

## T-Cell Vaccination Lessens the Effects of Multiple Sclerosis

*Baylor College of Medicine*

Multiple sclerosis (MS) is an unpredictable neurodegenerative disease that exhibits highly variable symptoms, depending on how advanced the disease is and what areas of the central nervous system are being afflicted. Because MS is so variable, it is difficult to prescribe treatment protocols that are effective over the long term. However, researchers at Baylor College of Medicine in Houston have developed an effective therapy that is custom-designed for each patient's unique MS condition.

Jingwu Zang Zhang, M.D., a professor formerly with Baylor's department of neurology, developed a T-cell vaccination approach to fight multiple sclerosis in the late 1990s. T-cells are white blood cells that boost the body's immune response to infection and disease. The research was supported by funding from the Richardson Foundation. A disclosure for "T Cell Vaccination in Multiple Sclerosis" was submitted to the Baylor Licensing Group in 2001. The technology was

licensed shortly thereafter to Opexa Therapeutics, Inc., and is now in phase II clinical trials under the name Tovaxin™.

Tovaxin™ is custom-made for each patient. It consists of irradiated T-cells that are reactive against myelin-basic protein, a key component of the protective sheath that covers nerve fibers. In MS, autoreactive T-cells attack the myelin sheath, resulting in neurological impairment that can range from mild to severely debilitating. Tovaxin stimulates an immune response from the body that specifically fights these autoreactive T-cells.

Tovaxin™ is beneficial to MS patients because it specifically treats the root cause of the disease — T-cells that are attacking myelin sheaths in the brain. Unlike more generalized treatments for MS, such as interferon, Tovaxin™ has fewer side effects, produces more consistent results, and is a highly personalized, patient-specific treatment therapy.

