Ministeriet for Forskning, Innovation
og Videregående Uddannelser

[DEFENDANT]

Sent by mail and e-mail to lawyer **[Lawyer]**

Ruling by the Danish Committee on Scientific Dishonesty for Health and Medical Sciences (USF) on the complaint of 18 April 2011 against [DEFENDANT 1-4].

Contents

1 Introduction

On 18 April 2011, **[COMPLAINANT]** (hereinafter referred to as the Complainant), submitted a complaint by e-mail to the Secretariat of the Danish Committees on Scientific Dishonesty (DCSD) against you (Defendant 1) and **[DEFENDANT**

Danish Committees on Scientific Dishonesty

18. december 2013

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2] [DEFENDANT 3] [DEFENDANT 4], all of whom work at the [RESEARCH CENTRE], alleging that all four defendants had acted in a scientifically dishonest manner when drawing up and reporting on research results in four articles.

The Complainant alleges that a series of actions by Defendant 1, in conjunction with an application for funding from the [RESEARCH FOUNDATION] for a research project in Defendant 1's laboratory at [RESEARCH CENTRE], also fall under the definition of scientific dishonesty.

In addition, the Complainant highlights a number of other areas, particularly regarding Defendant 1, in which the Complainant considers aspects of behaviour to have been unacceptable.

In the process leading up to the draft ruling issued on 25 June 2013, Defendants 1–4 submitted joint responses during the consultation process.

The case has been considered by the Danish Committee on Scientific Dishonesty for Health and Medical Sciences (USF)

A draft ruling of 25 June 2013 was sent to the parties for consultation pursuant to section 13 (3) of executive order no. 306 of 20 April 2009 on the Committees on Scientific Dishonesty, as amended by order no. 144 of 20 February 2012. The parties' comments in the responses to the consultation process have been included in this final version of the ruling to the extent that they contained significant new information (see below).

Since the draft ruling was issued on 25 June 2013, Defendant 1 has been represented by lawyer **[LAWYER]**.

2 Ruling

The Committee finds that Defendants 1–4 did not act in a scientifically dishonest manner pursuant to section 2 of executive order no. 306 of 20 April 2009 on the Committees on Scientific Dishonesty, as amended by order no. 144 of 20 February 2012, while drawing up and reporting on the following scientific products:

- Article in [JOURNAL 1] (concerns Defendant 1)
- Article in [JOURNAL 2] (concerns Defendant 1)
- Article 1 in [JOURNAL 3] (concerns Defendants 1–4)
- Article 2 in [JOURNAL 1] (concerns Defendant 1)
- [RESEARCH FUNDING APPLICATION] (concerns Defendant 1)

This unanimous decision was reached by Lise Wogensen Bach, Ulla Feldt-Rasmussen, Palle Holmstrup, Kirsten Ohm Kyvik, Ole Haagen Nielsen and Jens Overgaard and Henrik Gunst Andersen (chairperson).

3 Summary

In April 2011, a professor from a university outside Denmark (the Complainant) submitted a complaint to the DCSD alleging scientific dishonesty in research conducted by four researchers affiliated to a Danish research centre (Defendants 1–4). The complaint concerned four articles and an application for research funding, of

which one article involved Defendants 1–4, while the other three articles and the application for research funding only involved Defendant 1. The complaint concerned research in the health sciences and was therefore considered by the Danish Committee on Scientific Dishonesty for Health and Medical Sciences (USF).

The Complainant alleges that Defendants 1–4 acted in a scientifically dishonest manner during the drafting and reporting of research results in the articles, citing, among other things, plagiarism of the Complainant's work, failure to credit data from an article for which the Complainant was an author, unjustified claims of authorship, failure to cite the Complainant as a co-author, improper use of statistical methods and skewed presentation of both literature and the Defendants' own research results.

Defendants 1–4 assert that there was no scientific dishonesty in the cases alleged by the Complainant.

The Committee finds that the only serious breach of good scientific practice was in conjunction with the complaint concerning statistical methods, which only involved Defendant 1. In its assessment of that particular charge, the Committee concludes that there was insufficient information about the number of test subjects/size of the control population in the methodology section in the article concerned, and that this had consequences for how readers interpret the article.

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Defendant 1 had asserted during the case that the problems with the information in the methodology section were due to an error in the editing process. According to Defendant 1, the authors of the article had decided to include data from another study, to supplement data from the main study, and when the final manuscript was submitted, the description of the test subjects in the main study had been omitted from the article due to an editing error.

The Committee finds that Defendant 1 was a lead author of the article, particularly in relation to the selection of test subjects, and, as a result of this, should have responded to the omission of information from the methodology section. However, the Committee also stresses that the shortcomings in the methodology section arose due to an error in the editing process, which involved authors from several countries, and that, according to Defendant 1, it was another co-author who prepared the final draft of the article and was responsible for all of the correspondence with the journal. In this light, the Committee concludes that Defendant 1 did not act in a grossly negligent manner and, therefore, that there was no scientific dishonesty in relation to this charge.

In relation to the remaining charges, the Committee found that a number of these did not amount to serious breaches of good scientific practice and that several of them related to the validity of scientific theories or the quality of research, matters that do not fall under the remit of the DCSD.

The Committee finds, therefore, that Defendants 1–4 did not act in a scientifically dishonest manner in this case.

4 Process, background and subject matter for the case

4.1 Process

On 18 April 2011, the Complainant submitted a complaint by e-mail to the DCSD Secretariat, alleging that Defendants 1–4 acted in a scientifically dishonest manner when drawing up and reporting on research results in four articles.

The Complainant also alleges that a series of actions by Defendant 1, in conjunction with the planning of research results and applying for funding from the [RESEARCH FOUNDATION], also fall under the definition of scientific dishonesty.

In addition, the Complainant highlights a number of other areas, particularly regarding Defendant 1, in which the Complainant considers aspects of behaviour to have been unacceptable.

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In a further e-mail to the DCSD Secretariat, dated 18 May 2011, the Complainant submitted additional comments to his complaint of 18 April 2011.

On 23 May 2011, Defendants 1–4 submitted unsolicited provisional comments, along with a report and appendices concerning the allegations, to the Secretariat. This was occasioned by the Complainant sending them a copy of his complaint.

In an e-mail to the DCSD Secretariat, dated 12 June 2011, the Complainant submitted a supplementary report with appendices to the complaint of 18 April 2011.

In an e-mail to the DCSD Secretariat, dated 14 June 2011, the Complainant submitted new comments concerning editing errors in the complaint of 18 April 2011 and also attached a missing appendix to the complaint.

In an e-mail to the Complainant, dated 23 June 2011, the DCSD Secretariat attempted to summarise and specify the Complainant's allegations of scientific dishonesty on the basis of the material received to date.

In an e-mail to the DCSD Secretariat, dated 28 June 2011, the Complainant responded to the e-mail of 23 June 2011 by making comments and providing clarifications.

On 15 August 2011, the DCSD Secretariat sent the case papers to Defendants 1–4 for consultation.

On 22 August 2011, the DCSD Secretariat received a response and appendices from Defendants 1–4.

On 1 September 2011, the DCSD Secretariat sent the Defendants' response of 22 August 2011 to the Complainant for consultation.

The Complainant asked the DCSD Secretariat several times to extend the deadline until 10 October 2011, when the Complainant submitted his response and appendices.

On 10 October 2011, the DCSD Secretariat sent the Complainant‘s response of 10 October 20112 to Defendants 1–4 for consultation.

On 28 October 2011, the DCSD Secretariat received a second response and appendices from Defendants 1–4.

On 31 October 2011, the DCSD Secretariat sent the Defendants’ response of 28 October 2011 to the Complainant for information.

On 4 November 2011, the DCSD Secretariat received an e-mail from the Complainant containing supplementary comments to his response of 10 October 2011.

On 09 November 2011, the DCSD Secretariat sent the Complainant‘s supplementary comments of 4 November 2011 to Defendants 1–4 for consultation.

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On 18 November 2011, the DCSD Secretariat received supplementary comments in an e-mail with appendices from Defendants 1–4 concerning the Complainant‘s supplementary comments of 4 November 2011.

On 21 November 2011, the DCSD Secretariat sent Defendants 1–4’s supplementary comments with appendices of 18 November 2011 to the Complainant for information.

On 26 November 2011, the DCSD Secretariat received an e-mail from Defendants 1–4 containing a supplementary appendix to the response of 28 October 2011.

On 08 December 2011, the DCSD Secretariat sent the Defendants’ supplementary appendix of 26 November 2011 to the Complainant for consultation.

On 8 and 9 December 2011, the DCSD Secretariat received e-mails with further comments from the Complainant concerning the supplementary appendix of 26 November 2011.

On 25 June 2013, the DCSD Secretariat sent a draft ruling to the parties for consultation, with a deadline for comments of 15 August 2013.

On 25 June and 15 August 2013, the DCSD Secretariat received comments from the Complainant concerning the draft ruling of 25 June 2013.

On 15 August 2013, the DCSD Secretariat received further comments by e-mail and letter from Defendant 1 concerning the draft ruling of 25 June 2013. At this point, Defendant 1 also requested to appear before the Committee.

On 22 August 2013, the DCSD Secretariat sent the Complainant’s comments of 25 June and 15 August to Defendant 1 for potential final comments. At the same time, the DCSD Secretariat also sent Defendant 1’s comments of 15 August 2013 to the Complainant for any potential final comments.

On 13 September 2013, the DCSD Secretariat received the Complainant’s final comments by e-mail.

On 13 September 2013, the DCSD Secretariat received Defendant 1's final comments by e-mail.

On 16 October 2013, Defendant 1 requested, by e-mail and letter, that the Committee contact the [JOURNAL 1], indicating that this would reveal further information essential to the case.

On 18 October 2013, the DCSD chairperson sent an e-mail to Defendant 1, rejecting the request to appear before the Committee on the grounds that the Defendant had failed to identify circumstances that gave any reason to assume that an oral presentation of the case would add information or perspectives that the parties had not already had the opportunity to put forward in their written submissions. In the e-mail, the chairperson also stipulated a deadline of no later than 8 November 2013 for Defendant 1 to submit any final written submission. The chairperson also rejected the request to contact [JOURNAL 1] on the grounds that it was not clear what type of information was being referred to, nor how such a request would be expected to add significant new information to the case. The chairperson also pointed out that Defendant 1 could contact the journal personally.

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On 23 October 2013, Defendant 1 requested, by letter, that the DCSD chairperson issue a separate ruling on which individuals were eligible to participate in the proceedings as committee members and alternate members, and upon which concept of dishonesty those proceedings would be based.

On 29 October 2013, the chairperson of DCSD replied by letter to Defendant 1's letter of 23 October 2013, informing the latter that the chairperson saw no grounds for addressing these issues separately and that they would be incorporated into in the final ruling.

4.2 Background and subject matter

The parties to the case agree that the Complainant, in his capacity as group leader at the [FOREIGN RESEARCH CENTRE], and Defendant 1 in her capacity as head of the [RESEARCH CENTRE], collaborated on research from 2005 onwards.

As shown below, the Complainant alleges that Defendants 1–4 acted in a scientifically dishonest manner when drawing up and reporting on research results in four articles submitted in the period after the research collaboration with the Complainant commenced.

- Article in [JOURNAL 1][1] (concerns Defendant 1)
- Article in [JOURNAL 2][2] (concerns Defendant 1)
- Article 1 in [JOURNAL 3][3] (concerns Defendants 1–4)
- Article 2 in [JOURNAL 3][4] (concerns Defendants 1)

The Complainant also alleges that a series of actions by Defendant 1, in conjunction with an application for funding from the [RESEARCH FOUNDATION](the

[1] [ARTICLE IN JOURNAL 1]
[2] [ARTICLE IN JOURNAL 2]
[3] [ARTICLE 1 IN JOURNAL 3]
[4] [ARTICLE 2 IN JOURNAL 3]

[RESEARCH FUNDING APPLICATION])[5] for a research project, also fall under the definition of scientific dishonesty.

In addition, the Complainant highlights a number of other areas, particularly regarding Defendant 1, in which the Complainant considers aspects of behaviour to have been unacceptable.

Defendants 1–4 contend that they are innocent of all charges of scientific dishonesty and other allegations of unacceptable behaviour.

During the consultation on the draft ruling of 25 June 2013, Defendant 1 also asserted that Ulla Feldt-Rasmussen, Palle Holmstrup, Kirsten Ohm Kyvik and Jens Overgaard were not eligible to participate in the proceedings, as, in Defendant 1's opinion, the Minister for Science, Innovation and Higher Education did not have the authority to extend their membership (in Jens Overgaard's case, his alternate membership) until completion of the proceedings, which would be after the expiry of their term of office on 31 January 2012. Defendant 1 instituted legal proceedings on the basis that these members, and the alternate member, are/were not eligible to participate in the proceedings, and recommended that the Committee delay its ruling pending the outcome of the legal case.

