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## Published Evaluation

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### Plurality of opinion, scientific discourse and pseudoscience: an in depth analysis of the Séralini et al. study claiming that Roundup™ Ready corn or the herbicide Roundup™ cause cancer in rats.

Arjó G, Portero M, Piñol C, Viñas J, ..., Capell T, Bartholomaeus A, Parrott W, Christou P. *Transgenic Res* 2013 Apr; 22(2):255-67

PMID: 23430588 DOI: 10.1007/s11248-013-9692-9


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11 Mar 2013 | Good for Teaching, Refutation

The publication of G.E. Séralini in the journal Food and Chemical Toxicology {1} is full of grave errors, which have been enumerated and commented on in an appropriate way by these authors. Unfortunately, despite its serious flaws, the study had serious impact on the regulatory politics on GM crops of a number of governments, since Séralini et al. claim that GM maize clearly causes tumors in rat experiments. Besides many other flaws described in the paper, the most serious one is the use of Sprague-Dawley rats, which are highly prone to spontaneous tumors, in two-year, long-term experiments, in contrast to the 90 day experiments for which they are recommended (2,3). The authors convincingly expose these failures and discuss their potential impact, while retaining a position that is entirely consistent with the coexistence of diverging interpretations of data, as long as these conform to minimum standards of professional scientific and ethical conduct.

#### References

- Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize.**  
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PMID: 22999595 DOI: [10.1016/j.fct.2012.08.005](#)
- A review of mammalian carcinogenicity study design and potential effects of alternate test procedures on the safety evaluation of food ingredients.**  
Hayes AW, Dayan AD, Hall WC, Kodell RL, Williams GM, Waddell WD, Slesinski RS, Kruger CL. *Regul Toxicol Pharmacol* 2011 Jun; 60(1 Suppl):S1-34  
PMID: 21094668 DOI: [10.1016/j.yrtph.2010.10.002](#)
- The effects of diet, overfeeding and moderate dietary restriction on Sprague-Dawley rat survival, disease and toxicology.**  
Keenan KP, Ballam GC, Dixit R, Soper KA, Laroque P, Mattson BA, Adams SP, Coleman JB. *J Nutr* 1997 May; 127(5 Suppl):851S-856S  
PMID: 9164252

#### Disclosures

None declared

#### Sections

Pharmacology &amp; Drug Discovery » Toxicology

Plant Biology » Plant Genetics &amp; Gene Expression, Agriculture &amp; Biotechnology

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