Supporting Information: Amyloid β-protein: Aβ40 Inhibits Aβ42 Oligomerization

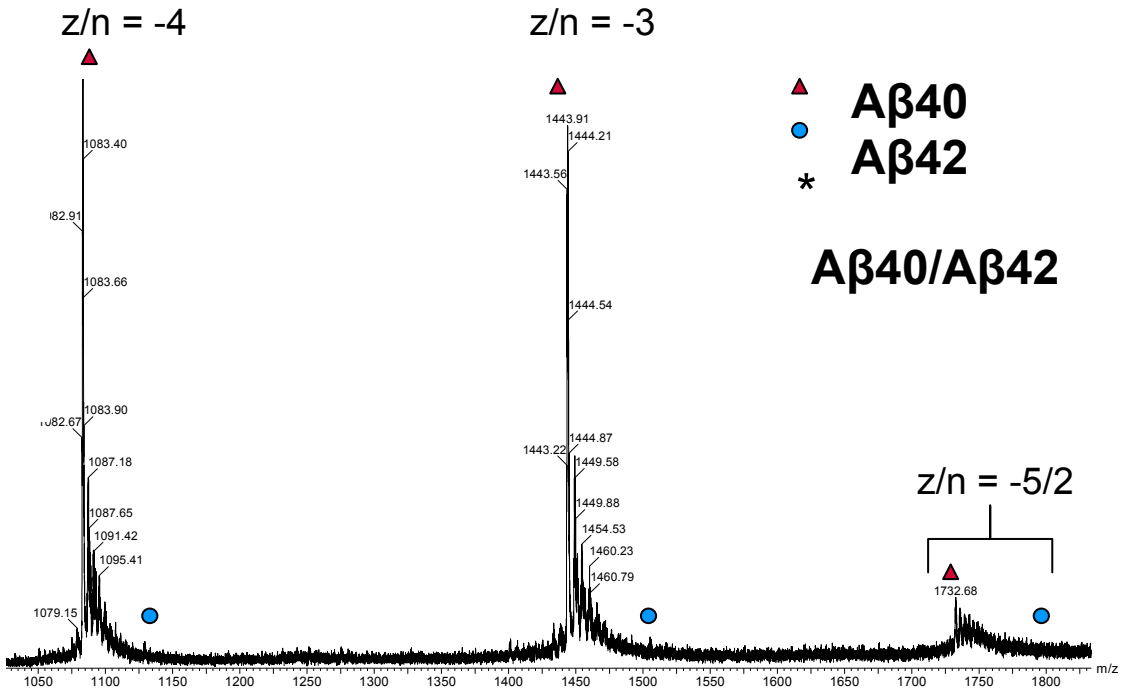
In the text, a mass spectrum for a 1:1 mixture of Aβ40:Aβ42 is given along with ATDs of the z/n= -5/2 peaks for 1:0, 1:1, and 0:1 mixtures. Here we present mass spectra for 5:1 (Figure S1) and 1:2 Figure S2) Aβ40:Aβ42 mixtures. We also present the ATD for the z/n=-5/2 peaks in the 1:2 system at several injection energies.

In the 5:1 Aβ40:Aβ42 spectrum the Aβ42 peaks were barely detectible and reliable ATDs could not be obtained. This is not surprising given the 1:1 mixture results in the text where aggregation significantly reduced the Aβ42 signal.

In the 1:2 Aβ40:Aβ42 mass spectrum the Aβ42 contributions are significant but still less than Aβ40 due to aggregation. The z/n = -5/2 peak intensities are closer to the statistical 1:2:1 expected if Aβ40 and Aβ42 oligomerized at the same rate. A comparison of intensities for the 1:1 and 1:2 mixtures is given in Table S1.

The ATD for the mixed Aβ40:Aβ42 z/n = -5/2 peak shows two unresolved features. By doing injection energies studies, we see the peak shift to larger times at higher energies where more dimer contributes (due to dissociation of the tetramer). At low injection energies, the tetramer dominates as the peak shifts to shorter arrival times. (For a thorough discussion of injection energy effects in Aβ see reference 13 in the main text). The important point is that only dimers and tetramers are observed in the mixed Aβ40:Aβ42 -5/2 ATD.

