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**Datasheet for the decision  
of 11 April 2019**

**Case Number:** T 1871/16 - 3.3.04

**Application Number:** 10011428.9

**Publication Number:** 2368574

**IPC:** A61K39/35, A61K39/36,  
A61P37/08, C07K14/415,  
C07K14/435

**Language of the proceedings:** EN

**Title of invention:**

Allergen peptide fragments and use thereof

**Applicant:**

Anergis SA

**Headword:**

Allergen peptide fragments/ANERGIS

**Relevant legal provisions:**

EPC Art. 76(1)

**Keyword:**

All claim requests - added subject-matter (yes)

**Decisions cited:**

**Catchword:**

-



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Case Number: T 1871/16 - 3.3.04

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.04**  
**of 11 April 2019**

**Appellant:** Anergis SA  
(Applicant) 34b chemin du Polny  
1066 Epalinges (CH)

**Representative:** Zwicker, Jörk  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted on 10 February  
2016 refusing European patent application No.  
10011428.9 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairwoman** G. Alt  
**Members:** B. Claes  
L. Bühler

## Summary of Facts and Submissions

- I. The appeal lies from the decision of the examining division refusing European patent application No. 10011428.9 entitled "*Allergen peptide fragments and use thereof*".

It is a divisional application of European patent application No. 09015109.3, published as EP 2 204 189, which in turn is a divisional application of European patent application No. 047206678.4, published as WO2004/081028 (hereinafter the "earlier application").

- II. The examining division held that the subject-matter of claim 1 of the main request and an auxiliary request lacked an inventive step (Article 56 EPC).

Claim 1 of the main request read:

"1. A method for generating a composition of contiguous overlapping peptide fragments (COPs) for a selected polypeptide allergen comprising the steps of:

- (a) designing peptides fragments for experimental manipulation, such as binding experiment, by determining the amino acid sequence of an allergen protein isolated from a natural source, identifying hydrophobic and hydrophilic regions of said protein by hydrophilicity analysis, identifying regions of said protein that adopts specific structural motif by secondary structural analysis using computer software programs available in the art;
- (b) chemically synthesizing a plurality of COPs which together form an entire amino acid sequence of

the allergen, wherein said fragments are capable of inducing a T cell response in patients who are hypersensitive to the allergen, wherein said overlapping peptide fragments are 65 to 90 amino acids in length, wherein the amino acid sequences of said contiguous overlapping peptide fragments in the plurality overlap by 10 to 15 amino acids,

- (c) selecting said allergen peptide fragment for lack of ability to bind IgE antibodies from the sera of an individual hypersensitive to the allergen,
- (d) selecting said allergen peptide fragment for not inducing immediate skin reactivity with a wheal <5 mm with no flare when injected intradermally at a concentration:  $\leq 1\mu\text{g/ml}$ "

III. With the statement of grounds of appeal the applicant (hereinafter "appellant") re-submitted the main request, filed a new auxiliary request and argued in favour of inventive step for the claimed subject-matter.

IV. In a communication pursuant to Article 15(1) RPBA in preparation of the oral proceedings, the board expressed its preliminary opinion that the subject-matter of claim 1 of both requests lacked inventive step (Article 56 EPC) and its concerns that claims of both requests lacked clarity (Article 84 EPC).

V. In reply to the board's communication, the appellant submitted, in response to the board's concerns on clarity, two new auxiliary requests: auxiliary requests 1 and 3. The earlier auxiliary request was renumbered auxiliary request 2.

VI. During the oral proceedings, the board expressed concerns on the compliance of claim 1 of all the appellant's requests with the requirements of Article 76(1) EPC. In response, the appellant withdrew all formerly filed auxiliary requests and submitted new auxiliary requests 1 and 2. Claims 1 of these requests corresponded, apart from some minor corrections, to the same claim of the earlier auxiliary requests 1 and 3 but having step (a) deleted and steps (b) to (d) redesignated to (a) to (c).

Claim 1 of auxiliary request 1 thus read:

"1. A method for generating a composition of contiguous overlapping peptide fragments (COPs) for a selected polypeptide allergen comprising the steps of:

- (a) chemically synthesizing a plurality of COPs which together form an entire amino acid sequence of the allergen, wherein said fragments are capable of inducing a T cell response in patients who are hypersensitive to the allergen, wherein said overlapping peptide fragments are 65 to 90 amino acids in length, wherein the amino acid sequences of said contiguous overlapping peptide fragments in the plurality overlap by 10 to 15 amino acids,
- (b) selecting said allergen peptide fragments for lack of ability to bind IgE antibodies from the sera of an individual hypersensitive to the allergen,
- (c) selecting said allergen peptide fragments for not inducing immediate skin reactivity with a wheal <5 mm with no flare when injected intradermally at a concentration:  $\leq 1\mu\text{g/ml}$ " (emphasis added by

the board indicates further differences to claim 1 of the main request)

Claim 1 of auxiliary request 2 was identical to claim 1 of auxiliary request 1 but comprised at the end the additional wording:

"[...], wherein the composition of COPs comprises at least two contiguous overlapping peptide fragments selected according to SEQ ID NO: 8 and 9."

At the end of the oral proceedings, the chair announced the decision of the board.

VII. The arguments of the appellant under Article 76(1) EPC can be summarised as follows:

*Auxiliary request 1 - claim 1*

The third full paragraph on page 14, in particular lines 20 to 22, of the earlier application explicitly disclosed that "*combinations of overlapping peptide fragments*" are "*derived from a protein allergen*" and could be tested whether they "*will produce local or systemic symptoms*".

On page 4, lines 18 to 27, the various relevant aspects of the compositions generated in the claimed method (see parts (b) and (c) of the claim) were disclosed.

