DEVELOPING NOVEL DRUG FOR THE EFFECTIVE TREATMENT OF ALZHEIMER’S DISEASE (ALZHYME)

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Introduction: The current treatments for Alzheimer’s disease only target the symptoms, thus there is an urgent need for disease modifying therapies. Through screening methods we have identified small peptide agents that bind human Abeta. Our approach is to neutralize the neurotoxicity exhibited by the beta amyloid protein, which plays a pivotal role in AD.

Materials and methods: The lead peptide MP2 was assessed in their ability to reduce neuronal cell toxicity, remain stable in pharmacokinetic experiments, reduce amyloid deposition in an animal model by MTS assay, radiolabelling and immunohistochemical analysis respectively.

Results: MP2 attenuated Ab toxicity by improving the viability of neuronal cells treated with Ab. It also reduced amyloid deposition in mouse brain as direct administration of MP2 to the brains of transgenic mice led to a reduction in amyloid deposits in a number of areas of the brain. Immunohistochemical analysis revealed that it reduced Aβ42/Aβ40 in mice brain.

Conclusion: We have developed a peptide that in initial validation experiments reduced Ab induced neurotoxicity and amyloid deposition in vivo. Further modification and validation is required so that the peptides are more amenable to drug design and can be delivered efficiently. The peptide is also being modified and assessed for its ability to bind Ab and possibly have a role as a possible in vivo imaging agent.

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