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Datasheet for the decision of 6 March 2013

Case Number: T 2165/08 - 3.3.04

Application Number: 98942516.0

Publication Number: 1015469

IPC: C07H 21/00

Language of the proceedings: EN

Title of invention:
Bi- and tri-cyclic nucleoside, nucleotide and oligonucleoide analogues

Patent Proprietor:
Exiqon A/S

Opponent:
Isis Pharmaceuticals, Inc.

Headword:
Bi-cyclic nucleoside analogues/EXIQON

Relevant legal provisions:
EPC Art. 54, 56, 87, 104(1), 123(2)
RPBA Art. 12(2), 13(1)(3), 16(1)

Keyword:
"Main request - inventive step (no)"
"Auxiliary request 1 and 2 - not admitted"
"Auxiliary request 3 - added matter (no), novelty (yes), inventive step (yes)"

Decisions cited:
G 0001/93, G 0002/98, G 0001/03, G 0002/10, T 0201/83, T 1067/97, T 0714/00, T 1329/04, T 1834/09

Catchword:
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Case Number: T 2165/08 - 3.3.04

D E C I S I O N
of the Technical Board of Appeal 3.3.04
of 6 March 2013

Appellant: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 7 August 2008 revoking European patent No. 1015469 pursuant to Article 101(3)(b) EPC.

Composition of the Board:

Chairman: C. Rennie-Smith
Members: M. Montrone
R. Morawetz

Summary of Facts and Submissions

I. The appeal was lodged by the patentee (hereinafter "appellant") against the decision of the opposition division to revoke European patent No. 1015469 entitled "Bi- and tri-cyclic nucleoside, nucleotide and oligonucleotide analogues" (based on European application number 98942516).

II. The opposition was filed on the grounds in Articles 100(a) EPC (lack of novelty, Article 54 EPC and lack of inventive step, Article 56 EPC), Article 100(b) EPC and Article 100(c) EPC.

III. An appeal, dated 13 October 2008, was filed by the appellant against the decision of the opposition division followed by a statement of grounds of appeal dated 17 December 2008. In its decision under appeal the opposition division decided that the main request and auxiliary requests 1 to 4 lacked an inventive step (Article 56 EPC).

IV. The opponent (hereinafter "respondent") filed a reply to the statement of the grounds of appeal with a letter dated 26 May 2009.

V. A summons to oral proceedings was issued on 5 December 2012.

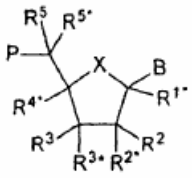
VI. The board informed the parties of its preliminary view in its communication dated 30 January 2013.

VII. The appellant in reply filed on 6 February 2013 a new main request and auxiliary requests 1 to 3. In addition,

document D51 was submitted with the statement: "The implications of this post-filed evidence will be explained during the oral hearing".

- Claim 1 of the main request reads:

"1. An oligomer (hereinafter termed "LNA modified oligonucleotide") comprising at least one nucleoside analogue (hereinafter termed "LNA") of the general formula I



I

wherein:
X is -O-;

B is selected from hydrogen, hydroxy, optionally substituted C_{1-4}-alkoxy, optionally substituted C_{1-4}-alkyl, optionally substituted C_{1-4}-acyloxy, nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

P designates the radical position for an internucleoside linkage to a succeeding monomer, or a 5'-terminal group, such internucleoside linkage or 5'-terminal group optionally including the substituent R^5;

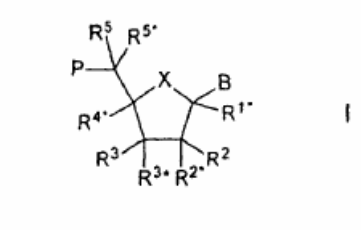
R^{3*} is a group P* which designates an internucleoside linkage to a preceding monomer, or a 3'-terminal group;

the substituents R^{2*} and R^{4*} together designate a biradical selected from $-(CH_2)_{0-1}-S-(CH_2)_{1-3}-$, or $-(CH_2)_{0-1}-N(R^N)-(CH_2)_{1-3}-$ where R^N is selected from hydrogen and C_{1-4}-alkyl;

each of the substituents R^{1*}, R^3, R^5 and R^{5*} is hydrogen and R^2 is selected from hydrogen, hydroxy and optionally substituted C_{1-6}-alkoxy; and basic salts and acid addition salts thereof."

- Claim 1 of auxiliary request 1 reads:

"1. An oligomer (hereinafter termed "LNA modified oligonucleotide") comprising at least one nucleoside analogue (hereinafter termed "LNA") of the general formula I



I

wherein:
X is -O-;

B is selected from hydrogen, hydroxy, optionally substituted C_{1-4}-alkoxy, optionally substituted C_{1-4}-alkyl, optionally substituted C_{1-4}-acyloxy, nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

P designates the radical position for an internucleoside linkage to a succeeding monomer, or a 5'-terminal group, such internucleoside linkage or 5'-terminal group optionally including the substituent R^5;

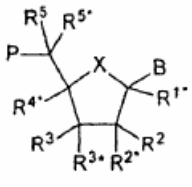
R^{3*} is a group P* which designates an internucleoside linkage to a preceding monomer, or a 3'-terminal group;

the substituents R^{2*} and R^{4*} together designate a biradical selected from $-S-(CH_2)_{1-3}-$, or $-N(R^N)-(CH_2)_{1-3}-$ where R^N is selected from hydrogen and C_{1-4}-alkyl;

each of the substituents R^{1*}, R^3, R^5 and R^{5*} is hydrogen and R^2 is selected from hydrogen, hydroxy and optionally substituted C_{1-6}-alkoxy; and basic salts and acid addition salts thereof."

- Claim 1 of auxiliary request 2 reads:

"1. An oligomer (hereinafter termed "LNA modified oligonucleotide") comprising at least one nucleoside analogue (hereinafter termed "LNA") of the general formula I



I

wherein:
X is -O-;

B is selected from hydrogen, hydroxy, optionally substituted C_{1-4}-alkoxy, optionally substituted C_{1-4}-alkyl, optionally substituted C_{1-4}-acyloxy, nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

P designates the radical position for an internucleoside linkage to a succeeding monomer, or a 5'-terminal group, such internucleoside linkage or 5'-terminal group optionally including the substituent R^5;

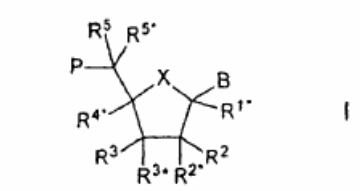
R^{3*} is a group P* which designates an internucleoside linkage to a preceding monomer, or a 3'-terminal group;

the substituents R^{2*} and R^{4*} together designate a biradical selected from $-(CH_2)_{0-1}-S-(CH_2)$, or $-(CH_2)_{0-1}-N(R^N)-(CH_2)-$ where R^N is selected from hydrogen and C_{1-4}-alkyl;

each of the substituents R^{1*}, R^3, R^5 and R^{5*} is hydrogen and R^2 is selected from hydrogen, hydroxy and optionally substituted C_{1-6}-alkoxy; and basic salts and acid addition salts thereof."

