Intranasal therapeutic for pathological edema

Technology #cu12117

Edema, or tissue swelling, is a major cause of morbidity and mortality, and is common to a variety of disease states, including stroke, cardiac ischemia, and head or spinal trauma. Morbidities associated with edema include damage to neurological function and tissue necrosis. Despite extensive research to develop effective neuroprotective strategies, there are currently no viable treatments to abrogate edema. This technology describes a protein biologic that is delivered intranasally and is capable of reducing edema, minimizing damage associated with tissue swelling. This compound may represent a therapeutic strategy for the treatment of stroke and other diseases characterized by pathological edema.

Cell-permeant caspase-9 inhibitor reduces edema and improves neurological function

This technology utilizes a cell membrane-penetrating protein for inhibition of caspase-9, an apoptosis-related protein, which may play a role in neurodegeneration. By targeting caspase-9, this compound is capable of specifically blocking the processes that lead to edema, rather than producing a non-specific change in osmolality. This results in functional neuroprotection without causing systemic side effects. Additionally, this compound can be delivered to the brain rapidly through the nasal passage, minimizing the neurodegenerative effects of edema.

The efficacy of this compound in reducing edema and protecting neural function has been tested in a rodent model of stroke.

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Applications:

- Therapeutic treatment of edema caused by diseases such as stroke, cardiac ischemia, and head or spinal trauma
• Therapeutic delivery strategy for reducing tissue damage and loss of neural function associated with neurodegenerative disorders, including Alzheimer’s disease and Parkinson’s disease
• Therapeutic for pregnant mothers with pathological edema
• Therapeutic for bed-ridden patients to reduce pathological tissue swelling due to inactivity

**Advantages:**

• Specifically inhibits the processes that lead to edema, rather than producing a non-specific change in osmolality
• Can be delivered intranasally for rapid uptake by the brain
• Reduced likelihood of systemic side effects associated with other drug delivery methods
• Intranasal delivery allows for use of smaller doses of therapeutic than other delivery methods

**Patent Information:**

Patent Pending ([WO/2012/024260](WO/2012/024260))

Patent Pending ([WO/2013/036840](WO/2013/036840))

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**Related Publications:**


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