Novel mechanism of action of new drug for MS identified

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Virginia Commonwealth University researchers have identified a unique mechanism of action of a new drug that shows great promise for the treatment of multiple sclerosis.

The researchers report the unique action of FTY720, or Fingolimod, an immunosuppressant drug that was already known to affect the functioning of the immune system by preventing the egress of white blood cells from the lymph nodes into the blood. The article was pre-published as a First Edition Paper in Blood, The Journal of the American Society of Hematology, which appeared online on Sept. 28.

In this study, the research team observed that FTY720 also inhibited the activity of a key enzyme called cPLA2, which is necessary for the production of inflammatory mediators, known as eicosanoids. Eicosanoids drive inflammatory disorders such as asthma and multiple sclerosis.

According to Sarah Spiegel, Ph.D., professor and chair in the VCU Department of Biochemistry, and lead author on the study, the inhibition of cPLA2 would shut down the entire inflammatory pathway, possibly without the side-effects caused by medications such as Vioxx, that have been withdrawn from the pharmaceutical market.

FTY720, a drug developed by Novartis, has shown considerable therapeutic effects in a recent small, placebo-controlled clinical trial involving patients with relapsing multiple sclerosis. The study was

published in the September 2006 issue of the New England Journal of Medicine by an international research team. With its novel mode of action and the added benefit of an oral formulation, further clinical development of FTY720 might have a major impact on treatment of MS, said Spiegel.

"By clearly understanding the mechanism of action of drugs such as FTY720, we can develop more optimal treatments for inflammatory disease such as asthma or MS. This drug may prevent both inflammation and axonal damage, including demyelination, which are characteristic of MS," said Spiegel.

Source: Virginia Commonwealth University