- Claim 1 of auxiliary request 3 reads:

"1. An oligomer (hereinafter termed "LNA modified oligonucleotide") comprising at least one nucleoside analogue (hereinafter termed "LNA") of the general formula I



I

wherein:
X is -O-;

B is selected from hydrogen, hydroxy, optionally substituted C_{1-4}-alkoxy, optionally substituted C_{1-4}-alkyl, optionally substituted C_{1-4}-acyloxy, nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

P designates the radical position for an internucleoside linkage to a succeeding monomer, or a 5'-terminal group, such internucleoside linkage or 5'-terminal group optionally including the substituent R^5;

R^{3*} is a group P* which designates an internucleoside linkage to a preceding monomer, or a 3'-terminal group;

the substituents R^{2*} and R^{4*} together designate a biradical selected from -S-(CH_2), or -N(R^N)-(CH_2)- where R^N is selected from hydrogen and C_{1-4}-alkyl;

each of the substituents R^{1*}, R^3, R^5 and R^{5*} is hydrogen and R^2 is selected from hydrogen, hydroxy and optionally substituted C_{1-6}-alkoxy; and basic salts and acid addition salts thereof."

VIII. The appellant filed document D52 with its faxed letter of 12 February 2013 which referred to the respondent's reply of 26 May 2009 as the reason for filing this document.

IX. The documents referred to in the present decision are:

D4: Imanishi et al., poster P01-101 for Sixteenth International Congress of Heterocyclic Chemistry.

D7: Freier et al., Nucleic Acids Research 1997: 25(22):4429-4443.

Dl9: Kumar et al,. Bioorganic & Medicinal Chemistry Letters 1998, 8:2219-2222.

D22: Griffey et al., "New Twists on Nucleic Acids: Structural Properties of Modified Nucleosides Incorporated into Oligonucleotides", Chapter 14 in Carbohydrate Modifications in Antisense Research; Sanghvi, Y. S., Cook, P. D. Eds.; Oxford University Press, 1994; pages 212-224.

D23: Koshkin et al., Tetrahedron 1998, 54:3607-3630.

D24: Obika et al., Tetrahedron Lett. 1997, 38:8735-8738.

D34: Hari et al., Nucleic Acids Research Supplement, No. 2 (2002), 147-148.

D35: Rahman et al., Nucleic Acids Symposium Series, No. 49 (2005), 5-6.

D38: Albaek et al., Nucleosides, Nucleotides, and Nucleic Acids 2007, 26:1529-1532.

D39: Chattopadhyaya, Nucleic Acids Symposium Series 2007, Nr. 51, 69-70.

D44: Morita et al., Biorganic & Medical Chemistry, 2003, 11, 2211-2226.

D45: Herdewijn, Liebigs Ann. 1996, 1337-1348.

D51: WO2004046160

D52: Zhou et al., J. Org. Chem., 2009, 74, 118-134
P3: DK 0061/98, 16 January 1998
P6: US 60/088309, 5 June 1998
P8: DK 199800982, 28 July 1998

X. Oral proceedings were held before the board on 6 March 2013.

XI. The appellant's arguments, as far as they are relevant for the present decision, can be summarised as follows:

Admissibility of auxiliary requests 1 to 3 filed with letter of 6 February 2013

- Auxiliary requests 1 to 3 had been filed late (1 month before the oral proceedings) but represented a *bona fide* and prompt attempt to overcome issues raised by the board in its preliminary opinion, in particular with regard to inventive step and priority. They limited the scope of the claims to avoid an increase in complexity of the case. The amended biradical bridge of claim 1 of auxiliary requests 1 and 2 had a basis in the more generic biradicals of claim 1 of the main request. The amended biradical bridge of claim 1 of auxiliary request 3 had a literal basis in the application as filed.

Admissibility of document D51 filed with letter of 6 February 2013 and of document D52 filed with letter of 12 February 2012

- Documents D51 and D52 further supported inventiveness of the modified locked nucleoside analogue(s) (hereinafter "LNA" or "LNAs") claimed.

Apportionment of costs (Article 16 RPBA)

- The request for a different apportionment of costs should be rejected since there was no procedural abuse in filing claim requests one month before the oral hearing as a direct response to the board's preliminary opinion. The subject-matter of these requests was restricted in a linear manner to features already claimed avoiding thus any undue burden for the other party. In addition, it would create a precedent by limiting the procedural options of parties to a large extend.

Respondent's request that the board hear the parties' entire arguments before reaching a decision on any of the grounds of appeal

- The request was unjustified since the appellant would provide its arguments in a logical and consistent order regarding, in particular, Articles 123(2) and 56 EPC.

Main request

Amendments (Article 123(2) EPC)

- A basis for amended claim 1 with regard to the biradical linker was given in claim 17 of the application as filed in combination with claims 13 to 16 to which it referred. Claim 71 in combination with claims 69 and 70 of the application as filed provided a basis for amended claim 28.

Priority (Article 87 EPC)

- The third priority date was valid in view of the first time disclosure of a complete synthesis scheme for the 2'-thio LNA and the 2'-amino or 2'-methylamino LNA compounds in (P3). Alternatively, the provision of experimental data supporting the effect of the 2'-thio LNA as disclosed in (P6) was sufficient for claiming a valid priority. Experimental data supporting a technical effect for the 2'-amino or 2'-methylamino LNA were disclosed in (P8) justifying a valid priority for these compounds.

Inventive Step (Article 56 EPC)

- The closest prior art was represented by document D4 disclosing 2'-oxy-LNA.

- Starting from D4 as closest prior art, the technical difference was the provision of alternative LNA modified oligonucleotides or LNAs retaining useful properties in comparison to unmodified oligonucleotides.

- The problem was solved over the whole scope of the claim. The claimed 2'-thio, 2'-amino or 2'-methylamino-LNA's had a maximum biradical bridge length of 5 atoms. The invention in suit provided experimental evidence that the LNAs as claimed having a bridge length of 2 atoms showed an increased binding affinity. In addition, document D39 disclosed a modified LNA (aza-ENA) falling within the scope of the claimed compounds having useful properties with a bridge length of 3 atoms. There was no direct evidence available that

modified LNAs with a bridge length of 4 or 5 atoms and falling within the scope of those claimed would retain these useful properties. However, LNAs having a chemical 2'-4' bridge composition not falling within the scope of the LNAs claimed but having a bridge length of 4 atoms and retaining useful properties were known from documents D34, D35 and D44. Moreover, the available prior art neither pointed to alternative LNAs, such as the claimed 2'-thio, 2'-amino or 2'-methylamino LNAs having useful properties nor taught how to modify the known 2'-oxy LNA to retain these properties. Documents D22 and D45 referred to the importance of the N-conformation for nucleotides of antisense molecules for improved binding affinities to target DNA/RNA strands, however they did not disclose any LNAs. Document D7 disclosed compound (74) being an alternative LNA in N-conformation, however showing a reduced binding affinity. The skilled person would therefore have refrained from modifying the known 2'-oxy LNA.

Auxiliary request 3

Amendments (Article 123(2) EPC)

- A basis for amended claim 1 with regard to the biradical linker was given in claim 18 of the application as filed. Claim 72 of the application as filed provided a basis for amended claim 28.

Priority (Article 87 EPC)

- The 2'-thio-LNA of claims 1 and 28 was considered to be entitled to the relevant date of document (P6) in view

of the disclosure of a "S-CH_2" building block in example 65B on page 110 and in Scheme 13 of this document. The 2'-amino-LNAs were entitled to the relevant date of document (P8) in view of the disclosure of the "NH-CH_2" or "NCH_2-CH_2" building blocks in examples 65B and 65C on page 143 and in Schemes 12 and 12a of this document. The particular building blocks as disclosed in the examples were isolated features providing a direct and unambiguous disclosure to the skilled person of the subject-matter of claims 1 and 28.

