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Datasheet for the decision of 16 July 2015

Case Number: T 0447/12 - 3.3.08

Application Number: 00932296.7

Publication Number: 1180999

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Language of the proceedings: EN

Title of invention:
RECOMBINANT VACCINE AGAINST BOTULINUM NEUROTOXIN

Applicant:
United States Army Medical Research and Materiel Command

Headword:
Vaccine against Botulinum neurotoxin/UNITED STATES ARMY MEDICAL

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Main request - Art. 123(2) EPC (no)

Decisions cited:
G 0002/10

Catchword:

Beschwerdekammern
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Chambres de recours

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Case Number: T 0447/12 - 3.3.08

D E C I S I O N
of Technical Board of Appeal 3.3.08
of 16 July 2015

Appellant: (Applicant)	United States Army Medical Research and Materiel Command Dept. of Army, Command Judge Advocate Office, 504 Scott Street Fort Detrick, MD 21702-5012 (US)
Representative:	Chapman, Lee Phillip J A Kemp 14 South Square Gray's Inn London WC1R 5JJ (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 29 September 2011 refusing European patent application No. 00932296.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Wieser
Members:	B. Stolz
	J. Geschwind

Summary of Facts and Submissions

I. The appeal lies against the decision of the examining division, posted 29 September 2011, whereby European patent application No 00932296.7 was refused. The examining division decided that claims 1 to 19 filed with letter of 19 May 2008 did not meet the requirements of Article 123(2) EPC.

II. Claims 1 to 19 of the only request before the board correspond to the claims underlying the decision under appeal.

III. The applicant (appellant) was duly summoned to oral proceedings. A communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) was annexed to the summons and informed of the preliminary non-binding opinion of the board on some of the issues of the appeal proceedings.

IV. The appellant was not represented at the oral proceedings which were held in its absence.

V. Independent claims 1 and 3 of appellant's request read:

"1. A nucleic acid encoding the carboxy-terminal portion of the heavy chain (H_C) of botulinum neurotoxin (BoNT) serotype A, wherein said nucleic acid comprises the nucleic acid sequence shown in Figure 2A and wherein said nucleic acid is expressable in a recombinant organism selected from Escherichia coli and Pichia pastoris.

3. A nucleic acid encoding the carboxy-terminal portion of the heavy chain (H_C) of botulinum neurotoxin (BoNT) serotype A shown in Figure 2B, wherein said

nucleic acid is expressable in a recombinant organism selected from Escherichia coli and Pichia pastoris."

Claims 2 and 4 to 9 refer to specific embodiments of the subject matter of claims 1 and 3, respectively. Claim 10 refers to an expression vector comprising the nucleic acid of claims 1 to 3, claims 11 to 14 to methods of preparing the polypeptide shown in figure 2B, and claims 15 to 19 to immunogenic compositions comprising the polypeptide shown in Figure 2B.

VI. The arguments of the appellant, as far as relevant for this decision, can be summarized as follows:

The subject matter of all claims is directly and unambiguously derivable from the application as filed.

Several passages throughout the application as filed explained that the sequence shown in Figure 2A (SEQ ID NO: 3) was a "synthetic gene" (page 9, lines 22 and 23; the description of the sequence in Figure 2A on Figure sheet 2/22; and page 15, lines 1 to 3)and that the synthetic genes of the invention were expressable in E. coli and Pichia pastoris (page 16, lines 6 to 9; page 14, lines 29 to 32; and page 15, lines 30 and 31).

The application as filed demonstrated in the Examples that the sequence shown in Figure 1A (SEQ ID NO: 1) could be expressed in E. coli (Example 7 on pages 35 to 38). The sequence in Figure 2A (SEQ ID NO: 3) corresponded to the sequence shown in Figure 1A (SEQ ID NO: 1) with three codons deleted from the 5' end of the sequence, in particular codons CGT CTG and CTG (which encode for amino acids RLL). It was therefore reasonable to predict on the basis of the experimental

data in the application, using the sequence shown in Figure 1A (SEQ ID NO: 1), that the sequence shown in Figure 2A (SEQ ID NO: 3) was also expressable in E. coli and Pichia pastoris.

VII. The appellant requests that the decision under appeal be set aside and the case be remitted to the examining division for further examination.

Reasons for the Decision

Article 123(2) EPC

1. In the communication attached to the summons to oral proceedings, the board informed the appellant of its preliminary opinion on the compliance of claims 1 and 3 with the requirements of Article 123(2) EPC (see points 10 to 13 of the communication).

