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Datasheet for the decision of 3 May 2023

Case Number: T 0578/19 - 3.3.07

Application Number: 09710537.3

Publication Number: 2249842

IPC: A61K31/593, A61K31/59, A61P21/00

Language of the proceedings: EN

Title of invention:
USE OF 25-HYDROXY-VITAMIN D3 AND VITAMIN D TO AFFECT HUMAN MUSCLE PHYSIOLOGY

Patent Proprietor:
DSM IP Assets B.V.

Opponent:
N.V. Nutricia

Headword:
25-Hydroxyvitamin D3/DSM

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

Keyword:
Amendments - added subject-matter (no)
Sufficiency of disclosure - (yes)
Inventive step - (yes)

Decisions cited:
G 0001/03

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Beschwerdekammern

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Case Number: T 0578/19 - 3.3.07

D E C I S I O N
of Technical Board of Appeal 3.3.07
of 3 May 2023

Appellant: (Patent Proprietor)	DSM IP Assets B.V. Het Overloon 1 6411 TE Heerlen (NL)
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Appellant: (Opponent)	N.V. Nutricia Eerste Stationsstraat 186 2712 HM Zoetermeer (NL)
Representative:	Nederlandsch Octrooibureau P.O. Box 29720 2502 LS The Hague (NL)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 20 December 2018 concerning maintenance of the European Patent No. 2249842 in amended form**

Composition of the Board:

Chairman	A. Usuelli
Members:	J. Molina de Alba
	A. Jimenez

Summary of Facts and Submissions

I. The decision under appeal is the opposition division's interlocutory decision that European patent No. 2 249 842 as amended in the form of auxiliary request 6 filed during the oral proceedings of 14 September 2018 met the requirements of the EPC.

The opposition division held that:

- claims 1, 4 and 5 of the main request added subject-matter,
- for the same reasons as claim 1 of the main request, claim 1 of each of auxiliary requests 1 to 5 added subject-matter, and
- auxiliary request 6 met the requirements of Articles 123(2), 83 and 56 EPC.

II. The patent proprietor and the opponent each filed an appeal against the opposition division's decision. Since both parties are appellants and respondents to the other party's appeal, in the following they will be referred to as the patent proprietor and the opponent, respectively.

III. The following documents are referred to in the present decision:

D3 WO 2007/092755

D7 J.M. Rimaniol *et al.*, Intensive Care Med, 1994, 20, 591-592

D8 Expert opinion of Igor Bendik dated 11 July 2018

D11 A.M.M. Vaes *et al.*, J Nutr, 2018, 148, 712-720

IV. With its statement of grounds of appeal, the patent proprietor filed the claims of a main request and seven auxiliary requests.

The main request is identical to the main request on which the decision under appeal is based. It contains five claims. Claims 1, 4 and 5 read as follows:

"*1. Use of 25 hydroxyvitamin D3 ("25-OH D3") and Vitamin D3 in the manufacture of a pharmaceutical, nutraceutical, food supplement or food composition to retain or prevent the loss of muscle function or muscle strength in a human, where the human is an elderly person, or a person who suffers chronic immobility regardless of age*."

"*4. Use according to any of Claims 1-3 wherein the usage is for at least one month, preferably for more than two months, and more preferably for at least four months.*"

"*5. Use according to any of claims 1-4 wherein the ratio of Vitamin D3 to 25-0H D3 is from 6:1 to 1:6*."

V. With its statement of grounds of appeal, the opponent filed document D11.

VI. The board scheduled oral proceedings, as requested by the parties. In preparation for the oral proceedings, the board issued a communication which included its preliminary opinion on the case.

VII. By a letter dated 20 April 2023, the opponent withdrew its request for oral proceedings, announced that it would not be present at the scheduled oral proceedings, and requested a decision based on its written submissions.

VIII. Oral proceedings were held by videoconference in the absence of the opponent. At the end of the oral proceedings the board announced its decision.

