interferons suggest that it has a tantalizing degree of activity against a broad spectrum of viral diseases and tumours. But activity is not enough, or consistent enough, in most diseases to give a final verdict without more trials. Also, as genetically-manipulated bacteria start to yield sufficient amounts of the ten or so subtypes of alpha-interferon, the permutations of subtypes and diseases becomes huge.

Meanwhile, large-scale trials of beta-interferon (from fibroblasts) lag slightly behind. The largest has yet to start. Financed and organized by the National Institutes of Health (NIH), the trial will use 50,000 million units of beta-interferon, enough for several hundred patients. The interferon is being supplied by Flow Laboratories Inc., which won the \$2 million contract a year ago. First deliveries were due a few weeks ago, but NIH appear to be in no hurry. This is lucky for Flow Laboratories, whose own production has not been going smoothly. Fortunately, they have a subcontract with the West Germany company of Dr Rentschler Arzneimittel GmbH which has continued to amass beta-interferon made by its own, less advanced, techniques.

The next big contract, also for NIH, will be for gamma-interferon (from cells of the immune system). Far less is known, at least publicly, about this type of interferon, but Biogen and Genentech are rumoured to be on the verge of cloning the relevant genes.

Other commercial interests centre on monoclonal antibodies against the interferons. Several new monoclonals against either alpha or beta-interferons were announced in Rotterdam, but only the original monoclonal (see *Nature* 285, 446; 1980) is as yet commercially available. The sellers are the British company Celltech Limited, so far its only product. It will be surprising if the Celltech catalogue does not double soon.

Peter Newmark

Dioxin hazards

Secrecy at Coalite

Secrecy about the medical consequences to workers exposed to dioxin continues at the British company Coalite and Chemical Products Limited. Documents now to hand show that Coalite will not agree to the further medical investigation of workpeople if the physicians concerned insist that the results are eventually published.

Coalite's shyness is not unprecedented. Last year, the company withheld information on an epidemiological survey of workers exposed to dioxin (2,3,7,8-tetrachlorodibenzodioxin) at its Bolsover (Derbyshire) plant in 1968-71 (see *Nature*, 6 March 1980). The exposure followed an explosion in a vessel used for the manufacture of 2,4,5-trichlorophenol and the workers affected by dioxin developed the skin disease chloracne.

The fresh trouble which has arisen at Coalite results from the need for more

detailed investigations of individual workers to make up for the deficiencies of the epidemiological survey of 1977-78. That involved only 41 of the 90 workers known to have been exposed, but revealed (almost a decade after the event) some abnormalities of blood chemistry and immune function — but none of the expected chromosomal abnormalities in circulating lymphocytes.

The news that Coalite was unwilling to disclose information about this survey served to alert the statutory Employment Medical Advisory Service of the Health and Safety Executive to the existence of such data, which was disclosed on a confidential basis after three weeks. The service has also persuaded Coalite that its medical adviser, Dr George May, should publish some of the results.

The employment service has in the meantime been uncomplimentary about the survey which, it says, is deficient in its failure to follow up past employees and in the inadequate matching of the control populations. The survey covered 41 workers known to have been exposed to dioxin, 54 who might have been exposed and 31 intended as a control group but drawn for convenience from senior office, laboratory and works staff, most of whom were being investigated for blood lipids at the time.

The 1977-78 survey showed blood-lipid disorders, with elevated concentrations of serum cholesterol and triglycerides, and depressed levels of high-density lipoprotein. The enzyme γ -glutamyl transpeptidase, diagnostic of liver function, was abnormally high in the exposed group. On the other hand, levels of two immunoglobulins (IgD and IgM) were depressed in the exposed group, suggesting impairment of immune as well as liver function.

The significance of these findings is far from clear, with the consensus among physicians in the field that further investigations are needed. They argue that the persistence of the phenomena uncovered by the earlier study should be confirmed — but also that further surveys should be more carefully controlled.

Dr George May, Coalite's company doctor, confirms that those workers included in the original survey have since been offered a second medical examination, but that "not everybody availed themselves of the opportunity". In the event, 29 of the original sample of 41 workers were re-examined, but measurements of immunoglobulin were not made.

There are no plans, however, for further investigations of the Coalite workers, according to Dr George Sorrie, deputy director of the Employment Medical Advisory Service, who says that his service has not been presented with any "realistic and useful" proposals for a long-term assessment of the health of the Coalite workers. The reassessment of the state of health of dioxin-exposed workers at

Dioxin a sarcoma risk

Reassessing clinical data is not the only reason for monitoring the health of workers exposed to dioxin. Recent letters in *The Lancet* (P. A. Honchor and W. E. Halperin, i, 268, 31 January 1980; and R. R. Cook, i, 618, 14 March 1980) highlight another reason.

The authors of the letters point out that in four industry-sponsored mortality studies of dioxin-exposed workers in the United States, 105 deaths were recorded. In four of these cases, death was caused by soft tissue sarcomas. These are rare forms of cancer and for most the aetiologies are unknown.

Soft tissue sarcomas have also been identified in another cohort of workers considered to have been exposed to dioxin. According to two Swedish epidemiologists, Dr Lennart Hardell and Anita Sandstrom of the Centre of Oncology at the University of Umea, exposure to the dioxin contaminated herbicide 2,4,5-T (2,4,5-trichlorophenoxyacetic acid) or chlorinated phenols 6 to 20 years previously could be responsible for the sixfold greater incidence of soft tissue sarcomas recorded in a survey of Swedish forestry workers (*British Journal of Cancer* 39, 711; 1979).

Alastair Hay

Coalite is thus far from complete. One clinician describes the re-examination of the 29 workers as a "totally useless piece of work" which cannot be expected to yield any meaningful results.

Coalite's managing director, Mr Charles Needham, has been approached by several clinicians prepared to carry out further investigations. Coalite's reluctance to agree to publication of the results from any future comprehensive medical screen of its workers has, however, forced at least one clinician to abandon his proposal.

Mr Needham, described by his secretary as solely responsible for press relations, has not been available for comment. One consequence of criticisms of the 1977-78 survey, and of Coalite's continued insistence on secrecy, is that the financial sponsor of the survey (an independent non-governmental source) will be unwilling to provide further support.

As the law stands, Coalite may have the last word. Hitherto, the company has been able to exploit an ambiguity in the 1974 Health and Safety at Work Act when deciding whether or not to release medical information on its workforce (see *Nature* 6 March 1980, p.2). The routine powers of the Health and Safety Executive to demand medical records of workers likely to have been affected by a product lapse when manufacture stops. Although Section 27 of the act allows the executive to disclose whatever information it requires (see *Nature* 1 May 1980, p.4), epidemiologists at the executive consider that a test case is required to clarify the law.

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