Suspicions of research misconduct

Decision

In a change to Karolinska Institutet’s decision of 28 August 2015 in the matter with reference number 2-2184/2014, Karolinska Institutet finds that the research presented in the article “Experimental orthotopic transplantation of tissue-engineered oesophagus in rats” published in the scientific journal Nature Communications (2014;5:3562) is research misconduct.

are responsible for research misconduct in this article.

are today not employed by KI. Actions on labour law grounds are therefore not applicable.

are both employed by Karolinska Institutet. They are junior researchers who were in a position of dependence in relation to and other more senior researchers in the research team. In addition the process has been very prolonged in time. These are seen as mitigating circumstances, why they are only issued an admonition (erinran). The responsible department head at Karolinska Institutet shall in the next two years or, if their employment is shorter, during their time of employment actively follow up and support the research they conduct at Karolinska Institutet to ensure that the research is conducted in accordance with good research practice.

The journal Nature Communications shall be notified with a request that the article “Experimental orthotopic transplantation of tissue-engineered oesophagus in rats” (2014;5:3562) be immediately withdrawn.

The Matter

On 28 August 2015, Anders Hamsten, the Vice-Chancellor of Karolinska Institutet at the time, decided in the matter with reference number 2-2184/2014 regarding animal experiments that resulted in a scientific article in Nature Communications. According to the decision, had not committed research misconduct. The article “Experimental orthotopic transplantation of tissue-engineered oesophagus in rats” (2014;5:3562) describes the production of a biologically modified oesophagus prosthesis and the function of this prosthesis after it has been retransplanted into a rat.
In January 2016, Sveriges Television aired a documentary in three parts, “Experimenten” [Eng: The Experiments]. In connection with this, media criticism increased against his research and the artificial tracheae transplants he had performed. Vice-Chancellor Anders Hamsten expressed that due to the media coverage, information had come forth that provided a different view of the information that KI had when the matter was investigated and that the data was consequently incomplete. He concluded that his decision in the matter was probably incorrect and he expressed the opinion that it should be reconsidered. Thereafter, Anders Hamsten resigned as the Vice-Chancellor in February 2016. Karolinska Institutet’s (KI) leadership then decided to thoroughly investigate what had happened, and several investigations were initiated. As a part of this work, the matter of suspected research misconduct was re-opened for review.

Background (matter ref. no. 2-2184/2014)

Complaint

On 24 June 2014, , a doctoral student at Karolinska Institutet and physician at Karolinska University Hospital, Senior Lecturer at Karolinska Institutet and physician at Karolinska University Hospital, and , researcher at Karolinska Institutet and physician at Karolinska University Hospital, reported the original scientific article “Experimental orthotopic transplantation of tissue-engineered oesophagus in rats” published in Nature Communications (2014;5:3562). The authors of the article are , i.e. a total of 23 authors.

In their report, they state that the article in several aspects contains information that misleads the reader to believe that the oesophagus transplant is functional with regenerative properties. They assert that information had been left out of the article that leads the reader to misinterpret what is described, which in turn causes an incorrect perception of the results. In addition, it is stated that transplanted animals lost less weight than animals subjected to sham surgery, and that this was used as an argument to draw the conclusion that this is the first successful development and transplant of a biologically modified oesophagus. Computer tomography (CT) examinations of a rat 16 days after the transplant that indicate dysfunctionality of the transplant were left out of the article. In the report, questions are also raised about how certain illustrations in one image can be matched by another image, and the notifiers suggest that a mix up was made of images between animals subjected to sham surgery and transplantation.
Professor statement on the complaint

On 3 August 2014, [redacted] made a statement on the report and objected that the CT examination is not crucial to the conclusion that the notifiers' question and that the weight development that was presented also agrees with that observed. He further asserted that the functionality of the transplant was not based on differences in weight loss between the two studied groups of rats.

Professor Emeritus Bengt Gerdin’s special statement

After further reports of suspected research misconduct regarding six other scientific articles, Vice-Chancellor Anders Hamsten decided on 25 November 2014 that an external review would be done. Bengt Gerdin, Professor Emeritus at Uppsala University, was commissioned to review the article now in question and, based on other documents in the matter, assess if research misconduct had occurred. Solicitor Christian Olofsson at the law firm von Lode advokat AB was asked in January 2015 to assist Bengt Gerdin from a legal perspective. Bengt Gerdin submitted his investigation and his conclusions in a special statement on 13 May 2015.