IX. The patent proprietor's arguments relevant to the present decision can be summarised as follows.

Amendments - main request

Claim 1 was based on claim 6 as filed with two additional limitations:

- vitamin D was limited to vitamin D3, and
- the human was limited to an elderly person or a person who suffers chronic immobility regardless of age.

In the application as filed (page 5, lines 23 and 24), vitamin D meant vitamin D3 and/or vitamin D2. However, the only form of vitamin D disclosed in combination with 25-OH D3 was vitamin D3 (page 3, lines 23 and 24, claims 1 to 3, and the examples). Furthermore, the combination was disclosed for retaining or preventing the loss of muscle strength and function.

With regard to the limitation of the treated human, the application as filed taught that the human could be any age (page 3, lines 17 and 18) and, in particular, that the human could be an elderly person (page 7, lines 20 to 23, and claim 3) or a person who was immobilised

(page 8, lines 4 to 6 and 10 to 19). This disclosure was made in the context of the loss of muscle strength and/or function which elderly people and people suffering from chronic immobility experienced due to a vitamin D deficiency (page 6, lines 21 to 28).

Claim 4 was supported by the passage on page 3, lines 23 to 27 of the application as filed. The term "usage" in claim 4 had the same meaning as "administration" on page 3, lines 23 to 27. In addition, although the passage referred to muscle strength and not muscle function, it had to be read in the context of the application as a whole and, in particular, the sentence on page 3, lines 21 and 22. The latter referred to the enhancement of both muscle strength and function. The skilled person would understand that muscle strength and function were so interrelated that an improvement in muscle strength necessarily implied an improvement in muscle function.

The ratios of vitamin D3 to 25-OH D3 as defined in claim 5 were disclosed on pages 14 and 15 of the application as filed. They were also illustrated in the examples, as well as in the figures and on page 5, lines 1 to 20.

Sufficiency of disclosure - main request

The subject-matter of claim 1 was sufficiently disclosed. The examples in the application as filed demonstrated that the effect recited in claim 1 was achieved by the combination of 25-OH D3 with vitamin D3. D11 did not provide evidence to the contrary. The statistic model applied in D11 was not suitable for evaluating the observed effects. Moreover, even using an unsuitable model, D11 (Table 3) still

reported some improvement in knee-extension strength for both 25-OH D3 and vitamin D3 and in knee-flexion strength for 25-OH D3.

Inventive step - main request

D7 taught that the administration of 25-OH D3 or vitamin D2 improved muscle strength and function, but the effect of 25-OH D3 was superior. Example 2 of the patent showed that the combination of 25-OH D3 with vitamin D3 resulted in an unexpected beneficial effect on the muscle strength and function of elderly people and people who suffer chronic immobility. This combination was suggested in neither D7 nor D3.

X. The opponent's arguments relevant to the present decision can be summarised as follows.

Amendments - main request

Claim 1 added subject-matter. The passages on page 6, lines 21 to 29, and page 8, lines 4 to 6, of the application as filed were not a valid basis.

On page 6, lines 21 to 29, the application referred to the restoration of "healthy" muscle strength and function, a limitation that had not been incorporated into claim 1. Moreover, the passage related to the restoration of both, muscle strength and function, while the term "or" in claim 1 extended the claimed subject-matter to the restoration of only one of these.

With regard to the passage on page 8, lines 4 to 6, the expression "chronic immobility regardless of age" in claim 1 was not the same as "people who may not be elderly, but who lose muscle mass because they are

immobilised". Moreover, the passage referred to the retention and/or increase of muscle mass, not to the prevention of the loss of muscle function or strength.

Furthermore, claim 6 as filed could not be combined with claims 1 to 3 as filed since they were not directly linked.

Claim 4 also added subject-matter. The last paragraph on page 3 of the application as filed disclosed periods of "administration" rather than periods of "usage". Moreover, while the paragraph related to muscle strength, it did not relate to muscle function.

With regard to claim 5, pages 14 and 15 of the application as filed disclosed ratios of vitamin D to 25-OH D3. Since vitamin D could mean vitamin D3 and/or vitamin D2, the ratios on pages 14 and 15 were not directly and unambiguously disclosed for combinations of vitamin D3 with 25-OH D3.

