Pressure mounts for retraction of GM crop-cancer study

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Pressure is growing for retraction of a study which concluded that a genetically modified maize and a weedkiller called glyphosate cause cancers in rats.

The study attracted criticism from the moment it was published on 19 September. Yesterday, it was dismissed as having "serious defects" in a final report on the matter by the European Food Safety Authority (EFSA), and independently by the food safety panels of six European countries. They say too few rats were used to justify the conclusions linking Monsanto's NK603 maize and glyphosate with cancers in the rats.

Researchers now want *Food and Chemical Toxicology*, the Elsevier journal that published the original study (DOI: 10.1016/j.fct.2012.08.005), to retract it. "Given that the EFSA concludes that the authors' conclusions cannot be regarded as scientifically sound because of inadequacies in the design, reporting and analysis, is it not time for *Food and Chemical Toxicology* to retract the manuscript?" asked Cathie Martin of the John Innes Center in Norwich, UK, and editor-in-chief of another journal, *The Plant Cell*.

"The consistency of the critique from several national risk-evaluation agencies should prompt Elsevier to re-evaluate the standards of peer review at its journal, *Food and Chemical Toxicology*," said Maurice Moloney, director of Rothamsted Research in Harpenden, UK.

Study flaws

The EFSA concluded that the researchers, led by Gilles-Eric Séralini of the University of Caen in France, failed to use enough rats in the study to draw statistically valid conclusions about whether the GM food or glyphosate they were fed caused extra cancers compared with control rats. Furthermore, says the authority, the researchers relied on strains of rats that frequently develop tumours spontaneously, especially in old age.

"Conclusions cannot be drawn on the difference in tumour incidence between the treatment groups on the basis of the design, the analysis and the results as reported," says the review of the study. The same conclusion was reached independently by six national food safety bodies also asked to review the study, from Denmark, the Netherlands, France, Germany, Italy and Belgium.

The EFSA and the panels say that Séralini used a fifth as many rats as would be required for standard, internationally accepted toxicology testing, making his conclusions statistically unreliable. "Given the spontaneous occurrence of tumours in Sprague-Dawley rats, the low number of rats reported in the Séralini publications is insufficient to distinguish between specific treatment effects and chance occurrences of tumours in rats," says the authority.

It also criticised Séralini for failing to supply additional information demanded by the authority.

The EFSA found the NK603 maize strain to be safe in 2003. In its report this week, it declared that there is no need to re-evaluate the safety of the maize or the herbicide.

Séralini's backersclaim that he's the victim of a "covert war" orchestrated by supporters of GM technology to discredit criticism. "Behind the cohort of academic titles [of critics] that are listed is a hidden 'biotech sphere' which brings together biotechnology researchers, regulatory policy experts and representatives of industry," says a statement from CRIIGEN, the France-based Committee for Research & Independent Information on Genetic Engineering, which opposes GM crops and supported Séralini's study.

The study is the second in recent years by Séralini to assess the safety of NK603. His first study was also critised. *New Scientist* wrote at the time: "Independent toxicologists contacted by *New Scientist* said Séralini's analysis overplays the importance of minor variations that most experienced toxicologists would consider to be random background noise."