

Artificial membrane could speed clinical procedures

Michael Thompson and Ulrich Krull of the University of Toronto's chemical sensors' group have received a \$2.1-million contract to commercialize an artificial cell membrane that they say can be used to analyze biochemicals in the laboratory or probe chemical reactions in the body.

The chemists have developed a sensor that mimics the chemical receptor-containing bilayer lipid membrane (BLM) of living cells. Their research has demonstrated that an artificial-membrane sensor could be more selective and sensitive than current probes or sensors that use electrodes.

The three-year contract from Allied Canada Inc. of Mississauga, Ontario, is part of the chemical company's expanded research and development program to seek new world product mandates. "We think this is a viable concept and the goal of the contract is to complete the necessary research and take the work to the point where the BLM can be incorporated into commercial products," said John Wilson, Allied Canada's vice-president of research and development.

To commercialize the BLM sensors, the membranes need to be stabilized for

long periods and repeated use. "We want to be able to combine the membranes and associated artificial receptors with permanent integrated circuits and semiconductor devices," said Dr. Krull.

Biosensor and bioprobe

To do this, two types of device could be produced: a biosensor that might contain several different types of chip in one instrument for clinical laboratory analysis; and a bioprobe that would take its readings inside the body by being implanted or inserted through a catheter.

In each case, a chip would contain a protein that reacts with a specific chemical. Because the membrane is mounted on a tiny electrode, the presence of a chemical to which the protein is sensitive would cause ionization of the membrane — firing the electrode and sending a signal to a measuring device. This part of the contract will combine analytical chemistry with microelectronics and require the development of new substrates for the chips.

The main benefit expected from biosensors is greater speed in complicated clinical

or laboratory procedures. Current techniques require separate samples to be processed for each procedure. But sensors could be equipped with several BLM receptors to analyze several chemicals in a sample.

The researchers also want to develop implantable bioprobes that could be used to regulate artificial organs, monitor insulin levels in diabetics or check the level of therapeutic drugs and other substances in the blood.

Trading house report

Promoting Canadian Exports: The Trading House Option, the report of the trading house task force, was recently released by Minister for International Trade James Kelleher.

The report includes 32 recommendations made by the task force whose mandate was to assess the importance of the trading house sector in Canada, identify its problems and opportunities and propose measures that would assist the sector in making its maximum contribution to the expansion of Canadian exports, particularly with regard to manufactured products. Trading houses were defined in the report as being those companies specialized in the exporting, importing and third country trading in goods and services produced or provided by other parties, and which provide related services to these activities.

Mr. Kelleher noted in the report's findings that trading houses play an important role in Canada's export performance, accounting for more than 13 per cent of total Canadian exports in 1983. More significantly, they account for 40 per cent of all Canadian exports to non-US markets making them an important vehicle for Canadian products to reach overseas markets.

The government plans to respond to the report's recommendations at a trading house conference to be held in Ottawa in the spring this year.

The formation of a new Council of Canadian Export Trading Houses under the auspices of the Canadian Export Association was lauded by Mr. Kelleher. "There is no doubt," he said, "that the formation of the new council would certainly improve the awareness of trading house capabilities in Canada. It will also assist in overcoming the lingering view that the use of trading houses is a second best approach for selling internationally".

The council was established to provide an accreditation procedure for trading houses; represent their interests at the federal level; and promote the services of the sector to manufacturers and producers.

Concern and courage prevail over extreme weather conditions



Steve Fonyo, from Vernon, British Columbia faces the tough prairie winter as he continues his run across Canada on the Trans-Canada Highway east of Winnipeg. The 19-year-old runner who lost his left leg to cancer, is running 7 190 kilometres across Canada in a "Journey for Lives" marathon to raise money for cancer research. (See Canada Weekly, January 23, 1985). He has been warmly received in Manitoba where he raised almost \$200 000 for cancer research and was honoured with the province's highest award, the highly-selective Order of the Buffalo Hunt. In the presentation Premier Howard Pawley said Manitobans "are all deeply moved by this young marathoner's courage and dedication and by his determination to contribute to all in Canada who suffer, or who may suffer, from cancer".

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