On page 13, lines 7 to 20, the earlier application disclosed the chemical synthesis of the allergen-derived peptide fragments in the context of the "*design of peptides for experimental manipulation*". These passages thus provided a teaching that the composition of the invention had to be generated and that they were

compositions of contiguous overlapping peptide fragments (COPs).

In view of the referred to passages, the earlier application formed an appropriate basis for holding the claim in compliance with Article 76(1) EPC.

*Main request and auxiliary request 2 - claim 1*

These claims complied with Article 76(1) EPC at least partially for the same reasons as claim 1 of auxiliary request 1.

- VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request filed with the statement of grounds of appeal or, alternatively, on the basis of the claims of one of auxiliary requests 1 or 2 filed during the oral proceedings.

### **Reasons for the Decision**

1. The appeal is admissible.
2. The pivotal issue in the present decision on which the appellant was heard during the oral proceedings, was the compliance of claim 1 of the three pending requests, i.e. the main request and auxiliary requests 1 and 2, with the requirements of Article 76(1) EPC.
3. Whereas the discussion during the oral proceedings focused by and large on claim 1 of auxiliary request 1, the arguments presented were understood to apply *mutatis mutandis*, at least partially, to claims 1 of



the main request and auxiliary request 2 (see section VII).

*All requests - claim 1 - Article 76(1) EPC*

4. The subject-matter of these claims is a method for preparing a composition of contiguous overlapping peptide (COP) fragments of a selected polypeptide allergen comprising a number of steps for generating the composition (see section VI).
5. The appellant has referred to three passages in the earlier application which were argued to disclose the subject-matter as claimed and were argued to thus form the basis for these claims' compliance with the requirements of Article 76(1) EPC.

The exact wordings of these passages are:

on page 4, lines 18 to 27:

*"Preferably, administration of the compositions of the invention results in lower levels of IgE stimulation activity. More preferably, administration results in weak or zero IgE stimulation activity (e.g. weak IgE binding or no IgE binding). As used herein, weak IgE binding refers to IgE production and/or cross-linking that is less than the amount of IgE production and/or IL-4 production stimulated by the whole protein allergen. Preferably, the compositions of the invention do not induce immediate skin reactivity (wheal < 5 mm with no flare) when injected intradermally at a concentration  $\leq 1$   $\mu\text{g/ml}$ . Most preferably, administration of the compositions of the invention results in a decrease in T cell response upon subsequent exposure to*

*the protein allergen, thereby modulating an immune response of a patient against the protein allergen."*

on page 13, lines 7 to 20:

*"Allergen-derived peptide fragments, analogs, derivatives, and variants thereof can be chemically synthesized. For example, a peptide fragment corresponding to a portion of an allergen protein that includes a desired domain or that mediates a desired activity in vitro, may be synthesized by use of a peptide synthesizer. The amino acid sequence of a protein isolated from the natural source, may be determined, e.g., by direct sequencing of the isolated protein. The protein may also be analyzed by hydrophilicity analysis (see, Hopp and Woods, PNAS USA 78:3824,1981) which can be used to identify the hydrophobic and hydrophilic regions of the protein, thus aiding in the design of peptides for experimental manipulation, such as in binding experiments, antibody synthesis, etc. Secondary structural analysis may also be performed to identify regions of a peptide that adopt specific structural motifs. (See, Chou and Fasman, Biochem, 13:222, 1974). Manipulation, translation, secondary structure prediction, hydrophilicity and hydrophobicity profiles, open reading frame prediction and plotting, and determination of sequence homologies, can be accomplished using computer software programs available in the art."*

on page 14, lines 20 to 27:

*"A peptide fragment or combination of overlapping peptide fragments derived from a protein allergen, can be tested to determine whether the peptide will produce*

*local or systemic symptoms that are related to a Type I reaction. This reaction involves the interaction of antigen with antibody of the immunoglobulin class IgE, which attaches to the host cells in the skin and other tissues (mast cells, basophils, platelets, and eosinophils). An antigen encounter results in release of the cell contents, including active molecules such as histamine, heparin, serotonin, and other vasoactive substances, producing local or systemic symptoms that are manifest within minutes to a few hours following antigen-IgE interaction."*

6. Firstly, whereas the paragraph referred to on page 4 of the earlier application refers to features relating to a lack of the ability of IgE antibody stimulation and of inducing immediate skin reactivity - "*wheal < 5 mm with no flare*" - when injected intradermally at a concentration  $\leq 1 \mu\text{g/ml}$ , these features characterise, in fact and in general, the compositions for administration to patients rather than selection steps for allergen peptide fragments which have been chemically synthesised as claimed.
7. Furthermore and secondly, the paragraph referred to on page 13 relates to the chemical synthesis of allergen-derived peptide fragments in general and analysis methodologies aiding in the design of such, but it fails to disclose at least the method step in the claimed method for generating a composition of "*chemically synthesizing a plurality of COPs which together form an entire amino acid sequence of the allergen*".
8. Finally and thirdly, whereas the board accepts that the paragraph on page 14 discloses that a "*combination of overlapping peptide fragments derived from a protein*

*allergen, can be tested to determine whether the peptide will produce local or systemic symptoms that are related to a Type I reaction", this notion, however, fails to equate to a disclosure of the step in the claimed method for generating the claimed composition of providing "a plurality of COPs which together form an entire amino acid sequence of the allergen, wherein said fragments are capable of inducing a T cell response in patients who are hypersensitive to the allergen".*

9. Accordingly, in view of the above considerations, the passages to which the appellant has referred in the earlier application do not provide a basis for the claimed subject-matter which, accordingly, constitutes subject-matter extending beyond the earlier application as filed, contrary to Article 76(1) EPC.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chair:



G. Rauh

G. Alt

Decision electronically authenticated