Research Update • Le point sur la recherche

To-the-cell drug delivery

Most drug research is concerned with developing new compounds, but a group of Canadian researchers is creating targeted intracellular drug-delivery systems for existing agents.

Termed "transmembrane carrier systems," they deliver drugs directly to targeted cells. According to Dr. Patricia Logan, director of product development at Inex Pharmaceuticals in Vancouver, these systems increase drug efficacy and decrease toxicity, both important factors in chemotherapy for cancer. Not only is the drug delivered to a specific site but it is released at an optimal rate.

The company is now conducting phase II trials of an existing antineoplastic drug, vincristine, in a lipid-based carrier system to treat pancreatic and colorectal metastatic cancer. The studies are under way at institutions affiliated with McGill University and at the British Columbia Cancer Agency. Logan says that phase I trials showed that about twice the amount of the drug could be administered through a transmembrane carrier system. New strategies are especially critical for treating pancreatic cancer, which affects approximately 27 000 North Americans each year and for which there is no effective treatment.

While these applications proceed, Inex is also developing gene therapies. The technology to deliver therapeutic genes to target cells may be useful in treating a variety of hereditary and viral diseases. — *G. Krueger*

Taking ovarian cysts to heart

New Zealand researchers have found a strong association between polycystic ovaries and extensive coronary artery disease, a finding that highlights the need for diagnosis and treatment of polycystic ovaries and for measures to prevent heart disease in women affected by them.

Mary Birdsall, Dr. Cynthia Farquhar and Dr. Harvey White, authors of a recent article in the *Annals of Internal Medicine* (1997; 126:32-5), say polycystic ovaries are seen in 22% of women. Symptoms include hirsutism, infertility and menstrual disturbances. Polycystic ovaries are one feature of Stein–Leventhal syndrome, which also involves hypertension, diabetes mellitus and central obesity.

The researchers studied coronary angiograms of 143 women aged 60 or younger and then conducted ultrasound scans of the women's pelvises to determine whether they had polycystic ovaries; 42% did, a much higher proportion than the 22% found in the general population. Analysis showed that "those with more extensive coronary artery disease were more likely to have polycystic ovaries . . . than were women with less extensive coronary disease." In addition, the women with polycystic ovaries had high testosterone and triglyceride levels, low levels of high-density lipoprotein cholesterol and some insulin resistance. Polycystic ovaries are the most common cause of anovulation; this involves low production of estradiol, which in turn is associated with coronary artery disease. "Insulin resistance could be the link" between polycystic ovaries and coronary artery disease, the authors stated.

The implications of this research include the need to diagnose polycystic ovaries and to counsel women with the condition on lifestyle modifications to decrease the risk of cardiovascular disease. The authors encourage further research on the natural history of polycystic ovaries and on available treatments — oral contraceptives, antiandrogens, ovulatory agents and laparoscopic ovarian surgery. — *C.J. Brown*