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During the consultation on the draft decision of 25 June 2013, Defendant 1 also contended that, when assessing the articles referred to in the case, the Committee must use the concept of dishonesty that was applicable at the time the articles were produced. In this respect, Defendant 1 contended that the concept has been made stricter, e.g. through abolishing the impropriety condition and incorporating 'serious breaches of good scientific practice'.

In the section below, the parties' claims, responses and contentions have been sub-divided into the categories of the above-mentioned four articles, the [RESEARCH FUNDING APPLICATION] and other conditions.

A number of scientific works are also referred to in the parties' claims, responses and contentions – in particular an article in [JOURNAL 4][6] and early manuscripts for this article.

In addition, a number of individuals with links to the parties are mentioned.

5 The parties' claims, responses and contentions

5.1 Article in [JOURNAL 1]

5.1.1 The Complainant's claims and contentions

The Complainant alleges that Defendant 1 acted in a scientifically dishonest manner when drawing up and reporting on research results for an article in the journal [JOURNAL 1] (see Note 1).

[5] [RESEARCH FUNDING APPLICATION] from a [RESEARCH FOUNDATION]
[6] [ARTICLE IN JOURNAL 4]

5.1.1.1 Warning about unsound data

In support of his allegation, the Complainant asserts that he sent e-mails on 4 January 2009 and 20 February 2009, i.e. before the article was submitted to the [JOURNAL 1] on 25 February 2009, in which he warned Defendant 1 that the data in the article was unsound and directly contradicted comparable quantitative Polymerase Chain Reaction data (qPCR) data from an analysis conducted in the Complainant's laboratory (the analysis was attached to the Complainant's e- mail of 20 February 2009).

In his e-mail of 4 January 2009, the Complainant refers to results from a study of elderly diabetics and healthy test subjects.

According to the Complainant's e-mail of 20 February 2009, the qPCR analysis conducted in the Complainant's laboratory for a partner showed that brain-derived neurotrophic factor- mRNA (BDNF-mRNA) is virtually undetectable in complete muscle tissue (biopsy) both at rest and after 24 hours of endurance training by 24 young male test subjects. According to the Complainant, the data shows that the signal for BDNF-mRNA-expression does not occur until after 37 cycles of signal amplification, which according to the Complainant would be consistent with expression in <3% of the cells in the muscle tissue. According to the Complainant, this conclusion is consistent with the known biology concerning BDNF and the article in [JOURNAL 4] of which Defendant 1 was a co-author.

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The Complainant also asserts that Defendant 1's argument concerning splice variants (see below under Defendant 1's responses and contentions) is not valid because the PCR primers used were directed towards a common sequence in an exon.

The Complainant also asserts that the cDNA he used to conduct a BDNF plot was correct (see below under Defendant 1's responses and contentions), because at the same time, he was measuring a second gene (asBDNF), which is expressed slightly higher than BDNF and demonstrates a beautiful, dense and non-variable frequency profile.

5.1.1.2 Presentation of relative data normalised to 1

The Complainant also asserts that the article posits that BDNF-mRNA is regulated by the training done by the young male test subjects (n=8) but the article does not present the actual level of BDNF-mRNA. Instead, it presents 'relative' data normalised to 1, and according to the Complainant, this conceals the true incidence of BDNF-mRNA.

5.1.1.3 Use of unconventional and invalid statistical methods

According to the Complainant, the article's authors use an area under the curve analysis (AUC analysis) and a single unpaired t-test, instead of an analysis of variance (ANOVA) for repeated measurements. According to the Complainant, this method is neither conventional nor sound. The Complainant thus asserts that Figure 1a in the article presents the normalised mRNA levels over time and that

the data in the article is analysed by means of an AUC analysis, which conceals the fact that BDNF is almost unquantifiable. In addition, the Complainant asserts that the reader is not presented with a model for adjusting the points in time, nor with data for the AUC calculations. This means that information about the mean value and spread of the AUC data is omitted, making it impossible to verify the data.

The Complainant also asserts that the choice of statistical analysis used on the AUC data was the wrong one. According to the Complainant, an unpaired t-test was used, but according to the description of the test subjects in the original material and methodology section, it should have been a paired t-test.

5.1.1.4 Publication despite the lack of biological relevance of the results or invalid findings

According to the Complainant, the ~1.25-fold increase in mRNA expression cited by Defendant 1, compared with the comparative control samples five hours after the training, corresponds with the expression of an mRNA molecule in ~5% of the cells (which possibly reflects a change in the blood contamination of the biopsy taken after training) or is actually an expression of technical noise and a non-significant data set.

5.1.1.5 Ignoring data from the research collaboration with the Complainant, including on the article in [JOURNAL 4]

Further, the Complainant asserts that in the article, Defendant 1 chose to ignore data generated in collaboration with the Complainant's laboratory. The data shows that BDNF was not higher in mature muscle cells, but 'only' in a few selected cells characterised by immature skeletal muscle cells. According to the Complainant, Defendant 1 chose instead to focus on the more positive data from the collaboration with another partner, [CO-AUTHOR 1] (hereinafter referred to as Co-author 1). According to the Complainant, Defendant 1 also chose to ignore two decades of literature showing that BDNF plays a role in neuromuscular regeneration, in which BDNF is expressed in muscle damage to support the repair of the neuromuscular junctions.

The Complainant also asserts that the data in the article contradicts data in the work published in [JOURNAL 4] (see note 6) and co-authored by Defendant 1.

The Complainant also states that the redrafting of the discussion section of the article in [JOURNAL 4] (see below under Defendant 1's responses and contentions) was sent to Defendant 3, since all communication was to be with her according to an agreement with Defendant 1.

Furthermore, the Complainant asserts that the redrafting of the discussion section of the article in [JOURNAL 4] merely clarifies the existing wording.

5.1.1.6 Immunoblot with changed/manipulated contrast/image preferences

According to the Complainant, the article contains a particularly important immunoblot from another co-author of the article, [CO-AUTHOR 2] (hereinafter

referred to as Co-author 2), which shows a universal and markedly increased expression of whole-muscle BDNF protein in all muscle fibres in young men 24 hours after endurance training, but not in the time-control biopsy. According to the Complainant, the time-control biopsy data in the article rules out any possibility that the BDNF is caused by unintentional damage to the biopsy.

The Complainant asserts that Defendant 1 chose to ignore that the positive 24-hour protein-blot was compared – with changed/manipulated contrast/image preferences – with the control samples ('pre-ex' and 'O'). According to the Complainant, the image contrast is not consistent across the image.

5.1.1.7 Significant Western blot

The Complainant also asserts that a former postdoc at [RESEARCH CENTRE] in late 2008 and in 2009 told the Complainant that the original Western blot in the article had been repeated several times at [RESEARCH CENTRE], and in early drafts of the manuscript, it was not significant. However, at an early point the manuscript was sent to Co-author 1, and when it came back, the figure that showed the aforementioned Western blot, was now suddenly a 'star', which described the change as significant.

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Finally, the claimant alleges that the increase of BDNF protein in muscle fibres is impossible, since there is no mRNA template in most muscle cells – and without mRNA it is not possible to synthesise BDNF protein.

5.1.1.8 Misquotations of three articles

The Complainant also asserts that in the article, Defendant 1 misquoted the following three articles (references 22, 23 and 24 in the article):

- [ARTICLE IN JOURNAL 5][7]
- [ARTICLE IN JOURNAL 6][8]
- [ARTICLE IN JOURNAL 7][9]

According to the Complainant, Defendant 1 mistakenly states that the article [ARTICLE IN JOURNAL 5] and [ARTICLE IN JOURNAL 6] demonstrate that muscle contraction increases BDNF mRNA.

According to the Complainant, Defendant 1 also mistakenly states that the article [ARTICLE IN JOURNAL 7] demonstrates that BDNF increases when histone deacetylase (HDAC) is inhibited but that Defendant 1 fails to mention protein data in this context.

In this light, the Complainant asserts that Defendant 1 seriously misinterpreted the literature to make it fit the data in the article.

[7] [ARTICLE IN JOURNAL 5]
[8] [ARTICLE IN JOURNAL 6]
[9] [ARTICLE IN JOURNAL 7]

5.1.1.9 Incorrect presentation of clinical trials

The Complainant also asserts that the clinical trials in the article are presented incorrectly. To support this assertion, the Complainant states that the critical time-course immunoblot shown in the article is only from the 'best' test subject (n=1).

5.1.1.10 Improper accreditation of co-author

The Complainant asserts that if Co-author 2, as stated by Defendant 1 (see below under Defendant 1's responses and contentions), did not produce the immunoblots shown in Figure 1, then Co-author 2 has been wrongly listed as an author of the article.

5.1.2 Defendant 1's responses and contentions

Defendant 1 contends that she is innocent of all charges of scientific dishonesty.

5.1.2.1 Not a warning, but an exchange of scientific points of view

Defendant 1 contends that the Complainant's e-mails of 4 January and 20 February 2009 do not constitute warnings, and that there is no indication that the Complainant directed Defendant 1's attention to any dishonesty in 2009. Defendant 1 considered the e-mail correspondence solely to be an exchange of scientific points of view.

5.1.2.2 No contradiction with data from the research collaboration with the Complainant, including on the article in Genome Medicine

Defendant 1 also contends that the Complainant's argument that BDNF mRNA is virtually undetectable in whole muscle tissue (biopsy), is partly based on a qPCR analysis carried out in the Complainant's laboratory and not on peer-reviewed published data.

According to Defendant 1, one of the problems with handling BDNF at mRNA level is the presence of an unusually high number of variants of BDNF-mRNA, and for this reason, Defendant 1 chose to use an already developed and optimised assay from Applied Biosystems. Defendant 1 states that if you direct primers towards a particular variant with lower expression, you arrive at a lower signal from the qPCR analysis. According to Defendant 1, the Complainant did not stipulate the sequence of his primers nor did he specify which variant he directed his primers towards.
According to Defendant 1, the Complainant asserts that BDNF is not expressed in muscles but there is no evidence to support this. As Defendant 1's data showed a different result, Defendant 1 chose to proceed with the publication of the article.

According to Defendant 1, a Western blot is presented as an appendix, which clearly shows the BDNF protein expression in healthy control individuals and patients with type 2 diabetes.

Defendant 1 also contends that a correct adjustment of the Ct threshold in the Complainant's qPCR analysis could lead to a measured Ct value on the same level as in the article.

According to Defendant 1, the Complainant's samples exhibit major variations, possibly indicating that the cDNA is in poor condition, and thus exerting a negative influence on the quality and results. In support of this, Defendant 1 contends that the samples the Complainant used stem from mRNA that Defendant 3 isolated during her studies under the Complainant at [FOREIGN RESEARCH CENTRE] in 2006. According to Defendant 1, the cDNA was therefore two years old and had been thawed and frozen repeatedly.

Defendant 1 contends that the Complainant's data is an analysis of mRNA expressions after six weeks of endurance training, whereas the article studies mRNA differences in acute exercise. As a result, according to Defendant 1, the Complainant's samples can only be compared with the resting-time samples in the article, where they have a Ct value of 33.

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Defendant 1 also contends that there may be several reasons for this discrepancy between the article and the article in [JOURNAL 4]. Defendant 1 contends for example that the article in [JOURNAL 4] focuses primarily on microRNA (miRNA)[10] and that BDNF was included as one of six proteins in order to validate the analytical prognosis. Defendant 1 also states that the samples for evaluation of BDNF expression in the article in [JOURNAL 4] are from test subjects aged approx. 60, whereas the test subjects in the article consist of healthy males aged 20–30. In this light, according to Defendant 1, the data in the two articles is not comparable.

Defendant 1 contends that the Complainant changed the wording of the discussion section of the article in [JOURNAL 4] without informing or obtaining the permission of Defendant 1.

5.1.2.3 Literature not ignored

As far as the literature is concerned, Defendant 1 contends that there are several ways in which proteins can change without a (major) change in messengerMRNA levels (mRNA levels).

Defendant 1 also states that the article did not ignore the literature or data cited by the Complainant. In this context, Defendant 1 refers to the fact that a reviewer at the [JOURNAL 8] (to which the article was initially submitted) found that the data in the article was not innovative. According to Defendant 1, the reviewer's reference to the literature indicates that it is widely accepted that contracting skeletal muscles express BDNF.

5.1.2.4 The AUC analysis was conducted on the advice of statisticians

[10] The abbreviation miRNA is used throughout this ruling, even though the parties of the case use both miRNA and microRNA.

According to Defendant 1, the AUC analysis was conducted on the advice of the authors' statisticians. According to Defendant 1, this method of statistical analysis was not questioned during the peer-review process.

Defendant 1 also contends that the data in the article shows a low to moderate, but consistent, expression of BDNF-mRNA in human skeletal muscle. According to Defendant 1, the data in the article is described as it is, without over-interpretation on the part of the authors.

