RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Cancer Gene Testing

Right now, most genetic testing for cancer genes is done in research projects. By next year, however, the U.S. National Cancer Institute (NCI), with help from the National Center for Human Genome Research (NCHGR), hopes to implement an ambitious but potentially controversial plan to provide physicians with information about genetic testing in exchange for patient data.

The new Cancer Genetics Network, described by NCHGR director Francis Collins at a recent meeting of his advisory board, will provide doctors with up-to-date information and guidance about counseling, informed consent, and follow-up for genetic testing. Physicians, in turn, will supply information about patients' decisions to take the tests and their subsequent actions as well as the test results themselves. NCI director Richard Klausner adds that as new genes are identified and commercialization of genetic assays proceeds apace, the network will provide a means of tracking the usefulness of the tests and of measures taken to reduce the cancer risks they reveal.

The network comes during a time of heated debate in the U.S. Congress and among patient advocacy groups over who should take genetic tests and what should be done about the results—and in particular whether insurance companies should have access to such information. Until those issues are resolved, patients may be reluctant to become part of a national network for fear companies will base health coverage decisions on the results, says Mary Daly, who runs a genetic testing project at the Fox Chase Cancer Center in Philadelphia.

But Klausner is not fazed by these thorny issues. "What I'm concerned about is getting ahead of development so when testing becomes a reality, we will as a nation be able to provide the information [that's needed]," he says.

K. K. DAS

New mix. Tobacco shoots rooted in *(left)* tapioca medium and *(right)* agar medium.

Agar Move Over?

Would you trust your cell cultures to tapioca? The pudding ingredient may emerge as a long-sought substitute for agar, the gelatinlike product derived from marine algae that's been the medium of choice for culturing plant and bacterial cells. Now researchers at the International Crops Research Institute for the Semi-Arid Tropics in Patancheru, Andhra Pradesh, India, say that tapioca—starch from cassava plant tubers—has the right gellike and inert qualities to break the agar monopoly—at 1/40th the cost.

The scientists, Yeshwant L. Nene, Sheila Vijayakumar, and James P. Moss, heated tapioca pearls to convert them to gellike dextrin. They then put explants from young tobacco leaves as well as chickpea shoots in tapioca mediums and compared their progress with agar-cultured plants. In the 10 April issue of *Current Science*, they report that the tobacco plants developed more slowly in tapioca, but produced roots about as well as they did in agar. Tapioca-grown chickpea plants produced significantly more numerous and longer shoots than did those grown in agar.

Many more experiments are required, cautions tissue culturist Acram Taji of the University of New England, Australia. She says, for example, that researchers need to establish that "in the long term tapioca will not induce mutations or upset the nutritional balance in the medium, especially because a much larger quantity of tapioca has to be used for producing a similar sort of gelling action." But if tapioca proves viable for tissue culture, say the authors, scientists in developing countries will have a way to beat the high price of purified agar.

Dutch Cat Death Puzzle

Six weeks after hundreds of cats in the Netherlands were felled by a mysterious neurological disease after eating a common brand of cat food, scientists are still baffled as to the cause.

In April hundreds of cats all over the Netherlands came down with a mysterious paralyzing affliction. Most eventually recovered, but about a fourth of the 600 cases succumbed, diagnosed with acute polyneuropathy, which attacks the peripheral nervous system.

A research team at the Faculty of Veterinary Science of Utrecht University quickly discovered that all the victims had eaten dried food produced by a Dutch company, Spillers Petfoods. The brands were withdrawn from the market, and there have been no further reports of the disease.

But scientists still don't understand how the cats got sick. Acute polyneuropathy can be caused by any number of toxins, including bacteria, heavy metals, or pesticides. Researchers went over the factory with a fine-toothed comb, tested for hundreds of toxins, and studied everything from cat-food ingredients to cat nerve cells—all to no avail.

Veterinary neurologist Jan van Nes, head of the Utrecht research team, says attempts to induce the disorder in mice, rats, and chicks have failed. Trying to reproduce the disease in healthy cats would be ethically dubious, because it would require hundreds of subjects. The team is considering doing experiments with mink bred for fur, which are scheduled for premature demise anyway. But, says Van Nes, "we're getting close to the point where we don't know what to try next."

World's Most Powerful Laser

When the first laser, co-invented by Charles Townes, was switched on in 1961, he was pleased to get a thousandth of a watt of power. On 23 May, Townes was on hand at Lawrence Livermore National Laboratory to watch the newest laser heavyweight fire brief pulses with more than a million trillion times as much power. "I never imagined it getting up that high," said the Nobelist octogenarian. Dubbed the Petawatt (peta means a thousand trillion), the new laser in its first series of shots topped out at about 1350 trillion watts—more than 1300 times the oomph of the entire U.S. power grid. Because its flash lasts less than a half-trillionth of a second, it delivers fewer than 600 joules, or enough to run a 100-watt light bulb for about 6 seconds. But that gives the California nuclear weapons lab a long-sought tool for probing high-energy interactions, such as electron-positron pairs and extremely bright x-rays, that have only been achieved in much larger particle accelerators, says physicist Michael Perry, lead scientist on the $10 million, 4-year project.

The new laser also offers a means to test an iffy scheme, known as "fast igniter," for making laser fusion potentially more attractive, says Perry. Some of the beams of the National Ignition Facility, a proposed $1.1 billion superlaser, could be recast as petawatt lasers if the new powerhouse proves an efficient sparkplug for miniature thermonuclear blasts.