Novelty (Article 54 EPC)

- The claimed subject-matter was not anticipated by the cited prior art documents.

Inventive Step (Article 56 EPC)

- The closest prior art and the problem to be solved remained unchanged in comparison to the main request. The problem was solved over the whole scope of the claim in view of the experimental data provided in examples 134 and 135 and tables 8 and 9 of the application as filed. Regarding non-obviousness of the claimed invention, the arguments remained the same as for the main request.

XII. The submissions by the respondent, insofar as they are relevant to the present decision, may be summarised as follows:

Admissibility of auxiliary requests 1 to 3 filed with letter of 6 February 2013

- All these requests were late filed and were not in response to an issue raised by the board in its preliminary opinion but to objections that were already dealt with in the first instance proceedings. In addition, auxiliary requests 1 and 2 were not allowable under Article 123(2) EPC and the subject-matter of auxiliary request 3 had been withdrawn by the patentee during the written phase of the opposition proceedings and should therefore not be admitted into the proceedings according to Article 12(4) RPBA.

Admissibility of document D51 filed with letter of 6 February 2013 and document D52 filed with letter of 12 February 2012

- Late filed documents D51 and D52 should not be admitted into the proceedings in view of the absence of any arguments relating to the relevance of these documents before the oral proceedings and any explanation why they were not filed earlier.

Apportionment of costs (Article 16 RPBA)

- A different apportionment of costs was equitable in respect of all the claim requests filed on 6 February 2013 and documents D51 and D52, if they were not admitted into the proceedings, to compensate for the unnecessary work which could have been avoided if the documents and the requests had been filed with the statement of the grounds of appeal.

Request that the board hear the parties' entire arguments before reaching a decision on any of the grounds of appeal

- In view of the appellant's strategy, as appeared from its letters dated 6 and 12 February 2013, to hold back arguments, the respondent saw a risk that the appellant might advance inconsistent arguments regarding Articles 123(2) and 56 EPC.

Main request

Amendments (Article 123(2) EPC)

- The amendments in claims 1 and 28 fulfilled the requirements of Art. 123(2) EPC, only if the selection of the two functional alternative biradical bridges would not amount to an invention merely by the fact of selecting these items (G 1/93, OJ EPO 1994, 541, Reasons, points 9 and 16).

Priority (Article 87 EPC)

- The claiming of (P3) as the relevant date by the appellant was a new argument being brought forward for the first time in the oral proceedings and was thus late and inadmissible. Only the provision of experimental data supporting the effect of the 2'-thio LNA or the 2'-amino LNAs were considered to be sufficient to support a credible disclosure for the claimed LNA compounds. These data were for the first time disclosed in (P6) for the 2'-thio LNA and in (P8) for the 2'-amino LNAs.

Inventive Step (Article 56 EPC)

- The closest prior art was represented by documents D4 or D23 disclosing 2'-oxy-LNA.

- Starting from D4 as closest prior art and in view of the technical contribution of the patent in suit, the technical difference was the provision of alternative LNA modified oligonucleotides or LNAs having higher binding affinities to complementary strands than unmodified oligonucleotides.

- The problem was not solved over the whole breath of the claim due to the empirical evidence that longer biradical linkers did not generally increase binding affinity. In addition, the selection of 2'-thio or 2'-amino LNA analogs of the 2'-oxy-LNA compound was obvious in view of the teaching of documents D4 or D23 in combination with either documents D22 or D45. The skilled person starting from either documents D4 or D23 would have made the link between the constrained N-conformation of the LNA and the observed improved binding affinities and nuclease resistance having therefore a reasonable expectation of success by replacing the oxygen with its isosteres sulphur or nitrogen which would not change the N-conformation of the LNA analogs claimed.

Auxiliary request 3

Amendments (Article 123(2) EPC)

- The respondent made no objection under Article 123(2) EPC.

Priority (Article 87 EPC)

- The subject-matter of claims 1 and 28 was not entitled to the priority of (P6) and (P8) in view of the lack of basis in these two priority documents. The disclosure of examples 65B and Scheme 13 of document (P6) for 2'-thio-LNA and examples 65B and 65C and Schemes 12 and 12a of document (P8) for the 2'-amino-LNAs was too specific and thus not supporting the more generic scope of the compounds claimed resulting in subject-matter no longer being the "same" as required in Article 87(4) EPC in combination with opinion G 2/98, Reasons, point 6.8 (OJ EPO 2001, 413). The relevant date would thus be the filing date of the patent in suit and document D19 would become novelty destroying for the subject-matter of claims 1 and 28.

Novelty (Article 54 EPC)

- The claimed subject-matter was not novel if document D19 constituted valid prior art according to Article 54 EPC. However, if priority was valid, the respondent made no objection under Article 54 EPC.

Inventive Step (Article 56 EPC)

- The subject-matter of independent claims 1 and 28 was not inventive in view of the facts and arguments already brought forward for the main request.

Reasons for the Decision

Request that the board hear the parties' entire arguments before reaching a decision on any of the grounds of appeal

1. The board could not accede to this request of the respondent. While it certainly appeared that the appellant had, in its letters of 6 and 12 February 2013, withheld some of its arguments - not least by writing, when filing document D51 in its letter of 6 February 2013, that "The implications of this post-filed evidence will be explained during the oral hearing" - the board is not satisfied that this meant that the appellant would, during the oral proceedings, advance inconsistent arguments. In fact, the board would expect the appellant to make good inconsistencies or deficiencies in its written submissions at the oral proceedings. If the appellant should in fact present inconsistent arguments, that could even be to the respondent's advantage and, if the appellant should engage in any procedurally improper conduct to the disadvantage of the respondent, then the respondent would be entitled to request an apportionment of costs (as it did in respect of the appellant's late-filed requests and evidence - see points 45 to 55 below).

Main request - claims 1 and 28 - added matter

2. The respondent submits that the features designating a "*biradical selected from* $-(CH_2)_{0-1}-S-(CH_2)_{1-3}-$, *or* $-(CH_2)_{0-1}-N(R^N)-(CH_2)_{1-3}-$ *where* R^N *is selected from hydrogen and* C_{1-4}*-alkyl*" of claims 1 and 28 constitute an inventive selection out of a longer list of biradicals thereby introducing novel subject-matter extending beyond the

content of the application as filed contrary to the requirements of Article 123(2) EPC in view of decision G 1/93 (OJ EPO 1994, 541, Reasons, point 9).

3. The board notes that the relevant basis for the remaining biradical bridges in claims 1 and 28 is claim 17 of the application as filed, in combination with claims 13 to 16 to which it refers, which reads:

"*An oligomer according to claim 16, wherein the biradical is selected from -O-, -$(CH_2)_{0-1}$-O-$(CH_2)_{1-3}$-, -$(CH_2)_{0-1}$-S-$(CH_2)_{1-3}$-, or -$(CH_2)_{0-1}$-N(R^N)-$(CH_2)_{1-3}$-.*"

4. The board is satisfied that this claim supports the selection of the two remaining biradical bridges claimed out of a longer list ("$(CH_2)_{0-1}$-S-$(CH_2)_{1-3}$-, or -$(CH_2)_{0-1}$-N(R^N)-$(CH_2)_{1-3}$-") since the subject-matter of original claim 17 is clearly presented as a list of equal alternatives thus allowing the deletion of the "-O-, -$(CH_2)_{0-1}$-O-$(CH_2)_{1-3}$-," biradicals without creating an inventive selection.