5.1.2.5 False accusation of significant Western blot

Defendant 1 contends that the Complainant's accusation that a Western blot in the article was repeated several times in order to achieve significance is false. According to Defendant 1, it was due to an error that the Western blot concerned was at one point marked as significant. The error was discovered and the significance symbol removed. Defendant 1 also states that this sequence of events has been confirmed by a PhD student at [RESEARCH CENTRE], who was responsible for the Western blots concerned.

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5.1.2.6 The background to the presentation chosen for the clinical studies

Defendant 1 claims that the immunohistochemistry (IHC) was used in the article (Figure 1d) to indicate whether the expression of BDNF had possibly increased inside the muscle fibres (intramyocellular). In the article, according to Defendant 1, the authors chose to show the IHC image of the test person with the highest expression of BDNF-mRNA. According to Defendant 1, this individual apparently also had the most pronounced expression of BDNF protein. Defendant 1 states that the authors thus chose to show the IHC image that best supported the idea that increased BDNF-expression after 24 hours after training took place inside the muscle cells.

5.1.2.7 No improper accreditation of co-author

According to Defendant 1, the IHC in the article was not performed personally by Co-author 2, but by [CO-AUTHOR 3] (hereinafter referred to as Co-author 3) and a student at Co-author 2's laboratory. According to Defendant 1, Co-author 2 was involved in the supervision of the IHC technique and the description of Figure 1d and is, therefore, properly listed as a co-author of the article.

5.1.2.8 Printing of an erratum due to errors in the methodology section

Defendant 1 states that the methodology section of the article does not contain a description of the control group used in the study because of an error. At the request of Defendant 1, [JOURNAL 1] has published an erratum to the article.

As part of the consultation on the draft ruling of 25 June 2013, Defendant 1 stated that the authors designed an experiment in order to verify whether the 24-hour point was the peak time for BDNF (the main study). According to Defendant 1, the authors considered it desirable to supplement IHC data with Western blot, but because a freezer broke down they had to include muscle biopsies from a second study (the secondary study) for use in Figure 1c.

As part of the consultation on the draft ruling of 25 June 2013, Defendant 1 asserted that the shortcomings of the original methodology section were merely the result of an error during the editing process, which meant that the description of the main study in the article was omitted from the methodology section, and that this does not constitute a serious breach of good scientific practice. According to Defendant 1, it was Co-author 1 who prepared the final draft of the article and was responsible for all correspondence with the journal. Defendant 1 also pointed out that the final version of the manuscript erroneously indicates biopsy times in the secondary study that correspond to the main study. Defendant 1 states that this was merely a mistake, as evidenced by the fact that the journal agreed to correct it by publishing an erratum. Defendant 1 also contended that the error in the methodology section is a matter of the quality of the research, which in the Defendant's opinion means that the question falls outside the remit of the Committees.

Defendant 1 also requested that the matter of the methodology section not be considered as part of this case, because the Complainant did not specifically complain about this point. Defendant 1 referred to the Committee's standard practice of not taking up cases on its own initiative.

5.2 Article in [JOURNAL 2]

5.2.1 The Complainant's claims and contentions

The Complainant alleges that a series of actions by Defendant 1 could be characterised as scientifically dishonest when reporting on the research results in an article in the [JOURNAL 2] (see Note 2).

5.2.1.1 The results in the article are not substantiated, and they contradict the articles in [JOURNAL 1] and [JOURNAL 4]

The Complainant asserts that Defendant 1 makes wild and unsubstantiated claims in the article that BDNF, to some extent or another, plays a role in the regulation of muscular fat burning.

According to the Complainant, the authors wrote the following in the article: '*By demonstrating that BDNF is expressed in muscle and has an impact on fat oxidation, we add a new dimension to the pleiotrophic nature of BDNF, which can now be identified as playing a role in neurobiology as well as in both central and peripheral metabolism'*.

The Complainant also asserts that the statement quoted above from the article directly contradicts the article in [JOURNAL 1] (of which Defendant 1 is the author). According to the Complainant, the article says that an effect of BDNF was only found if it was artificially up-regulated, and that the BDNF's mechanism of action in vivo was unclear.

According to the Complainant, the statement in the article claiming that it has been proven that BDNF plays an important role in regulation of the human metabolism is pure fabrication and an example of dishonest scientific writing.

In support of this claim, the Complainant also asserts that in the conclusions to the article, Defendant 1 ignored the body of existing literature, as well as an article by both the Complainant and Defendant 1 that had already been published (the article in [JOURNAL 4]). According to Complainant, the article in [JOURNAL 4] proves that BDNF is not always expressed in human muscles, nor can it always be induced by hard physical training.

5.2.2 Defendant 1's responses and contentions

Defendant 1 contends that she is innocent of the complaint alleging scientific dishonesty.

5.2.2.1 The results in the article are substantiated and do not contradict the article in [JOURNAL 1] and existing literature.

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Defendant 1 contends that the authors of the article presented their data in a balanced manner. Defendant 1 states, however, that the use of the word 'markedly' to describe the increase in BDNF-mRNA and protein-expression may be viewed as an over-interpretation of the results presented in the article as BDNF's increased protein expression was approximately 50%.

With reference to Figures 3, 4, 5 and 6 in the article in [JOURNAL 1], Defendant 1 states that the article and existing literature provide a strong basis for assuming that the statement in the article that is contested by the Complainant is, in fact, correct.

Defendant 1 contends that it is incorrect of the Complainant to claim that the article in [JOURNAL 1] only found a BDNF effect when it was artificially up-regulated.

Defendant 1 also refutes the Complainant's suggestion that the claim put forward in the article that BDNF plays an important role in the regulation of the human metabolism is a pure fabrication. In other words, Defendant 1 stands by the conclusion contained in the article.

5.3 Article 1 in [JOURNAL 3]

5.3.1 The Complainant's claims and contentions

The Complainant alleges that Defendants 1–4 acted in a scientifically dishonest manner in a number of ways when drawing up and reporting on research results in the article 1 in [JOURNAL 3] (see Note 3).

5.3.1.1 Reproduction of the Complainant's observations

The Complainant asserts that Defendants 1–4, via access to confidential data and advice from the Complainant's laboratory, have reproduced the Complainant's observations and published them in the article.

According to the Complainant, he sent a draft of a major manuscript, which was being considered for publication by [JOURNAL 9], to Defendants 1–4 in September 2008. The Complainant asserts that in doing so, he presented to Defendants 1–4 data from his laboratory, which indicates that miRNAs (also known as 'myomirs') are regulated by endurance training. At that point in time, according to the Complainant, no other studies had been published of human muscle response in relation to these molecules.

The Complainant asserts that Defendants 1–4 submitted duplicate endurance-training miRNA data to the [JOURNAL 3] for the article.

5.3.1.2 Improper not to list the Complainant as co-author/plagiarism

The Complainant asserts that he was asked for help to edit the manuscript for the article and that the Complainant therefore assumed that he would be listed as a co-author of the article. The Complainant also states that he recommended a number of changes to the article at this juncture.

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In addition, the Complainant asserts that on a general level, it was he who started the work that led to the article and that it was the Complainant's laboratory that first identified 'myomirs' as a new research area.

Furthermore, the Complainant asserts that he mentored Defendant 4. According to the Complainant, the fact that he is not listed as a co-author of the article constitutes plagiarism of his data.

As part of the consultation concerning the draft ruling of 25 June 2013, the Complainant contended that the Committee failed to consider a number of issues that the Complainant thinks would have an impact on the decision:

- A very similar article in the [JOURNAL 10][11] should have been included in the deliberations;
- The information furnished by the Complainant that the first draft for the article was sent to the Complainant without a list of authors, and without the Complainant being mentioned in the 'Acknowledgements';
- Defendant 4 was not in Denmark or affiliated with [RESEARCH CENTRE] when work started on the article, and only became part of the group following completion of the project. However, the Complainant was in Denmark and worked with Defendants 2 and 3.

5.3.1.3 Defendant 2 is wrongly listed as lead author

The Complainant asserts that Defendant 2 is falsely listed as the lead author of the article. The Complainant asserts that Defendant 2 neither started, was responsible for, nor wrote the article. In support of this claim, the Complainant refers to the section of the article under the heading 'author contributions'. According to the Complainant, this section shows that Defendant 2 had nothing to do with the experiments, the design or the conducting of the study.

[11] [ARTICLE IN JOURNAL 10]

5.3.1.4 Defendant 3 has wrongly been listed as author no. 2

The Complainant also questions the validity of listing Defendant 3 as author no. 2 of the article. According to the Complainant, her contribution does not merit second billing. According to the Complainant, Defendant 3 neither conducted the physiological studies, nor the miRNA measurements, nor did she write the article.

5.3.2 Defendants 1–4's responses and contentions

Defendants 1–4 contend that they are innocent of all charges of scientific dishonesty.

5.3.2.1 No reproduction of the Complainant's observations

Defendants 1–4 contend that at no time did they use data in the article that was obtained from, analysed in or initiated by the Complainant's laboratory.

Defendants 1–4 also contend that the choice of the four miRNAs in the article was based on the article in [JOURNAL 4], of which Defendants 1 and 3 are co-authors.

Irrespective of when the Complainant showed his data to people from Defendant 1's laboratory, Defendants 1–4 contend that on the basis of the literature available at the time when the miRNA measurements concerned started to be taken, it cannot be considered a major intellectual leap in the dark to assume that muscle-specific miRNAs possibly play a role in adaptation to training.

In addition, according to Defendants 1–4, the Complainant had himself, in a conversation with Defendant 4, given his consent to Defendants 1–4 submitting the article.

Furthermore, Defendants 1–4 contend that when they became aware that the Complainant's group was working on a similar project, they asked the Complainant to read the manuscript to ensure that there was as little overlap in the data as possible. According to Defendants 1–4, after reading the manuscript the Complainant concluded that the data overlap was minimal and that Defendants 1–4 should submit the manuscript.

Defendants 1–4 contend that data and training in the two studies (the one by the Complainant and the one by Defendants 1–4) were different. In support of this contention, Defendants 1–4 state that while they observed a deregulation of four different miRNAs (miR-133a, miR-133b, miR-206, miR-1) after endurance training, the Complainant only observed a difference in two of the miRNAs (miRNA-133a and miR-1).

According to Defendants 1–4, the Complainant's training protocols are very different from Defendants 1–4's training protocols. According to Defendants 1–4, their study involved high-intensity intervals, whereas the Complainant's study involved lower intensity, lower frequency and shorter time periods.

In addition, Defendants 1–4 contend that they conducted analyses during acute exercise, as well as insulin clamps, and that they measured miRNAs two weeks after training stopped, which necessitated inclusion immediately after endurance training. According to Defendants 1–4, in his study the Complainant measured mRNA levels in high- and low-responding individuals during physical activity. In this light, Defendants 1–4 are convinced that the Complainant's manuscript was very different from Defendants 1–4's article.

5.3.2.2 Not improper to omit the Complainant from the list of co-authors

In support of their contention that there was no need to list the Complainant as a co-author, Defendants 1–4 contend that at no point during the writing process did the Complainant express any concerns about plagiarism, nor did he ask to be listed as an author. Defendants 1–4 adjudged that the Complainant had spent minimal time reading the manuscript, and as a result the Complainant's contribution was listed under Acknowledgements.

Further, Defendants 1–4 also contend that the Complainant was not involved in the studies conducted, nor was the Complainant a key factor in determining which studies were selected to perform tests in.

5.3.2.3 Listing Defendant 2 as lead author was proper

In support of their contention that listing Defendant 2 as lead author was proper, Defendants 1–4 contend that the Complainant did not have first-hand knowledge of the extent to which Defendant 2 contributed to the study discussed in the article, nor of how much time Defendant 2 spent working on the manuscript in all of its forms.

Defendants 1–4 also contend that Defendant 2, in the role of Defendant 4's supervisor, oversaw all data processing, including the collation of raw data.

In addition, Defendants 1–4 state that Defendant 2 was involved in the statistical tests and the intensive discussions concerning the interpretation of the data. According to Defendants 1–4, it was at the behest of Defendant 2 that measurements were initiated before and after insulin clamps and after a two-week break from training.

According to Defendants 1–4, Defendant 2's contribution is listed in the 'contributions section' as limited to manuscript preparation and editing because they were convinced that the concept and design described in the contributions section referred exclusively to the original experiment, which was conducted with different purposes in mind than just to analyse miRNAs.

Defendants 1–4 also contend that it was Defendant 2 who discovered the value of the design in relation to taking measurements two weeks after the training and that Defendant 2 was responsible for the choice of the target proteins to be analysed as part of the response to the reviewers. Defendants 1–4 also state that Defendants 2 and 4 spent many hours writing and editing the article.

