Der p VII protein allergen. Stated differently, claim 47 is open to read on a nucleic acid that encodes a peptide that contains an amino acid region that corresponds to an epitope of the Der p VII protein allergen

recognized by a T or B cell receptor specific for a Der p VII protein allergen. There is no requirement in claim 47 that the nucleic acid encodes a peptide that is recognized by a T or B cell receptor specific for a Der p VII protein allergen.

Claim 47 is generic to both a T cell and B cell epitope. Claim 48 depends from and further limits claim 47 to a T cell epitope. Claim 49 depends from and further limits claim 47 to a B cell epitope. According to the examiner (Answer, page 4), "[t]he B-cell receptor is also known as 'immunoglobulin' or 'antibody' … [and] [t]he T-cell receptor is commonly called 'the T-cell antigen receptor' and is only normally found on the surfaces of T-cells." Appellants do not dispute this finding.

## CLAIM GROUPING

According to appellants (Brief, page 4), "[t]he rejected claims do not stand or fall together…." We note, however, that appellants' arguments are grouped according to whether the "epitope" is a T cell epitope, or a B cell epitope. Claim 47 is generic to both a T cell and B cell epitope. Claim 48 depends from and further limits claim 47 to a T cell epitope. Claim 49 depends from and further limits claim 47 to a B cell epitope. Accordingly, we discuss the claim in two groups, I. claims 47 and 48, as they relate to a T cell epitope; and II. Claims 47 and 49, as they relate to a B cell epitope.

DISCUSSION

The examiner finds (Answer, page 3), Gearing "teach a nucleic acid sequence [Figure 10] encoding a peptide which has 7 consecutive amino acids in common with the instantly claimed SEQ ID NO:2." Appellants, agree with this finding (Brief, page 5), "[t]he nucleic acid sequence … [disclosed by Gearing] includes 7 consecutive, linear amino acids in common with the instantly claimed SEQ ID NO:2." In addition, we note that Gearing specifically disclose (column 10, lines 37-39), a peptide fragment comprising these 7 amino acids. According to the examiner (id.),

> [s]ince it is well established in the art that the smallest peptide which will consistently elicit antibodies that bind the original protein are 6 amino acids in length, the nucleic acid of Gearing et al[.] meets the limitations of the claim as a nucleic acid encoding at least on B cell epitope. Additionally, the elicitation of B-cells (e.g. antibodies) to peptides requires activated T-cell help. Thus, the 7-mer of the prior art also meets the limitation of comprising at least one T-cell epitope.

As we understand the examiner's reasoning, the nucleic acid sequence disclosed by Gearing encodes a peptide comprising 7 amino acids in common with a Der p VII protein allergen comprising the amino acid sequence shown in appellants' SEQ ID NO:2. Based on the size requirements of a B or T-cell epitope, it appears that this 7 amino acid region of Der p VII is an eptiope that will be recognized by a T or a B cell receptor specific for a Der p VII protein allergen. In our opinion, the evidence of record is sufficient to shift the burden to Appellants to show that the claimed products are not the same as the products of the prior art. See In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) ("[W]hen 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 response, appellants argue (Brief, page 5), Gearing “teach a nucleic acid sequence encoding a mouse leukemia inhibitory factor ([murine] LIF), a protein structurally and functionally unrelated to … a Der p VII protein allergen as presently claimed.” There is, however, no evidence on this record that the 7 amino acid region of the Der p VII protein allergen is not an epitope recognized by a T or a B cell receptor specific for a Der p VII protein allergen. At best, appellants argue (Brief, page 6, emphasis added), “the 7 amino acid sequence shared between Der p VII and murine LIF would not likely be recognized by any T cell….” Appellants, however, fail to provide any evidence to support this assertion. In this regard, we remind appellants that attorney argument cannot take the place of evidence lacking in the record. Meitzner v. Mindick, 549 F.2d 775, 782, 193 USPQ 17, 22 (CCPA 1977).

Claims 47 and 48:

Appellants assert (Brief, page 5, emphasis removed), “a T cell specific for a Der p VII protein allergen … would not recognize a murine LIF protein, since T cell recognition of protein allergens depends on the manner in which the whole protein is proteolytically processed and presented by antigen presenting cells….” Accordingly, appellants conclude (Brief, bridging paragraph, pages 5-6), “the nature of T cell epitopes processed and presented from a Der p VII protein allergen would significantly differ from the nature of T cell epitopes processed

and presented from completely unrelated proteins, such as LIF, even if the epitopes shared some primary sequence homology."

There is no requirement in the claims that the nucleic acid encode a peptide that will be processed in the same manner as the Der p VII protein allergen. The claims simply require that the nucleic acid encode a peptide that comprises an epitope of the Der p VII protein allergen. The examiner has identified a murine LIF peptide that comprises a 7 amino acid region that corresponds to a 7 amino acid region in the Der p VII protein allergen. There is no evidence of record that this 7 amino acid region of the Der p VII protein allergen is not an epitope as defined in appellants' claimed invention. Accordingly, we are not persuaded by appellants' arguments.

Claims 47 and 49:

Appellants assert (Brief, page 5, emphasis removed), "[a] B-cell specific for a Der p VII protein allergen would not recognize a murine LIF protein since B-cell recognition of protein allergens depends on the recognition of complex conformational epitopes which are particular to the full-length (e.g., native) protein allergens." Initially, we note that there is no requirement in the claims that the epitope is a "conformational epitope." As the examiner points out (Answer, page 4), "B-cell epitope[s] may be either conformational or non-conformational/linear." Further, there is no requirement in the claims that antibodies specific for a Der p VII protein allergen recognize the protein encoded by the claimed nucleic acid, in this case murine LIF protein. As discussed above, the claims simply require that the nucleic acid encode a peptide that comprises

an epitope of the Der p VII protein allergen. The examiner has identified a murine LIF peptide that comprises a 7 amino acid region that corresponds to a 7 amino acid region in the Der p VII protein allergen. There is no evidence of record that this 7 amino acid region of the Der p VII protein allergen is not an epitope as defined in appellants' claimed invention. Accordingly, we are not persuaded by appellants' arguments.

Conclusion:

As set forth above, there is no requirement in appellants' claims that the peptide encoded by the claimed nucleic acid is recognized by a T cell or B cell receptor specific for the Der p VII protein allergen. The claims simply require that the peptide encoded by the claimed nucleic acid contain an epitope of the Der p VII protein allergen. Accordingly, we are not persuaded by appellants' arguments that a T cell or B cell receptor specific for the Der p VII protein allergen will not recognize murine LIF protein.

Both the examiner and appellants appreciate that the Der p VII protein allergen and the murine LIF protein share 7 amino acids in common. According to the examiner (Answer, page 3), the 7 amino acids common to both the Der p VII protein allergen and murine LIF protein, meets the limitation of comprising at least one T cell or B cell epitope. There is no evidence on this record that this 7 amino acid region of Der p VII is not an epitope of a T cell or B cell receptor specific for a Der p VII protein allergen.

For the foregoing reasons we affirm the rejection of claims 47-49 under 35 U.S.C. § 103 as being unpatentable over Gearing.

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

AFFIRMED

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| Sherman D. Winters | ) |
| Administrative Patent Judge | ) |
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| | ) BOARD OF PATENT |
| Donald E. Adams | ) |
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