

Re: Genetically modified foods and intestinal bacteria

Source: <http://sci.tech-archive.net/Archive/sci.bio.evolution/2005-08/msg00070.html>

- *From:* "Malcolm" <regniztar@xxxxxxxxxxxxxxxx>
 - *Date:* Thu, 4 Aug 2005 18:59:34 -0400 (EDT)
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"Perplexed in Peoria" <jimmenegay@xxxxxxxxxxxxxxxx> wrote
> ISTM that the "real" question is whether "engineered" genes are more
> likely to move from food to bacteria than are "natural" genes. But what
> little I know of how "engineered" genes are inserted into food plant
> genomes would seem to make the hypothesis of higher mobility seem quite
> plausible. My question is: how do "engineers" actually implant the
> new gene into the plant genome these days?

Usually with a nice little creature called *Agrobacterium tumefaciens*. This actually inserts a portion of its genome into a plant it infects, causing the cells to become cancerous and, cleverly, to secrete a substance known as octopine, which very few organisms can use as a carbon source. *Agrobacterium* is of course one of the few, so it enjoys a monopoly food supply.

By removing the tumour and octopine genes from the transfer DNA, and inserting a gene of interest, we can genetically engineer plants, with a certain amount of hassle getting the transformed cells to regenerate into whole plants.

(If you are wondering how to genetically engineer *Agrobacterium*, that is relatively easy. The DNA is on a plasmid which the bacteria can be induced to take up with minimal hassles, for genetic engineering).

The problem is we don't know how to control the site of integration, and it may be that DNA which has integrated is less stable than other DNA. Also for technical reasons the DNA needs an antibiotic resistance marker gene. There are new protocols for getting these out of the released plants, but they add cost to the engineering procedure. There is a theoretical possibility of these antibiotic resistance genes getting into bacteria. However the genes originally came from the bacterial gene pool anyway, so it is not really a very serious concern to most scientists, though the media have jumped on it because genetically engineered superbug make a nice story.

- *Follow-Ups:*
 - ◆ **Re: Genetically modified foods and intestinal bacteria**
 - ◇ *From:* Perplexed in Peoria

- *References:*
 - ◆ **Genetically modified foods and intestinal bacteria**
 - ◇ *From:* dkomo
 - ◆ **Re: Genetically modified foods and intestinal bacteria**
 - ◇ *From:* Perplexed in Peoria

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