JAPAN ROUNDUP

Satohiro Watanabe's research group at the National Center for Psychology and Neurology has developed the world's first rat model for AIDS, an advance that could greatly facilitate the testing of new AIDS therapies and the screening of drugs for undesirable side effects. Because the human immunodeficiency virus (HIV) does not infect rat cells, Watanabe and coworkers pioneered a method for selectively destroying rat T helper lymphocytes using the Friend leukemia virus (FLV), which like HIV is a retrovirus. Injecting specially infected cells into rats caused a 90-percent reduction in the number of helper T cells within 7–10 days. And, in a course of disease similar to the human AIDS syndrome, rat immune system functions fell to one-tenth their normal levels and all the animals died within a year.

The Japanese reagent market climbed to 46 billion yen (\$368 mil-

lion) in 1985, according to the Bioindustry Association of Japan (BIDEC). The market's largest segment, the 400–500 monoclonal antibody-based products, doubled its sales from the previous year to 10 billion yen (\$80 million). BIDEC expects the overall reagent market to exceed 1 trillion yen (\$8 billion) by the year 2000.

Scientists at TDK Corp. (Tokyo), the world's largest producer of ferrites and magnetic tapes, have spent the last two years studying small particles isolated from magnetic bacteria in an effort to develop new magnetic materials. The work is being conducted in collaboration with the Tokyo Institute of Agriculture, where Tadashi Matsunaga first developed a method for culturing the magnetic bacteria. These microbes use very small (500 Å diameter) magnetic particles to orient themselves with respect to the earth's magnetic field. TDK is hoping to develop culture methods for producing

large quantities of the magnetic particles, each of which contains primarily iron and consists of a single magnetic domain.

Scientists at Mitsubishi Chemical Industries (Tokyo) and Mitsubishi's Plant Research Institute have successfully regenerated mature carrot plants from "cybrid" protoplasts. The technique involves fusing protoplasts isolated from wild and cultivated carrots after the X-ray inactivation of nuclei of the wild carrot cells and the inactivation of membrane and cytoplasmic proteins of the cultivated carrot cells. Thus the nucleus of one strain is inserted into the cytoplasm of the other strain. Although the approach has previously been used to produce new tobacco strains, this is its first use in a vegetable.

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