5.3.2.4 Listing Defendant 3 as an author was proper

Finally, Defendants 1–4 also contend that Defendant 3, in addition to preparation and editing of the manuscript, was also involved in the analysis of the Western blot and miRNA data. In particular, Defendant 3 contributed expertise concerning non-coding RNA regulation in human skeletal muscle, which was the main focus of Defendant 3's PhD work and mainly concerning technical issues related to the qPCR-miRNA analysis of skeletal muscle tissue.

5.4 Article 2 in [JOURNAL 3]

5.4.1 The Complainant's claims and contentions

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The Complainant alleges that Defendant 1 acted in a scientifically dishonest manner in a number of ways when drawing up and reporting on research results in article 2 in [JOURNAL 3] (see Note 4).

The Complainant asserts that the raw data from the study, which was conducted at [RESEARCH CENTRE], in connection with the article (to which the Complainant had access via Defendant 4), shows that IL-8 occurs at about 38–40 cycles when performing qPCR.

The Complainant asserts that the authors present this data as normalised to 1, so it is impossible to know that the real levels were extraordinarily low, unless like – the Complainant – you have seen the raw data at [RESEARCH CENTRE].

The Complainant alleges that another researcher demonstrates a striking protein induction at six hours, and that she, according to the Complainant, visualises this with an image of an immunoblot (Figure 2d)[12] that looks so unusual and artificial that it is unlikely that three researchers at [RESEARCH CENTRE] and Defendant 1 would not have found this immunoblot suspect.

5.4.2 Defendant 1's responses and contentions

Defendant 1 contends that she is innocent of all charges of scientific dishonesty.

In relation to the Complainant's claims concerning raw data in the article, Defendants 1 contend that the raw data to which the Complainant refers is confidential and has never been published.

Defendant 1 also contends that the raw data relates to IL-18 (i.e. another cytokine) but that because of a typo, the name of the file containing the data is IL-8 instead of IL-18.

Defendant 1 also contends that it is common practice to normalise to 1, as was done in the article, which is about IL-8.

[12] The committee takes the view that figure 2d illustrates an immunhistochemical staining of a tissue section, and not an immunoblot as stated by the complainant.

According to Defendant 1, the data set to which the Complainant had improper access, and which has never been published, was analysed one year after publication of the article on IL-8, and in reality represents an IL-18 measurement.

5.5 [RESEARCH FUNDING APPLICATION]

5.5.1 The Complainant's claims and contentions

The Complainant alleges that a series of actions by Defendant 1 when reporting on the research results as part of the application process for funding from the [RESEARCH FOUNDATION] (see Note 5) could be characterised as scientifically dishonest.

5.5.1.1 Plagiarism of the article in [JOURNAL 4] in the [RESEARCH FUNDING APPLICATION]

The Complainant alleges that Defendant 1 plagiarised an article on miRNA written by the Complainant in the journal [JOURNAL 4] when the Defendant was applying to [RESEARCH FOUNDATION] for funding (see Note 6).

According to the Complainant, Defendant 1 used the Complainant's article in the [RESEARCH FUNDING APPLICATION, in which – according to the Complainant – Defendant 1 stated that all of the work on miRNAs was done at [RESEARCH CENTRE]. The Complainant also states that neither the complainant nor his laboratory was mentioned in the [RESEARCH FUNDING APPLICATION].

The Complainant adds that the [RESEARCH FUNDING APPLICATION] paints a picture suggesting that all of the miRNA work was conducted at [RESEARCH CENTRE], which the Complainant claims is untrue since – according to the Complainant – this work was done in the Complainant's laboratory. In addition, the Complainant asserts that the [RESEARCH FUNDING APPLICATION] mentions 'miRNA changes in relation to exercise', which refers to the data from the Complainant's laboratory, which he sent to staff at [RESEARCH CENTRE] in September 2008.

Furthermore, the Complainant asserts that large parts of the [RESEARCH FUNDING APPLICATION] consist of a 'cut and paste' job from the article in [JOURNAL 4] written by the Complainant. According to the Complainant, Defendant 1 did not write any of the article in [JOURNAL 4].

5.5.1.2 Misleading information about [EU-RESEARCH GRANT] research funding in the [RESEARCH FUNDING APPLICATION]

As part of the consultation on the draft ruling of 25 June 2013, the Complainant asserts that Defendant 1 provided misleading information about an EU application to the [EU-RESEARCH GRANT] programme, as listed in Defendant 1's [RESEARCH FUNDING APPLICATION]:

- Defendant 1 had reported that work had been done with [EU-RESEARCH GRANT] funds, when in fact the work was done before the grant was allocated.
- Funds from the [EU-RESEARCH GRANT] programme were used for projects other than those covered by the grant.

5.5.2 Defendant 1's responses and contentions

Defendant 1 contends that she is innocent of all charges of scientific dishonesty.

5.5.2.1 No plagiarism of the article in [JOURNAL 4] in the [RESEARCH FUNDING APPLICATION]

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In support of her contention, Defendant 1 contends that this was an internal application to the [RESEARCH FOUNDATION] rather than a competing application, and that she sent an e-mail to the Complainant with the [RESEARCH FUNDING APPLICATION] attached. According to Defendant 1, the Complainant did not respond at the time, and she finds it strange that the Complainant now accuses her of plagiarism.

In addition, Defendant 1 claims that in the background section to the [RESEARCH FUNDING APPLICATION] she incorporated a few lines from the article in [JOURNAL 4], of which Defendant 3 was joint lead author, a number of individuals from [RESEARCH CENTRE] were co-authors, Defendant 1 was the second last author and the Complainant was the last author.

According to Defendant 1, she inserted the following into the [RESEARCH FUNDING APPLICATION]: '*Researchers within* [RESEARCH CENTRE] *have demonstrated robust changes in miRNA in muscle biopsies from patients with insulin resistance when compared to carefully matched controls'*.

Defendant 1 thus contends that all clinical trials and clinical characterisation of diabetics and controllers covered by the article in [JOURNAL 4] were conducted in her laboratory.

Furthermore, Defendant 1 also contends that a large part of the molecular work was carried out by Defendant 3 at [RESEARCH CENTRE] and that the miRNA analyses were conducted by the Complainant, who was affiliated to [RESEARCH CENTRE] when the study was initiated.

5.5.2.2 Reference in [RESEARCH FUNDING APPLICATION] to [EU-RESEARCH GRANT] research funding neither acceptable nor unacceptable

As part of the consultation on the draft ruling of 25 June 2013, Defendant 1 contends that it was neither misleading nor unacceptable to refer to the [EU-RESEARCH GRANT] research funding in the [RESEARCH FUNDING APPLICATION]. Defendant 1 refers to the attached copy of an e-mail from a senior [EU-RESEARCH GRANT] project manager that supports this point of view.

5.6 Other factors

5.6.1 The Complainant's claims and contentions

The Complainant also highlights a number of other areas, particularly regarding Defendant 1, in which the Complainant considers aspects of behaviour unacceptable.

5.6.1.1 Improper and incompetent supervision of PhD students at [RESEARCH CENTRE]

The Complainant alleges that Defendant 1's supervision of PhD students at [RESEARCH CENTRE] was improper and incompetent.

5.6.1.2 Unauthorised disclosure of the miRNA work at an international congress

The Complainant asserts that Defendant 1 presented miRNA data from the article in [JOURNAL 4] on an inappropriate basis, as if it originated from [RESEARCH CENTRE]. Defendant 1 is thus alleged to have encouraged Defendant 3 to give a 'keynote' lecture at an international conference [CONGRESS]. According to the Complainant this was tantamount to an abuse of power by Defendant 1.

5.6.1.3 False CVs as a result of irregular mass publishing among students at [RESEARCH CENTRE]

The Complainant alleges irregular 'mass publishing' at [RESEARCH CENTRE] at the behest of Defendant 1, thus, according to the Complainant, producing false CVs for her students.

In this context, the Complainant asserts that he personally was forced to grant authorship to a student at [RESEARCH CENTRE], even though the student had not contributed to the analysis, interpretation or writing process, but had simply conducted a muscle biopsy/blood test.

The Complainant alleges a 'salami-slicing' of studies in 38 instances where authorship was accredited to researchers at [RESEARCH CENTRE] in collaboration with Defendant 1, and in 37 articles by two other researchers at [RESEARCH CENTRE].

The Complainant asserts that all of the work with myokines at [RESEARCH CENTRE] from 2000-2011 should be investigated because – according to the Complainant – it would not have received substantial attention without the extremely important muscle-protein immunoblot data set from 12 articles by another researcher.

5.6.1.4 Improperly accrediting authorship to students affiliated with [RESEARCH CENTRE]

The Complainant also asserts that a student affiliated with [RESEARCH CENTRE] was improperly accredited with co-authorship of a series of unspecified articles, despite the fact that the individual concerned provided no intellectual input into the articles, but only took biopsies or blood samples.

5.6.1.5 Changed perception of IL-6's role in human skeletal musculature

The Complainant asserts that it is suspicious that Defendant 1 apparently changed her perception of interleukin-6's (IL-6) role in human skeletal muscle over a number of years. According to the Complainant, in an article in 1998[13] Defendant 1 wrote that IL-6 is undetectable prior to training and only occurs in five out of eight samples after two hours of exhausting workouts.

According to the Complainant, Defendant 1 contradicts this view in an article[14] 10 years later, proclaiming that IL-6 is an extremely important factor in human skeletal muscle and exercise metabolism.

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The Complainant asserts that Defendant 1's contention that the new measurement technique for RNA (qPCR) can lead to different results in relation to expression (see below under Defendant 1's responses and contentions) is not valid. The Complainant asserts that the sensitivity of the measurement (detection sensitivity) is irrelevant to the question of physiological relevance. The Complainant also states that, if a gene is barely detectable using the PCR technique, this means that the gene is only regulated upwards in a minority of cells from the biopsy, no matter the 'numbers' that are registered.

5.6.1.6 Inconsistency between mRNA measurements and systematic misinterpretation

The Complainant also asserts that mRNA measurements made by two researchers at [RESEARCH CENTRE] from 2001–2005 were incompatible with protein data produced by another researcher. Further, the Complainant asserts that the alleged inconsistency in mRNA measurements was systematically misinterpreted by three researchers affiliated with [RESEARCH CENTRE] during the years 2001–2007, such that the lack of any correlation between mRNA and the other researcher's protein data was not apparent to the reviewers.

5.6.1.7 Defendant 1's relation to the editor of [JOURNAL 1]

The Complainant also criticises Defendant 1's relationship with an editor of [JOURNAL 1].

5.6.1.8 One of Defendant 1's research collaborators conducted the peer review of Article 1 in [JOURNAL 3]

The Complainant alleges that one of Defendant 1's research collaborators conducted the peer review of Article 1 in [JOURNAL 3] (see Note 3).

[13] [ARTICLE 3 IN JOURNAL 3]

[14] [ARTICLE IN JOURNAL 11]

5.6.1.9 Defendant 1 misled DCSD during the consultation process

The Complainant also alleges that Defendant 1 is misleading the DCSD by claiming that the statement by the [JOURNAL 8] reviewer about the literature suggests that it is widely accepted that skeletal muscle that contracts expresses BDNF (see below under Defendant 1's responses and contentions). According to the Complainant, some of the articles mentioned by the reviewer do not mention skeletal muscle at all.

5.6.2 Defendant 1's responses and contentions

Defendant 1 contends that she is innocent of all charges of unacceptable behaviour.

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5.6.2.1 Supervision of PhD students at [RESEARCH CENTRE] is proper

Defendant 1 contends that the Complainant's allegation that Defendant 1's supervision of PhD students at [RESEARCH CENTRE] was improper and incompetent is incorrect. In this context, Defendant 1 refers to the [RESEARCH CENTRE] laboratory manuals and instructions for the supervision of PhD students.

Furthermore, Defendant 1 contends that PhD students at the [RESEARCH CENTRE] laboratory are deeply involved in the scientific writing process. According to Defendants 1–4, [RESEARCH CENTRE] puts considerable effort into the supervision of PhD students and teaching students how to write scientific articles.

5.6.2.2 Unauthorised disclosure of the miRNA work at an international congress

Defendant 1 contends that she suggested that Defendant 3 should give a key-note lecture at the international congress [CONGRESS], as Defendant 1 had been asked to give another speech at the congress and considered it inappropriate to make two speeches at the same conference. According to Defendant 1, the Complainant was present at [CONGRESS], and Defendant 3 credited him as lead author for the study in her key note. According to Defendant 1, it was also made clear to the audience that the Complainant had played a leading role in the study.

Defendant 3 also states that the Complainant personally asked her to present the article in [JOURNAL 4] at the [THE CONGRESS] because the Complainant thought it would a good opportunity to promote this article to a wide audience.

