

JAPAN ROUNDUP

Kikkoman Corp. (Chiba-Ken) and The Ministry of Agriculture, Forestry and Fisheries (MAFF) have developed a new plant cell fusion technique which has led to the fusion of plants from two mandarin orange families: orange and trifoliolate orange. The technique may allow development of new varieties of rice by the fusion of rice and soybeans. As of yet, though, seedlings have not proven fruit-bearing.

The MAFF will also collaborate with Kirin Beer (Tokyo) in fiscal year 1985 to develop artificial seeds. Research will focus on technologies for mass propagation of embryos and their protection by synthetic resin capsules.

The Japanese Federation of Economic Organizations (FEO) is investigating biotech problems experienced by its 150 member companies, via a questionnaire called "Various Problems of Biotechnology at the Practical Use Stage."

The first regeneration of a rice plant from a protoplast instead of from a complete cell has been achieved by Japan's National Institute of Agro-Biological Resources, a research division of the MAFF.

Hokkaido National Agricultural Experiment Station has developed a vaccine against cucumber mosaic virus (CMV). In the vaccine, CMV satellite RNA, influential in contraction of the disease, has been weakened by genetic engineering techniques.

Sumitomo Metal Mining Co. is considering accelerating R&D on a biotech-aided copper smelting using bacteria from mine water to recover metal. A team of ten companies is doing beaker-scale experiments at Canada's British Columbia University.

Toray Industries (Tokyo), plans to be the first Japanese company to produce and market beta-interferon. After additional clinical data is collected this summer, production using

fibroblast cell culture will begin at its Mishima facility. Toray will probably market the product in cooperation with Daiichi Sei Yaku (Tokyo).

Sumito Chemical (Osaka) has developed a biotech process using enzymes instead of chemicals to produce a hydrolytic collagen product with applications in hair-care and cosmetics.

Mitsui Toatsu (Tokyo) plans commercialization within four years of tissue plasminogen activator (tPA) cloned at the Beckman Research Institute, (Duarte, CA). TPA may replace urokinase in Japan as a treatment to dissolve clots in heart attack victims.

At Kitasato University (Tokyo), scientists are experimenting with cavity-causing organisms by mixing antibodies to *Streptococcus mutans* into toothpaste, mouthwash, chewing gum, candy, and ice cream. The idea is to stop *S. mutans* from depositing on teeth.

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