Sufficiency of disclosure - main request

The subject-matter of claim 1 was not sufficiently disclosed. The clinical tests described in the examples of the application as filed were not carried out on elderly people, so they were not conclusive for the claimed subject-matter. In contrast, D11 demonstrated that neither vitamin D3 nor 25-OH D3 had an effect on the muscle strength and function of elderly people.

Inventive step - main request

D7 disclosed the combined administration of vitamin D2 and 25-OH D3 in a sequential treatment of muscle weakness and hypotonia in an elderly patient. In the

first step, the administration of vitamin D2 partially improved the patient's muscle condition. This improvement was completed by the subsequent administration of 25-OH D3. Therefore, the subject-matter of claim 1 differed from D7 in that the form of vitamin D used in the combination treatment was vitamin D3 instead of vitamin D2.

The genetic test in Example 2 of the patent did not demonstrate that the claimed combination produced an improvement in muscle strength and function over its individual components, let alone over the combination of vitamin D2 and 25-OH D3 disclosed in D7. An enhanced expression of skeletal muscle genes in the atrophy model did not necessarily translate into an improvement in muscle strength and function in a person. In line with the expert opinion D8 (page 3, second paragraph), the additionally expressed genes could even lead to muscle atrophy. Therefore, the objective technical problem was the provision of an alternative treatment for retaining or preventing the loss of muscle function or muscle strength.

Replacing vitamin D2 with vitamin D3 was obvious in view of document D3 (Example 5 and paragraph [0053]). The combination of 25-OH D3 with vitamin D3 was also suggested in paragraph [0053] of D3.

XI. The parties' requests relevant to this decision were the following.

- The patent proprietor requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the claims of the main request filed with the statement of grounds of appeal.

- The opponent requested that the decision under appeal be set aside and that the patent be revoked in its entirety.

Reasons for the Decision

1. Amendments - main request

1.1 Claim 1

1.1.1 The patent proprietor cited claim 6 as filed as the main basis for claim 1 of the main request. Claim 6 as filed reads as follows:

"*Use of 25-0H D3 and optionally Vitamin D in the manufacture of a pharmaceutical, nutraceutical, food supplement or food composition to increase or retain or prevent the loss of muscle function or muscle strength in a human*".

The opponent did not contest the patent proprietor's stance that claim 1 is based on claim 6 as filed but has the following additional limitations:

(i) vitamin D is vitamin D3, and
(ii) the human is an elderly person or a person who suffers chronic immobility regardless of age.

As noted in its communication in preparation for the oral proceedings (point 1.1.3), the board sees a

further limitation (iii) in that the combination of 25-OH D3 and vitamin D3 is compulsory.

1.1.2 With regard to limitation (i), it was common ground that in the application as filed (page 5, lines 23 and 24) vitamin D means vitamin D3 and/or vitamin D2.

Nevertheless, as correctly pointed out by the patent proprietor, the only form of vitamin D disclosed in the application as filed in combination with 25-OH D3 is vitamin D3. The application refers to vitamin D2 only in a general manner (page 1, lines 6 and 9, page 5, lines 23 to 26, and page 6, line 2), while vitamin D3 and the combination thereof with 25-OH D3 are explicitly disclosed and illustrated. In particular, claim 2 as filed is directed to the combination of 25-OH D3 with vitamin D3 for preventing the loss of muscle strength and/or muscle function in a human. The application also states on page 3, lines 23 and 24 that "*vitamin D3 may be administered together with or separately from 25-OH D3*", and the only form of vitamin D illustrated in the examples is vitamin D3.

With respect to the appropriateness of combining claims 6 and 2 as filed, the opponent was right that claim 2 does not refer back to claim 6 but rather to claim 1. However, claim 6 as filed corresponds to claim 2 as filed reformulated in the "Swiss-type" format, and therefore the two claims essentially define the same subject-matter. Therefore, there is a clear link between claims 2 and 6 as filed which supports the preference for vitamin D3, especially when vitamin D is in combination with 25-OH D3.

