

CHRONICLE

New joint ventures continue to be the rage in biotechnology:

- Celltech (Slough, U.K.) has set up its second joint venture company, this one a 50:50 owned project with Air Products Ltd., to be called Apcel. The firm, originally capitalized with £3.2 million, will apply genetic engineering and industrial microbiology to chemicals, energy, food and beverage processing, mining, and environmental protection. Hugh R. I. Perrot, Celltech's director of finance, says Celltech had developed proprietary technology involving Gram-negative bacteria, but was not prepared to commercialize the work itself.

- Food and feed giant Ralston Purina (St. Louis, MO) and hybridoma specialist Monoclonal Antibodies Inc. (Mountain View, CA) have formed an equally owned venture called Animax. It will focus on commercializing animal diagnostics.

- The Liposome Company (Princeton, NJ) has initiated a project with the government of Belgium. Called Celltag, the venture will develop and manufacture drugs and delivery systems to treat malaria, hepatitis, and hepatoma.

At presstime, Biotechnica International (Cambridge, MA) announced that it has completed its search for a president and chief operating officer (see "Management shifts abound in plant genetics," this issue) with the appointment to these posts of Ralph W. F. Hardy. Hardy had been director of life sciences at E. I. du Pont

de Nemours (Wilmington, DE).

R&D limited partnerships are being planned by Genentech (South San Francisco, CA) and Genetic Systems Corp. (Seattle, WA). Genentech's will be a \$32 million deal called Genentech Clinical Partners III. It will fund development and clinical trials of tumor necrosis factor (TNF) as an anticancer agent. Genetic Systems' \$22.5 million partnership will sponsor development of instruments and tests for tissue typing, paternity discrimination, prediction of disease susceptibility, and screening of blood for AIDS virus.

Tumor necrosis factor is also beginning clinical trials in Japan as an anticancer agent. The University of Tokyo reports that preclinicals using rabbit TNF are encouraging.

Early results of clinical trials of tissue plasminogen activator (TPA) treatments on heart attack patients seem promising. Genentech announced that TPA successfully dissolved coronary artery blocks in 35 of 49 patients. The 14 patients who did not respond to TPA also failed to respond to a more traditional clot dissolver, streptokinase. This may indicate that the clots were too old or too extensive to be dissolved.

A new firm, Integrated Chemical Sensors Co., has been set up by Biotechnology Development Corp. (Newton, MA). This partially owned subsidiary will use technology developed by Glenn Bastiaans of Texas

A&M University (College Station) to develop diagnostic tests.

Biotech firms are also making acquisitions: Applied Biosystems (Foster City, CA) agreed to buy Brownlee Labs (Santa Clara, CA) for about 130,000 Applied Biosystems common shares; Damon Biotech (Needham Heights, MA) purchased a majority interest Biotherapy Systems (Mountainview, CA), a cancer diagnosis and treatment company; Charles River Laboratories (Wilmington, MA), a subsidiary of Bausch & Lomb (Rochester, NY), bought Atlantic Antibodies (Scarborough, ME); and Hybridoma Sciences (Atlanta, GA) completed its \$3.3 million purchase of the diagnostic business of ICL Scientific.

Marketing agreements have been signed between du Pont and Biotech Research Laboratories (Rockville, MD) for all of Biotech's monoclonal antibodies and some viral diagnostics, between Synbiotics Corp. (San Diego, CA) and Vedco for U.S. sale and distribution of Synbiotics' veterinary diagnostic products, between Life Technologies (Chagrin Falls, OH) and Boots-Celltech Diagnostics Ltd. for U.S. and Canadian distribution of the Boots-Celltech alpha-interferon immunoassay kit, between Biogen (Geneva) and the Wellcome Foundation (London) for marketing Biogen's hepatitis B vaccine, and between BTC Diagnostics (Cambridge, MA) and Sorin Biomedica (Saluggia, Italy) for the professional market for BTC's pregnancy test in Italy and France.

INTERNATIONAL TRADE

CELLTECH, SANKYO AGREE ON ANTI-TUMOR AGENTS

LONDON—Celltech, Ltd., has signed a development agreement with the Japanese company Sankyo in respect of two anti-tumor agents which could be marketed by the end of this decade. The two agents are human macrophage activating factor (MAF) and tumor necrosis factor (TNF), both of which also operate against infectious microorganisms. If the agents fulfill their potential, Celltech believes, they will open up opportunities to compete in therapeutic areas worth well over a billion dollars worldwide.

Under experimental conditions, MAF has proved effective in stimulating the action of human macrophages

towards both cancerous tissue and pathogenic bacteria. By encouraging these scavengers to engulf and destroy cells recognized as foreign, MAF inhibits the growth of certain tumor cells and kills others. It may also assist in the treatment of chronic chest infections such as tuberculosis. As well as killing some tumor cells, TNF appears to hasten the elimination of malarial parasites.

Following similar agreements during the past year with Sankyo for calcitonin and tissue plasminogen activator, and with the U.S. company Serono for human growth hormone, Celltech has granted worldwide marketing rights to its Japanese collaborator.

In return, Sankyo will finance the entire research program, in addition to making royalty payments on external sales plus specified success payments. Sankyo will be responsible for toxicology, clinical trials, and submissions to regulatory authorities.

Announcing the development agreement recently, Celltech thanked its business agent, the Sumitomo Corporation, which has greatly assisted the U.K. company's progress in Japan.

Celltech is currently working on five other therapeutic products for which it has already found a pharmaceutical partner.

—Bernard Dixon