

JAPAN ROUNDUP

Japan's Science and Technology Agency recently presented its fiscal 1983 White Paper on technology, reporting a lack of Japanese research funds compared to the U.S., though surpassing West Germany, France, and Britain. Japan also lags in research papers produced.

Japan's National Space Development Agency (NSDA) predicts high profits and reduced costs through the production in space of advanced products such as semiconductor materials and pharmaceuticals, including urokinase, an anti-clotting agent.

Takara Shuzo Co. will market reverse transcriptase produced through cell culture for the first time, and six types of monoclonal antibody. The company predicts sales of 100 million yen for the new products. Using a production method under the guidance of Professor T. Takano of Keio

University's Medical Department, the company produces reverse transcriptase from chicken fibroblast cells cultivated and proliferated in a hermetically sealed container.

A team led by K. Yamamura, a lecturer at the National University's Faculty of Medicine, has transformed human major histocompatibility complex (MHC) genes into mouse cells. MHC genes were found in four of 30 mice born from eggs injected with colon bacilli; in two of these mice, the genes worked normally. One of these two then bore 19 pups, of which five showed the genes working normally. The team also successfully built antibody protein-producing genes into mice, coupling them with enhancers.

The Fermentation Industry's Bioindustry Development Center (BIDEC) recently stressed biotech's strong industrial potential. Biotechnology may

account for 10 percent of the Japanese gross national product (about 15 trillion yen) by the year 2000, the report says.

Kansai Paint Co. (Osaka) has developed an enzyme immobilization system using a photo-curing resin, produced by enclosing enzymes and microorganisms in a special water-soluble photo-curing prepolymer (collagen or high polymer gel) and then processing the prepolymer into sheets and granules of 1-2 mm diameter.

Joint research between K. Kawachi, professor at Kitasato University, and Kyowa Hakko Kogyo Co. (Tokyo) has launched the mass production through recombinant DNA technology of a salmon growth hormone. The team has implanted salmon genes producing growth hormone into *Escherichia coli*.

CHRONICLE

The U.S. Department of Agriculture announced that it is stepping up biotech research at its Beltsville, MD, research center. The Center's funding for biotech research is now \$6.26 million out of its \$76 million budget. Projects will include cell research, gene splicing, and deciphering chemical messengers in plants and animals.

In other U.S. government funding, the National Science Foundation made a five-year, \$600,000 grant to establish the Center for Monoclonal Lymphocyte Technology at Duke University and the University of North Carolina at Chapel Hill. The North Carolina Biotechnology Center is contributing \$150,000, and companies will pay \$75,000 a year to become members.

Also, while the fiscal-year 1986 budget for the U.S. Commerce Department's National Bureau of Standards was cut \$4 million to \$124 million, its biotechnology program was increased \$3 million.

Genentech (South San Francisco, CA), named G. Kirk Raab president and chief operating officer. Robert A. Swanson, who had been president

and chief executive officer, remains CEO. Raab had been president and COO of Abbott Laboratories (North Chicago, IL). Genentech describes the move as part of its transition into a major pharmaceutical company.

Alpha interferon has been shown effective in treating venereal warts, according to clinical trials conducted at New York University Medical Center. The natural interferon formulation developed by Interferon Sciences (New Brunswick, NJ) totally eliminated warts in half the patients and reduced wart size in another 20 percent of the cases.

The Netherlands has attracted another U.S. biotech firm. Molecular Genetics (Minnetonka, MN) will form a Dutch company, called MOGEN International, to do plant research. Holland's MIP Equity Fund will invest about \$2 million in the new venture. Centocor (Malvern, PA) recently announced a similar start-up in the Netherlands.

New agreements involving biotech companies:

- Bristol-Myers (New York, NY) paid \$12.75 million for a one-third interest in Oncogen, the joint venture between Syntex Corp. (Palo Alto, CA) and Genetic Systems (Seattle, WA). Oncogen specializes in cancer research.

- Plant Genetics (Davis, CA) raised \$5 million in a private placement to a consortium of Japanese companies, including Kirin Brewery (Tokyo). The two firms will also work jointly on synthetic seed technology.

- Biotechnology General Corp. (New York, NY) sold Pharmacia AB (Uppsala, Sweden) exclusive rights to its bacterial fermentation technology for producing hyaluronic acid. Pharmacia also purchased a \$1.5 million equity interest in BTG.

- PPG Industries (Pittsburgh, PA) signed a 15-year agreement with the Research Institute of Scripps Clinic (La Jolla, CA) for cooperative basic agricultural biotech research. PPG says this is the first step in a \$120 million program.

- New Brunswick Scientific (Edison, NJ) acquired Biosearch (San Rafael, CA), a maker of automated DNA and peptide synthesizers.