1.1.3 As to limitation (ii), the application as filed states in the summary (page 3, lines 17 and 18) that the human

may be any age. Later on, in the detailed description, it states that the compositions of the invention are beneficial for the retention of muscle mass in the elderly (page 7, lines 20 and 21, and page 6, lines 26 to 28) and in people of any age who lose muscle mass because they are immobilised (page 8, lines 4 to 6 and 10 to 13). It is clear that retaining muscle mass is synonymous with preventing the loss of muscle mass. In addition, the application as filed (page 1, lines 4 and 5 and page 3, lines 12 and 13) is directed to preventing the loss of muscle strength and function, and therefore, in the context of the application, the loss of muscle mass referred to on pages 7 and 8 can only be regarded as meaning a loss of muscle strength and function.

The opponent argued that the passage on page 6, lines 21 to 29, of the application as filed referred to the restoration of "healthy" muscle strength and function, a limitation that was missing from claim 1 of the main request. Moreover, the passage related to the restoration of both, i.e. muscle strength and function, and therefore the term "or" in claim 1 added subject-matter because it required the restoration of only one of them, i.e. of muscle strength or function.

These arguments are not convincing. First, claim 6 as filed does not contain either of the limitations cited by the opponent, and therefore they cannot be essential features of the application as filed. Second, the basis for the treatment of elderly people is disclosed not only on page 6, lines 26 to 28 but also on page 7, lines 20 and 21, and it does not contain the term "healthy". Third, it is well known that muscle strength and function are so closely interrelated that an

improvement in muscle strength is accompanied by an improvement in muscle function and vice versa.

1.1.4 Limitation (iii) is also generally disclosed as a preferred embodiment in the application as filed. The application is directed to the effect of 25-OH D3 on muscle strength and/or function (page 1, lines 4 and 5) but teaches that 25-OH D3 is preferably combined with vitamin D, in particular with vitamin D3 (see e.g. page 4, last paragraph, Example 2 and Figures 1 to 7). This is evident from the passages on page 4, lines 9 to 18 and page 15, lines 10 to 13, in which the application attributes a synergistic regulation of skeletal muscle genes to the combination of 25-OH D3 with vitamin D. In addition, as explained for claim 1 (point 1.1.2, second paragraph), claim 2 as filed explicitly discloses the combination of 25-OH D3 and vitamin D3.

1.1.5 Therefore, the subject-matter of claim 1 of the main request is directly and unambiguously derivable from the application as filed.

1.2 Claim 4

1.2.1 Claim 4 contains the additional limitation that the usage in the previous claims is for at least one month, preferably for more than two months, and more preferably for at least four months. This limitation has a basis on page 3, lines 24 to 26, of the application as filed, which reads as follows:

"*Generally, the administration period is at least for one month, preferably for more than two months, and more preferably for at least four months so that changes in muscle strength can be clearly observed*".

1.2.2 The opponent raised two points against the validity of this passage as a basis for claim 4. On the one hand, the term "usage" in claim 4 would not have the same meaning as "administration" on page 3, lines 24 to 26; use for at least one month could include an administration period of less than one month. On the other hand, page 3, lines 24 to 26, referred only to changes in muscle strength, not in muscle function.

On the first point, the board holds that, in the context of the application as filed, the skilled person would understand the use and administration of an active ingredient to be synonyms. The opponent tried to establish a difference between "usage" and "administration" by interpreting the term "administration" in a restrictive manner, which, in the board's view, is arbitrary and technically unfounded.

On the second point, as noted by the patent proprietor, the passage on page 3, lines 24 to 26, has to be read in its context, which is directed to the retention of muscle strength and muscle function. This is clear from the general aim of the application as filed (see e.g. page 1, lines 4 and 5, and page 3, lines 12 to 14) but also from the sentence immediately before page 3, lines 24 to 26, which states that an aspect of the invention is the use of a combination of 25-OH D3 and vitamin D to enhance muscle strength and function in a human. Furthermore, it is well known that muscle strength and muscle function are so closely interrelated that an improvement in muscle strength cannot be separated from an improvement in muscle function and vice versa.