Bengt Gerdin considered that the principally most apparent inaccuracy was that the team of authors opted to present research results that nobody in the group can take responsibility for, and that this is not compatible with good research practice and is thereby misconduct. He considered that the main author bears the responsibility for this. In his investigation, he emphasized that none of the essay’s/article’s authors take responsibility for the CT examination of an operated rat’s oesophagus, which is a deviation from the Vancouver Declaration and from Nature Communication’s rules. Presenting research results that were obtained by another researcher to support a main conclusion when nobody in the team of authors had knowledge of crucial methodological or interpretation-related details is in any case negligent, which constitutes scientific misconduct. Other points presented in the report, and which Bengt Gerdin took into account, reflect scientific shortcomings that can be interpreted as carelessness, haste, ignorance or negligence, but Bengt Gerdin believed he had insufficient grounds to claim that they constitute deviations from good research practice. However, these shortcomings are such that the article’s readers risk making misinterpretations of the results presented. Bengt Gerdin also confirmed that the experimental protocols that he reviewed were very poorly kept and incomplete.

The authors’ statements regarding Bengt Gerdin’s special statement

All of the authors were given an opportunity to make a statement regarding Bengt Gerdin’s special statement, of whom 14 responded.

[Redacted] contended that the authors presented data from the CT examination for which nobody could take responsibility. The reason for this was that [redacted] and [redacted] were present, which is stated by the log book, and that [redacted]
showed the technique to . In addition, he also presented objections to what Bengt Gerdin saw as scientific deficiencies.

In their statements, the other authors gave support for what had stated. There, it came forth that had worked with the CT technique in question. In addition, it came forth that during the preparation of the article there were no discussions about data quality or suspicions of research misconduct.

**Vice-Chancellor Anders Hamsten's decision on 28 August 2015**

In summary, KI found that in some respects had acted negligently during the process that resulted in the article, among other things since incomplete information is provided in the article – especially with regard to the animal experiments. However, KI did not find that research misconduct had then occurred as it came forth that one of the reporters was a co-author and responsible for the part of the study that involved the published CT examination and as several authors participated in and possess knowledge of the CT examination. The final assessment was that had shown negligence, but had not committed research misconduct.

**Investigation in the now current matter ref. no. 2-723/2016**

**Expert Group for research misconduct at the Central Ethical Review Board**

On 26 February 2016, Vice-Chancellor Karin Dahlman-Wright requested that the Expert Group for research misconduct at the Central Ethical Review Board (the Expert Group) make a statement on whether what comes forth from the documents in the matter constitutes research misconduct. The Expert Group should also particularly shed light on whether the description of the results in the article appears to be embellishment, and the participating authors’ responsibilities for the content of the article both before and after publication.

On 18 March 2016, the Expert Group commissioned Eva Ekblad at the Department of Experimental Medical Science at Lund University to review as an expert if research misconduct occurred with regard to the scientific article now in question.

Eva Ekblad worked based on the reported article in its entirety. In her report on 9 July 2016, she considers that the article’s main author committed research misconduct in several respects. These are the refusal or inability to provide all raw data for the results presented in the article, the refusal or inability to provide animal experiment journals for the animals used in the article, a misleading presentation, interpretation and description of results, a gross deviation from the animal ethics permit and misleading the regional animal experiment ethics review board.

Like Eva Ekblad, the Expert Group had the whole article’s contents as the starting point for its assessment. It also confirms that the deficient and incomplete documentation are
such a serious deviation from good research practice that it constitutes research misconduct. What is claimed in the article to be successful was not successful. An example of this is that the rats that underwent surgery with the artificial oesophagus and survived for 14 days during which they were examined, in contrast to that stated in the article, had significant weight loss which would not have been the case if the experiment had succeeded. This should have led to the discontinuation of the experiment. Images and figures that should support the claimed research are in many cases inaccurate and misleading. The raw data that the Expert Group studied does not always agree with that in the article, which leads to incorrect conclusions. The methodology is summarily described, original data cannot be extracted from the material in the matter, there is a lack of systematic records and summaries of analyses and how data has been statistically processed and then analysed. The conclusion is that the results in the article do not agree with the outcome of the research conducted, which is research misconduct. In contrast to Eva Ekblad, the Expert Group considers that the shifting information on significant weight losses among the rats involved in the research varies in such a way that the deviation from animal ethics permits in this case was not such that it in itself constitutes research misconduct.

