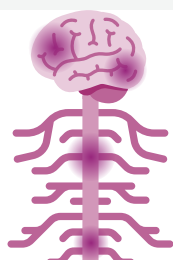
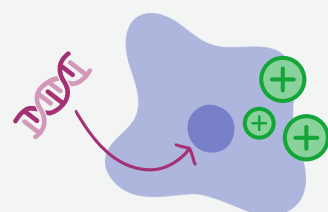


# First step towards **gene therapy** for **multiple sclerosis**

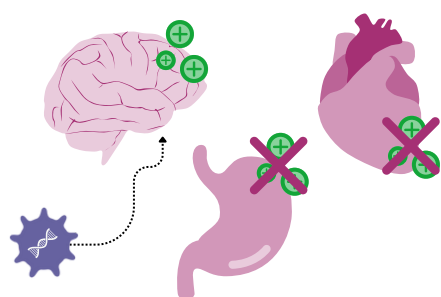
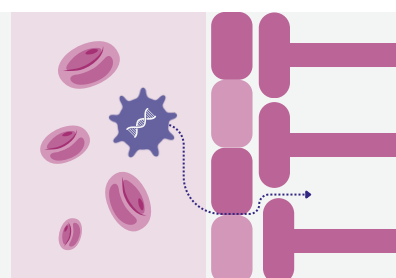
Researchers at the Netherlands Institute for Neuroscience have demonstrated that gene therapy can travel via the bloodstream to reach target brain cells during nervous system inflammation that is characteristic of **multiple sclerosis (MS)**.

In **gene therapy**, a piece of DNA is introduced into cells, prompting them to produce specific proteins that act as **medicine**. This therapy can be used to treat **neurological disorders** such as MS.



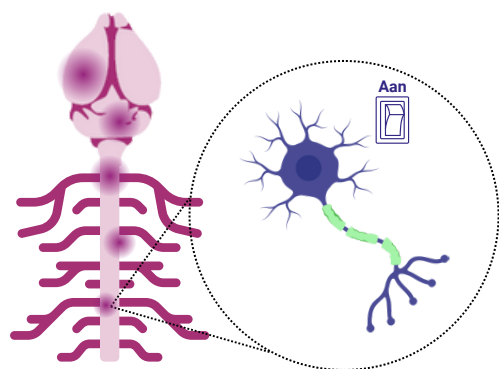
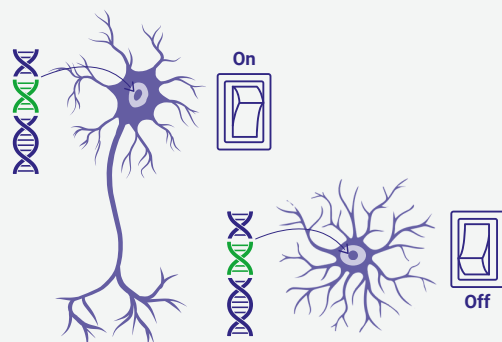
In MS, **inflammation arises at very unpredictable locations** in the brain and spinal cord. Whereas gene therapy normally involves **direct injections**, this approach is therefore very difficult in practice in MS.

That is why this research uses a viral vector with a specially designed **protein capsule** for transportation. As a result, it can travel via the bloodstream, pass the blood brain barrier, and reach the brain.



To avoid any unwanted side effects, it's important that a therapeutic protein injected via the bloodstream is **only produced by the organ to be treated and in the correct cells**.

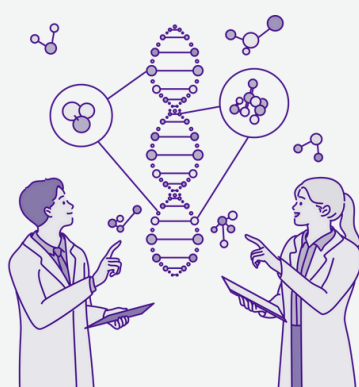
Earlier research looked into the activity and specificity of specific **promoters**. These are pieces of DNA that act as a gene switch, thereby deciding in which cell the gene is active. Most promoters were **very specific** for the targeted cell type in the nervous system.



Even in the **inflamed brain** characterising MS, the promoters remained cell specific, even within the areas of inflammation. These areas could become a **target for gene therapy**.

## Future Research

The therapeutic effects of genes for gene therapy can be investigated using this method. This potentially offers the prospect of a regenerative therapy that can treat targeted inflammation in people with MS.



[Read the full press release on our website](#)