1.2.3 Therefore, claim 4 of the main request does not add subject-matter.

1.3 Claim 5

Claim 5 contains the additional limitation that the ratio of vitamin D3 to 25-OH D3 is from 6:1 to 1:6.

The application as filed discloses in the "Dosages" section (pages 14 and 15) the amounts of vitamin D and 23-OH D3 required for daily, weekly and monthly administration. In all cases, the preferred ratio of vitamin D to 25-OH D3 is 6:1 to 1:6 (page 14, lines 11 and 12, page 14, line 23, and page 15, lines 4 and 5). As explained for claim 1 (point 1.1.2), even though vitamin D may mean vitamin D2 and/or vitamin D3, the application as filed discloses the combination of 25-OH D3 only with vitamin D3. Therefore, the skilled person would understand the ratios on pages 14 and 15 as referring to combinations of vitamin D3 with 25-OH D3.

Consequently, claim 5 does not add subject-matter either.

1.4 It follows from points 1.1 to 1.3 that the main request meets the requirements of Article 123(2) EPC.

2. Sufficiency of disclosure - main request

2.1 Claim 1 of the main request is a use claim formulated in the "Swiss-type" format. The claim requires the preparation of a pharmaceutical, nutraceutical, food supplement or food composition comprising 25-OH D3 and vitamin D3, and the administration thereof to an elderly person or a person who suffers chronic immobility regardless of age for retaining or preventing the loss of muscle function or muscle strength.

The parties did not call into question the fact that the skilled person was able to prepare a composition according to claim 1 and to administer it to a person. It was also undisputed that the effect recited in claim 1 was therapeutic. Consequently, the therapeutic indication in claim 1 has to be regarded as a limiting functional feature and the issue of sufficiency of disclosure hinges on whether a composition containing a combination of 25-OH D3 and vitamin D3 is suitable for preventing a loss of muscle function or muscle strength in an elderly person or a person who suffers chronic immobility (see G 1/03, Reasons 2.5.2, last paragraph).

2.2 Example 1 of the application as filed describes a clinical study on healthy postmenopausal women who were given a daily supplement of 20µg of either vitamin D3 or 25-OH D3 for a period of four months. The results of the study in Tables 1 and 3 show that vitamin D3 supplementation did not result in a clear benefit in terms of muscle strength and function. It did result in some improvement in knee-flexion strength (3.6 N) but knee-extension strength was reduced (-23.7 N). Similarly, the time for repeated sit-to-stand was improved (0.30 s) but that for timed up-and-go it was reduced (-0.46 s). In contrast, 25-OH D3 supplementation resulted in a clear improvement for each of the parameters tested (knee extension 13.0 N, knee flexion 7.9 N, repeated sit-to-stand 0.63 s and timed up-and-go 0.27 s).

Considering the significant improvement in muscle strength and function produced by 25-OH D3 and the partial improvement provided by vitamin D3, the board has no serious doubts that supplementation with a combination of 25-OH D3 and vitamin D3 is suitable for

preventing the loss of muscle strength and function in a person, including elderly people and people who are chronically immobilised.

2.3 Against the evidence in Example 1, the opponent presented the results of the clinical tests reported in post-published document D11. These results allegedly demonstrated that the effect of claim 1 is not achieved in the elderly. The board disagrees for the following reasons.

2.3.1 D11 (abstract) discloses a clinical test to evaluate the effect of vitamin D3 or 25-OH D3 supplementation on muscle strength and physical performance in prefrail and frail, vitamin D-deficient older adults. According to D11 (introduction), the evidence of this effect published in the prior art was inconsistent, although in a pilot study it had been observed that 25-OH D3 was superior to vitamin D3.

The test of D11 was carried out on 78 frail or pre-frail adults aged at least 65, who were given daily supplements of 20µg vitamin D3 or 10µg 25-OH D3 for a period of six months. The conclusion of the study was that neither vitamin D3 nor 25-OH D3 supplementation "significantly" changed muscle strength and physical performance.