5. The same arguments apply to claim 28 which finds a basis in claim 71 as originally filed in combination with claims 69 and 70 of the application as filed.

6. In view of the above considerations the subject-matter of claims 1 and 28 does not extend beyond the content of the application as filed.

Main request - claims 1 and 28 - Priority

7. The board considers the procedural issue of whether or not to admit the new argument of the appellant with

respect to the validity of the third priority (P3) for the subject-matter of claims 1 and 28 as irrelevant, since it has no bearing on the outcome of the present decision.

8. The board emphasises the established jurisprudence regarding the importance of applying a uniform concept of disclosure for the purposes of Articles 54, 87 and 123 EPC (see decision G 1/03, OJ EPO 2004, 413, point 2.2.2 of the reasons; decision G 2/10, OJ EPO 2012, 376, point 4.6 of the reasons). This requires that the rights of an applicant are uniformly determined in all these contexts as extending to, but at the same time as being limited to, the disclosure made at the relevant point in time. In particular, opinion G 2/98 (OJ EPO 2001, 413, see point 9 of the reasons) emphasised that, in the context of determining the right to priority, a narrow or strict interpretation of the concept of "the same invention" has to be applied, limiting the right of priority to subject-matter which the person skilled in the art can derive directly and unambiguously, using common general knowledge, from the previous application as a whole. This test has to be based on an assessment of the overall technical circumstances of the individual case under consideration, taking into account the nature and extent of the disclosure in the application as filed.

9. The "first to file approach" of the European patent system determines that the earliest filing date of the application, and not the date at which the invention was made, is the decisive point in time for concluding to whom the right to a European patent belongs (cf. Article 60(2) EPC, Article 89 EPC). This requires that

the invention as a whole has to be made and disclosed at the earliest filing date at least in a credible or plausible manner and cannot be based on mere speculation (see decisions T 1834/09 of 5 April 2011, point 7 of the reasons and T 1329/04 of 28 June 2005, point 10 of the reasons).

10. The subject-matter of present claims 1 and 28 refers to a class of LNA compounds with two different biradical bridges ("$(CH_2)_{0-1}$-S-$(CH_2)_{1-3}$-, or -$(CH_2)_{0-1}$-N(R^N)-$(CH_2)_{1-3}$-"). These bridges are responsible for an increased binding affinity of the modified LNA to its target DNA/RNA sequences (see example 134 (2'-thio LNA) and example 135 (2'-amino or 2'-methylamino LNA) on page 67 of the patent, tables 8 and 9).

11. When considering the overall technical circumstances of the present case, the board notes that the disclosure content of the patent in suit and its priority document (P3) is very similar, in particular as far as the modified claimed LNA compounds and their preparation is concerned. However, they differ insofar as the patent in suit contains experimental evidence showing an increased binding affinity of the modified LNA compounds as presently claimed (see examples 134 (2'-thio LNA) and 135 (2'-amino or 2'-methylamino LNA) on page 67 of the patent, tables 8 and 9).

12. Document (P3) teaches that modified LNAs, if incorporated into oligonucleotide probes, are used as a means to increase affinity and/or specificity of these probes to their DNA/RNA target sequences (see document (P3) page 58, lines 1 to 37 which corresponds to page 24, lines 34 to 47 of the patent). Moreover,

document (P3) discloses that the incorporation of a 2'-oxo-LNA having an oxymethylene biradical bridge into oligonucleotides results in probes having an increased binding affinity compared to unmodified oligonucleotides and an increased exonuclease stability (see examples 66 and 67 starting on page 121 of document (P3)). Document (P3) is however silent on any such properties for the 2'-thio LNA or 2'-amino or 2'-methylamino LNA as presently claimed. It is undisputed between the parties that an increased binding affinity for the 2'-thio LNA is for the first time disclosed in document (P6) (see table 8, example 76A on page 121) and for the 2'-amino or 2'-methylamino LNA in document (P8) (see table 9 and example 76B on page 160).

13. The board takes the view that the disclosure of an increased binding affinity and of an improved nuclease resistance for the 2'-oxo LNA in document (P3) cannot credibly be transferred to the claimed 2'-thio or 2'-amino LNAs for the following reasons. The 2'-oxo LNA was the first compound described having these properties. However, the (P3) document **does not** teach a common principle underlying the advantageous properties found for the 2'-oxo LNA, namely that the 2'-oxymethylene bridge locks this compound into a favourable N-conformation improving thereby its binding affinity and nuclease resistance. Only the disclosure of such a common principle would provide the skilled person with a credible teaching that these properties are shared by all further compounds falling into the same class of LNA compounds. The lack of any such principle leaves the skilled person to apply a mere empirical approach in finding further alternatives having the same favourable properties as the disclosed

2'-oxo LNA. However, any empirical approach which is merely based on trial and error cannot form the basis of a credible disclosure.

14. In view of the above considerations, the board decides that the 2'-thio LNA ($(CH_2)_{0-1}$-S-$(CH_2)_{1-3}$-) modified oligonucleotide of claim 1 and the 2'-thio LNA of claim 28 are only entitled to a valid priority of document (P6) and that the corresponding 2'-amino LNA ($(CH_2)_{0-1}$-$N(R^N)$-$(CH_2)_{1-3}$-) modified oligonucleotide or LNAs are only entitled to a valid priority of document (P8).

Main request - claims 1 and 28 - Novelty

15. Novelty of the subject-matter claimed in the main request was not disputed by the respondent. In view of the available prior art documents, the board sees no reason to come to a different conclusion.

Main request - claims 1 and 28 - Inventive Step

16. Claim 1 relates in essence to a LNA modified oligonucleotide comprising at least one LNA of the general formula I, wherein a biradical bridge between the substituents R^{2*} and R^{4*} is formed which is selected from -$(CH_2)_{0-1}$-S-$(CH_2)_{1-3}$- (2'-thio LNA), or -$(CH_2)_{0-1}$-$N(R^N)$-$(CH_2)_{1-3}$- (2'-amino or methylamino LNA), where R^N is selected from hydrogen and C_{1-4}-alkyl. The purpose of the invention is to provide modified LNAs of the generic formula I resulting in conformationally constraint nucleoside analogs and oligonucleotide analogs having improved binding affinities to complementary DNA and RNA molecules. The claimed 2'-4'-

biradical bridges lock the sugar moiety (furanose) of the LNA nucleoside into its native conformation found in naturally occurring nucleosides which results in the improved binding properties of the LNA or the LNA modified oligonucleotide (see page 5, lines 1 to 11; page 8, line 17 to page 9, line 5; figures 1A and 1B; page 17, lines 5 to 12 of the application as filed). This locked or fixed conformation of the sugar moiety is also known as "C3-endo" or "Northern-conformation" (N-conformation) (see document D24, page 8735, second paragraph; document D23, figure 2).

Closest prior art

17. For assessing whether or not a claimed invention meets the requirements of Article 56 EPC, the Boards of Appeal apply the "problem and solution" approach, which requires as a first step the identification of the closest prior art. In accordance with the established jurisprudence, the closest prior art is a teaching in a document conceived for the same purpose or aiming at the same objective as the claimed invention and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications to arrive at the claimed invention.