5.6.2.3 No mass publishing

Defendant 1 refutes the assertion of salami-slicing of studies at [RESEARCH CENTRE] in the incidences mentioned by the Complainant. According to Defendant 1, the three researchers at [RESEARCH CENTRE] conducted a large number of experiments in Defendant 1's laboratory.

Defendant 1 contends that muscle and fat samples from an experiment have been used in various publications with different scientific objectives. Defendant 1 also

contends that this is common practice when you have conducted a large, complex and intrusive human study, and that Defendant 1 does not consider this salami slicing because different scientific questions were studied, including different hypotheses, and because different molecular analyses were also used.

Defendant 1 guarantees that the student affiliated to [RESEARCH CENTRE] made a substantial contribution to the publications for which he is listed as an author and that he deserves all the credit he has earned as an author.

5.6.2.4 The changes to results concerning. IL-6's role in human skeletal muscle are due to scientific developments in measurement technology

As regards the Complainant's assertion that Defendant 1 has changed her perception of IL-6's role in human skeletal muscle over a 10-year period, Defendant 1 states that during the period in question a new technique emerged for measuring mRNA. According to Defendant 1, this technique makes it is possible to measure cytokine levels before training.

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5.6.2.5 No inconsistency between mRNA measurements and no systematic misinterpretation

Defendant 1 contends that the Complainant's claim of lack of any correlation between the mRNA measurements conducted at [RESEARCH CENTRE] and another researcher's protein data are false and highly speculative.

Defendant 1 contends that she had no reason to be suspicious of the other researcher's data before the case was covered by the media. In addition, Defendant 1 states that in April 2011 she became aware of possible manipulation with immunoblots[15] in four of the 12 articles of which the other researcher was a co-author. Defendant 1 immediately reported these four articles to DCSD and contacted the respective journals.

5.6.2.6 No knowledge of who performed the peer review of the article

Defendant 1 contends that at no point in time has she known who performed the peer review of article 1 in [JOURNAL 3] (see Note 3).

6 Rules and regulations

This case has been processed under the Danish act on research consulting, etc., cf. consolidation act no. 1064 of 6 September 2010 and the related executive order no.
306 of 20 April 2009 on the Committees on Scientific Dishonesty, as amended by ministerial order no. 144 of 20 February 2012 (the DCSD order).

Scientific dishonesty is defined in section 2, no. 3 of the act and in section 2 of the DCSD order:

[15] The Committee bases its decision on the fact that this refers to micro photos of an immunohistochemical coloured tissue section and not, as stated by Defendant 1, an immunoblot.

'Section 2. Scientific dishonesty is understood to mean: Falsification, fabrication, plagiarism and other serious violations of good scientific practice committed intentionally or due to gross negligence during the planning, implementation or reporting of research results. Scientific dishonesty includes:
1) Undisclosed construction of data or substitution with fictitious data
2) Undisclosed selective or surreptitious discarding of own undesired results
3) Undisclosed unusual and misleading use of statistical methods
4) Undisclosed biased or distorted interpretation of own results and conclusions
5) Plagiarism of another person's results or publications
6) False statements concerning authorship, title or workplace
7) Submission of incorrect information about scientific qualifications.'

DCSD's remit is described in the DCSD order sections 3 and 6:

'Section 3. The committees do not rule on cases concerning scientific theories' validity or truth or on cases related to the quality of the research associated with a scientific product.'

'Section 6. The Committees on Scientific Dishonesty hear cases involving complaints about written scientific products voluntarily submitted for publication by the defendant, cf. section 1(4).
(2) The committees also hear cases involving complaints about funding applications submitted to public-sector funding bodies.'

7 The DCSD ruling

7.1 Basis and subject matter for the case

DCSD has based its ruling on the documents cited above under item 4 – Process, background and subject matter for the case.

The following articles and an application for funding from a [RESEARCH FOUNDATION] pool ([RESEARCH FUNDING APPLICATION]) play a particularly key role in the parties' claims, responses and contentions:

- Article in [JOURNAL 1] (concerns Defendant 1)
- Article in [JOURNAL 2] (concerns Defendant 1)
- Article 1 in [JOURNAL 3] (concerns Defendants 1–4)
- Article 2 in [JOURNAL 3] (concerns Defendant 1)
- [RESEARCH FUNDING APPLICATION] (concerns Defendant 1)

The DCSD has also reviewed the article in [JOURNAL 4], which is related to the above articles and the [RESEARCH FUNDING APPLICATION] in a number of ways. The article in [JOURNAL 4] stipulates that the manuscript was submitted on 13 September 2009, a revised version was submitted on 27 October 2009 and the manuscript was approved and published on 1 February 2010. The case documents also show that prior to submission to [JOURNAL 4], an attempt had been made to have the article published in [JOURNAL 12].

Section 7.2 consists of DCSD's comments on Defendant 1's objections to the composition of the Committee. Section 7.3 consists of DCSD's ruling concerning

which definition of dishonesty applies in this case. Section 7.4 consists of the Committee's general observations concerning co-authors.

In sections 7.5–7.8 below, the DCSD rules on whether Defendants 1–4 acted in a scientifically dishonest manner while drawing up and reporting on their research results in the four articles in [JOURNAL 1], [JOURNAL 2] and [JOURNAL 3].

In section 7.9, the DCSD rules on whether the funding application to the [RESEARCH FOUNDATION] constitutes scientific dishonesty.

Finally, under 'Other matters' in section 7.10, the DCSD rules on the Complainant's other claims and contentions about matters that are not related to the above four articles or the [RESEARCH FUNDING APPLICATION].

7.2 The composition of the Committee

As part of the consultation on the draft ruling of 25 June 2013, Defendant 1 challenged the composition of the Committee, and asserted that Ulla Feldt-Rasmussen, Palle Holmstrup, Kirsten Ohm Kyvik and Jens Overgaard were ineligible to participate in the proceedings, including with regard to making rulings, as there was no legal basis for extending their membership (in Jens Overgaard's case, that of his alternate membership) until a number of cases before USF were completed.

The Committee notes that, under the act on research consulting, etc., the Minister of Science, Innovation and Higher Education has the power to appoint members and alternates to DCSD. On 3 and 16 September 2013, the Minister responded by letter to Defendant 1's objection to the composition of the Committee.

In these letters, the Minister maintains that the extension of the period of office of both the members and the alternate was legal. In this light, the Committee sees no reason why Ulla Feldt-Rasmussen, Palle Holmstrup, Kirsten Ohm Kyvik and Jens Overgaard should not be eligible to participate in the proceedings. In other words, the members and alternate concerned will be involved in making rulings in this case.

In this light, the Committee also sees no reason to postpone its ruling until the outcome of the legal case brought by Defendant 1.

7.3 The concept of dishonesty

As part of the consultation on the draft ruling of 25 June 2013, Defendant 1 pointed out that the wording of the definition of scientific dishonesty had changed, and that the definition used at the time the articles were produced differs from the one used now. Defendant 1 contends that that Committee should use the definition that applied at the time the articles were written.

During the period 1992–1998, the definition of scientific dishonesty rested solely on a set of rules for DCSD approved on 18 December 1992 by the Danish Health and Medical Research Council (Statens Sundhedsvidenskabelige Forskningsråd (SSVF)). The definition was as follows:

'Section 2.

[...]

(2) Academic dishonesty includes all deliberately fraudulent actions in the course of the application-research-publication process, as well as cases of incompetence so severe that they can be considered to have an equivalent impact on scientific credibility. This corresponds to intent or gross negligence.

(3) The area of scientific dishonesty covered by DCSD's remit includes falsifying or distorting scientific messages or falsely highlighting the input of particular researchers. As such, it covers:
- construction of data
- selective and surreptitious discarding of unwanted results
- substitution with fictitious data
- deliberate misuse of statistical methodology in order to draw conclusions other than those underpinned by the data
- distorted interpretation of results and distortion of conclusions
- plagiarism of another person's results or whole articles
- distorted presentation of the results of others
- improper claims of authorship
- misleading applications.'

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In 1998, a definition of scientific dishonesty was inserted into the DCSD order (see ministerial order no. 933 of 15 December 1998, which came into force on 1 January 1999).Section 3 of the order reads:

*'**Section 3.** Academic dishonesty covers acts or omissions that cause research to be falsified, the scientific message to be distorted or gross misrepresentation of an individual's involvement in the research. This includes the following:*

1) Construction of data
2) Selective and surreptitious discarding of unwanted results
3) Substitution with fictitious data
4) Undisclosed, unusual and misleading use of statistical methods
5) Deliberately distorted interpretation of results and distortion of conclusions
6) Plagiarism of another person's results or publications
7) Deliberately distorted reproduction of the results of others
8) Improper crediting of author
9) Applications with incorrect information.

(2) In order to label conduct as scientific dishonesty, it must be possible to prove that the individual concerned acted with intent or in a grossly negligent manner.'

In 2005, the definition of scientific dishonesty was amended by a new DCSD order, order no. 668 of 28 June 2005, which came into force on 1 August 2005.Section 2 of the order reads:

*'**Section 2.** Scientific dishonesty is defined as intentional or grossly negligent conduct in the form of falsification, plagiarism, concealment or similar, which involves*

improper misrepresentation of one's own scientific work and/or research results. This includes the following:

1) Undisclosed construction of data or substitution with fictitious data
2) Undisclosed selective or surreptitious discarding of own undesired results
3) Undisclosed unusual and misleading use of statistical methods
4) Undisclosed biased or distorted interpretation of own results and conclusions
5) Plagiarism of another person's results or publications
6) False statements concerning authorship, title or workplace
7) Submission of incorrect information about scientific qualifications.'

Act no. 552 of 16 June 2008 introduced a definition of scientific dishonesty into the act on research consulting, etc. This provision came into force on 1 December 2008 (see executive order no. 1130 of 24 November 2008).

The preparatory memoranda for the amendment reveal that the intention was to clarify the provision.

The definition, which is preserved in section 2, no. 3 of the current act on research consulting, reads:

'Scientific dishonesty, falsification, fabrication, plagiarism and other serious violations of good scientific practice committed intentionally or due to gross negligence during the planning, implementation or reporting of research results'.

As a result of the amendment, the DCSD order was also amended to reflect the definition in the act. The definition below was inserted by order no. 1122 of 25 November 2008, and the wording has been preserved in the current order from 2009:

'Section 2. *Scientific dishonesty is understood to mean: Falsification, fabrication, plagiarism and other serious violations of good scientific practice committed intentionally or due to gross negligence during the planning, implementation or reporting of research results. Scientific dishonesty includes:*

1) Undisclosed construction of data or substitution with fictitious data
2) Undisclosed selective or surreptitious discarding of own undesired results
3) Undisclosed unusual and misleading use of statistical methods
4) Undisclosed biased or distorted interpretation of own results and conclusions
5) Plagiarism of another person's results or publications
6) False statements concerning authorship, title or workplace
7) Submission of incorrect information about scientific qualifications.'

The Committee is of the opinion that, even though changes have been made to the wording of the definition of scientific dishonesty, no substantive changes have been made to the content, i.e. the substance of the definition remains the same, despite changes to the wording. This decision is underpinned by statements in past DCSD annual reports. Following the 2005 amendment, the DCSD chairperson stated that the change was not considered to represent any real difference to the definition of dishonesty. After the 2008 amendment, the chairperson noted that the change consisted of a clarification of the previous definition. Comparing the word-

ing of the various iterations shows that the definition has remained almost identical from 1992 until the present.

The Committee notes that the requirement for 'improper misrepresentation' in the 2005 definition was not repeated verbatim in 2008. It adds that the word 'improper' was chosen to indicate the requirement for a certain degree of gravity, a requirement that the 2008 definition covers by stating that only a 'serious' breach of good scientific practice is tantamount to dishonesty. In assessing whether a serious breach of good scientific practice has been committed, it is implicit that the breach is likely to mislead the reader of the scientific product concerned. In practice, a criterion about misleading will, therefore, be part of DCSD's assessment of whether a given action can be characterised as scientific dishonesty.

Since 1992, the subjective requirements in the definition have been intent or gross negligence. The use of 'gross carelessness' in the 1998 definition does not alter this, since this wording has in practice been interpreted as corresponding to gross negligence.

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In this light, the Committee finds that the definition of scientific dishonesty, as per the current wording, has in essence remained the same since 1992. The Committee has assessed the individual charges based on the definitions of scientific dishonesty valid at the time that the scientific products emerged, and found no reason to arrive at a different ruling to the one that results from the application of the current definition. In the ruling below, the Committee will therefore use the definition of scientific dishonesty as it appears in the current act on research consulting, etc. and the DCSD order.

7.4 Co-author responsibility

The Committee is of the opinion that all authors of a scientific article share responsibility for its content, including responsibility for reading the final manuscript prior to submission to the journal. This is good scientific practice and is also set out in DCSD's own guide to good scientific practice from 1998, i.e. from before the articles in this case were submitted for publication.

