



Why risk GM, insect-killing, double stranded RNA (dsRNA) appearing in breast milk?

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Plants, and other food, contain naturally occurring double stranded RNA (dsRNA). It appears the dsRNA in what we eat can affect the expression of our genes,[i] and therefore our health. This may help explain the saying ‘you are what you eat.’

Plant dsRNA has been found in breast milk[ii] and therefore may affect the expression of babies’ genes.

The latest GM corn awaiting approval in Australia, MON87411[iii] produces genetically modified double stranded RNA (dsRNA) within the plant. If certain insects eat the corn this dsRNA interferes with a vital gene causing the insect to die.

Our food standards body, FSANZ, has recommended MON87411 for approval. It decided there is no need to investigate the potential effects on humans of eating this corn as “The data provided do not indicate this dsRNA possesses different characteristics, or is likely to pose a greater risk, than other RNAi mediators naturally present in corn.”

Transforming a plant from harmless to lethal for insects using GM dsRNA suggests that the GM plant does indeed possess different characteristics. Therefore it should be evaluated for its effects on human health.[iv]

“We are really concerned that Australians, especially vulnerable babies, will be put at risk with this new GM corn. FSANZ appears to be putting the interests of GM companies ahead of protecting our food and our families,” said Fran Murrell of MADGE Australia.

“This corn has a second GM construct in it that kills insects by creating a toxin that pokes holes in their guts. It has also been genetically modified to survive being sprayed with the weed killer Roundup (glyphosate). How can we consider a corn, designed to kill insects and be sprayed with the endocrine disrupting chemical glyphosate, food?”

MADGE Australia has recommended[v] (#_edn5) that the GM corn MON87411 be rejected as approving it would break all three of FSANZ's legislated obligations. These are:

- 1) Protection of public health and safety
- 2) Provision of adequate information to consumers
- 3) Prevention of misleading or deceptive conduct

“We want food grown in ways that regenerate the soil while being healthy for both farmers and eaters.” Said Fran Murrell

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References

1. [i] Baier, S.R., Nguyen, C., Xie, F., Wood, J.R., and Zemleni, J. (2014). MicroRNAs are absorbed in biologically meaningful amounts from nutritionally relevant doses of cow milk and affect gene expression in peripheral blood mononuclear cells, HEK - 293 kidney
o dsRNA found in cows milk was found to survive digestion and can alter human gene expression. (Baier et al., 2014[i]). “We conclude that miRNA's in milk are bioactive food compounds that regulate human genes.”

[ii] Lukaski, A., and Zielenkiewicz, P. (2014). In silico identification of plant miRNAs in mammalian breast milk exosomes – a small step forward? PLoS ONE 9, e99963.

[iii] <http://www.foodstandards.gov.au/code/applications/Pages/A1097GMCornLineMON87411.aspx>

[iv] iii Heinemann, J.A., Agapito - Tenfen, S.Z., and Carman, J.A. (2013). A comparative evaluation of the regulation of GM crops or products containing dsRNA and suggested improvements to risk assessments. Environ Int 55, 43 - 55.

[v] <http://www.madge.org.au/sites/default/files/rnai-GM-corn-MON87411-A1097.pdf>

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