18. There was no dispute between the parties that document D4 constitutes the closest prior art. The respondent in addition referred to document D23. The board in view of the explicit statement in document D4 that the nucleoside analog is conformationally constrained in the N-conformation selected this document as closest prior art (see document D4, title and first paragraph).

19. Document D4 discloses a LNA with a C2'-C4'-**oxy**methylene biradical bridge attached to the 2-deoxyribose unit resulting in improved binding affinities of oligonucleotides (oligos) comprising this analog to complementary DNA and RNA molecules and increasing at the same time the nuclease resistance of these oligos (emphasis added by the board).

Problem

20. In the absence of any comparative data demonstrating an improvement of the LNA modified oligo of claim 1 or the nucleoside analog (LNA) of claim 28 over the properties of the nucleoside analog of document D4, the board considers the problem to be solved as the provision of alternative LNA modified oligos or LNAs having an increased binding affinity in comparison to unmodified nucleosides or oligos.

Solution

21. The first question to be addressed is whether the problem has been plausibly solved by the LNA modified oligo or LNA of claims 1 and 28 over the whole scope claimed.

The contested patent comprises one example of a 2'-thio LNA with a **thio**methylene biradical bridge (see example 134) and one of a 2'-amino or 2'-methylamino LNA with a **amino**methylene or a methylen-(N-**methyl)amino** biradical bridge (see example 135) (emphasis added by the board). Tables 8 and 9 compare the binding affinities of these three LNA oligos with unmodified oligos and reveal a higher binding affinity for their complementary DNA or

RNA target molecules. The length of the biradical bridges of all LNAs disclosed comprises only two atoms, one sulphur and one carbon atom or one amino atom and one carbon atom.

The subject-matter of claims 1 or 28 relates, however, to LNAs with biradical thio or amino bridges of a length of up to 5 atoms (4 carbons and one sulphur or one amino atom).

The board observes that neither the description of the contested patent nor any of the available documents on file including the post-published prior art discloses a LNA having a 2'-4' biradical bridge according to either claim 1 or 28 exceeding a total length of two chain members.

Moreover, the prior art reports decreases of the binding affinity of LNAs having biradical bridges exceeding a total length of 3 chain members due to a destabilization of the otherwise constrained N-conformation of the sugar unit. The longer chain length obviously increases the flexibility of the biradical bridge thereby weakening the constraint on the sugar unit (see document D44, page 2215, col. 1, second paragraph; document D38, page 1531, second paragraph; document D7, compound (74) in figure 3).

Appellant has cited document D34 referring to an example of a nucleoside with a biradical bridge of 4 members consisting of oxygen, carbon, oxygen and a further carbon atom (O-C-O-C linkage). It has been argued that despite its rather extended bridge length the LNA shows an increased binding affinity towards its

complementary target (see document D34, figure 1, table 1 on page 148).

The board, however, notes that (i) this specific biradical bridge type does not fall within the kind of bridges presently claimed. Moreover, (ii) the increased binding affinity is only observed for single strand RNA target molecules but not for complementary DNA targets (see document D34, table 1 on page 148). In addition, (iii) the presence of two oxygen atoms in the bridge results in a high overall electronegative property which may in itself positively influence the binding behaviour of the LNA analog but which cannot be extrapolated to other biradical linkers containing electropositive or neutral heteroatoms, such as sulphur or nitrogen.

In summary, none of the examples of the patent in suit nor any of the post-published LNA variants demonstrate an increased binding affinity for complementary DNA and RNA target sequences in comparison to unmodified oligos over the whole breadth of claims 1 and 28. It is therefore not credible that the problem indicated above is solved over the whole scope of claims 1 and 28.

22. Thus, the problem underlying the present invention can be seen only as the provision of further LNAs or LNA modified oligos.

Obviousness

23. Document D4 (see abstract) discloses the synthesis of a LNA compound with a 2'-4' biradical oxymethylene linker. Further documents disclosing the synthesis of LNAs with

a 2'-4' biradical oxymethylene linker are D23 (see Scheme 1 on page 3610) or D24 (see page 8736, Scheme 1). The board notes that the problem as formulated under point 22 above, does no longer require that the alternative LNA provided is constrained in the N-conformation or shows any binding for its complementary DNA or RNA target sequence. The skilled person starting from document D4 had therefore only to replace the oxygen atom at the C2' position in the linker by either a sulphur or a nitrogen atom to arrive at LNA compounds falling within the scope of claims 1 and 28. Sulphur and nitrogen are structurally similar to oxygen and commonly known isosteres of oxygen which is not disputed by the appellant (see statement of grounds of appeal dated 17 December 2008, point 5.6). Moreover, by simply replacing the oxygen by one of its isosteres the skilled person had neither to change the number of atoms in the biradical bridge claimed nor to introduce further chemical changes in the bridge to compensate for these isosteric replacements. The introduced structural difference are thus so minor that the skilled person knows from his or her common general knowledge that they would have no essential bearing on the mere provision of a further LNA, in particular since a constrained N-conformation or a functional binding to its complementary nucleic acid targets is no longer required.

Consequently, the board considers the replacement of an oxygen by either a sulphur or a nitrogen in the biradical bridge as an obvious choice for the skilled person.

Further arguments of the appellant

24. The appellant has argued that the problem to be solved should rather be considered as the provision of alternative LNA modified oligos or LNAs retaining useful properties. The definition of this broader problem was in particular justified in view of the generic disclosure of the patent application referring to modified oligomers having good hybridisation properties with respect to affinity and specificity (see page 46, lines 18 and 19) or having a particular exonuclease stability (see page 48, lines 1 to 3).

The board however cannot accept this reasoning. It is not contested that the application as filed refers in general to useful properties of the modified oligos and it is not disputed that isolated, defined LNAs show them. However, the application as filed refers to many different LNAs with different biradical bridges having e.g. (i) different positions, such as 2'-4' or 2'-3' (see figure 2), or (ii) different chemical compositions of the biradical linkers, such as alkyl, O, S, N, Si and all possible mixtures thereof including (iii) a huge variety of possible bridge lengths (see page 24, line 31 to page 25, line 12 of the application as filed). Moreover, the application does not disclose a general teaching how the chemical composition of the biradical linker or its length influences these properties. However, as can be seen from post-published documents, the exact chemical composition of this biradical linker as well as its length strongly influences the binding properties of modified LNAs as well as its nuclease resistance (see document D44, page 2215, col. 1, second paragraph; document D38,

page 1531, second paragraph; document D7, compound (74) in figure 3; document D34, table 1 on page 148). In view of these findings, the board considers the broader problem advanced by appellant as unjustified.

25. Thus, the subject-matter of claims 1 and 28 of the main request is obvious and does not meet the requirements of Article 56 EPC.

Auxiliary Requests 1 and 2 - admissibility

26. Auxiliary requests 1 and 2 were filed one month before the oral proceedings and described by the appellant as an attempt to reply to the preliminary view of the board expressed in its communication. However, in its preliminary view the board raised no arguments or issues which were not already dealt with during the opposition proceedings. Therefore these requests could and should have been filed with the statement of grounds of appeal in order to contain the complete case of the appellant (Article 12(2) RPBA). They were thus clearly late filed and are an amendment to the appellant's case. Admissibility of these requests thus depends on the board's discretion (Article 13(1) RPBA).

