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Dear Ms Louhimies

**EFSA opinion: Aspects of the biology and welfare of animals used for experimental and other scientific purposes**

The Royal Society is the independent scientific academy of the UK dedicated to promoting excellence in science. The Society plays an influential role in national and international science policy and provides objective advice to government and policymakers.

On behalf of the Royal Society's Animals in Research committee I am writing to draw your attention to our concerns relating to the above report by the European Food Safety Authority (EFSA) panel on Animal Health and Welfare (AHAW) relating to the revision of Directive EC 86/609. We do welcome the identification of four questions by the Commission which are central to the revision of the Directive and require a scientific opinion. However we wish to highlight our concerns that EFSA's report has failed in certain instances to incorporate objective scientific data to inform their answers to the four questions. The Royal Society is well aware of the importance of transparency in scientific opinion, policy making, and lawmaking. We are therefore concerned with respect to how EFSA opinion has also come to conclusions on the wider ethical, socio-economic and public concerns, which whilst important, were outside the remit of the panel.

We wish to highlight examples from the four questions where we believe objective scientific data has not been included, leading to conclusions and assumptions that are not evidence-based.

- Question one examines the sentience of invertebrate species. The evidence presented focuses on the learning skills, memory and sensitive response of invertebrates without clearly demonstrating their ability/inability to suffer. There is excessive reliance on one perspective of linking learning, and even cognition, to sentience. Little of the evidence that invertebrates

lack a complex nervous system that would allow suffering perception is commented on in the report. In addition, a key issue which is not addressed concerns how learning and response to nociceptive signs are linked to cognition and sentience. There is great scientific uncertainty here, but this is not discussed.

- Question two examines the sentience of foetal and embryonic forms of vertebrates and invertebrates. However, the report does not provide a clear answer; no recommendations based on scientific data are proposed. The summary says that 'the weight of evidence suggests that consciousness does not occur in the foetus until it is delivered and starts to breath air' which suggests that there is no clear reason to include embryonic and foetal forms as protected forms but this is not stated explicitly.
- Question three is answered succinctly and provides objective scientific evidence in answer to the question. However key policy assumptions, such as the role of ethical frameworks, are made that are likely to influence the interpretation of the scientific data.
- Question four examines humane methods of euthanasia. We appreciate that it is difficult to provide scientific evidence for some of the areas considered but we believe that the scientific data has not been reviewed adequately. In particular, we wish to question the conclusion that CO<sub>2</sub> based euthanasia is unacceptable from the animal welfare point of view. The scientific data to support this conclusion is based on three parameters; aversion, behavioural data and physiological data. However limited physiological data is presented to support the ban on CO<sub>2</sub> based euthanasia, and EFSA's opinion conflicts with current scientific opinion.

We believe that many sections of the report have a limited perspective of the range of opinions, both on the data and the interpretation of the data, and should be revisited as a matter of urgency.

Furthermore we are concerned about the forms of evidence cited, and lack of referencing of the evidence cited in the report. For example there are several unscientific and unreferenced statements that potentially have important implications for the revision of the Directive:

- Page 41 – The section on awareness in the foetus includes the following statement: 'Circumstantial anecdotes, which have considered whether or not human and animal foetuses are conscious peri-natally, produce conflicting impressions'.
- Page 82 - The section on chemo-sensitivity to carbon dioxide in rodents is unreferenced and includes mention of 'internet searches in the US' as evidence.

Neither circumstantial evidence, nor internet searches should be considered as scientific evidence to inform a scientific opinion.

We recommend that the European Commission take into account these comments when considering the EFSA report and the results of the current public consultation, and if necessary, seeks further scientific input. We would be pleased to comment further as required.

Yours sincerely

A handwritten signature in blue ink that reads "E. B. Keverne". The signature is written in a cursive style with a large initial "E" and "B".

Professor Eric B Keverne FMedSci FRS  
*Chairman, Royal Society Animals in Research Committee*

cc Elizabeth Moor, European Food Safety Authority  
Maria Dusinska, Research Directorate-General, European Commission  
Siegfried Breier, Enterprise and Industry Directorate-General, European Commission