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Date: 14 March 2022 Ref.: 3.1-21/0109

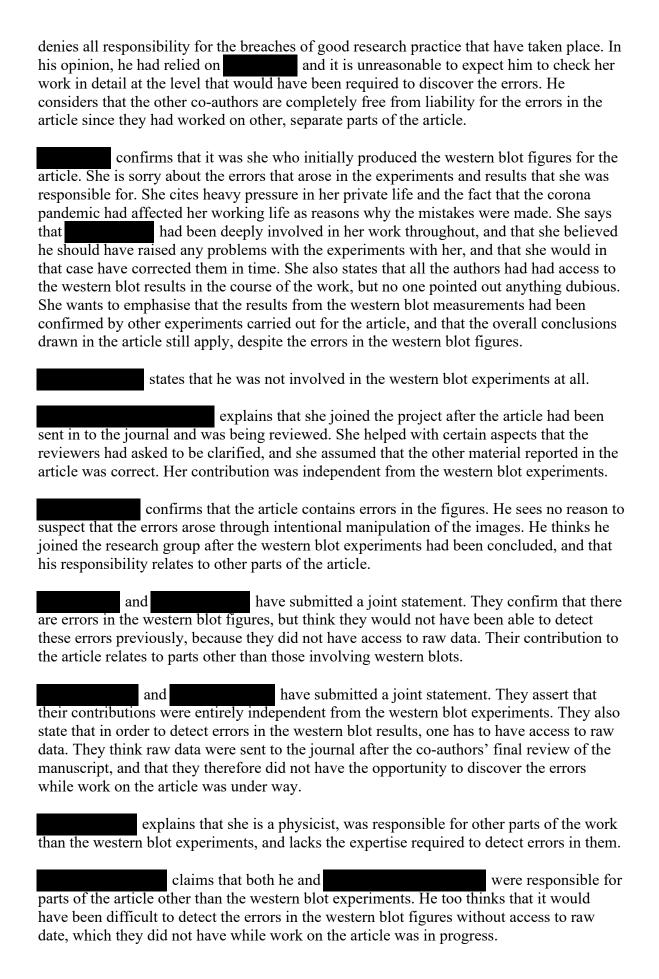
Decision on research misconduct

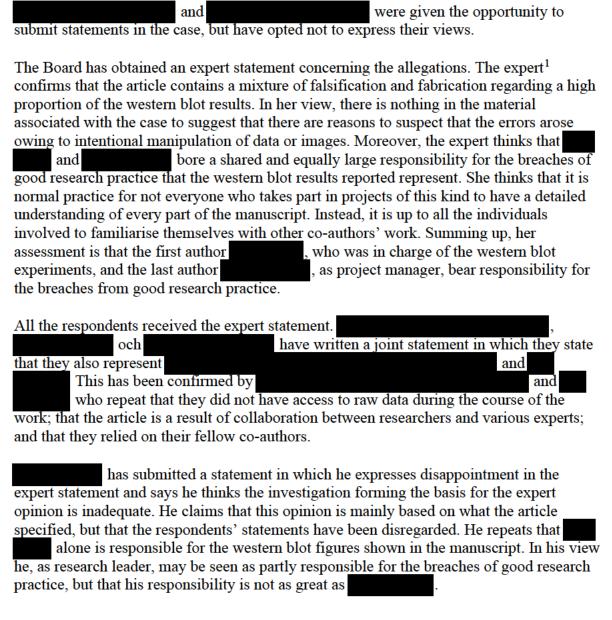
Decision

	or Assessment of Research Misconduct ("the Board") finds guilty of research misconduct. The Board finds
and	not guilty of research misconduct.
Background	······································

On 9 September 2021, Lund University submitted a case on research misconduct to the Board. This submission took place in accordance with Section 6 of the Act (2019:504) on responsibility for good research practice and the examination of research misconduct.

The submission relates to suspicions of fabrication or falsification in the article entitled by and , in *Nature Cell Biology*, 2021. The submission included a report in which images from western blot measurements belonging to the article are analysed and a large number of suspected errors are identified. The article states as follows regarding the contributions of the various co-authors: and carried out the experiments. performed, designed and analysed the traction-force measurements. performed the bioinformatics analysis. . developed software and conducted analyses for focal adhesion measurements. and analysed the . designed and supervised the project. wrote the manuscript. All authors discussed the results and commented on the manuscript text." All the co-authors of the article have been given the opportunity to express their views. attached to his statement a report from the review of raw data from the western blot analyses. This report states that some 50% of the western blot results presented are erroneous and that this does not conform to good research practice. The conclusions of the article are still regarded as correct, but the authors have nevertheless asked for the article to be withdrawn. states that responsible for the making the errors. In his view, as research leader he is himself partly responsible for not having detected the errors before the article was published. However, he





Grounds for decision

Legal regulation

The Board's remit is to examine issues of research misconduct under the Swedish Act (2019:504) on responsibility for good research practice and the examination of research misconduct ("the Act"). Section 2 of the Act defines research misconduct as a serious deviation from good research practice in the form of fabrication, falsification or plagiarism, committed with intent or through gross negligence, in the planning, conduct or reporting of research.