2. It needs to be established whether the subject matter of claims 1 and 3 can be derived directly and unambiguously, using common general knowledge from the application as filed (according to point 4.3 of decision G 2/10 the "gold standard") (cf. Case Law of the Boards of Appeal, 7th ed., II.E.1).

3. Claim 1 is directed to a nucleic acid comprising the nucleic acid shown in Figure 2A wherein said nucleic acid is expressable in an organism selected from E. coli and P. pastoris.

4. Figure 2A of the patent application discloses a particular nucleic acid sequence (Seq ID NO: 3) encoding the polypeptide shown in Figure 2B (Seq ID NO: 4). The polynucleotide shown in Figure 2A differs from

the polynucleotide shown in Figure 1A (SEQ ID No: 1) by the deletion of 3 codons at the 5' end.

The only references in the description to a nucleotide sequence of Seq ID NO: 3 can be found on page 9, lines 22 to 23, according to which "*Figure 2 shows the sequence for a synthetic gene encoding the H_C fragment of BoNT serotype A and the encoded amino acids*" and on page 15, lines 1 and 2, where it is stated that "*Synthetic genes for the H_C fragments of botulinum neurotoxin serotypes A-G are shown in Figures 1-10*".

5. The application also discloses the preparation and expression of synthetic genes encoding polypeptides containing protective epitopes of Botulinum neurotoxin (BoNT) (page 1, lines 10-12). According to a first embodiment of the invention a nucleic acid encoding the carboxy terminal portion of the heavy chain of BoNT of *inter alia* serotype A is provided (page 7, lines 1-3). Preferably the nucleic acid is a synthetic nucleic acid designed by selecting codons preferred for expression in a host organism, preferably in E. coli or Pichia pastoris (page 7, lines 28-32).

6. Although references to nucleic acids comprising nucleic acid sequences encoding the carboxy-terminal portion of the Hc of BoNTA of Seq ID NO: 1 are disclosed (page 7, lines 7-8; original claim 2), this does not amount to a disclosure of nucleic acids comprising the nucleic acid sequence shown in Figure 2A, or to a disclosure of a more generally defined nucleic acid comprising a nucleic acid encoding any embodiment of the invention.

7. The appellant submitted that the reference to "*Synthetic genes as described herein may be transfected into suitable host organisms to create recombinant*

production organisms" (page 16, lines 6 and 7) in combination with the reference to "*preferably, the host organism is Escherichia coli or Pichia pastoris*" (page 7, last line to page 8, first line) should be regarded as an implicit disclosure of the subject matter of claim 1.

8. The board is not entirely convinced by this argument. However, in view of the non-compliance of claim 3 with the requirements of Article 123(2) EPC (see below) there is no need to further elaborate on this issue.

9. The examining division decided that the subject matter of claim 3 extended beyond the content of the application as filed (cf. page 6 of the decision under appeal).

10. In point 13 of its communication, the board expressed its preliminary opinion that it could not find a basis for the subject matter of claim 3 in the application as filed. The appellant has not responded to this communication.

11. Claim 3 is directed to a nucleic acid encoding the C-terminal portion of the BoNTA(H_C) shown in Figure 2B, wherein said nucleic acid is expressable in E. coli and P. pastoris. Due to the degeneracy of the genetic code, the claim embraces a family of nucleic acids encoding this polypeptide.

12. The patent application discloses the creation of particular codon optimized nucleic acid sequences encoding C-terminal portions of the heavy chain of botulinum neurotoxins (BoNT) of serotypes A to G.

13. Figure 2A of the patent application discloses a single nucleic acid sequence (Seq ID NO: 3) encoding the polypeptide shown in Figure 2B (Seq ID NO: 4).

The only references in the description to a nucleotide sequence encoding the polypeptide of Seq ID NO: 4 are the ones mentioned in point 5 (supra).

14. This, however, does not equate to a disclosure of a group of nucleic acids encoding specifically the polypeptide shown in Figure 2B. The remainder of the patent application does not mention Seq ID NO: 3 or any other sequences encoding the polypeptide of Seq ID NO: 4 at all. There is also no general statement relating to nucleic acids encoding a polypeptide of the invention which could serve as an implicit disclosure.

Thus, there is neither explicit nor implicit disclosure of the subject matter of claim 3.

15. In the absence of a direct and unambiguous disclosure of its subject matter in the application as filed, claim 3, and, as a consequence, the request before the board does not meet the requirements of Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Wolinski M. Wieser

Decision electronically authenticated