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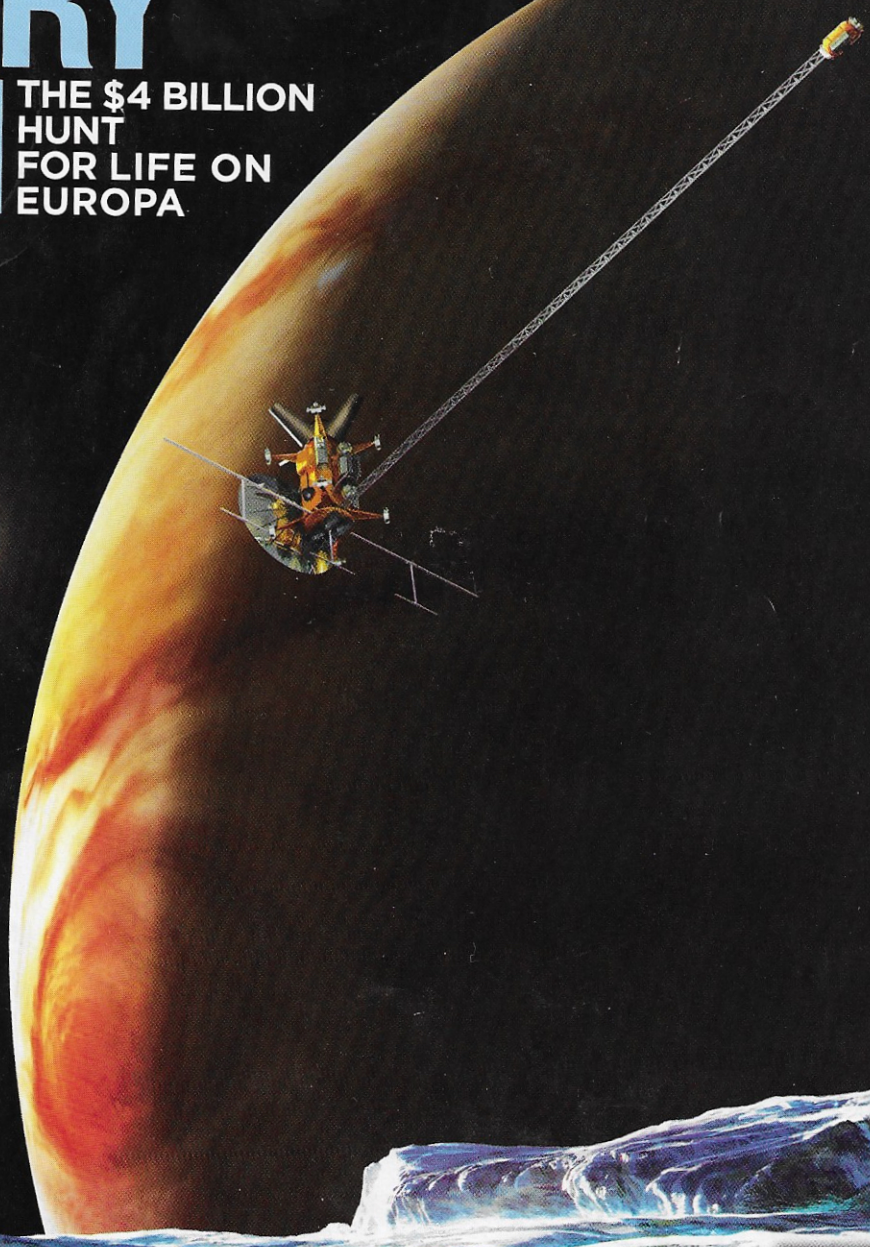

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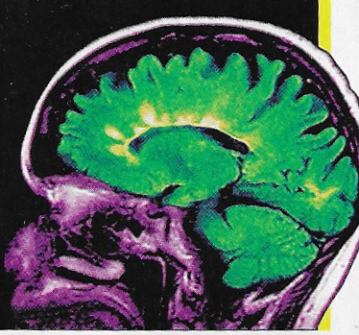
GRANTING IMMUNITY

What if researchers could reboot a misfiring immune system? That is the intriguing possibility raised by stem cell transplant specialist Richard Burt. He is pioneering a new treatment for autoimmune disorders, one in which patients' immune systems are suppressed and then replaced with an infusion of their own immune stem cells. These then grow into all types of blood cells, including the white blood cells of the immune system.

In autoimmune disorders, the immune system goes haywire and attacks the body's own tissues. In the case of type 1 diabetes, it destroys the insulin-producing cells in the pancreas, and in multiple sclerosis it strikes the central nervous system.

Burt, of Northwestern University, first imagined stem cell treatments 20 years ago, while working with leukemia patients who received bone marrow transplants; the patients subsequently lost their immunity to childhood diseases like mumps and measles, necessitating a new round of vaccinations. Burt reasoned that transplants could reset the immune systems in autoimmune patients in the same way, stopping the assaults on healthy cells.

In a preliminary trial of 23 type 1 diabetes patients, Burt found that stem cell transplants allowed 20 patients to stop their insulin shots for periods ranging from a few months to five years, and counting. "It was the first time in the history of diabetes that patients were on nothing after one treatment," he says. While the effect was not permanent in most cases, one participant is still insulin-free five years after treatment. In another small-scale trial for multiple sclerosis, treatment appeared to reverse the disease's progression and its associated disability, a further historic first. Burt is now organizing larger trials for both diseases as well as other autoimmune disorders. **Eliza Strickland**



MS (seen as yellow lesions in this MRI) could be treated with stem cells.