With regard to the authors’ responsibility, the Expert Group believes that a scientific article is a shared product with a collective responsibility and if the article is associated with such serious shortcomings that research misconduct can be established, the responsibility falls on all authors. It is established that the majority of the co-authors’ specific contributions to the article are not presented, and that it is word against word on crucial points. The main author bears the utmost responsibility and had central roles in the research process. The Expert Group has some understanding for the more junior co-authors’ position of dependence on and the other leaders in the research group, but believes that it cannot exempt them from responsibility even if it can be considered as a mitigating circumstance.

The authors’ opinions of the Expert Group’s statement

The authors have been given an opportunity to express opinions on the Expert Group’s statement. What the authors who responded, i.e. 17 of them, primarily stated is presented below.

have submitted a joint statement. The circumstance that some documentation from the animal experiments has not been able to be relocated cannot be blamed on the researchers, they write. Nobody from the research team was there when the unit was closed and moved. Nor can they be held responsible for the material that was there. It was KI’s responsibility that the documents were taken care of and archived in connection with the move.

In addition, they point out that it is not a matter of an artificial, but rather a biological oesophagus and that nowhere in the article is it asserted that this oesophagus could be
used as a model for a well-functioning transplant for an oesophagus in a human. They also believe that it is difficult to respond to the opinions expressed as they are vague and lack details, which means that the authors question if the Expert Group understood the article. That it was unintentionally rendered incorrectly in respect of the rats’ weight is admitted as it concerns weight loss and not weight gain, but otherwise, the weight losses are very well described in the article. All weights were otherwise documented on paper, in electronic documents and in the analyses made. The fact that the journal published the article contradicts the claim that the study’s results do not have support in what is presented in the article. It is not stated in the article that the oesophagus was well-functioning and that the transplants were successful. Instead, they were very careful to be cautious in their description of the results through word choices such as suggest, indicate and epithelium-like.

points out that it is unclear what is considered research misconduct as KI lacks its own definition in its steering document on the handling of such matters and because the use of the term misconduct has varied during the investigation. His response is based on the Swedish Research Council’s definition, which the Expert Group also in previous matters appears to have used. The Expert Group considers that the documentation is incomplete and deficient and he admits that the lab books are not optimally kept. When he began his doctoral studies, he received one lesson’s instruction in documentation. It is KI’s responsibility to educate its employees and doctoral students and it is KI’s responsibility that documents are archived and saved. The authors cannot be blamed for documents going missing when the animal unit was closed. None of the authors participated in the closure. Nowhere is it claimed, as the Expert Group writes, that the biologically modified oesophagus studied in the article could be used as a model for a well-functioning transplant for an oesophagus in a human. The weight loss among the rats is more likely due to the surgical procedure and post-operative causes. He can only be held responsible for what is actually stated in the article, not for various interpretations of what is stated there. He admits that it is incorrectly written in terms of the animals’ weight gain that should have been weight loss, which the journal has also been notified of. It is also difficult to respond to the Expert Group’s general statements when it does not state what in the article or what figures are referred to. He questions whether Eva Ekblad and the Expert Group studied the list of animal experiments submitted when the Expert Group writes that it is not stated which or how many animals were included or excluded in individual analyses.

states that she never underwent any training with regard to research documentation. As a non-Swedish researcher, she is not familiar with the Swedish system of rules. She describes that her efforts consist of standard protocols for the isolation and maintenance of cells, seeding of cryo section scaffolds, isolation of RNA, qPCR analyses and statistical analyses, which she considers to be satisfactorily documented. No exaggerated statements regarding the functionality of the transplants were made. She also disagrees that the animal’s weight loss should have led to the discontinuation of the animal experiments and believes that the ethical permit was complied with. The minor inaccuracies Eva Ekblad has pointed out should instead be corrected with a corrigendum.
states that his role was using theoretical tools for establishing the number of cells required to reseed the oesophagi prior implantation. He turned over all research data, computer programs and data files he used in his work for this purpose to KI. He had no responsibility for the animal experiments, for the documentation regarding the animals or the analysis of the animals’ weight.

states that her contribution to the article is stated on page 15 in the published article and she takes full responsibility for this. But she lacks both experience of and expertise in assessing animal experiments and therefore cannot be responsible for such that she cannot possibly control.