2.3.2 The patent proprietor submitted that the statistic model applied in D11 was not suitable for determining a statistic improvement in muscle strength or function and that D11 did not therefore cast doubt on the results of Example 1 of the application as filed.

The board does not consider it necessary to discuss the statistic model applied in D11.

2.3.3 The opponent was right that Table 3 of D11 does not show a clear improvement in the subjects who had been given a supplement of 20µg vitamin D3. At the end of the six months, knee-extension strength had improved (5.5 Nm) but knee-flexion strength was reduced (-3.3 Nm) and other parameters including timed up-and-go, gait speed, chair rise and hand-grip strength remained unchanged. These results are in line with those in Example 1 of the application as filed for subjects who had been given a supplement of 20µg vitamin D3.

Nevertheless, as noted by the patent proprietor, D11 shows a certain improvement in the group of patients who were given a daily supplement of 10µg 25-OH D3, in particular in knee-extension strength (5.9 Nm) and knee-flexion strength (4.0 Nm). These results are also compatible with those in Example 1 of the application as filed, in which the patients who had a daily supplemented of 20µg 25-OH D3, i.e. double the dose of D11, experienced a clear positive effect.

In conclusion, the results of D11 and Example 1 of the application as filed are compatible and D11 does not raise serious doubts that 25-OH D3 supplementation produces a beneficial effect on muscle strength and function, also in elderly people and chronically immobilised people. Example 1 of the application proves that the allegedly non-conclusive improvement reported in D11 does indeed arise when a higher dose of 25-OH D3 is administered. This dose is within the ranges proposed on page 14 of the application as filed, namely 1 to 50µg, preferably 5 to 25µg.

2.4 Therefore, the board has concluded that, at the relevant date of the patent, the skilled person was

able to carry out the invention without undue burden, and that the main request meets the requirements of Article 83 EPC.

3. Inventive step - main request

3.1 The patent (paragraphs [0001] and [0017]) is directed to the use of 25-OH D3 and vitamin D3 for retaining muscle strength and/or muscle function in an elderly person or a person who suffers chronic immobility.

Vitamin D is a prohormone that modulates a broad range of biological processes including muscle function. The active form of vitamin D is 1,25-dihydroxyvitamin D, which is produced by two subsequent hydroxylations of vitamin D. The first hydroxylation occurs in the liver and produces 25-OH D. 25-OH D then undergoes a second hydroxylation in the kidney and other tissues (patent, paragraphs [0003] and [0004]). The two major forms of vitamin D are vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol).

3.2 In these appeal proceedings, the opponent raised a single inventive-step objection based on D7 as the closest prior art.

D7 discloses ("Case report" section) the treatment of an elderly woman who had general muscle weakness and hypotonia. The woman was treated with a multivitamin infusion containing vitamin D2 for three weeks. Six weeks after the onset of the multivitamin infusion, the woman was able to walk with help but serum vitamin D3 levels were still low. Therefore, during the subsequent two months the woman received a daily dose of 25-OH D3. At the end of the two months, serum vitamin D3 levels were normal and the woman could walk without help.

3.3 According to the opponent, the treatment of D7 is a combination treatment with vitamin D2 and 25-OH D3 in line with the regime defined in claim 1. Therefore, the distinguishing feature between the subject-matter of claim 1 and the treatment of D7 was merely that vitamin D was administered in the form of vitamin D3 instead of vitamin D2.

The board does not agree with this analysis and concurs with the opposition division (decision under appeal, point 8) that the distinguishing feature is the use of vitamin D3 in combination with 25-OH D3.

Contrary to the opponent's view, the treatment of D7 cannot be considered a combination treatment within the meaning of claim 1. In D7, treatment with 25-OH D3 started three weeks after stopping the administration of vitamin D2. Therefore, it cannot be assumed that vitamin D2 and 25-OH D3 interacted with each other or that they produced a combined effect. The therapy of D7 consisted of two separate treatments: a first-line treatment with vitamin D2, which was not satisfactory, and a second-line treatment with 25-OH D3, which achieved the desired effect. In contrast, claim 1 requires that 25-OH D3 and vitamin D3 be administered in a single composition, implying that the two substances act concomitantly.