27. The amendments of the biradical linkers in claims 1 and 28 ($-S-(CH_2)_{1-3}-$, or $-N(R^N)-(CH_2)_{1-3}-$ in claims 1 and 28 of auxiliary request 1; $-(CH_2)_{0-1}-S-(CH_2)-$, or $-(CH_2)_{0-1}-N(R^N)-(CH_2)-$ in claims 1 and 28 of auxiliary request 2) have neither a literal basis in the application as filed nor could the claimed selection of biradical linkers from the generic disclosure of "$-(CH_2)_{0-1}-S-(CH_2)_{1-3}-$, or $-(CH_2)_{0-1}-N(R^N)-(CH_2)_{1-3}-$" be derived in a clear and unambiguous manner from the application as a

whole by the person skilled in the art. Thus *prima facie*, the new selections appeared not to meet the requirements of Article 123(2) EPC. Consequently, the board did not admit these two requests into the proceedings.

Auxiliary request 3 - admissibility

28. Auxiliary request 3 was, like auxiliary requests 1 and 2, filed one month before the oral proceedings in an attempt to reply to the preliminary view of the board expressed in its communication. For the same reasons as under point 26 above, it is late filed and an amendment to the appellant's case. Admissibility of this request thus depends on the board's discretion (Article 13(1) RPBA).

29. The subject-matter of claims 1 and 28 refers to biradical bridges "-S-(CH_2)-, or -N(R^N)-(CH_2)-" which had been abandoned by the appellant in its letter dated 7 February 2008 (see point 4.1) in the written phase of the opposition proceedings in response to an objection under Article 123(2) EPC of the respondent. Consequently, the board has a discretion to admit this request into the appeal proceedings depending on the complexity of the subject-matter, the current state of the proceedings and the need for procedural economy (Article 13(1) RPBA). In view of claim 18 of the application as filed, the board can see that *prima facie* the new subject-matter claimed would most probably not contravene Article 123(2) EPC. In addition, the request limits the subject-matter claimed in a convergent manner and was filed four weeks before the

oral proceedings. In view of these findings the board admitted the auxiliary request 3 into the proceedings.

Auxiliary Request 3 - claims 1 and 28 - added matter

30. The subject-matter of claims 1 and 28 of auxiliary request 3 differs from the corresponding claims of the main request in that the 2'-4' biradical linker is restricted to "-S-(CH_2)-, or -N(R^N)-(CH_2)-" resulting in a maximum bridge length of 2 chain members. The respondent did not raise any objections under Article 123(2) EPC against the subject-matter of the auxiliary request 3. In view of the subject-matter of claim 18 in the application as filed the board sees no reason to come to a different conclusion.

Auxiliary Request 3 - claims 1 and 28 - Priority

31. The board notes that the subject-matter of claims 1 and 28 with regard to the biradical "-S-(CH_2)-, or -N(R^N)-(CH_2)-" lacks literal support in any of the available priority documents. These features were for the first time explicitly mentioned in the application as filed (see page 27, line 34, claim 18). The priority documents (P6) and (P8) disclose, however, a literal basis for the more generic biradicals "-$(CH_2)_{0-1}$-S-$(CH_2)_{1-3}$-" or -$(CH_2)_{0-1}$-N(R^N)-$(CH_2)_{1-3}$-" (see documents (P6) and (P8), claims 27, 73). Moreover, these priority documents disclose examples referring in general to the synthesis of 2'-thio and 2'-amino LNA oligonucleotides based on specific embodiments for a "-S-(CH_2)-Uracil" and "-NH-(CH_2)- or -NCH_2-(CH_2)-Thymidine" (see documents (P6) and (P8), Schemes 12/12A, examples 65B, 65C).

32. The respondent argued that the extraction of the specific biradical bridge from the examples and schemes mentioned above into the more generic context of LNA modified oligos or LNAs according to claims 1 and 28 amounted to an intermediate generalisation and thus a non-disclosed combination of features for which a valid priority from either documents (P6) or (P8) cannot be claimed.

33. As outlined under point 8, *supra*, a uniform concept of disclosure has to be applied for assessing the requirements stipulated under Articles 54, 87 and 123(2) EPC. The established jurisprudence of the boards of appeal has developed certain requirements relating to the combination of a selected feature only disclosed in an individual example with a more generic subject-matter. Normally it is not admissible under Article 123(2) EPC to extract isolated features from a set of features which have originally only been disclosed in combination to restrict a claim to a preferred embodiment. Such an amendment would only be justified (i) in the absence of any clearly recognisable functional or structural relationship among these features and additionally, (ii) in the context of a disclosed particular value in a specific example if the skilled person could readily recognise that this value is not so closely associated with the other features of the example as to determine the effect of that embodiment of the invention as a whole in a unique manner and to a significant degree (see the examples cited in "Case Law of the Boards of Appeal of the European Patent Office, 6th edition 2010", Section III-A, 1.1, page 319-321, 324-325 and in particular

decisions T 201/83 published in OJ EPO 1984, 481; T 1067/97 of 04.10.2000; T 714/00 of 06.08.2002).

34. The disclosure of the priority documents (P6) or (P8) as outlined under point 31 above relates to 2'-thio and 2'-amino LNA oligonucleotides with improved binding affinities by using specific 2'-4' biradical bridges in certain nucleosides, such as a "-S-(CH_2)-Uracil" or "-NH-(CH_2)- or -NCH_2-(CH_2)-Thymidine".

35. The effect, namely the improved binding affinity of the LNA compound does not depend on the nucleoside used but on the specific 2'-4' biradical bridge locking the furanose ring of the nucleoside into the N-conformation irrespective of which nucleoside is used. In view of the loose association between the bridge and the nucleoside the skilled person would treat them as individual building blocks that could be separately considered in the preparation of LNA compounds since a functional or structural relationship between the two features is not apparent. This view of the board is further supported by the heading used for describing the synthesis of the LNA compounds. Examples 65B and 65C of documents (P6) and (P8) refer to the **"Synthesis of 2'-thio LNA oligonucleotides"** or **"Synthesis of 2'-amino LNA oligonucleotides"** (emphasis added by the board) thus rendering it clear to the skilled person that in fact any LNA irrespective of its nucleoside can be synthesised with the method given.

36. The skilled person can therefore derive the subject-matter of these compounds in a clear and unambiguous manner from the content of the priority documents (P6) and (P8). For these reasons, the board considers that

the LNA modified oligonucleotide and the LNA based on a "-S-(CH_2)-" biradical bridge is entitled to a valid priority of document (P6) whereas the LNA with a -N(R^N)-(CH_2)-" biradical bridge is entitled to a valid priority of document (P8) (Article 87 EPC).

This finding has the consequence that document D19 does not constitute valid prior art according to Article 54(2) EPC.

Auxiliary request 3 - claims 1 and 28 - Novelty

37. Novelty of the subject-matter claimed in the auxiliary request 3 was not disputed by the respondent. In view of the available prior art documents the board sees no reason to come to a different conclusion.

Auxiliary Request 3 - claims 1 and 28 - Inventive Step

Closest prior art and problem to be solved

38. Document D4 remains the closest prior art for the reasons set out above under points 18 and 19 for the main request. The problem to be solved is the same as outlined under point 20, *supra*.

Solution

39. The board is satisfied that, in view of examples 134 and 135 in combination with the binding data disclosed in tables 8 and 9 of the contested patent, the problem is solved.

