Editorial comments

Phenethyl isothiocyanate (PEITC) has been shown to block a major carcinogen—NNK—specific to lung cancer. Eleven cigarette smokers consumed PEITC in the form of watercress 3 times a day for 3 days. The PEITC seemed to block the metabolic action of the NNK, reported researcher Stephen S. Hecht, PhD, who is the director of research at the Naylor Dana Institute for Disease Prevention, American Health Foundation in Valhalla, New York. The trial participants excreted the detoxified metabolites in their urine.

Dr Heccht told attendees of the American Cancer Society science writers seminar that PEITC by itself will probably not prevent lung cancer from developing in smokers or exsmokers. Rather, it would most likely play a *role* in prevention.

"What will be needed is a pill that contains a mixture of inhibitors as well as suppressing agents that can reverse some of the damage already done," he explained. Whatever this agent may be, it is hoped that it would also prevent the ill effects of secondhand smoke as well.

Chinese cabbage, turnip, and soy are some foods that release PEITC.

Spermatogonial stem cells can be frozen and transplanted to the testes of the same—or another—species, according to research published in the May 30 issue of *Nature* and *Nature Medicine* journals.

Dr Ralph Brinster of the School of Veterinary Medicine at the University of Pennsylvania took the spermatogonial stem cells from rats, froze the stem cells, thawed them, and then put them into the testes of mice where rat sperm was then generated.

This technology could conceivably be used to propagate nearly extinct species as well as for use in human infertility.

"In terms of biology, all that's important are those germ cells," notes Dr Brinster. "What the freezing does is, for the first time, allow scientists to capture the individual. Biology has never been able to do that [before]."

Its potential use in humans—particularly the possibility of implanting stem cells in *nonhuman* species— obviously poses a barrage of ethical questions. Nonetheless, Dr Brinster contends that science merely provides information and knowledge. "It's really the responsibility of society and the right and prerogative of society to decide how to use that information," he maintains.

Could a vaccine against the effects of cocaine be part of a treatment regimen for drug addiction? If preliminary results from experiments with mice are any indication, immunologic therapy *may* actually be feasible. Researchers at the annual scientific and medical meeting of the American Society of Addiction Medicine, held in April in Atlanta, Ga, offered attendees a glimpse of some of the therapies currently being tested in the laboratory:

- **Cocaine "vaccine."** Cocaine molecules bound to immunogenic carrier proteins were used as a "vaccine" in laboratory mice who were then injected with a 1 mg/kg of intravenous cocaine. Within 30 seconds after the cocaine injection, the cocaine in the plasma was antibody-bound. Levels of cocaine in the brain were reduced by 50% in the "vaccinated" mice, compared with levels in the "nonimmunized" mice. Phase I of clinical trials in humans are scheduled to begin in early 1997, noted researcher Barbara S. Fox, PhD, who is with the ImmuLogic Pharmaceutical Corporation.
- **Monoclonal antibody therapy.** S. Michael Owens, PhD, and colleagues at the Department of Pharmacology and Toxicology at the University of Arkansas School of Medicine, Little Rock, are examining monoclonal antibody therapy as a means to possibly blunt or reverse the effects of drug abuse. Although Dr Owens admitted that an injectable catalytic antibody that would reduce the amount of energy required to break down cocaine is not yet available, it is on the horizon. He likened a 100% increased clearance rate to having a whole second liver at work.
- **Injectable butylcholinesterase (BChE).** Researchers at the National Institute on Drug Abuse are developing an injectable form of BChE, which is a naturally occurring plasma and liver enzyme. The enzyme plays a role in the metabolization of cocaine. So far, the injectable BChE has been shown to speed the breakdown of cocaine.

"You can prevent death in rats from very high cocaine doses with intravenous enzyme administration," explained investigator David Gorelick, PhD.

All the researchers who presented their work emphasized that these modes of therapy would be part of a comprehensive addiction management program rather than as stand-alone therapy.

Physicians should make a contract with patients infected with the human immunodeficiency virus (HIV) who have a history of drug abuse and who are in need of pain medication. Zail S. Berry, MD, who is with the Department of Health Sciences at George Washington University School of Medicine, advised attendees of the annual meeting of the American College of Osteopathic Family Physicians to include in this contract the following provisions:

- instructions on what patients should do when their pain becomes uncontrollable, for example using a short-acting opiate when necessary;
- instructions for patients to keep a diary documenting their pain symptoms and medication use; and
- mandate that patients see the physician in person to obtain prescription refills.

To that end, Dr Berry suggested that physicians work with one pharmacist and one pharmacy. In this way, physicians have "set up a situation where you are not vulnerable and you can maximize the compliance of the patient."

Patients who break this contract should be confronted, according to Dr Berry. "If you set limits and you are constantly not holding to the limits, people learn pretty quickly that they can break the rules without any negative consequences."◆