

JAPAN ROUNDUP

Asahi Breweries (Tokyo) has developed a "super yeast" that produces eight times the glutathione made by traditional glutathione-producing yeast. The company will commercialize the product shortly for pharmaceutical use and may use it in medicines for intestinal disorders.

Oriental Yeast Co. (Tokyo) is constructing a biological research lab to be completed this year in Shiga prefecture. The 800-million-yen lab will be used to promote basic research on biochemical reagents, culture media, and test-use animal feed.

Snow Brand Milk Products (Tokyo) is planning pre-clinical tests on tissue-type plasminogen activator (tPA), antibiotics, and erythropoietin this year. The company has produced a natural tPA from human fetus fibroblast cells, and it believes this product is safer than those produced by ge-

netic recombination or culture of cancer cells. Snow Brand's antibiotic is reported to have anti-cancer effects without high toxicity.

Dainnipon Pharmaceutical (Osaka) is now mass-producing recombinant interleukin-1 (IL-1). By cultivating an *Escherichia coli* strain that includes the gene for IL-1 extracted from the HL60 human myelogenous leukemia cell line, Dainnipon has achieved a production rate of 10 percent of total bacterial protein. Further research by the company is aimed at developing cancer and immunological deficiency drugs.

Japanese doctors working for The Health and Welfare Ministry have developed a drug called Lexostatin which they say is effective in preventing further progression of muscular wasting in patients having duchenne-type muscular dystrophy. The drug

was produced artificially from a fungal metabolite.

Yamanouchi Pharmaceutical Co. (Tokyo), the producer of the anti-ulcer drug famotidine, is building a bulk-pharmaceuticals plant in Ireland. Construction will begin this month with start-up scheduled for the latter half of 1988. The new plant will be run by its subsidiary, Yamanouchi Ireland (Dublin). In connection with this, Yamanouchi Europe (The Netherlands) will be established as a holding company for the Irish firm.

Fujisawa Pharmaceutical Co. (Osaka) will assist Sri Lanka in designing and constructing a 2.6 billion-yen pharmaceutical formulation center scheduled for completion in June 1987. Projected to be the largest such center in Sri Lanka, it will produce essential drugs to combat fever, malnutrition, and other ailments.

FIELD TESTING

U.K. PLANS TO RELEASE A RECOMBINANT VIRUS

LONDON—The first release of an organism genetically modified by British scientists is likely to occur this summer in lodgepole pine plantations in northern Scotland.

David Bishop and his colleagues at the Natural Environment Research Council's Institute of Virology in Oxford have introduced a genetic sequence into a baculovirus that attacks caterpillars of the pine moth *Panolis flammea*. These insects cause considerable damage to pine trees, and thus considerable economic losses every year in Scotland.

The oligonucleotide serves as a marker to distinguish the virus from strains that control the pest naturally in other parts of the country. The sequence is in a non-coding region of the genome, and thus causes no change in gene products. If the experiment in monitored release proves successful and non-hazardous, however, Bishop plans to introduce other new properties into the virus. These include toxin production and a "self-destruct" function.

Bishop first sought approval from relevant authorities—the Ministry of Agriculture, Fisheries and Food (MAFF) and the Advisory Committee on Genetic Manipulation (ACGM)—nearly 18 months ago. He received

permission for the experiment in principle last year, but missed the growing season and thus had to wait until now to proceed.

Inconveniently for the officials concerned, news of the proposed test leaked out following a semi-private Ciba Foundation symposium on invasions by engineered organisms. Bishop spoke at the meeting, without being specific about his immediate plans. But there was also an unscheduled talk by Brian Ager, secretary of the ACGM, a subcommittee of which has been formulating guidelines on controlled release for approval by its parent body, the Health and Safety Executive. To the irritation of several members of the audience, Ager was unable to talk with any specificity about the guidelines or even to name the individuals on the subcommittee—some of whom were sitting listening to him speak. What many saw as an unnecessary degree of secrecy may have encouraged press speculation that the *P. flammea* work was to go ahead illicitly, before publication of the new guidelines.

In fact, Bishop has been inordinately diligent in his efforts to secure approval. He has patiently awaited the ACGM subcommittee's long-delayed guidelines—which are to be

purely advisory. Because he is dealing with an insecticide, he has also sought parallel approval from MAFF, although it is by no means clear that he needed to do so.

Keeping a close eye on public reactions to the disclosure of Bishop's plans are Stephen Lisansky, research director of Microbial Resources Ltd., and his colleagues at the Berkshire headquarters. Established in 1984 to devise and market novel biological control agents, Microbial Resources already produces several such insecticides. Virox, based on nuclear polyhedrosis virus and used against the pine sawfly, was developed in conjunction with the Institute of Virology in Oxford. Vertalec and Mycotal, based on spores of two strains of the fungus *Verticillium lecanii* and used against aphids and whitefly, were evolved in collaboration with the Glasshouse Crops Research Institute in Littlehampton. Although none of these agents involved rDNA manipulations, Microbial Resources and other companies are known to be near to the market place with several such products. The Agricultural Genetics Company, for example, filed a patent recently for a genetically improved strain of *Bacillus thuringiensis*.

—Bernard Dixon