was a student in the medical programme with a research specialisation and a doctoral student in 2013. The doctoral candidate project was about statistical models and prediction of brain development. His course-mate asked him to assist with MRI analyses of the MRI sequences from the tractography that provided him with. This is clearly stated by the article under “author contributions” – “performed tractography”. These analyses have not been criticised by any of the investigations.

states that his input is limited to the MRI data acquisition that is precisely described in the article and which is also presented by “author contributions”, where it states “performed MRI data acquisition”. It also states that “performed tractography”, i.e. the processing of the MRI data, which leads to Figure 3. This is contribution to the text in the article and the MRI data acquisition is correctly done and has also not been criticised in the investigations.

states that she only carried out limited laboratory tasks from her workplace in the university in Rome “Tor Vergata” and that she, except for what she is responsible for in this part, cannot judge the other information and conclusions in the article.

says that he recruited the co-author and that he was her superior and coordinator/mentor and as such came to be a co-author of the article. He emphasizes that the figures (2n and 2o) she contributed have never been called into question. This information is confirmed by who also emphasizes that she did not participate in any animal experiments, any handling of the administration of contrast agents in the CT examination except for one occasion when she assisted when he carried it out. She also did not contribute to any hypothesis or interpretation or analysis of data.

describes his and contribution to the research and the article such that analysed the tissue samples that provided him with and that they both contributed to the data analysis of the macrophages presented by Figures 5 d–g.
has, in addition to that stated above, stated that she contributed suggestions on the experiments upon visiting laboratory. Her involvement otherwise consists of her receiving a draft of the text in July 2013 and expressing quite a few editorial and critical opinions and proposing more analyses.

*Royal Swedish Academy of Sciences’ statement regarding co-author responsibility*

On 3 October 2016, a work group within the Royal Swedish Academy of Sciences’ research policy committee submitted its opinion in principle regarding co-author responsibility for misconduct upon KI’s request.

*Notification to the journal*

On 18 July 2016, KI notified the editorial staff of the journal Nature Communications of the investigation that is under way and asked them to consider an “Expression of concern”, which the journal did on 14 October 2016.

*Applicable regulations*

According to Chapter 1 Section 16 of the Higher Education Ordinance (1993:100), a university that becomes aware of a suspicion of research misconduct through a report or otherwise is obliged to investigate the suspicions. In addition, a university may, during an on-going investigation, obtain a statement from the expert group for research misconduct at the Central Ethical Review Board.

KI has a Handling Ordinance (ref. no. 1-551/2014) that states that suspicions of misconduct shall be reported to the Vice-Chancellor and that the Vice-Chancellor shall have the matter investigated. The investigation work shall be conducted by a specially appointed administrator in the university administration. If it is suitable, the investigation should take place in consultation with the department head and/or a lawyer. The Vice-Chancellor decides the matter either by leaving it without action or, if misconduct is confirmed to have occurred, by deciding on suitable action.

*Assessment*

*Reconsideration of decision*

have questioned KI’s possibilities to reconsider the decision of 28 August 2015 in the matter. They consider that the question of research misconduct has strong similarities with criminal proceedings and emphasize that a decision where one has been cleared from responsibility is also to be viewed as a so-called favourable decision. The earlier decision also does not mean a threat to any safety considerations.

The possibilities or obligations of administrative authorities to themselves change their earlier decisions and replace them with a new position are regulated to a very limited
extent in statutes. The legal situation is therefore essentially determined by the general principles of the administrative decisions’ so-called legal force that have been formed in practice. The Administrative Procedure Act’s provisions regarding a possibility to correct obvious writing errors, calculation errors and the like, as well as the review obligation of authorities in certain cases and the special regulations (e.g. in the social insurance field and taxation field) that exist are not applicable to this matter according to KI. In addition to this, there will be very few regulations and rules at all regarding research misconduct, which leaves it to those conducting research to handle such issues in a manner that maintains the public’s confidence in the research.

After the media coverage that arose after Sveriges Television broadcast the documentary series Experimenten, information arose that indicated serious inaccuracies in the article now in question that should have been investigated more carefully before the decision was made in the matter. This meant that it could be questioned whether KI’s decision was correct.

KI initially confirms that a decision by a university in a misconduct matter cannot be appealed, Chapter 12 Section 4 of the Higher Education Ordinance, and there are no limitation rules that prevent a university from investigating such suspicions regarding research that lies further back in time.

