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Datasheet for the decision of 23 May 2023

Case Number: T 0055/19 - 3.3.02

Application Number: 13191663.7

Publication Number: 2722336

IPC: C07K7/04, A61K39/00

Language of the proceedings: EN

Title of invention:
Vaccine for the prevention of breast cancer relapse

Applicant:
The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.

Headword:

Relevant legal provisions:
EPC Art. 87, 54

Keyword:
Priority
Novelty

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Catchword:

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Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0055/19 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 23 May 2023

Appellant: (Applicant)	The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. 1401 Rockville Pike Suite 600 Rockville, MD 20852 (US)
Representative:	J A Kemp LLP 80 Turnmill Street London EC1M 5QU (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 23 July 2018 refusing European patent application No. 13191663.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. O. Müller
Members:	A. Lenzen
	R. Romandini

Summary of Facts and Submissions

I. The present decision concerns the appeal filed by the patent applicant (appellant) against the decision of the examining division (decision under appeal) to refuse European patent application No. 13191663.7 (application).

The application has a priority date of 1 June 2007 and a filing date of 11 April 2008. It is a divisional application of European patent application No. 08745615.8.

II. The following documents, cited by the examining division, are relevant to the present decision (the appellant's numbering in point 3.1 of its statement of grounds of appeal has been adopted):

D1 Stojadinovic, A. et al., Annals of Surgical Oncology 2007, 14(12), pages 3359 to 3368

D8 Ridolfi, R. L. et al., Modern Pathology 2000, 13(8), pages 866 to 873

III. The decision under appeal is based on a main request and auxiliary requests 1 to 3, the sets of claims of which were filed by letter of 21 May 2018.

The decision under appeal can be summarised as follows.

- The subject-matter of claim 1 of the main request and auxiliary request 1 extended beyond the content of the (parent) application as originally filed, contrary to Articles 76(1) and 123(2) EPC.
- The subject-matter of claim 1 of auxiliary request 2 did not involve an inventive step over D1

as the closest prior art. More specifically, D1 disclosed the vaccination of breast cancer patients with the E75 peptide. The patients had IHC ratings of from 1+ to 3+ and a FISH rating of >1.2. The latter range overlapped with the claimed range. Nevertheless, claim 1 related to a new patient group. The selection of this patient group was arbitrary and did not involve an inventive step. Essentially the same reasoning applied to claim 1 of auxiliary request 3, the subject-matter of which did not therefore involve an inventive step either.

IV. With the statement of grounds of appeal, the appellant filed, *inter alia*, the set of claims of the main request, those of auxiliary requests 1 to 9 and the following document:

D13 Bozzetti, C. et al., British Journal of Cancer 2011, 104(9), pages 1372 to 1376

V. In preparation for the oral proceedings, arranged at the appellant's request, the board issued a communication pursuant to Article 15(1) RPBA 2020. In that communication, the board cited the following documents:

D15 Hicks, D. G. et al., Human Pathology 2005, 36, pages 250 to 261

D16 Bogdanovska-Todorovska, M. et al., Open Access Maced J Med Sci. 2018, 6(4), pages 593 to 599

The board noted that the priority claim of the application was not valid for the subject-matter claimed. The board also raised objections under Articles 76(1), 123(2), 84, 54 and 56 EPC.

VI. By letter dated 19 May 2023, the appellant indicated that it would not be attending the scheduled oral proceedings. It did not comment on the board's communication pursuant to Article 15(1) RPBA 2020. The board then cancelled the oral proceedings.

VII. The appellant requested that the decision under appeal be set aside and a patent be granted based on one of the sets of claims of the main request or auxiliary requests 1 to 9, each of these sets having been filed with the statement of grounds of appeal.

Reasons for the Decision

Main request

1. Claim 1 is drafted in the form of a purpose-limited product claim according to Article 54(5) EPC and reads as follows:

> "*A composition comprising a pharmaceutically effective carrier and a peptide having the amino acid sequence of SEQ ID NO:2 for use in inducing protective or therapeutic immunity against recurrence of a HER2/neu expressing tumor in a human subject having a fluorescence in situ hybridization (FISH) rating of less than 2.0 ± 20% for HER2/neu gene expression.*"

2. Background of the invention

HER2/neu is a member of the human epidermal growth factor receptor family and is involved in cell growth and proliferation. Over-expression and/or amplification of HER2/neu is/are found in 25-30% of invasive breast

cancers and associated with more aggressive tumours and poorer clinical outcomes (application, paragraph [0012]). The nonapeptide with SEQ ID NO:2, also known as E75, is a fragment of the HER2/neu protein. It is in use in clinical trials as an anti-cancer vaccine to stimulate cytotoxic T lymphocytes to destroy cancer cells (application, paragraph [0016]). The determination of HER2/neu status is performed predominantly by means of two tests, immunohistochemistry (IHC) and fluorescence in situ hybridisation (FISH). IHC detects over-expression of HER2/neu protein and is reported on a semi-quantitative scale of from 0 to 3+ (0 = negative, 1+ = low expression, 2+ = intermediate expression, and 3+ = over-expression). FISH, on the other hand, detects amplification (excess copies) of the HER2/neu gene and is expressed as a ratio of HER2/neu gene copies to chromosome 17 gene copies. It is interpreted as "over-expression" if FISH is ≥ 2.0 copies (application, paragraph [0013]).