The 1998 DCSD guidelines include the following:
'Within the bounds of the possible and the reasonable, all authors of an article share responsibility for ensuring that it is based on honest research.'

This practice, i.e. that all authors share responsibility for the content of the article, has been laid down in numerous scientific guides since then, including DCSD's own guide to good scientific practice in 2009[16], the European Code of Conduct for Research Integrity[17] and the so-called Vancouver Rules[18], all of which set non-statutory standards for good scientific practice in the publishing of health-science articles.

The 2009 DCSD guide states:

[16]http://fivu.dk/en/publications/2009/the-danish-committees-on-scientific-guidelines-for-good-scientific-practice
[17]http://www.esf.org/publications/member-organisation-fora.html, p. 7.
[18]Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication, Updated April 2010, item. II.A.1, p. 3.

'All of the authors of an article also have – within the realms of possibility and reason – a responsibility for ensuring that it is based on honest research, so that the risk of fraud is minimised. If irregularities or dishonesty are demonstrated in the research, it will be difficult for the co-authors of the work to disclaim responsibility.'

The 2011 European Code of Conduct states:
'All authors, unless otherwise specified, should be fully responsible for the content of publications.'

The Vancouver Rules, last updated in 2013, state:

'Authorship credit should be based on 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; 3) final approval of the version to be published; and 4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Authors should meet conditions 1, 2, 3, and 4.'

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In this light, DCSD is of the opinion that the lead author (often called the senior or final author) of a scientific article has special responsibility for all of the article's content, including reading the final manuscript carefully before submitting it to a journal. This is standard practice, and takes into account the role that a lead author plays in connection with the publication of an article. The Committee notes that the standard practice for articles of the type addressed in this ruling is for the lead author to be the final author. This is underlined, for example, by the fact that final-author status (as indicated in his or her list of publications) is considered important when evaluating researchers, including in connection with applications for professorships and research funding.

7.5 Article in [JOURNAL 1]

This section accounts for the DCSD's assessment of the parties' claims, responses and contentions concerning the article in [JOURNAL 1].

The article stipulates that the manuscript was submitted to the journal on 17 December 2008, resubmitted on 25 February 2009, accepted 16 March 2009 and published online on 22 April 2009. An erratum to the article was published online on 10 January 2012.

7.5.1 Warning about unsound data

The Committee notes a discrepancy between the Complainant and Defendant 1 about the Ct values found in the qPCR analyses, which were performed on muscle tissue in order to obtain a measurement for the expression of BDNF-mRNA. The Committee notes that the Complainant did not find BDNF-mRNA in muscle tissue from a given group of test subjects, while Defendant 1 describes the presence of BDNF-mRNA in the article in the group of test subjects selected by Defendant 1. The Committee notes that there are differences in the results obtained in the Complainant's and Defendant 1's laboratories, and that this is a matter of

scientific methods and quality, and falls outside the remit of the Committee, cf. section 3 of the DCSD order.

The Committee finds that there is a discrepancy between the Complainant and Defendant 1 about the choice of primers, and whether or not primers detect splice variants. The Committee notes that a range of primers were used, which ought to detect the maximum number of BDNF variants. In this specific instance, the Committee considers that this discrepancy is a matter of scientific methods and quality, and falls outside the remit of the Committee, cf. section 3 of the DCSD order, because it refers to concerns selecting methods, their applicability and limitations.

The Committee finds that there is a discrepancy between the Complainant and Defendant 1 about the stability of mRNA. It is correct that the different mRNA transcripts have varying stability, depending on the sequence, in particular in the non-translated third one (3'UTR). However, it is also correct that cDNA has a limited shelf life, so long-term storage and/or repeated thawing/freezing can destroy the sample material. In this specific case, the Committee finds that this is a matter of scientific quality and the validity of scientific theories, and falls outside the remit of the Committee, cf. section 3 of the DCSD order.

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7.5.2 Presentation of relative data normalised to 1

In relation to the Complainant's claim that the article presented 'relative' data normalised to 1, and that this conceals the true incidence of BDNF-mRNA, Defendant 1 refers to her general comments on standard practice concerning the presentation of mRNA expressions.

The Committee finds that, when an article presents relative values, the original data and its variation ought also to be presented, in order to enable the reader to assess the actual biological variation. The Committee is of the opinion that citing the original data and variations of it helps avoid any obscuration of the actual data.

The Committee finds that Defendant 1 did not account for the calculation of the mRNA data presented in the article in the methodology section. The Committee notes that the article cites reference [REFERENCE], an article that also omits a description of its calculations, and one other reference.

The Committee also notes that Figure 1a presents the variation of data in all of the observations ('0, 2, 3, 5, 8, 24, 48', 72 and 72 h).

The Committee finds that due to the lack of a description of how the data underlying the Figures 1a was arrived at, readers are unable fully to assess the validity of the data presented.

The Committee therefore finds that although the approach used in the article is not consistent with good scientific practice, it cannot be characterised as a serious breach of good scientific practice, and thus as an example of scientific dishonesty. In the opinion of the Committee, the failure to specify the calculations of

mRNA data is more a matter of the research quality of the scientific product concerned.

7.5.3 Use of unconventional and invalid statistical methods

The Committee is of the opinion that the criticisms raised about the statistical methodology arose because the original article contained an incomplete description of the test subjects.

Defendant 1 has requested that the issue of the methodology section not be addressed as part of this case. As the Complainant's assertion relates to the use of non-conventional and invalid statistical methods, and is thus related to the methodology section, the Committee decided to decline Defendant 1's request and address the issue.

The Committee notes that the original wording of the methodology section was as follows:

'*Human in vivo experiments Eight healthy, physically active but untrained men (mean±SD age: 25±4 years, weight: 82± 8 kg, height: 181±1 cm, BMI: 25±2 kg/m2) were recruited to participate in the study, which was approved by the Ethics Committee of the University* [UNIVERSITY]. *On the day of the experiment, the volunteers arrived at about 07:00 hours after an overnight fast. The participants performed 120 min of bicycle exercise at 60% of their predetermined 2max followed by a 24 h recovery period. Muscle biopsy samples were obtained from vastus lateralis before exercise, immediately after exercise, and 3, 5, 8, 24, 48 and 72 h into recovery using a percutaneous needle biopsy technique with suction. Samples were snap frozen before being analysed for BDNF mRNA and protein expression. Serum was obtained at the above mentioned time-points. Serum levels of BDNF were measured by ELISA (R&D Systems, Wiesbaden-Nordenstadt, Germany). Platelet counts were determined by standard laboratory procedures.*'

The Committee further notes that on 10 January 2012, an erratum was published pertaining to the article's methodology section, from which the following extract is taken:

'The first paragraph of the Methods should have read as follows (new material shown in [bold]):

Human in vivo experiments ***Twenty healthy, physically active but untrained men (age 25.6±3.5 years, weight 78.9±9 kg, height 185±6.5 cm, BMI 21.3±2.11 kg/m^2 [mean±SD]) were randomised to either an exercise (n = 10) or control (n= 10) group. There was no difference between the two groups with regard to age, weight, height or $V0_{2max}$. Subjects either performed 120 min of bicycle exercise at 60% $V0_{2max}$ followed by a 6 h recovery period (exercise) or rested in bed for 8 h (control). Subjects also reported to the laboratory after an overnight fast at 24, 48 and 72 h after the commencement of the experimental trial. Blood was obtained at the following time points: 0, 2, 3, 5 8, 24, 48 and 72 h.*** *Muscle biopsy samples were obtained from vastus lateralis at time points 0, 2, 3, 5, 8, 24, 48 and 72 h using a percutaneous needle biopsy technique with suction. Samples*

were snap-frozen before being analysed. Serum levels were measured by ELISA (R&D Systems, Wiesbaden-Nordenstadt, Germany). Platelet counts were determined by standard laboratory procedures. ***Data from this study are included in Figs 1 a,b,d and 2a,b. Because of a lack of material, we included another*** *eight healthy men (age 25±4 years, weight 82±8 kg, height 181±1 cm, BMI 25±2 kg/m2 [mean±SD]).* ***They had muscle biopsies taken immediately pre and post exercise and at 3 and 24 h after exercise. The data from these subjects are used only in Fig. 1c.*** *[…]'*

The Committee notes that a full description of the test subjects has been added to the methodology section in the erratum. It has now been made clear that the control group and the active group consist of different people and it is therefore correct to use an un-paired analysis instead of a paired one.

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In the case at hand, the Committee is of the opinion that the time sequence and the pattern are the same for the whole group. With this in mind, the Committee considers the use an AUC calculation to be acceptable.

It is correct that the assumptions on which the AUC is calculated are not specified, and thus the reader of the article is not aware of the mean value and spread for AUC for the two groups.

The Committee is of the view that the assumptions for the AUC calculations ought to have been specified. However, it does not consider that this omission constitutes a serious breach of good scientific practice, because it is not critical to the reader's assessment of the article's content and findings.

The Committee notes that the choice of statistical method was wrong in relation to the original description of the test subjects in the article, as this was inadequate.

In addition, the Committee finds that the information in the article concerning the number of persons/control population (n-values) is unclear. The original methodology section indicates n = 8. Figure 1 also stipulates n = 8, but the Committee does not think it is entirely clear whether there are four people in each group (2 x 4 = 8) or eight people in each group. No control group is specified in the original methodology, and it appears therefore as if all eight test subjects were involved in the cycling experiment. Figure 2 specifies n = 10, but the Committee finds that it is not clear whether this means ten people (2 x 5 = 10) or 20 people (2 x 10 = 20).

The Committee finds, therefore, that the article does not make clear that the material refers to two different test groups, nor does it inform the reader how many subjects there are or how big the control population in the groups actually is.

The Committee, therefore, finds it impossible to assess the relevance of the effect shown in figures 1b and 1c, because the original article does not mention that the two figures contain data pertaining to different test subjects, and that these subjects participated in the experiment at different times. It was not until the erratum was published that it became clear that two different groups were referred to in these two figures.

One of the most important requirements on scientific work of the type concerned is transparency in the choice of methodology and the description of the methodology, because this facilitates reproduction and relevant interpretations of the results presented as well as assessments of their credibility.

The Committee finds that the omission of significant information about the test subjects from the original methodology description constitutes a serious breach of good scientific practice on a par with 'undisclosed construction of data' pursuant to the DCSD order 2, no. 1. As described above, the inadequate description of the subjects in the methodology section has consequences for the interpretation of results contained in the article.

The Committee finds that the erratum containing a revised description of the methodology does not justify any change to its findings, as the complaint concerned the article in its original form and the erratum was published after the complaint had been submitted. The Committee also finds that the fact that the journal accepted an erratum cannot be accorded any prominence in its ruling.

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Defendant 1 asserts that the shortcomings of the original methodology section were merely the result of an error during the editing process, which meant that the description of the main study in the article was omitted from the methodology section, and that this does not constitute a serious breach of good scientific practice. Defendant 1 also pointed out that the final version of the manuscript erroneously indicates biopsy times in the secondary study that correspond to the main study. According to Defendant 1, this happened during an extensive editing process involving the 16 co-authors. In this light, Defendant 1 is of the view that the erroneous description of the methodology cannot be blamed on her.

The Committee notes that Defendant 1 is listed as 'co-director' of the article, which in this case is equivalent to the final author (see section 7.4). Information supplied by Defendant 1 during the case also shows that Defendant 1 was involved in the selection of test subjects for the article, including the description of them in the methodology section. This is also reflected by the fact that the article incorporated material (because of lack of material) that had previously been used in a publication for which Defendant 1 was the final author, and that Defendant 1 had significant insight into the study that formed the basis for the article concerned.

In the light of the information provided by Defendant 1, the Committee concludes that the test group was mistakenly omitted from the original methodology section during the editing process, and that incorrect biopsy times were stated. The Committee also notes that, according to Defendant 1, it was Co-author 1 who prepared the final draft of the article and was responsible for all correspondence with the journal.

Due to the role played by Defendant 1 in writing the article, the Committee is of the opinion that Defendant 1 should have discovered and responded to the lack of information. However, the Committee recognises that an editing process involving multiple co-authors from different countries inherently entails a certain risk of error. It is therefore the opinion of the Committee that Defendant 1's conduct cannot be characterised as gross negligence. In reaching this conclusion, the

Committee has taken into account that the error occurred in the course of an editing process involving multiple writers from different countries.

In this light, the Committee rules that Defendant 1 did not act in a scientifically dishonest manner.

7.5.4 Publication despite the lack of biological relevance of the results or non-valid findings

The Complainant gives the impression that the amount of mRNA per cell is a direct measure of the amount of protein produced subsequently, and thus that the functional significance of the observed increase of the expression of mRNA (without simultaneous protein expression) after physical activity is not biologically relevant.

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A number of other factors are important, e.g. mRNA stability.