Fabrication, falsification or plagiarism

The forms of misconduct the Board is tasked to examine are fabrication, falsification and plagiarism, These concepts are not defined by the Act, but the preparatory legislative work

¹ Professor Anette Gjörloff Wingren, Department of Biomedical Science, Malmö University.

on it refers to the fact that they are described in codes (codices) and guidelines on research ethics, such as *The European Code of Conduct for Research Integrity*.^{2,3} They are also explained in the Swedish Research Council's publication *Good Research Practice*.⁴ According to the preparatory legislative work, "fabrication" is often described as inventing results and documenting them as if they were genuine. "Falsification" refers to manipulation of research material, equipment or processes, or alteration, omission or suppression of data or results without justification. Finally, the description of plagiarism is a researcher's use of other people's texts, ideas or work without due acknowledgement of the original source.⁵

It is evident from the documents in the case that a high proportion of results from the western blot analyses that are reported in the article contain errors. In several cases, the figures do not show results from the western blot analyses they are said to represent, and in some cases, data have been selected to give the impression of a better result, rather than to report what is representative of the measurements. According to the expert, the errors are a mixture of fabrication and falsification.

The Board's assessment is that there has been falsification and fabrication of the western blot results reported in the article.

Serious breach

Only serious breaches of good research practice constitute research misconduct and fall within the scope of investigation by the Board. Other breaches are, instead, dealt with by the entities responsible for the research (the higher education institutions), pursuant to Chapter 1, Section 17 of the Swedish Higher Education Ordinance (1993:100). It is stated in the preparatory legislative work on the Act that fabrication and falsification are always, in principle, severe breaches of good research practice. In certain cases, for example concerning a minor infraction on a single occasion, plagiarism should not be considered a serious breach of good research practice.⁶

Since fabrication or falsification are always serious breaches, in principle, the Board's conclusion is that the errors in the western blot results reported in the article represent a serious breach of good research practice.

Intent or gross negligence

Under Section 2 of the Act, the serious breach of good research practice must have been committed with intent or through gross negligence to be considered research misconduct. "Intent" means, according to the preparatory legislative work on the Act, that the researcher understands what (s)he has done, while "negligence" means that the researcher should have understood this in any case. "Gross negligence" requires the conduct to stand out as particularly serious or reprehensible. Oversights, carelessness or misunderstanding should not, as a rule, be regarded as gross negligence according to the preparatory

² The European Code of Conduct for Research Integrity, revised edition. Berlin: All European Academies (ALLEA); 2018, section 3.1.

³ Swedish Government Bill 2018/19:58, pp. 45, 100.

⁴ Good Research Practice. Stockholm: Swedish Research Council 2017, Chapter 8.

⁵ Swedish Government Bill 2018/19:58, pp. 45, 100.

⁶ Swedish Government Bill 2018/19:58, p. 100.

legislative work.7

Since 1 January 2020, researchers' responsibility to follow good research practice in their research has been subject to statutory regulation under Section 4 of the Act. There must be investigation and assessment of how far-reaching this responsibility may or should be in each individual case. According to international guidelines, all authors are jointly responsible unless it is otherwise stated, for ensuring that the content of an article is correct and compliant with good research practice. The corresponding author bears the main responsibility for communication with the journal regarding these obligations and during the review process. In the present case, the various authors' contributions are clarified in the article. The various parts of the project require different areas of knowledge and expertise, and the documents included in the case show that the various authors had distinct separate areas of responsibility.

The article (excluding expanded material) contains six figures, five of which report results from western blot analyses. Of these five figures, three (Figures 1, 3 and 5) are based on incorrect western blot results. Results from the western blot analyses are also reported in six of ten figures in the expanded material of the article. Several of these figures, too, are based on incorrect western blot data. The Board deems that the errors found affect such an extensive part of the western blot results reported in the article that it must be considered grossly negligent to have failed to notice the mistakes before the article was sent for publication. The Board considers that the errors primarily responsible for the experiments, must be seen as responsible for the errors arising.

The Board also considers that the second as research leader and corresponding author, bore responsibility for thoroughly checking the results before the article was sent for publication. The Board considers that it has become clear that the other co-authors were responsible for other parts of the experiments, analyses or calculations, and should therefore be discharged from liability for misconduct in the research.

Summing up, the Board therefore finds	8	and	guilty of research
misconduct. The Board also finds			
		and	not
guilty of research misconduct.			

The Board has decided in this case following its presentation by caseworker Sofia

Catarina Barketorp Sofia Ramstedt Chair Caseworker

Ramstedt

⁷ Swedish Government Bill 2018/19:58, pp. 50–51, 100.

⁸ Vancouver Rules, International Committee of Medical Journal Editors. Recommendations for the Conduct, Reporting, Editing. and Publication of Scholarly Work in Medical Journals. Updated, December 2016. http://www.icmje.org/recommendations/.

How to appeal

A decision pursuant to an investigation of research misconduct may be appealed to a general administrative court. An appeal must be writing and must reach the Board for Assessment of Research Misconduct (NPOF) not later than three (3) weeks after you have been notified of the decision. If the appeal is received by NPOF within the prescribed period, the matter is referred to the Administrative Court in Uppsala.

The appeal should preferably be sent by post or email.

Email

registrator@oredlighetsprovning.se

Postal address

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