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Datasheet for the decision of 8 September 2020

Case Number: T 2214/14 - 3.3.08

Application Number: 07813820.3

Publication Number: 2056883

IPC: C12N15/11

Language of the proceedings: EN

Title of invention:
MICROSPHERE-BASED COMPOSITION FOR PREVENTING AND/OR REVERSING NEW-ONSET AUTOIMMUNE DIABETES

Applicant:
Baxter International Inc.
Baxter Healthcare S.A.
University of Pittsburgh - Of the Commonwealth System of Higher Education

Headword:
New onset diabetes/UNIVERSITY OF PITTSBURGH

Relevant legal provisions:
EPC Art. 54, 56, 83, 84, 123(2)

Keyword:
Main request - requirements of the EPC met

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 2214/14 - 3.3.08

D E C I S I O N
of Technical Board of Appeal 3.3.08
of 8 September 2020

Appellants: (Applicants)	Baxter International Inc. One Baxter Parkway Deerfield, IL 60015 (US) Baxter Healthcare S.A. Thurgauerstrasse 130 8152 Glattpark (Opfikon) (CH) University of Pittsburgh - Of the Commonwealth System of Higher Education 200 Gardner Steel Conference Center Thackeray & O'Hara Streets Pittsburgh, PA 15260 (US)
Representative:	Pilkington, Stephanie J. Potter Clarkson The Belgrave Centre Talbot Street Nottingham NG1 5GG (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 2 July 2014 refusing European patent application No. 07813820.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	B. Stolz
Members:	M. R. Vega Laso
	R. Winkelhofer

Summary of Facts and Submissions

I. The appeal of the applicants (appellants) lies from a decision of an examining division posted on 2 July 2014, refusing the European patent application No. 07813820.3 with the title "Microsphere-based composition for preventing and/or reversing new-onset autoimmune diabetes", which was filed on 6 August 2007 under the Patent Cooperation Treaty and published as WO 2008/019346 (in the following "the application as filed").

II. In the decision under appeal, the examining division found that the invention claimed according to the main request and auxiliary request 2 then on file was not sufficiently disclosed in the application as filed, and that the subject-matter of the claims according to the auxiliary request 1 did not involve an inventive step.

III. Together with the statement of grounds of appeal, the appellants re-filed the claims according to the main request and auxiliary requests 1 and 2 in opposition proceedings and submitted a new set of claims as auxiliary request 3. As a subsidiary request, oral proceedings under Article 116 EPC were requested.

IV. Pursuant to their request, the appellants were summoned to oral proceedings.

V. In a communication sent in preparation of the oral proceedings, the board expressed its provisional opinion on procedural and substantive issues relevant to the case and pointed to deficiencies concerning Article 84 EPC.

VI. By submission dated 13 September 2019, the appellants replied to the board's communication and filed two sets of claims as new main request and auxiliary request 1 that replaced the requests previously on file.

VII. The oral proceedings were cancelled.

VIII. Claim 1 according to the main request reads as follows:

"1. A composition for use in reversing Type-1 diabetes in a mammal having new onset diabetes, the composition comprising microspheres comprising oligonucleotides that are antisense to and targeted to bind to primary transcripts selected from the group consisting of CD40, CD80 and CD86 primary transcripts, and combinations thereof."

Dependent claims 2 to 8 are directed to various embodiments of the composition of claim 1.

IX. In the present decision, reference is made to the following documents:

(1): WO 2005/112885, published on 1 December 2005;

(2): WO 2005/112894, published on 1 December 2005; and

(4): M. S. Anderson and J. A. Bluestone, 2005, Annu. Rev. Immunol., Vol. 23, pages 447 to 485.

X. The submissions made by the appellants were essentially as follows:

Article 56 EPC

The examining division erred in finding that the claimed subject-matter did not involve an inventive step. It could be accepted that document (2) represented the "closest item of prior art". The disclosure in document (2) generally concerned the fact that the microspheres protect the antisense oligonucleotides from degradation. Only Example 4 showed that mice treated with the microsphere composition took longer to develop diabetes than the ones that were not treated. At no point were mice with diabetes given any treatment. Hence, reversal of the condition could not have been observed.

In contrast, the experimental evidence in the application at issue showed that the oligonucleotide-carrying microspheres reversed the diabetes in mice that actually had diabetes. Not only did the blood glucose level of the treated mice return to normal levels, but the normalisation of the blood glucose level was maintained for an extended period after the treatment was stopped.

In view of the statements in document (4), there was no reasonable expectation on the part of the reader of document (2) that the compositions described therein would actually reverse diabetes rather than simply delaying or preventing the onset of diabetes, which was all what was demonstrated in Example 4 of document (2).

XI. The appellants request that the decision under appeal be set aside, and that a patent be granted based on the claims according to either the main request or the auxiliary request 1 filed on 13 September 2019.

Reasons for the Decision

Main request

Article 123(2) EPC

1. In section 5.1 of the decision under appeal, the examining division stated that the amendments introduced into the claims according to the first auxiliary request then on file "*... appear to be allowable in view of Article 123(2) EPC*". This finding applies also to claims 1 to 8 of the present main request, which are identical to, respectively, claims 1 to 3 and 5 to 9 of the first auxiliary request underlying the decision under appeal.

