Fast Forward

General Fund

This project is funded by Fast Forward, LLC, a nonprofit organization established by the National Multiple Sclerosis Society in order to accelerate the development of treatments for MS. Fast Forward connects university-based MS research with private-sector drug development and funds small biotechnology/pharmaceutical companies to develop innovative new MS therapies and repurpose FDA-approved drugs as new treatments for MS.

Primary Investigator	*Project Title*	*Amount to be Committed*
FivePrime Therapeutics, Inc. San Francisco, CA	**FPT069 for Treatment of Multiple Sclerosis: Targeting the Innate Immune System**	$800,000

About the Investigator

FivePrime Therapeutics, Inc. (FivePrime) is a clinical-stage, privately-held company discovering and developing innovative protein and antibody therapeutics. FivePrime is currently in Phase I with FP-1039 for solid tumors. Using its biologics discovery platform, FivePrime is building a product pipeline in oncology, immunology and metabolic diseases. It has built a unique suite of technologies to selectively mine the entire extracellular human proteome – the complete collection of secreted proteins and receptors - for medically relevant therapeutic protein drugs.

Project Background & Goals

Multiple sclerosis involves an immune system attack on the brain and spinal cord. Research on numerous aspects of this attack have already led to the development and approval of disease-modifying treatments that are somewhat effective. FivePrime is investigating a role in MS for the "innate immune system" – cells and molecules that provide the immediate response to infection. Evidence exists that cells of the innate immune system – such as macrophages, microglia, and dendritic cells – also contribute substantially to MS, possibly in the progressive forms of MS for which there are few treatment options.

FivePrime recently discovered interleukin 34 (IL-34), a novel immune cell communication protein, and its docking site (colony stimulating factor 1 receptor, or CSF-1R), and showed that these factors regulate many stages of activity of several innate immune system cells. The company has developed a compound that neutralizes both IL-34 and CSF-1 and shown that it is efficacious in mice with an MS-like disease. The goal of this research plan is to accelerate the development of this compound as a potential treatment of MS, by 1) studying its effects further in mouse models of MS, 2) determining its specific mechanism of action, and 3) establishing markers (genes, proteins, or cells that are altered by this compound) for determining its effectiveness.

FivePrime hopes to proceed to early clinical trials of this compound in 2011, making these studies crucial to bringing a novel immune-related strategy into the pipeline for people with MS.