

which showed a gradient of ribosomes from nuclear envelope to plasma membrane, with the oldest ribosomes furthest from the nuclear membrane. The discovery of a very specific 28S rRNA nicking enzyme in erythrocyte cell membranes (M. Herzberg, Bar-Ilan University, Israel) fits with the idea that the lifetime of a ribosome is the time it takes to traverse this gradient.

The old idea of a link between the transport of messenger and ribosomal RNA which implies a role for the nucleolus in all RNA transport was supported by a report from S. Ghosh (Cancer Research Centre, Heidelberg) who showed that RNA transport was much lower in the absence of a nucleolus in artificially produced multinucleate cells.

It might be that the dogma that RNA polymerase A is confined to the nucleolus and polymerase B to the nucleoplasm does not hold any more. Penman questioned the former and a report from M. Laval (Cell Pathology Laboratory, Paris) using high resolution autoradiography, found evidence for polymerase B activity within the nucleolus. Such observations and a possible function in the transport of RNA make us cautious in limiting the role of the nucleolus to ribosome

manufacture.

Several speakers provided evidence that the so-called 'fibrillar centres' in animal cells and the lacunae of nucleoli in plant cells are in fact nucleolar organising regions. These reports precipitated a special session to discuss nucleolar nomenclature and agreement was reached that evidence for the presence of DNA in the fibrils of the pale staining regions, especially that from cytochemistry and autoradiography, and the presence of a synaptonemal complex at meiosis, justified abandoning the various vague and misleading terms 'fibrillar centre' 'pars amorpha' or 'lacunae' in favour of the nucleolar organising region. Bernhard observed that this represented an important advance since the last nucleolar workshop in 1975 in our progress towards an understanding of the nucleolus. It clarifies much of the earlier work and suggests a unifying concept for the interpretation of nucleolar ultrastructure.

Certainly this meeting will be remembered for the atmosphere of quiet scholarship in the midst of this beautiful old University city, and for considerable success in correlating structural with biochemical findings on the nucleolus and nucleus.

were reported in its diagnosis at an early stage. The test consists of the examination of oesophageal cell scrapings which are collected by a single-lumen tube or a double-lumen tube with an abrasive balloon (both of Chinese improved design). These on-the-spot techniques have made possible mass screening of patients, and the probability of detecting carcinoma in its early stages is now better than 90%. Its incidence in various areas of central and southern China has been correlated with possible carcinogenic factors such as local climatic conditions, hydrogeology, soil types and trace elements, diet and particular life-style. In some areas, which now serve as bases for experiments, the populace are voluntarily attempting to reduce their intake of nitrosamines and their precursors (suspected of contributing also to cancers of the bladder, kidney, liver, stomach and nasal sinuses), to minimise fungal contamination of food and to apply ammonium molybdate as fertiliser (nitrates and nitrites in food are suspected of being precursors to the nitrosamines), and the effects of such measures are being monitored. The principle 'put prevention first', it was emphasised, was paramount in the running of the Chinese health care system.

Another main topic of discussion was liver cancer. The method for its detection most widely used in China is the serum α -foetoprotein assay, which requires only a drop of blood from the individual's ear or finger. Great success has been achieved in its early detection; specimens of it have been obtained which have not grown larger than 0.5 mm. In areas where it is common, efforts have been made to prevent mould contamination of food and improve drinking water, and to ensure early treatment of hepatitis by medical education. Other topics covered included the viral aetiology of nasopharyngeal carcinoma, to which southern Chinese people are particularly prone. Some medical workers reported that they have prepared several lymphoblastoid cell lines and found Epstein-Barr virus, and have successfully established an epithelioid cell line of the carcinoma.

Part of the conference was also devoted to cancer therapy and pharmacology. Over the past few years the Chinese claim many new anti-tumour drugs have been discovered. With the help of traditional medical knowledge some effective anti-cancer drugs, especially N-formylsarcosine and cephalotaxine ester, an alkaloid extracted from the plant *Cephalotaxis fortunei*, have been identified and their effectiveness is now being assessed in clinical practice. □

Cancer conference in China

from T. B. Tang

A NATIONAL retrospective survey of cancer deaths is being compiled in China, on a scale which is probably unique hitherto. The investigation began in 1971 and was started first as a pilot project in Lian-axian in the north of Honan Province. That county is inhabited by some 110,000 people and has a high incidence of oesophageal cancer. The survey established that over a 30-year period the toll taken by the disease had been constant each year, at an annual average of between 1 and 1.5 per thousand. This is despite significant emigration and immigration into the district and improvement in living conditions since 1949, suggesting that the main contributory factors to this cancer are environmental.

The work has been subsequently expanded to cover the 50 million people living in Peking and three provinces of North China. Then, on the basis of experience from this extended survey, the incidence of a number of impor-

tant cancers was investigated nationally by the Academia Sinica. This programme involved eight of the Academia's research institutes and the 1.8 million barefoot doctors in the countryside. Up to now 500 million people in 16 provinces, municipalities or autonomous regions have been covered, and the research is still going on.

It is therefore interesting to note that, at the beginning of July, a national conference was held in Peking on the epidemiology of malignant tumours (*Hsinhua News Agency*, July 26; *Tai-kung-pao*, September 4, special report). Some 300 workers attended, including delegates from regional cancer research institutes, rural barefoot doctors, and practitioners of both traditional Chinese medicine and Western medicine. Experience was exchanged and summed up, these were put forward and debated on, and before the meeting concluded a work programme for 1977/80 was mapped out.

Carcinoma of the oesophagus remained one of the main concerns at the conference. Significant advances

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