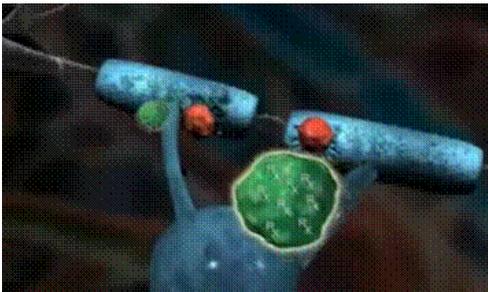


## PEPTIDE-COUPLED TOLERANCE

# De-Sensitizing Rather than Suppressing the Immune System in Multiple Sclerosis

*Creating a more hospitable environment for myelin repair*

Though the cause of Multiple Sclerosis remains a mystery to scientists, MS is one of hundreds of diseases that fall in to the category of autoimmune diseases. In such diseases, T-cells in the body's immune system attack the body's own cells as foreign. These are called self-reactive T-cells. In MS, these T-cells attack the



myelin sheath surrounding the nerves in the brain and spinal cord. This in turn triggers an inflammatory response that causes further damage to the myelin. Damage to the myelin reduces a nerve's ability to conduct electrical signals and, depending on where the damage is in the brain and spinal cord, causes the wide-ranging symptoms of MS.

Most of the approved therapies for Multiple Sclerosis work by suppressing the entire body's immune system to slow or prevent the immune system from attacking. This general or non-specific 'immunosuppression,' has a widespread negative effect on the body's ability to respond to foreign pathogens, leaving the patient unprotected from infections and other diseases.

Rather than suppressing the entire immune system, discoveries made in the MRF labs may lead to a treatment that prevents T-cells from attacking the body's own cells. This method of 'induced tolerance' is called Peptide-Coupled Tolerance or PCT. With PCT, self-reactive immune cells are 'tolerized' to target only those T-cells that are reacting to the proteins in the myelin sheath while retaining the immune system's ability to clear other foreign antigens. This work has been demonstrated in laboratory animals and is currently the subject of a small phase one clinical trial in Hamburg, Germany.

The MRF is undertaking further detailed studies that will potentially demonstrate the effect of this treatment in human patients. It is believed that some method of suppressing or 'tolerizing' the immune system will be necessary for remyelination to take place. Successfully demonstrating this method of 'tolerizing' the immune system could have broad implications for all immunosuppressant diseases.