It is understandable that the authors consider that the earlier decision shall stand when the conclusion was that no research misconduct had occurred. The new information that came forth in the documentary and the media coverage that followed put the matter in a new light, which supported a renewed assessment. KI cannot see any legal force rules that prevent a new review since a misconduct matter, according to KI, by its nature is not comparable to a criminal case, dispute or a so-called favourable decision. KI considers that the importance of safeguarding the quality of the research and public confidence in the research is such a strong reason that a review of the decision is motivated.

Disqualification and handling

In Sections 11-12 of the Administrative Procedure Act (1986:223), there are rules concerning disqualification that are an expression of the so-called objectivity principle, which means that the authorities shall observe objectivity and impartiality and take into account everybody being equal in the eyes of the law (Chapter 1 Section 9 of the Instrument of Government). When anyone who is to handle a matter is faced with a conflict of interest that constitutes disqualification, he or she may not participate in the preparation or decision on the matter. Pursuant to the general clause, discretionary disqualification, there shall be some special circumstance, i.e. something tangible, in order for it to be able to be established that the circumstance is “of a nature to upset the confidence” in somebody’s impartiality, Section 11 Paragraph 1:5 of the Administrative Procedure Act.

According to KI’s rules and procedures, misconduct matters are prepared by a lawyer in the university administration. During the preparation, certain checks are made with the
employees with academic competence that the Vice-Chancellor has appointed to assist in the handling, currently the acting Pro-Vice Chancellor. When the preparation of the matter is completed, the matter is presented to the Vice-Chancellor for a final decision.

A special problem in universities is that people with specialist competence in a research domain are often limited in that most of them know each other. Many times, they have also had professional contacts. For example, it is sometimes difficult to find experts who had no previous contact with one of the others affected in a matter. If in these situations the rule of discretionary disqualification were to be interpreted too strictly, the possibilities of gaining access to competent experts or decision makers would be limited. Earlier or on-going decisions or involvement in the issues at hand in such a manner that suspicions arise regarding deficient conditions for an impartial assessment may however constitute disqualification.

et al. have questioned acting Vice-Chancellor Karin Dahlman Wright’s and acting Pro-Vice-Chancellor Henrik Grönberg’s impartiality due to their quoted statements when the Expert Group issued its statement to KI, in part on the KI website and in part in Läkartidningen. According to the referred statement, both are to have said that it is liberating to now get the Expert Group’s clear confirmation that committed research misconduct in this article.

KI realises that the formulation in the referred statement can be perceived as if one had already decided in the misconduct issue. The intention was to express the importance that the process is not unnecessarily drawn out and it is important that the handling continues now that the Expert Group’s decision has now arrived. Further down in the press release, it is stated that the next step in the handling is that the authors will have a possibility to submit further opinions. KI therefore does not consider the statements to be such that they can be considered to harm the confidence in the impartiality of the acting Vice-Chancellor or acting Pro-Vice-Chancellor in the handling of the matter.

In the same way that objections have been made against the acting Vice-Chancellor and acting Pro-Vice-Chancellor, objections have been made against the conditions for the Expert Group to make an impartial assessment in the matter in light of the media coverage and the departments and people involved. The authors’ proposals to get an independent assessment by international expertise have not met with success. In addition, they pointed out that two of the participating members of the Expert Group are also members of the Royal Swedish Academy of Sciences, which encouraged KI to review the matter and send it to the Expert Group for assessment.

It is the authority at which the issue of disqualification has arisen that reviews the issue according to Section 12 of the Administrative Procedure Act. KI is thereby responsible for ensuring that its part of the handling and the assessment are objective and impartial. Likewise, the Expert Group is responsible for its handling. KI therefore has no grounds under the provisions of the Administrative Procedure Act to review if anyone in the Expert Group has a conflict of interest. Other opinions of the handling at the Expert Group are also presented, which are not up to KI to make a decision on. In this context,
KI also wants to emphasize that the Expert Group’s statement constitutes a part of all investigation documentation that is subject to the assessment of the issues in the matter.

Research misconduct

According to Chapter 1 Section 3 a of the Higher Education Act (1992:1434), the credibility of the science and good research practice shall be safeguarded in the universities’ activities. A responsibility accordingly rests with the university that good research practice is maintained.

