► The United States' publicly funded Medicare system decided in 2011 to pay for Provenge treatment. But confusion over how the cost of the vaccine would be reimbursed by private insurance companies left many US doctors hesitant to use it, says Corey Davis, an analyst at Canaccord Genuity, an investment bank based in Toronto, Canada. When revenues came in far below the company's initial estimates, Dendreon failed to adjust its operations accordingly, Valeant chief Michael Pearson told investors on 23 February.

Provenge is, at first glance, an odd purchase for Valeant, a company known for acquiring relatively simple, established products — for example, it controls 10% of the US contact-lens market. But Valeant saw an opportunity to cut costs and improve how the vaccine is marketed to doctors, and thinks it can make back its investment in less than two years, says Davis.

The vaccine's rescue is a relief to Engleman, who had feared that Provenge might disappear along with Dendreon. As the company struggled financially, the scientists who founded it watched helplessly from the sidelines. "This

was our baby," says Engleman. "It was extraordinarily frustrating. There was nothing we could do."

In retrospect, Engleman says, some early scientific choices may have exacerbated Dendreon's struggle. He notes that the company decided not to develop ways to freeze the stimulated immune cells, which could have

"Don't view Dendreon as a failure: it paved the way."

simplified the procedure and lowered its cost. Both scientists lament the choice of prostate cancer as the inaugural disease target of the technology. Although the early lymphoma data had been very promising, recalls Engleman, the company decided to switch to a more common cancer with a bigger potential market. And prostate cancer had another advantage: people can live without a prostate, which helped to calm fears (since proved unfounded) about what would happen if the primed immune cells attacked healthy tissue.

But the results in prostate cancer were not as dazzling as Engleman had hoped on the basis of his animal results in lymphoma. Dendreon did extend survival in some people with advanced prostate cancer, but by a median of only four months (P. W. Kantoff *et al.* *N. Engl. J. Med.* **363**, 411–422; 2010). Last week, the UK National Institute for Health and Care Excellence advised that at more than £47,000 (US\$73,000) per course of treatment, Provenge is too expensive to justify its use by the National Health Service.

The Dendreon experience has not dampened Engleman's enthusiasm for entrepreneurship. He and Strober, along with other collaborators, have teamed up on a company that aims to develop a technique to reduce the likelihood that recipients of transplanted organs will develop an immune response to the new tissue.

They are again on the hunt for funding, but this time the team is backed by more than a decade of clinical-trial data that supports the method. "We're thinking that this one will progress a lot faster than the Dendreon thing," says Strober. ■

HYDROLOGY

Slick idea proposed to stretch water supplies

Thin coating that cuts evaporation from lakes offers hope for drought-ridden United States.

BY MATTHEW WALD

In the southwestern United States, where years of drought are leading water managers to consider drastic water-provision measures such as desalination and cloud seeding, entrepreneurs have suggested reviving a technique that was tried and abandoned half a century ago. They propose to stretch dwindling water supplies by slowing down evaporation from reservoirs by means of a surface barrier of cheap, non-toxic, biodegradable chemicals just one molecule thick — two-millionths of a millimetre. The technology is

far from proven, but it showed some potential in field tests in Texas last year.

Worldwide, more water evaporates from reservoirs than is consumed, and the losses are especially acute in hot, dry regions. The idea of a coating to slow evaporation has been floated for decades, and government researchers in the United States and Australia have investigated the concept. The approach, which generally involves chemicals derived from coconut or palm oil, is already used on small bodies of water such as golf-course ponds and swimming pools. But it has not been practical for larger bodies because wind

tends to break the layer apart, says Moshe Alamaro, an engineer at the Massachusetts Institute of Technology in Cambridge.

Last summer, a field test in Texas attempted to overcome that problem. The US\$325,000 test ran from July to October on Lake Arrowhead, a 21-square-kilometre reservoir that serves the city of Wichita Falls. Flexible Solutions International, a company in Victoria, Canada, that makes evaporation-reducing coatings for small water bodies, programmed a boat to run on autopilot and make a grid pattern across Lake Arrowhead spreading the coating behind it.

An analysis published in January by the Texas

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Drought-stricken Lake Arrowhead in Texas was coated with a film that reduced evaporation by up to 15%.

LARRY SMITH/EPA/CORBIS

Water Development Board suggested that the results were promising, but not conclusive (see go.nature.com/zrcozd). Compared with a similar reservoir nearby, the treated reservoir lost an estimated 15% less water to evaporation. But the analysis could not attribute all of that difference to the coating, because it did not account for variables such as stream inflows and seepage outflows. The coating probably helped, says Mark Wentzel, a hydrologist for the Texas Water Development Board and co-author of the report, but “I wouldn’t stake my life on it.”

Alamaro suggests that a more aggressive technological approach is needed. Radar

instruments carried on a blimp or drone could reveal where the reservoir’s coating has broken up, he says, by sensing the way that it dampens ripples on the water. More coating can be added when and where it is needed, potentially cutting evaporation by 70%, he estimates.

Alamaro has founded a company, More Aqua in Cambridge, Massachusetts, that is trying to develop a system of diffusers and skimmers to keep a body of water thoroughly and continuously covered.

The company is planning its own pilot test near Palo Alto, California, this summer using its own coating. It plans to offer its services in

exchange for owning the water that it saves, and to sell that on the open market in the state, where the cost of water for irrigation can exceed \$1,000 per acre-foot (1,233 cubic metres).

Assuming evaporation savings of 15%, says Daniel O’Brien, president of Flexible Solutions, the \$160 cost of saving one acre-foot of water with the coating compares favourably with a Texas market price of \$345–700 per acre-foot of water.

Water consultant William Mullican of Lubbock, Texas, who is retired from the Texas water board, says that although the Lake Arrowhead results were unclear, this is also often the case in field tests of other water-sparing techniques such as cloud seeding and cutting back brush to keep it from sucking moisture from the soil.

Given the Texas test’s promising result and the fact that the ongoing drought in the state is severe, he says, there is every reason to try the technique out again, “unless it starts raining.” ■

CORRECTION

The News Feature ‘The painful truth’ (*Nature* **518**, 474–476; 2015) omitted Marks’ first name and affiliation. Donald Marks is the co-founder and chief science officer of Millennium Magnetic Technologies.