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## Letters

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Taren Grom

# Unleashing the gene

**Who would have thought that in 10 short years, we would have gone from Dolly to Elsie?**

In February 1997, scientists in Scotland announced the birth of the world's first successfully cloned mammal, Dolly the sheep.

Dolly, which was created at the Roslin Institute in Edinburgh, was actually born on July 5, 1996, but her existence wasn't announced until almost seven months later.

Dolly, which was the first mammal to have been successfully cloned from an adult cell, was heralded as one of the most significant scientific breakthroughs of the decade. At the time, experts from the Roslin Institute were quoted as saying the technology would allow for the study of genetic diseases for which there is presently no cure and track down the mechanisms that are involved.

Dolly incited sensational headlines, as well as sparked an ethical controversy that continues today.

The science of cloning resurfaced in a big way last month and gave new meaning to the old catch phrase "Where's the beef?" when it was reported that the Food and Drug Administration might allow meat and milk from cloned farm animals and their offspring to make their way toward supermarket shelves.

Research into genetically altered foods is not limited to livestock. Recently, U.S. scientists claim to have created a carrot that provides extra calcium. A gene within the carrot has been altered that allows the calcium within to cross more easily over the plant membranes.

According to reports, researchers hope that adding the vegetable to a normal diet could help ward off conditions such as brittle bone disease and osteoporosis.

This type of research might prompt consumers to query: "What's Up Doc?" Just imagine what the patient-education materials for uber-fortified calcium carrots might look like.

A study conducted by "Proceedings of the National Academy of Sciences" suggests that someone eating the new carrot could absorb 41% more calcium than if they ate the old. Safety trials on the super-charged carrot are ongoing.

Science is catching up with the stockyards and vegetable gardens. Where will genetics and cloning take us? Hopefully, to a better therapeutic place.

"These carrots were grown in carefully monitored and controlled environments," according to Professor Kendal Hirschi, part of the team at the Baylor College of Medicine in Texas. "Much more research needs to be conducted before this would be available to consumers."

But the scientists nonetheless hope their carrot could ultimately offer a healthier way of consuming sufficient quantities of the mineral.

Carrots are just the latest vegetable to undergo genetic alterations. Corn has been a laboratory staple for years.

While the health benefits of genetically altered food stuffs undergo scientific scrutiny, ultimately it will be consumers who probably will have the final word. Organic movements are swelling and there's no doubt a natural will take on a new meaning in the coming years.

A yet to be seen byproduct of raising the public's awareness around genetics is in the area of gene therapy. While hundreds of treatments that involve the administration of DNA to treat many different diseases are currently being investigated as gene therapy candidates, the Food and Drug Administration has yet to approve any human gene therapy products. In fact, only one such product has been approved in any country, China, and that product is Gendicine, for the treatment of head and neck squamous cell carcinoma. (See related article on page 18.)

It will be interesting to see what impact genetically altered foods have on the acceptance of like-science medicines.

Taren Grom  
 Editor