

Long Acting Beta Interferon for Treating Multiple Sclerosis

Grant R44NS040205 (Phase II continuing) | Period of support: 09/2008 – 08/2010

Challenge/Problem:

Recombinant beta interferon is used to treat patients with MS, which affects an estimated 400,000 people in the U.S. Patients are treated by thrice weekly subcutaneous injections due to its short half-life. A longer acting beta interferon may provide patients with superior therapeutic benefits, including a more convenient dosing schedule.

Current/Near Term Products:

We have long-acting analogs of several proteins under development; GH, EPO, G-CSF, GM-CSF, IFN- α , IFN- β , IFN- γ , IL-11. The development of each protein has been supported by one or more SBIR grants.

Approach:

We create novel IFN- β analogs through site specific chemical modification of the protein with polyethylene glycol (PEG). We introduce an unpaired cysteine residue into the protein by site-directed mutagenesis followed by modification of the added cysteine residue with a thiol-reactive PEG. The resulting protein has a significantly longer circulating half-life and is much more efficacious than IFN- β at inhibiting growth of human tumor cells in mice.

Future Plans:

The purpose of this grant is to manufacture the polymer-modified IFN- β under GLP conditions and measure the safety profile and pharmacokinetic properties of the protein in GLP animal pharmacology and toxicology studies.

Business Name and Point of Contact:

Bolder BioTechnology, Inc.
George N. Cox Ph.D., President

Collaboration/Partnering Opportunities:

We are interested in co-development and licensing arrangements for our products. These arrangements can occur at any point up the value chain with or without revenue sharing.

Keywords: protein, PEG, long-acting, interferon beta, multiple sclerosis