The duration of the experimental design also affects whether you can expect to detect mRNA expression and protein simultaneously or separately. It is thus a well-known phenomenon in scientific articles that a correlation between mRNA- and protein expressions cannot readily be shown, if specimens are only collected at an early stage, where only an mRNA expression can be expected, or at a later date, where only protein is present.

The Committee therefore finds that the increase in mRNA expression may well have biological relevance.

The Committee finds that the alleged lack of biological relevance of results, or non-valid findings, is a question of the scientific theories' validity and the quality of the research, and falls outside the remit of the Committee, cf. section 3 of the DCSD order.

7.5.5 Ignoring data from the research collaboration with the Complainant, including on the article in [JOURNAL 4]

The Complainant alleges that there is a contradiction between the data from the Complainant's laboratory (published in [JOURNAL 4]) and data in the article in [JOURNAL 1].

Defendant 1 accounts for the differences in the data used in the article in [JOURNAL 4] and the article in [JOURNAL 1]. The immediate explanation for the divergence of the data in the two articles is that there are different test subjects and two different age groups.

In the light of the evidence presented in the case, the Committee finds that it has been documented that the article in [JOURNAL 1] (with the positive findings) was submitted, accepted and published in a period from December 2008 until April 2009, during which time the draft for the article that ended up being published in [JOURNAL 4] was revised with a view to resubmission to [JOURNAL 12].

Defendant 3 conducted three analyses of BDNF in diabetics and the control population (older people) for the article in [JOURNAL 4] as a result of the discussions held after Defendant 1 sent the revised article intended for [JOURNAL 1] to the Complainant on 19 February 2009. In the e-mail correspondence, the Complainant mentioned some of the findings that are reported in [JOURNAL 4], and presented the results of BDNF measurements he had taken of 24 people who were not described in any detail. In this light, Defendant 1 offered that Defendant 3 could perform the analyses of BDNF in the diabetics and control population (older persons) on whom the Complainant had based his [JOURNAL 4] article and who had been studied in Defendant 1's laboratory.

The Committee notes that it is good scientific practice to refer to articles or own unpublished findings that do not support the findings you are seeking to have published.

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In addition, the Committee notes, however, that when the article was submitted, BDNF data for the above-mentioned cohorts was not available from Defendant 1's laboratory. In addition, the BDNF data cited by the Complainant in his e-mail of 20 February 2009 is mentioned in very vague terms.

The Committee finds that the lack of reference to the data, as described by the Complainant, does not constitute a breach of good scientific practice, because, at the time of the submission of the article to [JOURNAL 1], it was unpublished data that had not been adequately described and which referred to a different group of subjects than those covered by the article in [JOURNAL 1]. In the light of the above, the Committee finds that Defendant 1 did not act in a scientifically dishonest manner by not referring to the data to which the Complainant refers.

The Complainant also claims that Defendant 1 ignores two decades of literature reporting that BDNF is involved in neuromuscular regeneration.

The Committee notes that the choice of references ought to reflect the state of knowledge in the research field, regardless of whether it contradicts or concurs with the results to be discussed in the article concerned. It is an author's right to prioritise the choice of references with regard to species, model and methodology, but significant conflicting references should never be deliberately omitted. The Committee notes in this connection that the number of references can also be limited by the scope of the article, which is set by the journal concerned.

The topic of the article in [JOURNAL 1] is muscle activity. The Committee therefore conducted a PubMed search of the literature from 1989–2009 with the following keywords: 'BDNF exercise muscles'. It identified 11 articles, including the three articles that Defendant 1 – according to the Complainant – has misquoted, cf. the section below 7.5.8.

In this light, the Committee finds that Defendant 1's choice of references does not constitute a breach of good scientific practice, but rather an expression of the author's right to prioritise references.

7.5.6 Immunoblot with changed/manipulated contrast/image preferences

The Committee finds that the biopsies for Western blot in the article were conducted in a different series of experiments with a different design than the experiment that generated the material for the mRNA analyses, and it is not clear whether all of the biopsies from test subjects in the supplementary experiments were analysed for BDNF protein.

The Committee notes that it is correct that the background around each band rises towards the immunoblot. As this may be a case of a knock-on effect from the rising signal, and as the immunoblot has been plucked out of a wider context, the Committee finds that the actual background is difficult to assess. On this basis, the Committee finds that there is no basis for considering the immunoblot to be a falsification.

The Committee finds that the question of inadequacies during the performance of the BDNF immunoblot concerned is a question of the quality of the scientific work, and falls outside the remit of the Committee, cf. section 3 of the DCSD order.

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7.5.7 Significant Western blot

The Complainant alleges that results from an important Western blot in the article were manipulated and that he was told this by a former postdoc at [RESEARCH CENTRE].

Both the former postdoctoral student and another researcher affiliated with [RESEARCH CENTRE], who performed the immunoblot, contend that this is not the case. Furthermore, they explain that a mark on the blot suggesting that it was significant was placed there by mistake and was removed once the mistake was discovered, which happened before the article was submitted.

The Committee finds that this is not an example of scientifically dishonest behaviour, but rather a mistake during the preparatory work for the article. The Committee finds no basis to reject Defendant 1's explanation in the light of the statements from the individuals mentioned above.

The Complainant alleges that the finding of BDNF protein is incompatible with the lack of BDNF-mRNA expression in muscle tissue.

The Committee finds that the Complainant is in part referring to his own observations on muscle tissue, in which the Complainant did not observe expressions of BDNF-mRNA, while Defendant 1 – unlike the Complainant – observes BDNF-mRNA expression in all of the groups of tests subjects studied.

It is the opinion of the Committee that the Complainant's assertion is a matter of scientific methods and quality, and falls outside the remit of the Committee, cf. section 3 of the DCSD order.

7.5.8 Misquotations of three articles

The Committee has reviewed the three articles that the Complainant alleges were misquoted. According to the Complainant, Defendant 1 misquoted

- [ARTICLE IN JOURNAL 5] (see note 7) and [ARTICLE IN JOURNAL 6] (see note 8) by specifying that BDNF-mRNA increased in these two articles, and
- [ARTICLE IN JOURNAL 7] (see note 9) by stating that BDNF had increased with the inhibition of HDAC but failed to mention protein.

The Committee finds that Defendant 1 did not misquote the three articles as far as the increase in BDNF-mRNA and protein is concerned. The Committee finds that Defendant 1 used the references to substantiate her findings about a rise in BDNF-mRNA in muscle tissue. As such, the Committee finds that no breach of good scientific practice occurred in this context.

7.5.9 Incorrect presentation of clinical trials

This allegation relates to the presentation of the IHC results in Figure 1d. The Complainant asserts that a single sample was selected (highest mRNA content) to locate protein using IHC.

The Committee notes that the article does not make it clear whether all of the test subjects' biopsies were analysed using IHC. In her responses to the consultation process, Defendant 1 notes that several biopsies were stained. She also notes that a decision was taken only to show the IHC image of the biopsy from the person with the highest mRNA expression in muscle tissue, who also had a high protein level.

The Committee affirms that scientific journals have restrictions on the number of images that can be published in an article, and it is therefore usual that the authors of an article select one or a very few images that they consider representative of their findings. In this light, the Committee finds that the above does not constitute a breach of good scientific practice.

7.5.10 Improper accreditation of co-author

The Complainant alleges that Co-author 2 is improperly credited as a co-author of an article for which it was not Co-author 2 but Co-author 3 and a student who supplied an immunoblot. The Committee notes that according to the information it has received Co-author 2 conducted pilot experiments to establish the method and supervised the technique.

The Committee finds that the co-author was not improperly accredited as the co-author's contribution was sufficient to warrant billing as a co-author.

7.5.11 Sub-conclusion concerning the article in [JOURNAL 1]

As far as the article in [JOURNAL 1] is concerned, the Committee finds that significant information about the test subjects was omitted from the original methodology description and that this constituted a serious breach of good scientific practice on a par with 'undisclosed construction of data' pursuant to the DCSD order 2, no. 1.

In the light of the information provided by Defendant 1, the Committee concludes that the test group was mistakenly omitted from the original methodology section during the editing process, and that incorrect biopsy times were stated. The Committee also notes that, according to Defendant 1, it was Co-author 1 who prepared the final draft of the article and was responsible for all correspondence with the journal.

Due to the role played by Defendant 1 in writing the article, the Committee is of the opinion that Defendant 1 should have discovered and responded to the lack of information. However, the Committee recognises that there is an inherent risk of error in an editing process involving multiple co-authors from different countries. It is therefore the opinion of the Committee that Defendant 1's conduct cannot be characterised as gross negligence. In reaching this conclusion, the Committee has taken into account that the error occurred in the course of an editing process involving multiple writers from different countries.

In this light, the Committee rules that Defendant 1 did not act in a scientifically dishonest manner.

The Committee rejects the other charges brought by the Complainant concerning the article in [JOURNAL 1], and finds that Defendant 1 did not act in a scientifically dishonest manner.

7.6 Article in [JOURNAL 2]

The article in [JOURNAL 2] (see Note 2) is a review article (Hot Topic Review) that refers to the original articles and gives interested readers the opportunity to find further original data.

The article focuses on BDNF protein and describes how the protein can be triggered by physical exertion, and that this is important for the regulation of human energy homeostasis.

The article concludes that BDNF is a protein that is produced in skeletal muscle, and that it increases lipid oxidation, probably by means of an autocrine/paracrine mechanism in the skeletal muscle. BDNF is thus characterised as a new contraction-induced protein with beneficial health effects in conjunction with physical exertion – possibly through an increase in fat oxidation in skeletal muscle.

The authors believe that BDNF plays a neurobiological role as well as roles in both the central and peripheral metabolism. The text for Figure 5 in the article describes that BDNF-mRNA and protein expression are markedly increased in skeletal muscle after exertion, and this is repeated in the main body of the text under the heading Brain-derived neurotrophic factor and the role of exercise on the penultimate line (p.1158), which refers to the article in [JOURNAL 1].

After a close reading of the article in [JOURNAL 1], the Committee notes that Figure 1 shows that there is an approx. 50% increase in BDNF in conjunction with physical exertion versus rest – and that it is a question of interpretation whether such an increase can be termed 'marked'. The Committee finds that this

interpretation does not constitute a breach of good scientific practice as the data in the article supports the conclusion.

The Committee finds that the review article does not break with the norm for generally acceptable scientific presentations. The contention that the conclusion in the article deviates from the general literature is a matter of the validity of scientific theories and scientific quality, and falls outside the remit of the Committee, cf. section 3 of the DCSD order.

7.6.1 Sub-conclusion concerning the article in [JOURNAL 2]

With regard to the article in [JOURNAL 2], the Committee rejects the charges raised by the Complainant and finds that Defendant 1 did not act in a scientifically dishonest manner.

7.7 Article 1 in [JOURNAL 3]

This section accounts for the DCSD's assessment of the parties' claims, responses and contentions concerning article 1 in [JOURNAL 3] (see Note 1).

7.7.1 Reproduction of the Complainant's observations

The Committee notes that the article in [JOURNAL 4] is based on a cohort of diabetic patients (n = 71) and a control population (n = 47), whose miRNA (the so-called myomirs) and several proteins, including BDNF, are studied.

The article specifies that the test subjects have an average age of over 50 and an average BMI of over 30. The article compares the findings from these groups. The discussion section of the article also refers to findings concerning BDNF-mRNA after endurance training by 24 test subjects. This data is not disclosed and the methodology not described. In other words, the Complainant's contention that the test subjects are all young males is not specified in the published article.

In his complaint, the Complainant describes how this data stems from Defendant 1–4's laboratory, but in the e-mail correspondence of 22 February 2009 it is specified that the data stems from analyses conducted by the Complainant himself for a research collaborator.

The Committee also notes that the article is about the study of myomirs before and after acute endurance training and insulin clamps in 10 young healthy men.

In the e-mail correspondence of 11 March 2010 between Defendant 4 and Complainant, it is explicitly stated by the Complainant that there is no significant overlap between the two articles. The Complainant also states that since his own article is only approx. 80% complete, he thinks that Defendant 4 should go ahead and submit the article.

In this light, the DCSD finds that the data from the Complainant's laboratory is not reproduced in the article, as it refers to a different group of test subjects and a different design.

7.7.2 The question of whether the Complainant should have been listed as co-author

Regarding the Complainant's assertion that he should have been credited as a co-author of the article, the Committee finds that in the correspondence between the Complainant and Defendants 1–4, the Complainant does not express a wish to be listed as a co-author.

The Committee also finds that it is clear from the correspondence that the article was sent to the Complainant in order to ascertain whether there was any overlap between this article and the similar article on which the Complainant was working at the time. The Committee does not consider that forwarding the article to the Complainant implies compliance with a request to be credited as a co-author of the article.

