Marimastat fails again

British Biotech's (Oxford, UK) stock plunged 16% to £0.22 on February 15 after its lead drug Marimastat, a matrix metalloproteinase inhibitor, failed a dose escalation trial. Study 128 was expected to show it increasing survival rates by 16% over Eli Lilly's (Indianapolis, IN) Genzar (gemcitabine)—generally considered one of the best cancer drugs on the market—in the treatment of advanced pancreatic cancer. In fact, at the highest dose, reductions in patient mortality were not significantly different to Genzar, and lower doses were less effective. There are nine other trials of Marimastat still underway although this is the second to have brought bad news to the company in nearly as many months (*Nat. Biotechnol.* **17,** 117, 1999).

Japan easy on gene therapy

Japan's Ministry of Health and Welfare (MHW; Tokyo) announced at the end of January that it is considering revising guidelines to allow treatment of chronic diseases such as arteriosclerosis and rheumatoid arthritis with gene therapy. This would substantially expand the range of diseases that can be treated by gene therapy, which is currently restricted to serious life-threatening diseases such as AIDS and cancer. Although the current guidelines, drawn up in 1994, are based on similar guidelines issued by the US National Institutes of Health (Bethesda, MD), MHW decided to restrict the use of gene therapy because of initial safety concerns. But after reviewing safety data from clinical trials in both the US and Japan, the government has changed its mind, and new guidelines are expected by the end of the year.

First US–German start-up

Atugen Biotechnology (Berlin) finally started operations at the beginning of February. Founded by Ribozyme Pharmaceuticals (Boulder, CO) last September (*Nat. Biotechnol.* **16**, 812, 1998), Atugen is one of the first biotechnology firms with US parents to receive funding from the German government, which provided it with a cash handout of about $7 million. Atugen now has $20 million in cash plus, the company estimates, $20 million in inherited target validation technology and related patents from Ribozyme. Atugen intends to continue Ribozyme's target validation work using data from the Human Genome Project. Jörg Pötzsch, a director at Atugen, says that if a US company is able to raise money through traditional funds like venture capital and banks, it could also receive money through German government handouts. Pötzsch, who expects to see more US–German companies in the near future, says Atugen is "a good example of how to do it."

Entremed's stock seesaws

On February 9, Bristol-Myers Squibb (BMS; Princeton, NJ) reported that it had altered its 1995 agreement with Entremed (Rockville, MD) and returned the anti-angiogenesis compound, angiostatin, to Entremed for further development. BMS had trouble consistently producing reliable potency results for angiostatin in mammalian cells. "There's no question of the efficacy of the protein," maintains Mary Sundeem, Entremed spokesperson, "it's just a matter of reliably reproducing [angiostatin] in that [mammalian] cell line." Although BMS retains the right to reenter the agreement once the safety and efficacy of angiostatin have been proven in humans, the news caused Entremed's share price to plummet almost 50%. However, Entremed stock bounced back following reports a day later that researchers from the National Cancer Institute (NCI; Bethesda, MD) had verified Judah Folkman's (Children's Hospital and Harvard Medical School, Boston, MA) anticancer work on endostatin—a relative of angiostatin also licensed by Entremed. Folkman's 1997 research had indicated both endostatin and angiostatin to be effective anticancer agents in mice. The NCI is planning a phase I trial of endostatin.

New plant to desulfurize oil

Energy BioSystems (The Woodlands), a Texas-based oil purification company, announced last month that its first plant employing a biotechnological process for removing sulfur from oil will be running in 2001. At a cost of $60 million, the company has developed a process (*Nat. Biotechnol.* **14**, 1705, 1996) to remove sulfur from oil using recombinant *Rhodococcus,* a bacterium ideally suited to the task because it thrives at oil–water interfaces. A small commercial plant is under construction for Petro Star (Valdez, AK) that will process 5,000 barrels a day by 2001. According to Daniel Monticello, vice president of R&D, Energy BioSystems also plans to use its biotechnology process to extract useful sulfur compounds from oil, "If you run [the desulfurization process] all the way to the end, the bacteria will make sulfate…but by doing some metabolic engineering we've been able to truncate the pathway to produce an intermediate…a building block for detergents."

Research collaborations

Company 1	Company 2	$ millions	Details
Abgenix (Fremont, CA)	Genentech (S. San Francisco, CA)	120	A six-year agreement allowing Genentech access to Abgenix's technology for generat[ing fully human antibodies for up to 10 unspecified antigen targets. Abgenix could receive over $120 million from Genentech, including two equity investments and royalties.
PowderJect Pharmaceuticals (Oxford, UK)	Ares-Serono (Geneva, Switzerland)	100	An exclusive global agreement to develop five undisclosed therapeutic proteins from Ares-Serono using PowderJect's pain-free, needleless injection system. Ares-Serono could pay PowderJect more than US$100 million for R&D, clinical trials, license fees, and milestones.
Alexion Pharmaceuticals (New Haven, CT)	Procter and Gamble (Cincinnati, OH)	95	A collaboration to develop and commercialize Alexion's C5 complement inhibitor drug for use during coronary artery bypass graft surgery, angioplasty, and other cardiovascular indications. P&G will pay Alexion up to $95 million for global development and marketing rights to the drug.
Maxygen (Santa Clara, CA)	Pioneer Hi-Bred International (Des Moines, IA)	85	A five-year collaboration whereby Maxygen will use its nucleic acid recombination technology to develop genes for improving crop protection and quality in corn, soybeans, and other crops. In exchange for global commercialization rights, Maxygen will receive equity investments, R&D funding, and royalties on sales.
Axys Pharmaceuticals (Collegeville, PA)	Rhône-Poulenc Rorer (RPR; San Francisco, CA)	80	A two-year research pact, which can be extended to four years, to discover and develop small molecules to inhibit cathepsin S, which is involved in some inflammatory diseases. RPR will pay Axys up to $80 million to acquire development and marketing rights to to resulting molecules for respiratory disease, atherosclerosis, and rheumatoid arthriis.