

# GM genes found in human gut

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[The Guardian](#)

British scientific researchers have demonstrated for the first time that genetically modified DNA material from crops is finding its way into human gut bacteria, raising potentially serious health questions.

Although the genetically modified material in most GM foods poses no health problems, many of the controversial crops have antibiotic-resistant marker genes inserted into them at an early stage in development.

If genetic material from these marker genes can also find its way into the human stomach, as experiments at Newcastle university suggest is likely, then people's resistance to widely used antibiotics could be compromised.

The research, commissioned by the food standards agency, is the world's first known trial of GM foods on human volunteers. It was last night described as "insignificant" by the agency but as "dynamite" by Friends of the Earth.

The scientists took seven human volunteers who had their lower intestine removed in the past and now use colostomy bags. After being fed a meal of a burger containing GM soya and a milkshake, the researchers compared their stools with 12 people with normal stomachs. They found "to their surprise" that "a relatively large proportion of genetically modified DNA survived the passage through the small bowel". None was found in people who had complete stomachs.

But to see if GM DNA might be transferred via bacteria to the intestine, they also took bacteria from stools in the colostomy bags and cultivated them. In three of the seven samples they found bacteria had taken up the herbicide-resistant gene from the GM food at a very low level.

The report added "that transgenes, although surviving passage through the small intestine, appear to be completely degraded in the human colon".

Michael Antonio, a senior lecturer in molecular genetics at King's College Medical School, London, last night said that the work was significant. "To my knowledge they have demonstrated clearly that you can get GM plant DNA in the gut bacteria. Everyone used to deny that this was possible."

He said there were "lots of inadequacies" in the research but that did not take away the importance of the main findings. "It suggests that you can get antibiotic marker genes spreading around the stomach which would compromise antibiotic resistance. They have shown that this can happen even at very low levels after just one meal."

Marker genes are inserted into GM plants to allow identification of GM cells or tissue during development. The House of Lords has called for them to be phased out as swiftly as possible.

Last night Friends of the Earth called for an immediate halt to the use of marker genes in GM crops. "Industry, science and government advisers have always played down the risk of this happening and here, at the very first attempt by scientists to look for it, they find it," said Adrian Bebb, GM foods campaigner.

The FSA said the research "showed in real-life conditions with human volunteers, no GM material survived the passage through the entire human digestive tract... the research concluded that the likelihood of functioning DNA being taken up by bacteria in the human or animal gut is extremely low".