LUMINO Alzheimer’s Disease Therapeutic Device

**Background:**
In the US, there are 5.3 million patients diagnosed with Alzheimer’s disease (AD) and approximately 450,000 new cases are diagnosed each year. AD leads to $172 billion in annual costs and is the 7th leading cause of death within the US. While there are FDA approved therapeutics, these pharmaceuticals only slow the progression of the disease rather than treat it; additionally, the compounds are only effective for a subpopulation of patients that take them. Currently, there are no therapeutic options available to prevent the deterioration of brain cells which causes the cognitive impairment associated with AD. Thus, novel treatment strategies are needed to combat the formation of plaques and tangles thereby limiting neurodegeneration.

**Technology Description:**
Researchers at Washington University have developed a therapeutic device which is able to selectively remove or degrade harmful proteins from cerebrospinal and/or interstitial fluid. The device utilizes bioactive membranes with a protease, which is specific to the target protein, immobilized onto the membrane. The membranes can be customized to remove protein deposits linked to Alzheimer's disease, Parkinson's disease, prion disease, polyglutamine disease, Tauopathy, and Familial amyotrophic lateral sclerosis. Active and passive configurations of the device can be implemented wherein the device is implanted or the fluid is removed and passed through the device.

**Key Advantages:**
- Selectively removes amyloid-β
- Potential to prevent degeneration of brain cells
- Customizable for other protein targets
- Novel treatment similar to an intrathecal pump
- Avoids pharmaceutical side effects

**Patent:** US20140377319A1

**Lead Inventor:**
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<td>Craig Weilbaecher, Ph.D</td>
<td>Alzheimer’s Disease, Parkinson’s Disease, Medical Device, Neurodegeneration</td>
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