3. Priority (Article 87 EPC)

The priority application reports on a clinical trial and states the percentage of patients with a HER2/neu IHC 3+ or a positive FISH rating (Table 1). However, with respect to the invention disclosed therein, the significance of a particular FISH rating is not set out, nor is a numerical upper threshold for this rating indicated, such as "*of less than 2.0 ± 20% for HER2/neu gene expression*" as in claim 1 of the main request. Hence, the priority claim is invalid, and D1, which was published in the priority interval on 29 September 2007, constitutes prior art pursuant to Article 54(2) EPC.

This conclusion was already given in the board's communication under Article 15(1) RPBA 2020 and not contested by the appellant.

4. Novelty (Article 54 EPC)

4.1 D1 reports on a study, in which circulating tumour cells were quantified and phenotyped in order to monitor the response to a preventive HER2/neu vaccine-based immunotherapy for breast cancer (D1, title).

More specifically, 16 patients free from breast cancer but at high risk of recurrence were vaccinated with a composition comprising E75 and granulocyte macrophage-colony stimulating factor (GM-CSF) (D1, page 3361, paragraph bridging both columns; Table 1). As already stated above, E75 is a peptide having the amino acid sequence of SEQ ID NO:2 according to claim 1 (D1, page 3360, left column, last paragraph, line 4 f.). As the vaccination composition was administered intradermally (D1: page 3361, paragraph bridging both columns), it must have comprised a pharmaceutically effective carrier as provided for in claim 1. Thus, D1 discloses the same composition for use in the treatment of the same disease as claim 1 of the main request. This was already set out in the board's communication under Article 15(1) RPBA 2020 and not contested by the appellant.

4.2 In the statement of grounds of appeal, the appellant argued - in line with the examining division's decision - that the feature "*in a human subject having a fluorescence in situ hybridization (FISH) rating of less than 2.0 ± 20% for HER2/neu gene expression*" established a new patient group that had not been disclosed in D1.

4.3 The board does not agree with this assessment, for the following reasons.

D1 identifies a total of six patients with an IHC rating of 1+ (Table 1). In this context, D8 (Table 2), D13 (Tables 3 and 4) and D16 (Table 1) show that the concordance rate between IHC and FISH is extremely high in cases of an IHC 1+ rating and that such a rating is basically synonymous with a negative FISH rating, i.e. a rating of <2 (D15, page 254, left column, line 16 f., under "1.3. Commercially available HER2 assays for FISH testing"). This is fully in line with D1 stating FISH ratings of >1.2. Thus, each of these six patients constitutes a disclosure of the patient group defined in claim 1. Also, this was already set out in the board's communication under Article 15(1) RPBA 2020 and not contested by the appellant.

4.4 Thus, the subject-matter of claim 1 of the main request lacks novelty over D1 and the main request is not allowable.

Auxiliary request 1

5. Claim 1 of auxiliary request 1 is identical to claim 1 of the main request. For the reasons given above for the main request, auxiliary request 1 is not allowable.

Auxiliary request 2 to 9

6. Priority (Article 87 EPC)

Claim 1 of auxiliary requests 2 to 9 indicates in each case a numerical upper threshold for the FISH rating. For the reasons stated above, the priority claim is not

valid for claim 1 of auxiliary requests 2 to 9 either and D1 constitutes prior art pursuant to Article 54(2) EPC.

7. Novelty (Article 54 EPC)

Compared to claim 1 of the main request, claim 1 of auxiliary requests 2 to 9 has been amended as follows:

(i) the purpose limitation has been amended to "*for use in inducing protective or therapeutic immunity against* ***breast cancer*** *recurrence* ~~*of a HER2/neu expressing tumor*~~ *in a human subject*" (claim 1 of auxiliary requests 8 and 9)

(ii) the IHC rating has been specified to be 1+ or 2+ (claim 1 of auxiliary requests 2, 3, 6 and 7)

(iii) the upper threshold for the FISH rating has been amended to "*less than 2.0* ~~*± 20%*~~" (claim 1 of auxiliary requests 4 to 7 and 9).

However, none of these amendments can establish novelty of the respective claim 1. As explained above, the six patients considered to anticipate the alleged new patient group defined by the FISH rating in claim 1 of the main request were vaccinated against breast cancer (see (i) above) and all had an IHC rating of +1 (see (ii) above). Furthermore, the FISH rating of <2 implicitly disclosed in D1 anticipates the relevant feature of claim 1, regardless of whether it is a variable upper limit ("*less than 2.0 ± 20%*") or an invariable upper limit ("*less than 2.0*")(see (iii) above).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Maslin M. O. Müller

Decision electronically authenticated