40. The skilled person knows from document D4 that a conformationally constrained nucleoside analog having a 2'-4' biradical **oxy**methylene linker between the C2' and C4' residue of the furanose ring has a N-conformation (C2'-exo/C3'-endo). This modified nucleoside shows an improved binding affinity towards its complementary DNA/RNA target sequences and has an increased nuclease resistance. The subject-matter of claims 1 and 28 is different therefrom by using either a 2'-4' biradical **thio**methylene or an **amino**methylene or a methylen-(**N-methyl)amino** linker. The question to be answered is whether the skilled person starting from document D4 would have provided these nucleoside analogs to solve the problem formulated above (see point 20).

41. At the priority date it was known that antisense oligonucleotides for an efficient hybridization towards targeted DNA or RNA molecules require a certain conformational complementarity which may be achieved by a preorganized structure of the antisense molecule (see documents D45, page 1337, abstract; and D22, page 212, abstract). Double stranded and single stranded RNA (dsRNA, ssRNA) adopt an A-form restricting the conformation of the furanose sugar unit of the individual nucleosides into a C3'-endo conformation. Double stranded DNA (dsDNA) occurs in A- and B-form. The B-type contains nucleosides in the C2'-endo conformation (see document D45, page 1338, column 1, last paragraph to column 2, first paragraph and Scheme 2). An antisense molecule targeting ssRNA should thus have a conformational structure fitting the A-form like helical structure, namely a C3'-endo conformation (see document D45, page 1339, column 1, first paragraph). Nevertheless, it was stated that a conformational match

between the antisense and the target was not an absolute prerequisite and that there are more yet vaguely defined factors further influencing the hybridization efficiency between oligomers (see document D45, page 1338, column 2, first paragraph, page 1339, column 1, third paragraph).

42. Document D7 discloses a nucleoside analog (compound 74) having an 2'-4'- alkyl biradical bridge showing, however, a decreased binding affinity for its complementary target sequence. Reasons for its failure have not been indicated but it appears that said construct does not pre-organize into a N-conformation despite the presence of a 2'-4' biradical bridge (see page 4433, column 2, second paragraph; page 4434, table 7 and figure 3). Moreover, document D22 discloses a dramatic influence on the conformation of the sugar unit (furanose ring) of a nucleoside analog depending on the kind of modification at its C2' position. For example introduction of an electronegative substituent, such as oxygen, at the C2' position shifts the conformation into a favourable N-conformation, increasing thereby its binding affinities. Introduction of less electronegative substituents, however, such as sulphur or nitrogen, increases the S-conformation of the furanose ring thereby diminishing the binding affinity of the nucleoside analog (see document D22, page 219, third paragraph to page 220, first paragraph, page 222, second paragraph).

43. In the board's view the skilled person taking together the disclosures of documents D22, D45 and D7 would consider the presence of a N-conformation of the nucleoside as important for its binding behaviour.

Moreover, the skilled person would understand that the mere presence of a 2'-4' biradical bridge in a nucleotide analog appears not to be enough to constrain the furanose in the N-conformation (see document D7, compound (74)). In addition, he or she would be aware of the fact that the overall electronegative charge of the modification of the C2' position of the furanose ring would influence its conformation.

In this respect the board notes that the respondent's argumentation as to why the skilled person would simply exchange the oxygen at the C2' position by its isosteres sulphur or amino is not persuasive in view of the arguments above. In particular, there is no indication in any of the available prior art documents that the favourable N-conformation would be conserved upon an exchange of the oxygen in the biradical bridge of document D4 by either its isosteres sulphur or nitrogen. Rather on the contrary, the skilled person looking at document D22 would expect that the N-conformation would be destabilised by this exchange thereby negatively influencing its binding affinity for its target sequences.

44. The board concludes therefore that the skilled person would neither be motivated to exchange the oxygen by its isosteres nor in doing so have any expectation of success regarding the maintenance of a favourable N-conformation and increased binding affinity towards its target sequences in comparison to unmodified oligos or nucleosides. The subject-matter of present claims 1 and 28 is therefore considered not to be obvious and meets the requirements of Article 56 EPC. Claims 2 to 27 and 29 to 65 all depend on either claim 1 or claim 28

rendering the subject-matter of these claims likewise inventive (Article 56 EPC).

Apportionment of Costs

45. Article 104(1) EPC provides that:

"Each party to the opposition proceedings shall bear the costs it has incurred, unless the Opposition Division, for reasons of equity, orders, in accordance with the Implementing Regulations, a different apportionment of costs."

That provision applies equally to opposition appeal proceedings by virtue of Article 111(1) EPC. In such proceedings, Article 16(1) RPBA also applies and this provides that:

"(1) Subject to Article 104(1) EPC, the Board may on request order a party to pay some or all of another party's costs which shall, without limiting the Board's discretion, include those incurred by any

(a) amendment pursuant to Article 13 to a party's case as filed pursuant to Article 12(1);

(b) extension of a time limit;

(c) acts or omissions prejudicing the timely and efficient conduct of oral proceedings;

(d) failure to comply with a direction of the Board;

(e) abuse of procedure."

To decide on an apportionment of costs therefore, the board must (i) receive a request therefore, (ii) be satisfied that there are reasons of equity to depart from the usual régime that each party bears its own costs, and (iii) be satisfied that the costs in question were incurred in one of the five ways listed in Article 16(1) RPBA although, as the words "without limiting the Board's discretion" make clear, the list is not exhaustive.

46. As regards (i), the respondent made a request for apportionment of costs in its letter dated 22 February 2013 and maintained it during the oral proceedings. As regards (ii), the board considers that "for reasons of equity" indicates that some circumstances of the case call for an apportionment different from the normal régime and, as indicated by the case-law (see generally "Case Law of the Boards of Appeal of the European Patent Office", 6th edition 2010, pages 740 to 763), this means costs should be awarded against a party which can be held to have caused another party unnecessary expense that could have been avoided with normal care or by compliance with prescribed or established procedures. As regards (iii), this clearly requires an examination of each apportionment request in the circumstances of the particular case. As a practical matter, (ii) and (iii) will usually need to be considered together.

47. In the present case the respondent seeks an apportionment of costs because the appellant filed its auxiliary requests 1 to 3 and document D51 on 6 February 2013 - one month before the oral proceedings - and document D52 on 12 February 2013 - which was even

closer to the oral proceedings. The respondent says this caused it unnecessary work, and thus consequentially unnecessary additional costs, which would have been avoided if the requests and evidence in question had been filed, as they should have been, with the statement of grounds of appeal. The appellant says the new requests and documents were filed as a response to the board's preliminary opinion of 30 January 2013.

48. In this respect the facts as shown by the file are against the appellant. As regards the requests, in its preliminary opinion the board raised no arguments or issues which were not already dealt with in the opposition proceedings so the requests filed on 6 February 2013 could, and to comply with Article 12(2) RPBA should, have been filed with the statement of grounds of appeal dated 17 December 2008. In fact the appellant then filed a main and four auxiliary requests which were all unchanged from requests filed before the opposition division. It seems clear that the appellant made a conscious decision, when substantiating its appeal, to pursue the requests which did not succeed at first instance and not to file any additional requests. In doing so it took the double risk that, if it changed its mind later and filed further requests in addition or in substitution, such requests might not only be inadmissible (see Article 13 RPBA) but that, depending on the circumstances, the respondent might seek an apportionment of costs. Inevitably, the later in time that such further requests are filed, the greater both those risks become.