3.4 The parties discussed the effect brought about by the combination of 25-OH D3 and vitamin D3 on the basis of the evidence presented in Example 2 of the patent.

Example 2 describes a gene chip test which evaluates the effect of vitamin D3, 25-OH D3 and the combination thereof in a commonly used model for skeletal muscle

atrophy (BalbC mice). The results of the test (Table 5) reveal that the combination of vitamin D3 with 25-OH D3 induce the expression of a significant number of genes not expressed in the control. This number is higher than the sum of the differentially expressed genes induced by each of vitamin D3 and 25-OH D3 (1745 vs 385+1263). This general over-additive effect is also observed for the group of genes relevant for skeletal muscle development (Tables 6 and 7). It is noteworthy that the combination of vitamin D3 with 25-OH D3 induces the expression of skeletal muscle genes that are not expressed by either vitamin D3 or 25-OH D3 alone.

These qualitative and quantitative effects demonstrated in Example 2 support the view that the combination of vitamin D3 with 25-OH D3 produces a beneficial effect on muscle strength and function that goes beyond the combination of the individual effects of vitamin D3 and 25-OH D3.

The opponent is right that the patent proprietor has not demonstrated that there is a direct correlation between the enhanced differentially expressed genes in the atrophy model and an improvement in the muscle strength and function of elderly people or people suffering chronic immobility. However, the evidence on the atrophy model appears sufficient to make it credible that the subject-matter of claim 1 provides an over-additive beneficial effect on muscle strength and function. As explained in the expert opinion D8 (page 4, third paragraph, last sentence), activating genes in important muscle development pathways in the atrophy model can be assumed to lead to an improvement in muscle strength and function since the starting point

is a model in which the genes inducing muscle atrophy are already activated.

The board rejects the opponent's argument referring to the second paragraph on page 3 of D8, i.e. changes in gene patterns do not automatically lead to an improved effect but rather that they could even trigger atrophy. The opponent has read the passage out of its context. It refers to genes activated in the muscle atrophy model used as the control in Example 2 and which obviously lead to muscle atrophy.

Therefore, considering the effect shown in Example 2 of the patent, the objective technical problem is the provision of an improved treatment for preventing the loss of muscle function or muscle strength in an elderly person or in a person who suffers chronic immobility, regardless of age.

3.5 According to the opponent, D3 rendered obvious the solution proposed in claim 1. The board does not agree.

D3 (paragraphs [0016] and [0022]) teaches that vitamin D deficiency can be treated by administering 25-OH D2 and/or 25-OH D3. In paragraph [0053], D3 suggests the administration of 25-OH D2 and/or 25-OH D3 together with vitamin D3, vitamin D2, active vitamin D sterols, glycemic and hypertension control agents, and various antineoplastic agents. However, D3 is silent on the advantages that the co-administration of these agents, in particular vitamin D3, could bring about. Thus, there is no suggestion in D3 that the choice of combining 25-OH D3 with vitamin D3 would be particularly advantageous for the prevention of the loss of muscle function or muscle strength in an elderly person or a person who suffers chronic

immobility. In fact, the skilled person would have considered it unlikely that the combination of 25-OH D3 with vitamin D3 produced an over-additive benefit on muscle strength and function since 25-OH D3 is a metabolite of vitamin D3. Therefore, the subject-matter of claim 1 of the main request involves an inventive step.

3.6 As claim 1 is the only independent claim, the main request meets the requirements of Article 56 EPC.

4. The board has therefore concluded that the patent as amended in the version of the main request fulfils the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent in amended form on the basis of claims 1 to 5 of the main request filed with the statement setting out the grounds of appeal and a description to be adapted thereto if necessary.

The Registrar: The Chairman:

K. Boelicke A. Usuelli

Decision electronically authenticated