



# Effect of Curcumin on A $\beta$ -42 Interaction with and Disruption of Lipid Membrane

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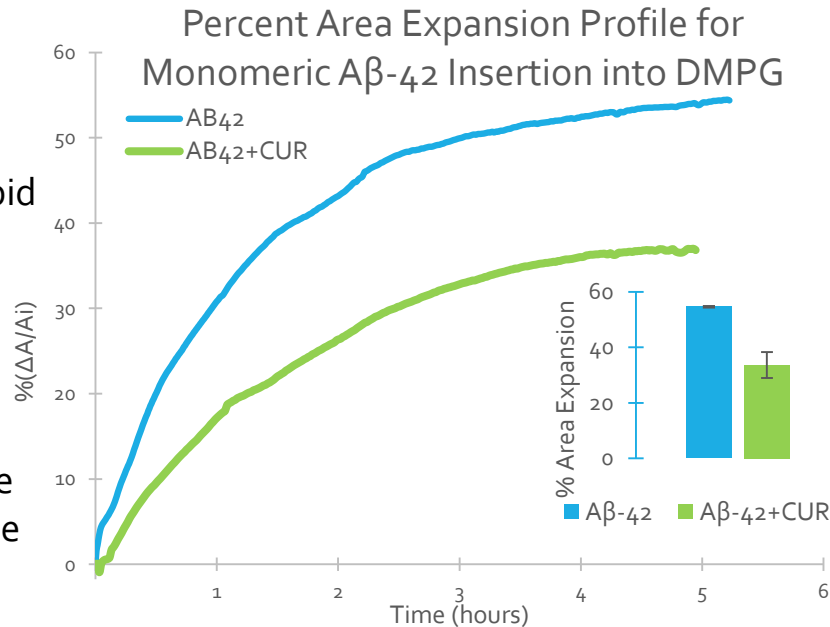


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**Problem:** Alzheimer's Disease (AD) is the leading cause of dementia, and is caused by toxic amyloid beta (A $\beta$ ) protein aggregates. These aggregates cause neuronal death in AD patients. Currently, there is no cure for AD.

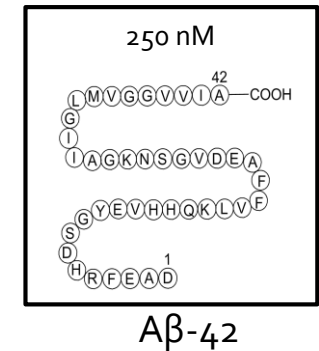
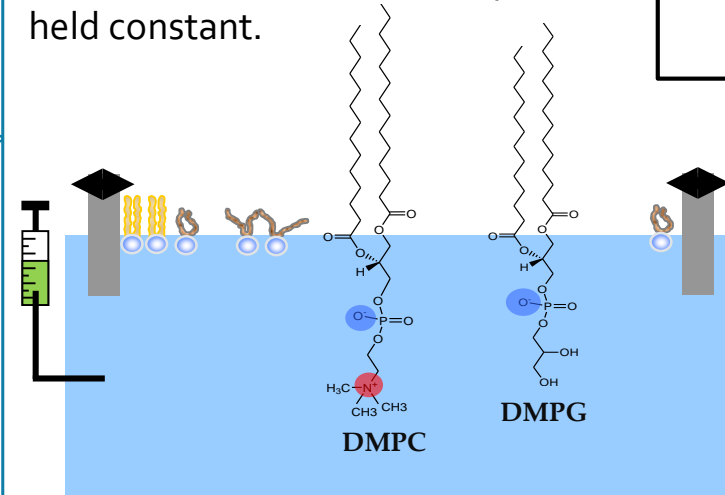
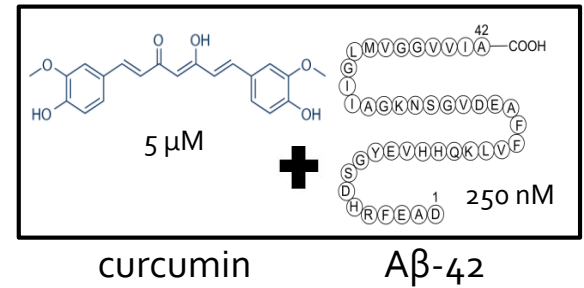
**Goal:** Observe the effect of curcumin, a neuroprotective polyphenolic molecule, on the interaction between amyloid beta (A $\beta$ -42), and different lipid membranes.

**Results:** Curcumin lowered the interaction between A $\beta$ -42 and several lipid membranes-anionic DMPG and zwitterionic DMPC. This bodes well for curcumin's use as a possible preventative measure for AD in the future.



**Methods:** A Langmuir Blodgett trough was used to observe the interaction between A $\beta$ -42 and several lipid membranes. Relative area expansion was monitored with surface pressure held constant.

**Injection Conditions:**



**Future Work:** Perform membrane interaction tests with aggregate form of A $\beta$ -42. Perform dye-leakage tests with vesicles to determine if curcumin is able to protect cell membranes from disruption as well as interaction.