49. In the event, the appellant filed the requests one month before the oral proceedings, in an appeal which

had then been pending for four years, and both risks materialised. As regards admissibility of the late-filed requests, the appellant was relatively fortunate - the respondent did not object to the new main request which had been presaged by the previous auxiliary request 4 and the board has found the new auxiliary request 3 admissible; but as regards the other late-filed requests, there is no plausible or adequate explanation for the late filing. It is clear that, if they had been filed with the grounds of appeal, the respondent's representative could have considered them with the other requests filed then, taken its client's instructions on them then, and dealt with them together with the other requests in the reply. By filing them much later, the appellant made the respondent repeat that process just for the additional requests which will inevitably have lead to additional and avoidable costs. To have caused that was inequitable behaviour (see point 46 above). The costs in question have been incurred by an amendment to the appellant's case, and thus fall within Article 16(1)(a) RPBA. Although it is unnecessary to decide the point, the board can see it could also be argued that in all the circumstances the late filing just before the oral proceedings of new requests replacing those on file from the outset of the appeal was an abuse of procedure within Article 16(1)(e) RPBA.

50. Turning to the late-filed documents D51 and D52, the appellant argued that these supported its case on inventive step. The appellant also suggested (see its letter of 6 February 2013) that document D51 was filed "in view of the board's preliminary comments regarding inventive step" and (see its letter of 12 February 2013)

that document D52 was filed "in view of the respondent's submissions filed with letter of 26 May 2009". The respondent argued that the relevance of the documents had not been established and that no explanation for their late production had been offered.

51. The appellant's reliance on the board's preliminary opinion leads to the same observation as in respect of the late-filed requests (see point 48 above): the board's preliminary opinion raised no arguments or issues not already dealt with in the opposition proceedings so document D51 could, and to comply with Article 12(2) RPBA should, have been filed with the statement of grounds of appeal dated 17 December 2008. As regards the appellant's assertion that D52 was filed in response to the respondent's reply of 26 May 2009, nearly four years earlier, this is in effect an admission of extremely late filing unaccompanied by any explanation why the document was not filed sooner. In the case of both documents there is no explanation why this evidence is so important that it should be admitted at the very last stage of the appeal proceedings. With respect to the appellant, the mere assertion that the documents support its case is otiose - it is axiomatic that any party considers that any item of evidence it filed supports its case just as it is self-evident that no party would file an item of evidence which did not support its case.

52. It is clearly necessary for any party filing evidence in appeal proceedings after it has filed its grounds of appeal or reply to explain why it is doing so, if only because of the requirements of Article 13 RPBA and, at the risk of stating the obvious, that necessity is even

greater when oral proceedings have been appointed (see Article 13(3) RPBA). Thus, to file new documentary evidence one month before, or less than one month before, appointed oral proceedings with no credible explanation why the evidence was not filed earlier is to run the same double risk of inadmissibility and costs mentioned above in relation to late-filed requests (see point 48). In the present case the appellant actually underlined the inadequacy of its explanation by stating, in respect of document D51 in its letter of 6 February 2013, "The implications of this post-filed evidence will be explained during the oral hearing". No such comment was made of document D52 in the appellant's later letter of 12 February 2013 but, equally, no explanation beyond a reference to the respondent's reply of 26 May 2009 was offered.

53. The board has no hesitation in finding this behaviour inequitable. The last-minute production of new evidence is not only discouraged by the rules of procedure (see Article 13(3) RPBA) but also inevitably causes additional work and cost for the party faced with it. In the present case, the absence of explanation, both of the evidence itself and of its late production, makes matters worse. It would always be unacceptable for a party to produce evidence without any explanation - unless conceivably its relevance is self-evident - why the evidence supports that party's case. To produce evidence at the virtual end of the proceedings accompanied only by a statement that the explanation will be provided even later was not only discourteous but a clear, and apparently deliberate, attempt to frustrate the respondent's preparation for the oral proceedings. That was both an act prejudicing the

efficient conduct of oral proceedings and an abuse of procedure. In the board's opinion, an apportionment of costs is appropriate under each of the provisions of Article 16(1)(a), (c) and (e) RPBA.

54. The appellant's remaining argument against any apportionment of costs, that it would create a precedent by limiting the procedural options of parties, is unsustainable. There is no question of this case being a precedent in the sense of being the first of its kind (see again "Case Law of the Boards of Appeal of the European Patent Office", 6th edition 2010, pages 740 to 763). Further, there is no question of inhibiting the future conduct of parties by limiting their procedural options which will remain exactly the same as before. Equally, in the future as before, parties must exercise their procedural options in such a manner that their conduct is not inequitable, otherwise they may incur orders for apportionment of costs. If the appellant's argument were correct, any party could behave as it wished without fear of any sanction in costs. That cannot be correct. The provisions of the law as to costs, like the provisions as to procedure generally, are designed to ensure fair procedural behaviour and the use of such provisions to sanction improper use of procedure should have no effect on the proper use of procedure by others in future.

55. Therefore, the board has decided for reasons of equity to order an apportionment of costs so that the appellant pays the respondent's costs incurred by auxiliary requests 1 and 2 and document D51 filed with the appellant's letter of 6 February 2013 and document

D52 filed with the appellant's faxed letter of 12 February 2013. Such costs will be limited as required by Rule 88(1) EPC and Rule 16(2) RPBA.

Assessment of Costs

56. Before the close of the oral proceedings, the board and the parties discussed the procedure for fixing costs once an apportionment has been ordered. In this respect, the following is added for the parties' information.

Rule 88 EPC reads:

"(1) The apportionment of costs shall be dealt with in the decision on the opposition. Such apportionment shall only take into consideration the expenses necessary to assure proper protection of the rights involved. The costs shall include the remuneration of the representatives of the parties.
(2) The Opposition Division shall, on request, fix the amount of costs to be paid under a final decision apportioning them. A bill of costs, with supporting evidence, shall be attached to the request. Costs may be fixed once their credibility is established.
(3) A request for a decision by the Opposition Division may be filed within one month of the communication on the fixing of costs under paragraph 2. The request shall be filed in writing and state the grounds on which it is based. It shall not be deemed to be filed until the prescribed fee has been paid.
(4) The Opposition Division shall decide on the request under paragraph 3 without oral proceedings."

This rule superseded Rule 63 EPC 1973 and references to the "registry" of the Opposition Division no longer appear. In the board's opinion, references in Rule 88 EPC to "the Opposition Division" must, for the purposes of costs to be assessed following an order in opposition appeal proceedings, be read as references to the board of appeal.

It appears to the board that, since the apportionment has been dealt with in the present decision (see Rule 88(1) EPC), a request to fix the costs, accompanied by a bill of costs and supporting evidence should be filed with the board, and the prescribed fee paid, by the respondent within one month of the deemed date of receipt of the communication notifying this decision. Rule 88(4) EPC provides that there shall be no oral proceedings. However, the board envisages offering the appellant one month to comment on the request, bill of costs and supporting evidence before making a decision on the amount of costs.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with an order to maintain the patent on the basis of auxiliary request 3 filed with appellant's letter of 6 February 2013 and a description and figures yet to be adapted thereto.

3. There be an apportionment of costs such that the appellant pays the respondent's costs incurred by auxiliary requests 1 and 2 and document D51 filed with appellant's letter of 6 February 2013 and document D52 filed with appellant's facsimile of 12 February 2013.

The Registrar: The Chairman:

P. Cremona C. Rennie-Smith