In spite of the notable increase in the number of citations, those concerning specifically to studies focused on demonstrating the health safety of GM foods remain very limited."

On the greater number of refereed health studies from industry, despite the possible conflict of interest:

""Anyhow, this represents a notable advance in comparison with the lack of studies published in recent years in scientific journals by those companies (Domingo, 2007). The scientific community may finally be able to critically evaluate and discuss all that information, which was not possible until now. Scientists know quite well how different may be the information published in reputed international journals, which has been submitted to peer-review processes, from those general comments/reports not submitted to this selective procedure."

Overall:

"In the period here revised,October 2006–August 2010, a few reviews on health risks of GM foods/plants have been also published (Dona and Arvanitoyannis, 2009; Magaña-Gómez and de la Barca, 2009; Key et al., 2008). In general terms, all these authors agree in remarking that more scientific efforts are clearly necessary in order to build confidence in the evaluation and acceptance of GM foods/plant by both the scientific community and the general public. Especially critical is the recent review by Dona and Arvanitoyannis (2009), who remarked that results of most studies with GM foods would indicate that they may cause some common toxic effects such as hepatic, pancreatic, renal, or reproductive effects, and might alter the hematological, biochemical, and immunologic parameters. These authors also concluded that the use of recombinant GH or its expression in animals should be re-examined since it has been shown that it increases IGF-1 which, in turn, may promote cancer. A harsh response to that reviewwas recently published in the same journal (Rickard, 2010). This is indeed only an example on the controversial debate onGMOs,which remains completely open at all levels."

Also interesting comments on substantial equivalence:

""Probably, one of the most important problems related with the lack of studies (at least not published in the scientific literature) on the safety assessment of GM foods/plants was the use of the “substantial equivalence” concept. This notion is based on the principle: “if a new food is found to be substantially equivalent in composition and nutritional characteristics to an existing food, it can be regarded as being as safe as the conventional food” (SOT, 2003). Although application of the concept is not a safety assessment per se, it enables the identification of potential differences between the existing food and the new product, which should then be further investigated with respect to their toxicological impact. Why must it be thought that two plants (GM and non-GM) with the same nutritional capacity should also imply similar health risks (or absence of risks)? Why a similar principle is not used, for example, for chemical substances of commercial interest such as pesticides, drugs, food additives, etc.? In fact, the “substantial equivalence” principle is a starting point rather than an end point (Kuiper et al., 2002). If this seems to be reasonably obvious, and taking into account the great controversy generated by the debate about GM plants safety, why the published information is so scarce?"

The researchers add that:

"The conclusions of our 2006 review concerning the doubts on the use of the principle of “substantial equivalence” in GM plants, as well as the lack of toxicological studies (Domingo, 2007), were quite in agreement with the conclusions of other reviews (Zdu_czyk, 2001; Bakshi, 2003; Pryme and Lembcke,

2003), as well as with those of our previous review (Domingo, 2000; Domingo-Roig and Gómez-Arnáiz, 2000). In a recent paper (Dona and Arvanitoyannis, 2009), it was reported that the results of most studies with GM foods indicated that they might cause some common toxic effects. There is no doubt that one of the main issues concerning GM food safety assessment is based upon detection of their potentially toxic properties, which could provoke unintended effects of the genetic modification (Tyshko et al., 2007)."

Reference:
Domingo, J.L. and J.G. Bordonaba. 2011. A literature review on the safety assessment of genetically modified plants. Environment International 37:734–742