
RE: ALLEGATION OF RESEARCH MISCONDUCT - REQUEST FOR AN INVESTIGATION**To:**

Prof. Eva Åkesson *Vice-Chancellor, Uppsala University*
Prof. Anders Malmberg *Deputy Vice-Chancellor, Uppsala University*
Prof. Johan Tysk *Vice-Rector, Faculty of Science & Technology, Uppsala University*
Prof. Lars Tranvik *Head, Department of Ecology and Genetics, Uppsala University*

CC:

Prof. Eva Tiensuu Janson *Dean, Faculty of Medicine, Uppsala University*
Prof. Finn Hallböök *Head, Department of Neuroscience, Uppsala University*

Prof. Janson and Hallböök were consulted by Dr. Josefin Sundin (Department of Neuroscience, Uppsala University) for advice on university policies for reporting alleged research misconduct.

We wish to report a strong suspicion of research misconduct in the following study by researchers at Uppsala University, published in the journal *Science* on June 3 2016:

Lönnstedt OM and Eklöv P (2016) Environmentally relevant concentrations of microplastic particles influence larval fish ecology. *Science* 352: 1213-1216. doi: 10.1126/science.aad8828

We have identified a number of potentially critical flaws regarding the execution and reporting of this study, which include: (1) missing data (wrongly stated in the paper as being available in the supplementary materials and in the Uppsala institutional repository); (2) inconsistencies in the sample sizes reported and the microplastic exposure concentrations used; (3) issues with the statistical design and analyses; and, most worryingly, (4) large disparities in the way the experiment has been reported by the authors compared with the reports of eye witnesses. These issues, many of which should have been identified at the peer-review stage, bear directly on the validity and reproducibility of the results presented in the paper.

We have emailed the authors to request that they provide the necessary data to reproduce their results as per *Science*'s data policy stated on the journal's website [here](#). The lead and senior authors have independently responded to our correspondence but have thus far failed to provide the data (our first correspondence to them was on June 3 2016; refer to "data_request_correspondence.pdf"). We have emailed *Science* to request the data and have also sent the authors a list of 20 questions relating to the scientific issues with the paper (sent on July 16 2016; refer to "Lonnstedtdt_Eklov_Science_2016_queries.docx").

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Regarding point #4 above, we have evidence including witness reports, photos of the experimental setup, and email correspondences that the experiments reported in the paper were not performed as described by the authors. To be clear, there is a significant mismatch between what is described in the paper and how the experiments were actually performed. Examples include:

- The exposure times of eggs and larvae reported in the paper are longer than the actual duration of the experiment at the Ar research station in Gotland, Sweden.
- The actual number of replicate tanks and fish is lower than what is stated in the paper.
- Aquaria maintenance and monitoring were not conducted as described in the paper.

For these and other reasons, we strongly suspect that this study constitutes a case of research misconduct.

Thus, we hereby request that Uppsala University investigates this matter and obtains a statement from Sweden's Expert Group for Scientific Misconduct as per the *Regulations about the procedure in case of a person being accused of scientific misconduct* stated on the University's website [here](#).

4 § The Dean of the faculty shall be immediately informed in writing upon suspicion of scientific misconduct. This report initiates an inquiry which shall be conducted by an ad hoc group of suitable composition for the case. [...] The Dean shall without delay inform the Vice-Chancellor and where appropriate the Vice-Rector of suspicions of scientific misconduct.

5 § The inquiry shall be conducted quickly and shall afford the accused individual(s) and the person(s) who has made the allegation confidential treatment to the maximum extent possible. [...]

16 § If the person who has raised the question of suspected scientific misconduct, or the person who the suspicion is thrown upon, demands it, the University shall obtain an opinion from the expert group for scientific misconduct at the Central Ethical Review Board. [...]

Thank you in advance for your cooperation on this matter.

Best regards,

Fredrik Jutfelt, Ph.D., Department of Biology, Norwegian University of Science and Technology

Josefin Sundin, Ph.D., Department of Neuroscience, Uppsala University

Dominique Roche, Ph.D., Institute of Biology, Université de Neuchâtel

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