KI wants to emphasize the importance of maintaining high quality in the research conducted at KI. Among other things, this entails prevention work to reduce the risk of research misconduct by providing training, maintaining good order and practical conditions for documentation and the archiving of research materials. The research activities shall be documented such that it is possible for external reviewers to follow the entire process. KI thereby has a responsibility to prevent research misconduct and ensure compliance to the rules and procedures for research. At the same time, great responsibility rests with the individual researcher. The prerequisite for quality in research is accordingly that all of the parties involved live up to the requirements set. Besides the regulations that generally apply to the research, KI has its own rules, including guidelines for the planning, implementation and documentation of clinical epidemiological research (ref. no. 4820/06-600) and a handbook for research documentation, June 2010.

The terms of deviation from good research practice and research misconduct usually include fabricating, falsifying, plagiarising or stealing scientific data and results, but they are not clearly defined in terms of limits, severity, repetition and intent. Since there is no uniform definition in Sweden for what is actually referred to by research misconduct and it is the universities themselves that decide in these matters that cannot be appealed, it also has consequences in the application. The research is also often international and cooperation takes place over country borders, which further complicates the assessment.

KI believes that the matter is very complex, which particularly the expert statements and the decision on 28 August 2015 bear witness to. All authors who made a statement in the matter contest that research misconduct occurred. Certain inaccuracies and shortcomings are admitted, but objections are made that they were intentional or negligent in such a way that can be deemed research misconduct. It is also asserted that the researchers cannot be held responsible for the documentation that disappeared in connection with the move from the animal facilities.

KI shares the authors’ view that KI also has a responsibility for ensuring that research documentation that has been turned over for archiving is taken care of in a secure manner. However, the authors shall be able to verify their research results as described in the article.

The matter has been supplemented with documents in several rounds from the authors that shall constitute support for what is shown in the article. Despite the
supplementations, significant ambiguities still remain. Ambiguities consist of the authors stating that they have explained the information in the article while the external reviewers are of the opposite opinion and the reviewers being unable to derive the results with the data presented. It is therefore KI’s opinion that it is not possible to derive the results and thereby follow the research in an acceptable manner.

KI assesses that the research work conducted and described in the article is therefore not in accordance with the requirements set by good research practice.

In summary, two external reviewers, Bengt Gerdin and Eva Ekblad, and the Expert Group have concluded that there are many ambiguities and inaccuracies in the reviewed article and that authors of the article have therefore committed research misconduct. KI considers that the authors’ responses to the Expert Group’s statement do not change the assessment made by the external reviewers and the Expert Group.

Main author’s and co-authors’ responsibility

With regard to the authors’ responsibilities, the Expert Group believes that a scientific article is a shared product with a collective responsibility and if the article is associated with such serious shortcomings that research misconduct can be established, the responsibility falls on all authors. It is established that the majority of the co-authors’ specific contributions to the article are not presented, and that it is word against word on crucial points. The main author bears the utmost responsibility and had central roles in the research process. The Expert Group has some understanding for the more junior co-authors’ position of dependence on and the other leaders in the research group, but believes that it cannot exempt them from responsibility even if it can be considered a mitigating circumstance.

In terms of assessing the responsibility for the contents of the scientific publication, the main author has a major responsibility that is greater than the responsibility that the other authors may be considered to have. But there is no clear view in scientific contexts of how one should view the responsibility of the main author. His/her responsibility varies e.g. between different scientific journals and the type of project.

The authors emphasize that much of the research work is based on trust that the co-authors follow good research practice and that ethical permits and approaches as well as rules are followed. They also state that, being a co-author does not mean taking responsibility for every part of the publication being correct as the author often lacks scientific competence to judge all information in an article.

Several of the authors have now clarified their participation and also stand behind what they have contributed to the article. In several cases, it is also stated by the article in what respects the co-author contributed to the information in the article.
An aggravating circumstance in the investigation has been that many of the authors no longer have a tie to KI, which has meant that all of them have not been able to be reached with certainty. This is probably the reason that there are no responses from some authors.

An overall viewpoint is that KI has a certain responsibility of its own for this research team coming to work with a research team leader who received some degree of freedom by not having to undergo the training for research team leaders that KI provides. It was also difficult to foresee when he would be present and to what extent.

