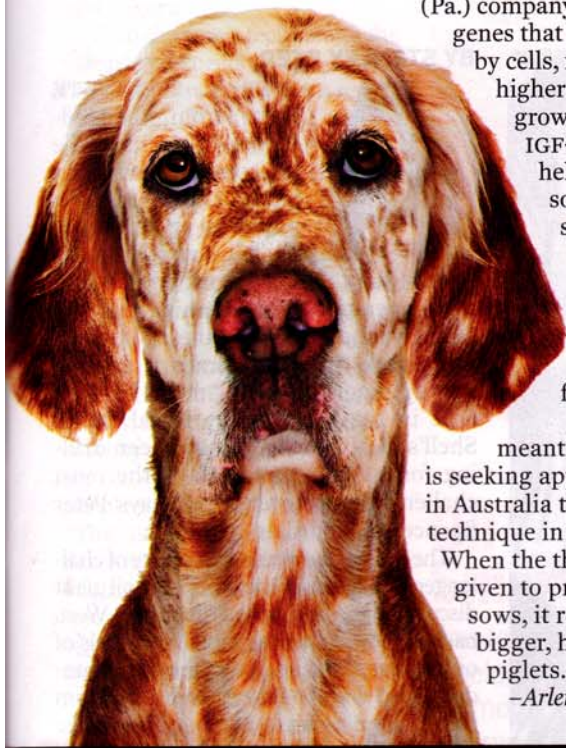


BIOTECH
CANCER AND CANINES

ABOUT 20% of all cancer patients succumb not to the disease itself, but rather to a complication called cachexia, which causes muscle wasting, fatigue, and anemia. Dogs with cancer



can get cachexia, too. In both man and man's best friend, the condition is debilitating and makes it difficult to endure chemotherapy and radiation.

Biotech VGX Pharmaceuticals is testing a form of gene therapy for canines with cachexia. Using shots in the animals' thighs, scientists at the Blue Bell (Pa.) company inject

genes that are taken up by cells, resulting in higher levels of the growth hormone IGF-1. That helps reverse some of the symptoms of cachexia.

VGX hopes to develop a similar technique for humans.

In the meantime, VGX is seeking approval in Australia to use its technique in pigs.

When the therapy is given to pregnant sows, it results in bigger, healthier piglets.

—Arlene Weintraub



MOBILITY
NIMBLE AS A KANGAROO

AN AUSTRALIAN quadriplegic has come up with a better wheelchair design that borrows from the kangaroo. Colin Johanson of Kangan Batman Institute of Technical & Further Education in Melbourne designed the Kangan Roo chair to have five points of contact with the ground, like its long-tailed marsupial namesake, instead of the standard four—all to make it more maneuverable. The chair's length can be shortened for turning in tight spaces or stretched for outside cruising. It also flexes at the center, for a smoother ride over bumpy terrain. Johanson is collaborating with Georgia Institute of Technology on a commercial version.

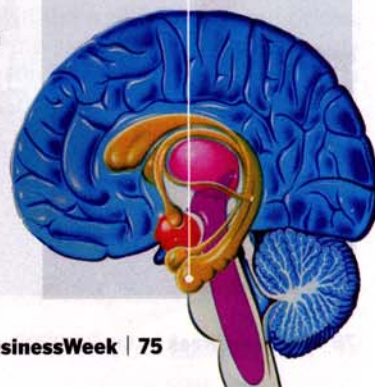
INNOVATIONS

Of wired walls and brain cells

»»What if the walls had not ears, but energy? That's the idea behind an electricity-conducting film developed at the University of Tokyo that could one day be used as wallpaper, wirelessly powering up electronic devices. Now, cell phones, laptops, and the like need to be plugged into a socket for recharging. The researchers, led by Takao Someya, printed a matrix of transistors, position-sensing coils, and tiny switches onto a plastic sheet just 1 millimeter thick. It can detect when a gizmo makes contact, then channel up to 40.5 watts of power to it. Humans needn't worry—only the appliances would receive the charge. A tablecloth of this material could keep a computer on the table juiced up, and wallpaper might power a flat-panel TV.

»»Researchers at Columbia University may have learned why shocks can relieve depression. They discovered that monkeys given electroconvulsive therapy (ECT) grew new nerve cells in the hippocampus, the brain's center of learning and memory. ECT is used in humans to treat depression, and the finding supports an emerging hypothesis that neuron growth is necessary for alleviating the symptoms of the condition. —Kenji Hall

SHOCK TREATMENT Fresh growth in the hippocampus



CHEMOTHERAPY
HOW A DIABETES DRUG MAY FIGHT CANCER

DESPITE A SLEW of new drugs that more precisely target tumors, chemotherapy drugs that kill healthy and cancerous cells alike are still the most common treatment. Oncologists are constantly searching for ways to make these toxic drugs more effective. One solution may be a widely used diabetes treatment, GlaxoSmithKline's Avandia. Researchers at Dana-Farber Cancer Institute report in the May issue of *Cancer Cell* that Avandia dramatically boosted the efficacy of common chemotherapy drugs against

a variety of cancers in mice. Avandia, approved in 1999 to help control blood sugar levels, enhances sensitivity to insulin. Several years ago, Dana-Farber researcher Bruce Spiegelman observed that the drug also caused cancer cells to stop growing in a test tube, but it was ineffective on its own when tested against cancer in humans. Spiegelman then decided to try it in mice in combination with platinum-based chemotherapies such as cisplatin and carboplatin, which destroy cancer cells by damaging their DNA. When

tested on mice with lung cancer, carboplatin alone reduced the growth of cancer cells by about 60%. But when administered with Avandia the cell growth was reduced by 80%. Similar results were reported against ovarian and colon cancer. Dana-Farber oncologists are now drawing up plans for human trials, which could start later this year. "We really see a way forward here to improve the chemotherapy's effectiveness for multiple forms of cancer," says Dr. George Demetri, a Dana-Farber researcher.

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