The Committee finds that the article in the [JOURNAL 10], as cited by the Complainant, does not add any new information to the case. E-mail correspondence relevant to the case shows that the Complainant was asked to assess whether the article by Defendants 1–4 overlapped so much with his own that it would pose a problem. The Complainant responded by e-mail that it did not, and that he thought it could be sent for publication. The Complainant also added some comments and recommended citing extra articles. The Committee finds that acknowledgement would be a legitimate way to credit this contribution. The Complainant could also have personally asked to see an author list, had he been interested in this.

The Complainant accounts for the fact that he helped to initiate the work with myomirs at Defendant 1's laboratory, and the Committee notes that this collaboration resulted in several joint articles. However, having helped to introduce a method does not imply an automatic right to co-authorship of future articles. Co-authorship of an article depends on the work done in connection with the production of the article. Defendant 4's location, abroad or in Denmark, is irrelevant to his contribution to the work. It is quite normal to work on a project from abroad. The actual work put in by the individual authors forms the basis for their ranking on the list of authors.

The Committee finds, therefore, that it was proper of Defendants 1–4 not to credit the Complainant as a co-author of the article. The Committee notes in this regard that the Complainant is thanked in the article's 'Acknowledgements' section for scientific discussions and advice, which, in the view of the Committee, is consistent with the contribution evident from the case documents.

7.7.3 Improper crediting of Defendant 2 as an author

The Complainant asserts that Defendant 2 was not entitled to be credited as a senior author of this article.

The Committee finds that Defendants 1–4 have accounted in detail for Defendant 2's contribution to the article.

In assessing Defendant 2's contribution, the Committee finds no basis for rejecting Defendants 1–4's account, as Defendants 1–4 were the most closely involved

parties in the study and in the preparation of the article, and must, therefore, be deemed to be the most appropriate judges of the individual authors' contributions. The Complainant's comments on Defendant 2's lack of input do not change this.

In the light of the evidence presented in the case, the Committee finds that it has been amply demonstrated that Defendant 2's contribution to the article entitles Defendant 2 to be credited as senior author.

7.7.4 Defendant 3's co-authorship

The Complainant asserts that Defendant 3 was not entitled to be credited as a co-author of the article.

The Committee finds that Defendants 1–4 have accounted in detail for Defendant 3's input to the article.

In assessing Defendant 3's contribution, the Committee finds no basis for rejecting Defendants 1–4's account, as Defendants 1–4 were the most closely involved parties in the study and in the preparation of the article, and must, therefore, be deemed to be the most appropriate judges of the individual authors' contributions. The Complainant's comments on Defendant 3's lack of input do not change this.

In the light of the evidence presented in the case, the Committee finds that it has been amply demonstrated that Defendant 3's contribution to the article entitles Defendant 3 to be credited as a co-author of the article.

7.7.5 Sub-conclusion concerning Article 1 in [JOURNAL 3]

With regard to Article 1 in [JOURNAL 3], the Committee rejects the charges raised by the Complainant and finds that Defendants 1–4 did not act in a scientifically dishonest manner.

7.8 Article 2 in the [JOURNAL 3]

This section accounts for the DCSD's assessment of the parties' claims, responses and contentions concerning article 2 in the [JOURNAL 3] (see Note 4).

The Complainant asserts that data is incorrectly presented in the article, including the fact the data is normalised to 1, which obscures the real values. In support of this, the Complainant states that he has seen the original data concerned.

The Committee finds that Defendant 1 has explained that the original data seen by the Complainant at [RESEARCH CENTRE] stemmed from the analysis of another cytokine (IL-18) and not the IL-8 data, which was included in Article 2.

The Committee notes that Defendant 1 contends that it is standard practice to normalise data to 1.

The Committee finds that, when an article presents relative values, the original data and its variation ought also to be presented so that the reader can assess the actual biological variation.

The Committee finds that in the methodology section of the article, the authors have accounted in detail for the calculations of the mRNA data presented in Figure 1. The Committee also finds that Figure 1 does not specify variation for data to the time 0, but that the variation is set for data from the other observation times. The Committee also comments that the IL-8 expression is low at time 0.

The Committee finds that despite the lack of variation for data at time 0, the reader is provided with a sufficient basis upon which to assess the validity and biological relevance of the data presented.

The Committee therefore finds that this does not constitute a breach of good scientific practice.

The Complainant also alleges that Figure 2d in the article looks unusual, artificial and suspect.

The Committee finds that the nature of Figure 2d[19] does not provide any basis for establishing that it has been manipulated. The Committee stresses that a range of factors may influence the appearance of a reproduced image of an immunohistochemical staining, including the preparation and fixation of cells and tissues, performing antigen retrieval, the type of the antibodies used and their dilution, the colouring agent and incubation time, the exposure time and filtering conditions in the microscope. The appearance also depends on the subsequent image processing in conjunction with the printing of the article. In this light, and based on the Complainant's assertions, the Committee finds that the figure does not give rise to concerns that warrant further investigation.

7.8.1 Sub-conclusion concerning Article 2 in [JOURNAL 3]

With regard to Article 2 in Journal of Physiology, the Committee rejects the charges raised by the Complainant and finds that Defendant 1 did not act in a scientifically dishonest manner.

7.9 The [RESEARCH FUNDING APPLICATION]

This section accounts for the Committee's assessment of the parties' claims and contentions concerning the [RESEARCH FUNDING APPLICATION].

The Danish Agency for Research and Innovation called for applications from [RESEARCH FOUNDATION]. [RESEARCH FOUNDATION] targets major research groups which are evaluated by international experts as part of the application procedure.

[19] As stated above, the Committee bases its decision on the fact that figure 2d illustrates immunohistochemical staining of a tissue section and not an immunoblot.

Defendant 1 is part of a consortium that received a major grant from [RESEARCH FOUNDATION] in 2009. According to Defendant 1, the consortium allocates the [RESEARCH FOUNDATION] funding by means of an internal application procedure. It is in one such internal application that the Complainant alleges that Defendant 1 committed plagiarism.

The Committee notes that [RESEARCH FOUNDATION] funding was no longer publicly available at the time of the application, and the application by Defendant 1 can, therefore, be considered internal and not anti-competitive in relation to the Complainant.

7.9.1 Plagiarism of the article in [JOURNAL 4] in the [RESEARCH FUNDING APPLICATION]

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The Committee fed the [RESEARCH FOUNDATION] application though SafeAssign, a programme that checks online publications for signs of plagiarism. The results show that there is a certain overlap between the application and published resources but that this overlap is exclusively in the references. References aside, when the application is compared with the Complainant's article in [JOURNAL 4], two sentences feature in both.

Sentence no. 1:
'The molecular rules governing the targeting of a miRNA to individual genes have been documented and help identify which protein coding genes are targeted when a single miRNA is modulated in a cell.'

Sentence no. 2:
'MicroRNA detection shall be carried out using the miRCURY™ v10.0 LNA microRNA array from Exiqon (Vedbæk, Denmark).'

The Committee notes that it is common and accepted practice to re-use the wording of methodology descriptions to a certain extent. In this context, the Committee notes that methodology descriptions are often not included in searches by plagiarism programmes.

The Committee therefore finds that sentence no. 2 does not constitute plagiarism in a form of sufficient substance to constitute a breach of good scientific practice.

The Committee also finds that sentence no. 1 constitutes a small section of the total and does not have sufficient substance to constitute a serious breach of good scientific practice. The re-use of the sentence is considered to be too trivial to constitute scientific dishonesty.

In its ruling above, the Committee has stressed (see below) that Defendant 1 is co-author of the article in [JOURNAL 4], which according to the Complainant was plagiarised in the [RESEARCH FUNDING APPLICATION]. The Committee has also emphasised that this was an internal funding application and not anti-competitive, which means that greater scope is allowed for the reuse of the Defendant's own previously published wording.

The Complainant asserts that Defendant 1 did not write the article. The Committee finds that it is beyond all reasonable doubt that Defendant 1 is entitled to be credited as an author of the article. The case papers demonstrate that Defendant 1 obtained the clinical material on which the Complainant based the article, and that Defendant 1 read and commented on the manuscript before submission, as witnessed by the copies of correspondence submitted by Defendant 1.

7.9.2 Failure to credit the Complainant in the UNIK application

As described above, the [RESEARCH FUNDING APPLICATION] was an internal application and not, therefore, anti-competitive in relation to the Complainant.

The Committee notes that the Complainant and Defendants 1–4 were research collaborators at the time the internal application was submitted, and that the Complainant was informed of the submission of the application.

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The Committee finds that Defendant 1's failure to credit the Complainant in the internal application does not constitute a serious breach of good scientific practice.

In this context, the Committee stresses that the same requirements for credits or co-authorships do not apply to articles and to internal applications. The application concerned was for funding that Defendant 1 has already helped to generate with the original [RESEARCH FUNDING APPLICATION] and for which the Complainant was not eligible to apply.

7.9.3 Reference to [EU-RESEARCH GRANT] research funding in the UNIK application

In relation to the allegation of the misleading reference to [EU-RESEARCH GRANT] research funding in the [RESEARCH FUNDING APPLICATION], the Committee finds that this did not constitute a breach of good scientific practice. The Committee stresses that the senior project manager for the [EU-RESEARCH GRANT] project is satisfied that the reference to the [EU-RESEARCH GRANT] programme was not misleading or unacceptable.

7.9.4 Sub-conclusion concerning the [RESEARCH FUNDING APPLICATION]

With regard to the [RESEARCH FUNDING APPLICATION], the Committee rejects the charges raised by the Complainant and finds that Defendant 1 did not act in a scientifically dishonest manner.

7.10 Other factors

The Committee finds that the following contentions by Complainant do not fall under the remit of the DCSD as they do not refer to a specific written scientific product, cf. section 6 of the DCSD order, i.e. that:

- Defendant 1's supervision of PhD students at [RESEARCH CENTRE] was improper and incompetent,
- Defendant 1 presented the miRNA work in the article in [JOURNAL 4] as stemming from the [RESEARCH CENTRE] by getting Defendant 3 to give a keynote lecture at an international congress [CONGRESS],
- irregular 'mass publishing' occurred at [RESEARCH CENTRE] at the behest of Defendant 1 who, according to the Complainant, produces false CVs for her students,
- 'salami-slicing' of studies took place in connection with Defendant 1's 38 credits as author along with one researcher at [RESEARCH CENTRE] and in 37 articles along with two other researchers at [RESEARCH CENTRE],
- all of the work with myokines at [RESEARCH CENTRE] from 2000–2011 should be investigated because – according to the Complainant – it would not have received substantial attention without the extremely important muscle-protein immunoblot data set from 12 articles by another researcher,
- mRNA measurements taken by two researchers at [RESEARCH CENTRE] in the period 2001–2005 were incompatible with protein data produced by another researcher, and that the mRNA measurements were systematically misinterpreted by three researchers at [RESEARCH CENTRE] in the period 2001–2007,
- a student affiliated with [RESEARCH CENTRE] was improperly credited with co-authorship of a series of unnamed articles, despite the fact that the individual concerned provided no intellectual input into the article and only took biopsies or blood samples.
- Defendant 1's relationship with an editor of [JOURNAL 1] is open to criticism, and
- Defendant 1 misled the DCSD during the consultation process.

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The Committee finds that the assertion that Defendant 1 apparently changed her view of IL-6's role in human skeletal muscle over the years falls outside the remit of the DCSD, as this part of the complaint is a matter of the validity or truth of scientific theories, cf. section 3 of the DCSD order. The Committee therefore considers the apparent change of mind to represent a development in scientific knowledge.

Regarding the Complainant's assertion that it would be unacceptable for Defendant 1's partner to conduct a peer review of Article 1 in the [JOURNAL 3] (see note 3), the Committee finds that this assertion is based solely on the Complainant's statement to this effect, without any other supporting documentation. Thus, in the view of the Committee, it does not in this instance constitute a basis for upholding an assertion of scientific dishonesty.

7.10.1 Sub-conclusions concerning other issues

With regard to the other issues, the Committee rejects the charges raised by the Complainant and finds that Defendant 1 did not act in a scientifically dishonest manner.

8 Summary

In summary, the Committee finds that Defendants 1–4 did not act in a scientifically dishonest manner pursuant to section 2 of executive order no. 306 of 20 April 2009 on the Committees on Scientific Dishonesty, as amended by order no. 144 of 20 February 2012, while drawing up and reporting on the following scientific products:

- Article in [JOURNAL 1] (concerns Defendant 1)
- Article in [JOURNAL 2] (concerns Defendant 1)
- Article 1 in [JOURNAL 3] (concerns Defendants 1–4)
- Article 2 in [JOURNAL 3] (concerns Defendant 1)
- [RESEARCH FUNDING APPLICATION] (concerns Defendant 1)

9 Appeals procedure

This decision cannot be appealed to any other administrative authority, cf. section 34 of act no. 1064 of 6 September 2010 on research consulting, etc.

Yours sincerely,

Henrik Gunst Andersen
Chair of the Danish Committees on
Scientific Dishonesty