



Immune Disease Institute

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**CORVUS – METHOD FOR DRUG DELIVERY ACROSS
THE BLOOD-BRAIN BARRIER AND NEURONAL CELL
TRANSFECTION REAGENTS**

Key Words: Blood-Brain Barrier, Drug Targeting, Drug Delivery, CNS, Neurodegenerative, Brain Cancer, Neuroprotectant, Neuronal Transfectant

Application: The technology provides a proprietary method to cross the blood-brain barrier and, enabling delivery for small-molecule, peptides, antibodies, DNA for gene-therapy, siRNA, shRNA and imaging agents. In addition, this technology includes a reagent allowing for neuronal cell transfection.

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Invention Summary:

Delivery of therapeutic compounds to the CNS has been long complicated by the presence of the blood-brain barrier (BBB). The brain capillary endothelial cells form extremely tight junctions limiting entry to the brain of molecules >400 daltons. Previous methods of BBB delivery have been poorly effective and they also allow the non-specific entry of potentially brain-toxic molecules. Direct injection results in poor spread of the therapeutic, thereby confining delivery to a small area near the site of injection. Also, the invasiveness of direct injection into the CNS has obvious drawbacks in the marketplace.

The novel delivery method allows for noninvasive, intravenous, transvascular delivery of compounds to the brain of molecules with sizes larger than previously thought possible. This delivery method can also significantly increase the delivered amount and therapeutic effectiveness of compounds that are known to cross the blood brain barrier. Delivery will spread evenly reaching distant areas of the CNS. For these reasons, utilizing this method will expand the market potential of established development programs and rescue abandoned development programs.

Applies to all major therapeutic classes including small molecules, siRNA, shRNA, antibodies, proteins, DNA for gene therapy and other biologics.

Enabling Therapeutics For:

Neurodegenerative diseases:

Alzheimer's disease, Parkinson's disease, Huntington's disease and Multiple Sclerosis

Psychiatric illness:

Anxiety, depression, schizophrenia, and sleep disorders

Amyotrophic Lateral Sclerosis (Lou Gehrig's Disease)



Non-Confidential Disclosure

Seizure disorders
Chemotherapeutics
Stroke and other cerebrovascular disorders
Encephalitis and Meningitis
Disorders of memory/cognition
Pain therapeutics
Physical trauma and CNS injury treatments

Publications: *Transvascular Delivery of Small Interfering RNA to the Central Nervous System, Nature*, 2007, 2007 Jul 5;448(7149):39-43. Epub 2007 Jun 17.

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