

No go for fetal tissue transplantation

President Bush last week vetoed legislation that would have lifted the current ban on the use of federal funds for transplantation research involving tissue from aborted human fetuses. But almost before the ink dried on the President's veto, the chairman of the House Subcommittee on Health and the Environment introduced a new bill containing what he described as "a good-faith compromise" to settle the controversial issue.

Federal spending for fetal tissue transplantation research was prohibited in 1988 by the Reagan administration on the grounds that it might encourage women to have abortions. Even though a panel of scientists and ethicists later that year advised lifting the ban, the Bush administration has continued it (SN: 11/11/89, p.310).

Researchers abroad and at some privately funded U.S. centers have transplanted fetal tissue into patients with disorders such as Parkinson's disease, diabetes and Huntington's disease. Although initial studies demonstrated few benefits (SN: 11/19/88, p.324), several patients have improved following fetal tissue transplants (SN: 11/16/91, p.308). On the basis of these positive results, researchers have argued that the federal government should lift the funding ban to allow wider testing.

The provision overturning the fetal tissue ban was included in a larger bill authorizing funds to operate the National Institutes of Health. In his veto message, Bush called the bill "unacceptable to me on almost every ground: ethical, fiscal, administrative, philosophical and legal." He particularly opposed the fetal tissue transplantation language and a separate section authorizing increases in the NIH budget.

In a conciliatory move to settle the fetal tissue conflict, Bush has suggested establishing a federally administered bank of fetal tissue obtained from miscarriages and abortions of life-threatening, tubal pregnancies. But researchers contend that such tissue is usually unfit for transplantation because of genetic abnormalities or contamination.

The new bill, introduced by Rep. Henry A. Waxman (D-Calif.), would require NIH-funded transplant researchers to use tissue obtained from the fetal tissue bank. But it would also allow them to seek tissue from elective abortions if the banked tissue proves inadequate.

To address the President's fiscal concerns, Waxman has also dropped provisions contained in the vetoed authorization bill for expanding and renovating NIH's Bethesda, Md., campus.

Waxman says that even if Bush rejects the new bill, he hopes the compromise will attract enough votes to overturn a presidential veto. An attempt in the House to override the veto of the first bill fell short by more than a dozen votes.

FDA conditionally OKs third AIDS drug

The drug zalcitabine — also known as dideoxycytidine (DDC) — last week became the third drug approved by the Food and Drug Administration for combating infection with HIV, the virus that causes AIDS.

However, since tests of zalcitabine are still in progress, the FDA approved the drug's use only in combination with the AIDS drug zidovudine, or AZT. The agency also suggested that physicians use zalcitabine only for AIDS patients whose counts of CD4 cells, a key immune system component, have dropped below 300 per cubic millimeter of blood.

The FDA based its approval on data from two small studies — each with fewer than 100 patients — and said it would review the decision within six months, based on the outcome of a larger, ongoing trial. The small studies indicated that a combination of zidovudine and zalcitabine could raise the CD4 counts of AIDS patients. An earlier study suggested the drug combo could also improve neurological AIDS symptoms (SN: 9/10/88, p.172).

Sinking solution for carbon dioxide

With nations scrambling to find ways of reducing carbon dioxide pollution, the oceans might seem an ideal place to dump this troublesome greenhouse gas. Earth's oceans already hold 65 times the amount of carbon dioxide present in the atmosphere, and they have a vast potential for absorbing even more. So why not pump power plant exhaust into the deep sea?

Aside from the obvious environmental concerns, the sheer cost of such pumping has dampened enthusiasm for ocean disposal. But a new report may buoy hopes for this technical fix. Studies of ocean disposal over the last 15 years have suggested that once removed from exhaust gases, carbon dioxide must be pumped extremely deep — more than a kilometer below the sea surface — to prevent it from rising back up to the atmosphere. One way around such an expensive method would be to inject the gas into sinking ocean currents, such as those flowing out of the Mediterranean Sea. The problem is that scientists know of relatively few currents of this type, and they lie far from most power stations.

Peter M. Haugan and Helge Drange of the Nansen Environmental and Remote Sensing Center in Solheimsvik, Norway, argue in the May 28 NATURE that deep disposal may not be necessary. Using thermodynamic calculations, they show that when carbon dioxide is pumped only 200 to 400 meters down, the dissolved gas increases the density of surrounding seawater, causing it to sink. These density currents could then carry the gas into the deep sea, where it would eventually disperse.

Although the shallow-pumping idea sounds promising on paper, James C. Orr of Princeton University points out several potential complications. It may still prove quite expensive to separate carbon dioxide from exhaust gases, compress it and pipe it to even shallow depths in the sea, he notes in a commentary accompanying the research report.

Then there are the environmental concerns. The concentrated streams of carbon dioxide-rich water would be extremely acidic and therefore deadly to organisms. The dissolved carbon dioxide could also cause seawater to lose a substantial amount of its dissolved oxygen — another life-threatening effect. Even if future studies show that the environmental consequences will be negligible, Orr cautions against viewing ocean dumping as a complete fix for the greenhouse problem. "It could only hope to be one part of a larger strategy," he writes, "simply because many fossil-fuel-fired power plants are far from the nearest coastline."

Glassy evidence of multiple crashes

Measured by the geological clock, glass lasts but an instant. Because water eats away at glassy rocks, geologists rarely find any older than about 40 million years. Two research groups, however, report finding tiny glassy spherules dating back roughly 365 million years, apparently created during two distinct meteorite or comet impacts at that time.

In the June 12 SCIENCE, Kun Wang of the University of Alberta in Edmonton describes glassy microspherules found in China's Hunan province. Because of the spherules' shape and chemical composition, he proposes that they are "microtektites," formed when an impact hurls droplets of molten rock into the air, where they quickly cool into a glassy form.

In May, at a meeting of the American Geophysical Union in Montreal, researchers from the University of California, Davis, and the Royal Institute of Natural Sciences of Belgium described Belgian glassy microspherules slightly older than the Chinese ones. These also appear to be microtektites, they report.

The two sets of microspherules suggest that Earth suffered at least two crashes in the late Devonian period, a time of major extinctions. Geologists are now considering whether these impacts played a role in causing the extinctions.