

Detection technologies

The NCI is targeting two areas of detection technology: detecting the signatures of cancer cells and detecting cancer cells through diagnostic imaging. The goal is to develop new methodologies that will allow tumour detection at the earliest stage, when the number of tumour cells is small. They also aim to discover and develop techniques that will further increase the precision, accuracy, and scope of imaging diagnosis and integrate imaging further into the practice of clinical oncology.

Developmental diagnostics

There is a need to be able to predict the changes in the behaviour of the cancer. These changes are determined by molecular changes during tumour development. Precise knowledge of the development of the individual's tumour will allow correct choices about therapy and accurate predictions of prognosis. Thus the N.I. goal is to develop diagnostic tests that will allow treatment choice to be based on the fundamental properties of a tumour cell.

IARC Fellowships for Research Training in Cancer 1997-1998

Applications for training fellowships in 1997-1998 are invited from junior scientists wishing to be trained in aspects of cancer research related to the International Agency for Research on Cancer's (IARC's) own programme: epidemiology, biostatistics, environmental and viral carcinogenesis, cell biology, cell genetics, molecular biology and mechanisms of carcinogenesis.

Epidemiologists and laboratory scientists are encouraged to apply for interdisciplinary training that will facilitate the conduct of genetic and molecular epidemiological research. Applications requiring basic training in cancer epidemiology will also be considered.

Fellowships are awarded for one year and are tenable at the IARC in

Lyon, France, or any other suitable institution abroad.

Fellowship application forms and more detailed information are available from:

Cancer Research Fellowship Programme,
International Agency for Research on Cancer,
150 cours Albert-Thomas,
69372 Lyon Cedex 08, France.
Tel: (0) 4 72 73 84 48
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BREAST CANCER PREVENTION TRIAL NEEDS 3000 FEWER WOMEN THAN PLANNED

The Breast Cancer Prevention Trial (BCPT) launched in 1992 will now only require 13 000 women instead of 16 000 to see if tamoxifen prevents breast cancer in women at increased risk of the disease. This is because the women volunteering for the study have a much greater underlying risk of breast cancer than anticipated.

The study is taking place at more than 300 sites in the U.S.A., Canada, and Puerto Rico. So far, over 12 000 women have entered the trial and recruitment should be completed within the next year.

Dr Leslie Ford, the NCI co-ordinator for the BCPT and associate director for Early Detection and Community Oncology at the Institute, noted that, "We are closing in on an answer about the value of tamoxifen in preventing breast cancer, an answer which will help other women at increased risk for breast cancer to make informed choices about their health in the future."

Since 1973, the incidence of NHL in the U.S.A. has increased about 75%, one of the largest increases among major cancer sites. Part of the increase in NHL incidence is a result of the AIDS epidemic: NHL is 60 times more common among AIDS patients than in the general US population. Herbicides and insecticides have been linked to risk for NHL in studies of farmers, people who apply pesticides, and other occupational groups exposed to high levels of these chemicals.

Biochemical studies have shown that, in humans, nitrate in water combines with amino acids to form N-nitroso compounds (many of which are known animal carcinogens).

The increase in mortality from NHL has been greatest in rural areas, a fact that could only partly be explained by pesticide exposures in agricultural workers. The new findings on drinking water nitrate among Nebraska residents who were not farmers suggest that nitrate, or some other exposure that is correlated with nitrate exposure, may be another NHL risk factor. Earlier studies in Nebraska and China [2,3] suggest that NHL and leukaemia might

be linked to nitrate intake, while a Danish study found no link between NHL and drinking-water nitrate.

Nitrate intake from dietary sources was also estimated for each person in the study. Higher dietary nitrate consumption - mostly from vegetables including spinach, lettuce and beets - was associated with lower risk for NHL. Possibly this was due to the anticarcinogenic effects of vegetable component such as vitamin C and carotenes).

1. Ward MH, Mark SD, Cantor KP, Weisenburger DD, Correa-Villasenor A, Zahm SH. Drinking water nitrate and the risk of non-Hodgkin's lymphoma. *Epidemiology* 1996, 7, 465-471.
2. Weisenburger DD. Potential health consequences of ground-water contamination by nitrates in Nebraska. In Bogardi I, Kuzelka RD, eds. *Nitrate Contamination*. NATO ASI Series, Vol. G30. Berlin, Springer-Verlag, 1991, 309-315.
3. Wu Y, Chen J, Ohshima H, et al. Geographic association between urinary excretion of N-nitroso compounds and oesophageal cancer mortality in China. *Int J Cancer* 1993, 54, 713-719.