Support for the view that all authors in a scientific article shall be held responsible for misconduct that is discovered in an article can be found in the so-called Vancouver rules, which are international recommendations that describe what it means to be an author of a scientific article. The Expert Group’s conclusion of a collective responsibility for the authors is, according to KI, not in line with earlier cases of confirmed research misconduct in Sweden or abroad. In two much noted cases from the University of Copenhagen (Milena Penkowa, 2012) and the University of Oslo (Jon Sudbø, 2006), only the main author was deemed to be responsible for the research misconduct. In these cases, 165 and 60 authors, respectively, were involved in the articles deemed to be research misconduct.

Since the question regarding the co-authors’ responsibility is a very important question in principle, KI asked the Royal Swedish Academy of Sciences (KVA) to provide its view of the responsibility issue. In KVA’s statement, problems around authorship in medical articles are discussed and summarised as follows.

“Accordingly, co-authors cannot categorically be held responsible and it is not a given that all co-authors in a study deemed to include misconduct can be held accountable for the entire published study. Nor is it a given that a junior researcher or a person in a position of dependence can be exempted from responsibility. An assessment must be done case by case by hearing the involved co-authors’ description of the circumstances surrounding the study’s execution and publication.”

According to practice known to KI, both in Sweden and internationally, only the main author or a few co-authors, not all authors, have been deemed to be responsible for misconduct. KI’s investigation clearly shows that it is only a few authors who have full insight into the misconduct that has been confirmed in the article now reviewed, which is why the responsibility shall be assessed individually, and not collectively.

KI thereby does not share the Expert Group’s view that all co-authors shall be considered responsible for the misconduct in the article.

Based on all authors’ accounts of their input, KI divides them into three groups.
1. Senior authors who have a chief responsibility for the research

[Name] have both had a chief responsibility for the design of the experiments, the execution of the animal experiments, the interpretation of the results and the authoring of the article. They therefore have the chief responsibility for the misconduct present in the research and the published article.

2. Junior authors with a good insight into all or large parts of the research process

[Name] was a doctoral student when the animal experiments were under way. He is the first author and in “author contributions” is stated to be the one who, together with [Name], operated on the animals and was responsible for data collection. In addition, [Name] together with [Name] wrote the text for the article.

[Name] was a postdoc in the research team and in “author contributions” is said to be the one who carried out cell and molecular biology analyses and contributed, together with [Name], to data analyses and interpretations/explanations of collected data. According to her statement, she was only responsible for statistical analyses of her own analyses. However, “author contributions” and other documentation, including the appended text with traceable changes, provides support for her having a more central role in the work.

[Name] are therefore deemed to have had a good insight into all or large parts of the research and therefore have a shared responsibility for the misconduct. They are both junior researchers who were in a position of dependence on [Name] and other more senior researchers in the research team, which may be seen as a mitigating circumstance, and they therefore cannot be considered to have the same responsibility for the misconduct as [Name].

3. Other authors

The other authors have carried out and had responsibility only for a limited part of the research. In their replies, they have presented what they did and none of the external reviewers have criticised their contributions. According to the journal’s rules, as co-authors, they have been able to see and review the final version of the text so all authors of course have a certain responsibility for the final text. Many of the co-authors also mention that they do not have the expertise to assess the whole of the text, but rather that they have expertise in their own limited area. In modern medical research, cooperation between many researchers with widely different competencies is very common. In light of this, KI assesses that the other authors cannot be held responsible for the misconduct in the research in question.
Sanctions and other consequences

has earlier been dismissed by KI’s Personnel Disciplinary Board in March 2016 is not employed at KI today. Actions against them on labour law grounds are therefore not applicable.

are both employed by Karolinska Institutet. They are both junior researchers who were in a position of dependence in relation to Paolo Macchiarini and other more senior researchers in the research team. In addition the process has been very prolonged in time. These are seen as mitigating circumstances; why they only are issued an admonition (erinran) instead of being considered for disciplinary actions by KI’s Personnel Disciplinary Board. The responsible department head at Karolinska Institutet shall in the next two years or, if their employment is shorter, during their time of employment actively follow up and support their research to ensure that the research that they conduct at Karolinska Institutet is done in accordance with good research practice.

KI will immediately contact the journal Nature Communications and request that the article “Experimental orthotopic transplantation of tissue-engineered oesophagus in rats” Nature Communications (2014;5:3562) be immediately withdrawn.

Decisions in this matter have been made by acting Vice-Chancellor Karin Dahlman-Wright after presentation by acting Pro-Vice-Chancellor Henrik Grönberg and General Counsel Helén Törnqvist.

Karin Dahlman-Wright

Henrik Grönberg

Helén Törnqvist