

Europe nears first approval for gene therapy

Treatment for rare fat-processing disease gains approval from medicines regulator.

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Europe's drugs regulator has for the first time recommended a gene therapy for approval.

Glybera, a treatment for patients who cannot produce enough of an enzyme that is crucial for breaking down fat, was backed by the European Medicines Agency's (EMA) Committee for Medicinal Products for Human Use (CHMP). This recommendation must be endorsed by the European Commission before the treatment becomes available, but it would be unusual for the commission to reject the recommendation.

Gene therapy involves transferring genes into patients to treat disease. Glybera uses a virus that is injected into the patient to deliver a working copy of a gene for producing lipoprotein lipase (LPL). LPL deficiency is very rare, affecting no more than one or two people in every million.

[Back in 2004](#), China became the first country to approve a gene-therapy product for commercial use, with a treatment for cancer. But Europe and the United States have yet to endorse any gene therapies, and the field has been plagued by safety issues, including carcinogenicity.

Jörn Aldag, chief executive of UniQure, the Amsterdam-based company that owns Glybera, says that the announcement from the EMA is an "overdue signal" to the gene-therapy community that things are changing. "It unlocks the potential," he told *Nature*. "You will see more investment coming."

'Fantastic news'

Timothy Coté, former head of the Office of Orphan Products Development at the US Food and Drug Administration, and who is now an independent consultant, says that the approval is "astounding, fantastic news. It puts Europe at the forefront".

Glybera had previously received negative opinions from both the CHMP and the EMA Committee for Advanced Therapies (CAT), which advises on cutting-edge treatments. However, after re-evaluating the treatment in just those patients who experience severe or multiple attacks of pancreatitis as a result of LPL deficiency, the CAT gave a positive opinion in June, and this has now been endorsed by the CHMP.

Tomas Salmonson, acting chairman of the CHMP, said in a statement that the "established ways" of assessing the risks and benefits of Glybera had been challenged by the rarity of the condition and uncertainties in the data.

"The evaluation of this application has been a very complex process, but the use of Glybera in a more restricted indication than initially applied for, which targets the patient population with greatest need for treatment, and additional analyses by the [CAT] committee ... have added to the robustness of the data provided and allowed the CHMP to conclude that the benefits of Glybera are greater than its known risks," he said.

The CHMP recommendation was eventually given only under an 'exceptional circumstances' designation. This allows a treatment to be approved in the absence of large-scale clinical trials, and is used for therapies targeting diseases that affect only small numbers of patients — for which large-scale trials are almost impossible. Glybera has been tested on 27 patients in three studies. UniQure will have to set up a registry to monitor what happens to patients taking the treatment, and this will be reviewed by the EMA.

Hot on Glybera's heels is another gene therapy that targets the immunodeficiency disorder [ADA-SCID](#). However, this is an 'ex vivo' treatment in which gene therapy is performed on a patient's extracted bone marrow cells. The treated cells, containing the working copy of the gene, are then injected back into the patient.

Now being supported by London-based drug-maker GlaxoSmithKline, this treatment is just behind Glybera in the approval process,

says molecular biologist Fulvio Mavilio, scientific director of the French biotechnology institute Genethon, near Paris, and one of those who worked on the treatment.

“These two examples of products in the two flavours in which gene therapy is available today — *ex vivo* and *in vivo* — made it to the final stage, which is great news for the entire field,” he says.

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