

# T-CELL VACCINE

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## TCV

Multiple sclerosis (MS) is an inflammatory autoimmune disease that targets myelin-associated antigens, resulting in neurodegeneration and axonal loss within the central nervous system. However, the human body does not leave “blank” spaces, instead filling them with fibrous tissue (in other words scar tissue) that does not have insulating properties, thus making it difficult for nerve signals to be transmitted properly.

The concept of T cell vaccination (TCV) has been raised as the finding that immunization with attenuated autoreactive T cells is capable of inducing T cell-dependent inhibition of autoimmune responses. TCV may act as an approach to control unwanted adaptive immune response through eliminating the autoreactive T cells. These cells allow to stop the immune system’s response to the nerve-covering insulating layer of myelin.

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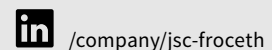
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It is potentially the most common cause of neurological disability in young adults. It is believed that autoimmune T-helper 1 and T-helper 17 cells specific for myelin-associated antigens play a major role in the MS pathogenesis. After being activated T1 and T17 cells invade the central nervous system, and, by producing pro-inflammatory cytokines such as interferon  $\gamma$ , tumor necrosis factor  $\alpha$ , interleukin 2 and granulocyte macrophage colony-stimulating factor, recruit macrophages, CD8<sup>+</sup> T-cells, and NK cells in nervous tissue-destructive processes. In addition, these T-cells help the development of B-cell responses resulting in the production of myelin specific antibodies, that in turn, increase the tissue destruction and complement-mediated mechanisms.

MS symptoms usually begin with relapses and remissions and neurologic deficits accumulate over time with secondary progression. A patient with this condition first begins to feel disorders of the nervous system that will gradually become more pronounced as the disease progresses. The greater the disability, the less likely it is that the scar tissue will be prevented from forming. This process can be stimulated, but the immune system's inadequate functioning needs to be resolved before that.

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**TCV:**

- **ADVANCED THERAPY MEDICINAL PRODUCT**
- **MANUFACTURED UNDER GMP GUIDELINES INDIVIDUALLY FOR EACH PATIENT**
- **AUTOLOGOUS, MANUFACTURED FROM PATIENTS OWN BLOOD**
- **PRESCRIBED BY NEUROLOGIST**

Vaccines are manufactured individually for each patient by harvesting the T-cells responsible for the disease's progression from their blood in the laboratory. The product stimulates an immune response against the autoreactive T-cells. Specifically, new T-cells are introduced into the body that kills the myelin-specific T cells. This technology has been used worldwide for more than 10 years to regulate the immune response in people with multiple sclerosis.

**THE AIM OF TCV THERAPY IS TO:**

**EFFECTS OF TCV:**

<b>01 //</b> -	<b>SUPPRESS CHRONIC INFLAMMATION</b>	<b>01 //</b> -	<b>REDUCES PROLIFERATIVE T-CELL RESPONSES TO MYELIN ANTIGENS</b>
<b>02 //</b> -	<b>PREVENT ORGAN DAMAGE</b>	<b>02 //</b> -	<b>ATTENUATES MYELIN-SPECIFIC T-CELL ACTIVITY</b>
<b>03 //</b> -	<b>REDUCE THE FREQUENCY, AND LIMIT THE LASTING EFFECTS OF RELAPSES</b>	<b>03 //</b> -	<b>INDUCES MEASURABLE, LONG-LASTING, ANTI-INFLAMMATORY IMMUNE EFFECTS IN PATIENTS WITH ADVANCED MS</b>
<b>04 //</b> -	<b>RELIEVE SYMPTOMS</b>		
<b>05 //</b> -	<b>PREVENT DISABILITY ARISING FROM DISEASE PROGRESSION</b>	<b>04 //</b> -	<b>IS SAFE TO USE</b>
<b>06 //</b> -	<b>PROMOTE TISSUE REPAIR</b>		