2. A composition as defined in present claim 1 is directly and unambiguously derivable from claims 1 and 5, as well as from the passages on page 3, lines 19 to 23 and page 4, lines 8 and 9 of the application as filed. Dependent claims 2 and 3 have a basis on, respectively, page 3, lines 24 and 25, and page 7, lines 18 and 19 of the application as filed. The embodiments of dependent claims 4 to 8 are disclosed in, respectively, claims 8 to 10, 15 and 16 of the application as filed.

3. Thus, the claimed subject-matter does not extend beyond the content of the application as filed.

Article 84 EPC

4. The amendments introduced into the claims according to the present main request remedy the deficiencies concerning Article 84 EPC pointed out by the board in its communication. The requirements of Article 84 EPC are now met.

Article 83 EPC

5. In section 5.3 of the decision under appeal, the examining division stated that the requirements of Article 83 EPC "*... appear to be fulfilled ...*".

6. Examples 1 and 3 of the application as filed describe, respectively, the production of microspheres comprising antisense oligonucleotides targeted to the CD40, CD80 and CD86 primary transcripts, and the use of this microsphere composition in reversing Type-1 diabetes in NOD mice having new onset diabetes. In view of the evidence on file, no serious doubts, substantiated by verifiable facts, arise that the claimed invention can be carried out by a person skilled in the art.

7. Hence, compliance with Article 83 EPC is acknowledged.

Article 54 EPC

8. Novelty of the claimed subject-matter over documents (1) and (2) was acknowledged by the examining division on the grounds that neither of these documents discloses unambiguously the treatment of subjects already suffering from diabetes (see sections 5.2 and 4.2 of the decision). In fact, although purportedly concerned with the treatment of Type-1 diabetes, the experimental evidence provided in documents (1) and (2) only shows that treatment of NOD mice of 5 to 8 weeks of age which are **not yet** diabetic delays or, to a certain extent, prevents the development of diabetes (see Example 3, in particular paragraphs [0043] to [0045] of document (1), and Example 4, paragraphs [0078] to [0080] of document (2)). Neither document (1) nor document (2) describes reversal of new onset

diabetes by administering a microsphere composition as defined in the claims. Hence, novelty within the meaning of Article 54 EPC is acknowledged.

Article 56 EPC

9. In the decision under appeal, the examining division held that, in view of the teaching of document (2), the claimed subject-matter did not involve an inventive step within the meaning of Article 56 EPC (see section 5.4 of the decision).

10. In appeal proceedings, the appellants expressly accepted that document (2) represented the closest state of the art. This document describes a microsphere composition comprising oligonucleotides as specified in present claim 1, that delays or prevents the development of Type-1 diabetes in a NOD mouse model. In the decision under appeal, the technical problem to be solved starting from document (2) was formulated as the "*... provision of a composition comprising antisense molecules targeting CD40, etc., for achieving a further, different clinical outcome in the context of the treatment of diabetes*"). This was not contested by the appellants. Nor did they dispute that the skilled person would derive from document (2) an incentive to use the composition described therein for treating new onset Type-1 diabetes, as the examining division found.

11. However, the appellants contested the examining division's finding that a person skilled in the art, in the light of the statements in paragraph [00054] of document (2), would have been able to predict that a composition which had been shown to prevent development of diabetes in non-diabetic NOD mice by preventing the destruction of beta cells, would also have the same

effect in mice having developed the disease, but still having sufficient beta cell mass to maintain blood glucose levels in the normal range, i.e. NOD mice with new onset Type-1 diabetes. To support their line of argument, the appellants referred to document (4).

12. Document (4) was published in 2005, i.e. two years before the filing date of the present application, as a review of the latest advances in understanding autoimmune disease, in particular autoimmune Type-1 diabetes (T1D) using the NOD mouse as a model animal. Following the established jurisprudence of the Boards of Appeal, the content of document (4) must be considered to reflect common general knowledge of a skilled person at the filing date of the present application, i.e. knowledge that a notional skilled person in the field of autoimmune Type-1 diabetes was expected to have, or at least be aware of. As is apparent from this document, until 2005 "*... more than 175 different agents have*[had] *been shown to delay or prevent onset of T1D in NOD mice*", but "*... less than half a dozen therapies have*[had] *been shown to reverse diabetes once the clinical manifestations of the disease are evident*" (see the sentence bridging pages 468 and 469, and page 468, lines 4 and 5). In fact, "*... many of the reagents that have been shown to be efficacious in prediabetic animals have proven to be ineffective in new onset diabetic mice*" (see page 469, last sentence of the first paragraph).

13. Contrary to the examining division's view, the board is not persuaded that a person skilled in the art being aware of the facts apparent from document (4) was able to predict rationally that a microsphere composition which delayed or prevented the development of diabetes in non-diabetic mice, would necessarily reverse the

disease in mice having new onset diabetes. In view of the statements in paragraph [00054] of document (2), the skilled person may have hoped to be able to revert diabetes in its early stage by administering the known microsphere composition; however, upon appraisal of the available facts as apparent from document (4), he/she could not have reasonably expected to succeed.

14. Hence, an inventive step within the meaning of Article 56 EPC is to be acknowledged.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division with the order to grant a patent based on claims 1 to 8 according to the main request filed on 13 September 2019, and a description to be adapted thereto.

The Registrar: The Chairman:

I. Aperribay B. Stolz

Decision electronically authenticated