

## Botulinum toxin identified as plausible bioterrorism threat

By Laura Meckler  
THE ASSOCIATED PRESS

WASHINGTON — Federal officials fear the nation is vulnerable to a bioterrorism attack with a little-known agent that is easy to find and easy to produce. Just a gram of botulinum toxin — the weight of a single paper clip — could kill more than 1 million people.

Officials are working both to plug vulnerabilities and to improve the ability to respond should an attack occur.

"We are making this the highest priority," said Dr. Anthony Fauci of the National Institutes of Health, one of the government's top bioterrorism officials. "We are really marshaling all available resources."

The toxin, the most poisonous found naturally on Earth, easily infects those who eat it. Experts fear terrorists could poison the nation's food supply and sicken thousands, making the 2001 anthrax attacks-by-mail seem minor by comparison.

The government has only enough antitoxin available to treat victims of a small attack — one official put the inventory at more than 1,000 doses. The special treatment needed for children is produced only by a California program now in jeopardy because of the state's budget problems.

The issue takes on particular urgency as the United States wages war with Iraq. In 1995, Iraq told the United Nations it had made more than 5,000 gallons of botulinum toxin and had loaded much of it into bombs

and warheads. Inspectors believe Iraq's president, Saddam Hussein, has materials capable of producing twice as much toxin, or enough to kill the world's human population three times over.

Unlike smallpox, the most widely publicized bioterror threat, botulism is not contagious and, with medical treatment, most victims survive.

But while smallpox no longer exists in the wild, botulism is easily acquired. It is found in soil and can contaminate poorly prepared food. About 120 Americans get botulism each year. Roughly three in four are infants, who can get it from trace amounts in honey.

Disseminating botulinum toxin would not be particularly difficult, although basic microbiology skills would be necessary to do it, experts say.

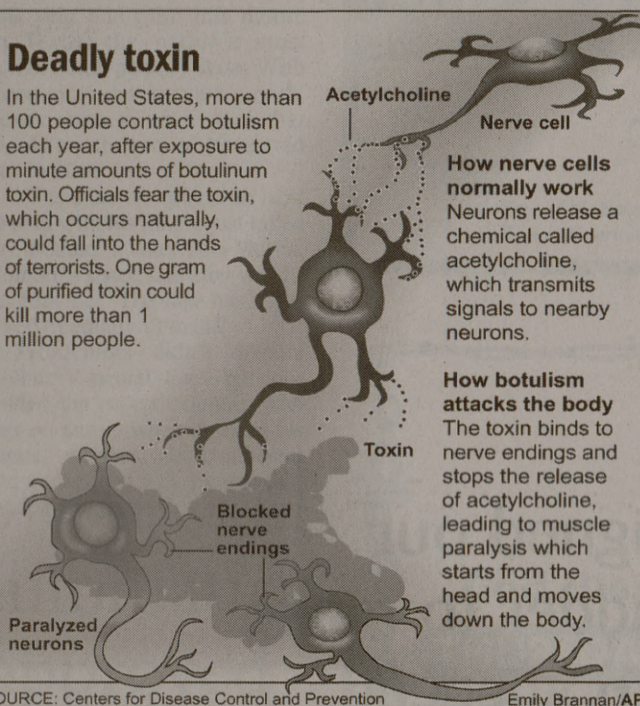
Heating food long enough at a high enough temperature kills the organism, but foods like fruits and vegetables aren't cooked. Milk and other dairy products aren't heated long enough during processing to kill the toxin.

"If it were added to the food supply it could result in a significant number of very serious illnesses," said Caroline Smith DeWaal, director of food safety for the Center for Science in the Public Interest.

Botulism causes paralysis, starting at the head and moving down the body. Victims become limp, and at the beginning they can't move their eyes, facial muscles or vocal cords. They have trouble swallowing. Eventually, the paralysis moves through the

### Deadly toxin

In the United States, more than 100 people contract botulism each year, after exposure to minute amounts of botulinum toxin. Officials fear the toxin, which occurs naturally, could fall into the hands of terrorists. One gram of purified toxin could kill more than 1 million people.



SOURCE: Centers for Disease Control and Prevention Emily Brannan/AP

central nervous system, and patients must be put on ventilators to keep their lungs pumping.

It's the same paralysis that makes Botox (short for botulinum toxin) an effective tool for smoothing wrinkles. A tiny, purified amount injected into people's faces temporarily paralyzes the muscles beneath the skin. Botox is also used to treat certain nerve disorders.

But in larger — though still tiny — quantities, it can be deadly.

Botulinum toxin has never been used successfully as a weapon, although the Japanese cult Aum Shinrikyo

tried and failed to disperse it in aerosols at least three times in the early 1990s.

Experts still fear both small- and large-scale attacks.

They cite, as an example of a small attack, cult followers spreading salmonella on salad bars at 10 Oregon restaurants in 1984, sickening about 750 people.

If even a few people were exposed, "that could cause panic and terror," said Michael Doyle, director of the Center for Food Safety at the University of Georgia, who is advising federal officials on this issue.

## College Station biotech firm fined by Feds

By Alex Dominguez  
THE ASSOCIATED PRESS

WASHINGTON — The United States Department of Agriculture has given a \$3.5 million no-interest loan to ProdiGene Inc. after the company said it could not afford to pay cleanup costs and fines for mixing soybeans with a genetically engineered corn.

The department had cited the College Station, Texas-based company for failing to completely remove the corn — designed to produce a pig vaccine — before growing soybeans in a Nebraska field. As part of a settlement, ProdiGene agreed to pay nearly \$250,000 in fines and \$2.7 million to reimburse the government for burning the soybeans, held in a Nebraska warehouse until they were incinerated. Agency officials had said the expensive fines were a warning to other potential violators. At the time, they did not mention the loan.

Department spokeswoman Alisa Harrison said, "There was not an intent to mislead anyone."

The department came up with the payment plan

because ProdiGene's financial statements showed it lacked the money to pay the fines, she said.

Russell K. Burbank, the new president and chief executive of ProdiGene, declined comment.

The company does not have to begin making payments until next year. Also, it can make quarterly installments without interest for two years.

Gregory Jaffe, biotech director at the Center for Science in the Public Interest, obtained copies of the agreement, which he said show the department "gave the company a sweetheart deal."

"I think it sort of sends the wrong message to the industry," Jaffe said.

Jaffe said the company is saving about \$600,000 in interest because of the terms of the loan. Taxpayers are paying about \$500,000, he estimated.

The Nebraska incident in November marked the second time that ProdiGene was caught mixing test corn with a crop headed for the food supply. A similar mishap occurred in Iowa this September.

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