Fig S1 Mass spectrum of a Aβ40:Aβ42 mixture of 5:1. Note how weak the Aβ42 peaks are.



m/z

Fig S2 Mass Spectrum of a Aβ40:Aβ42 mixture of 1:2

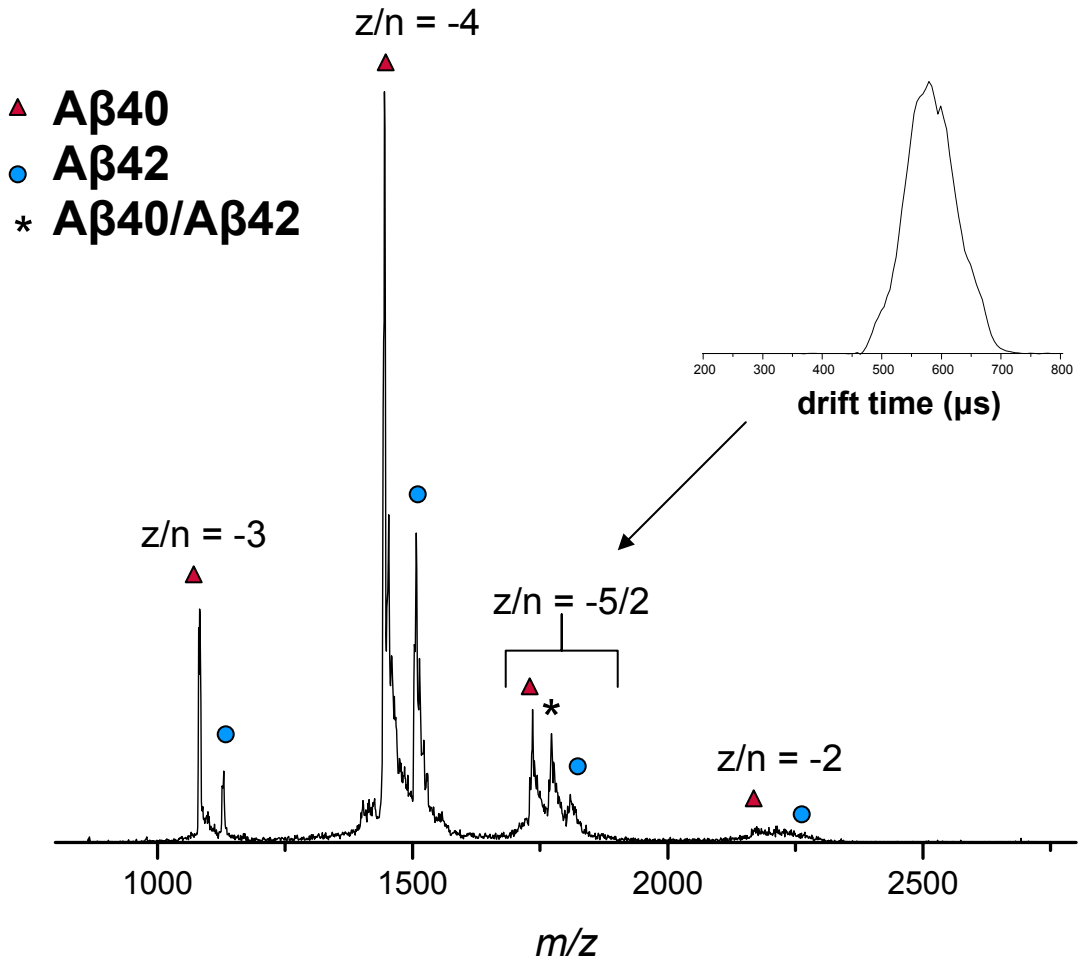


Fig S3 Injection energy dependence of the Aβ40: Aβ42 mixed oligomer for z/n = -5/2

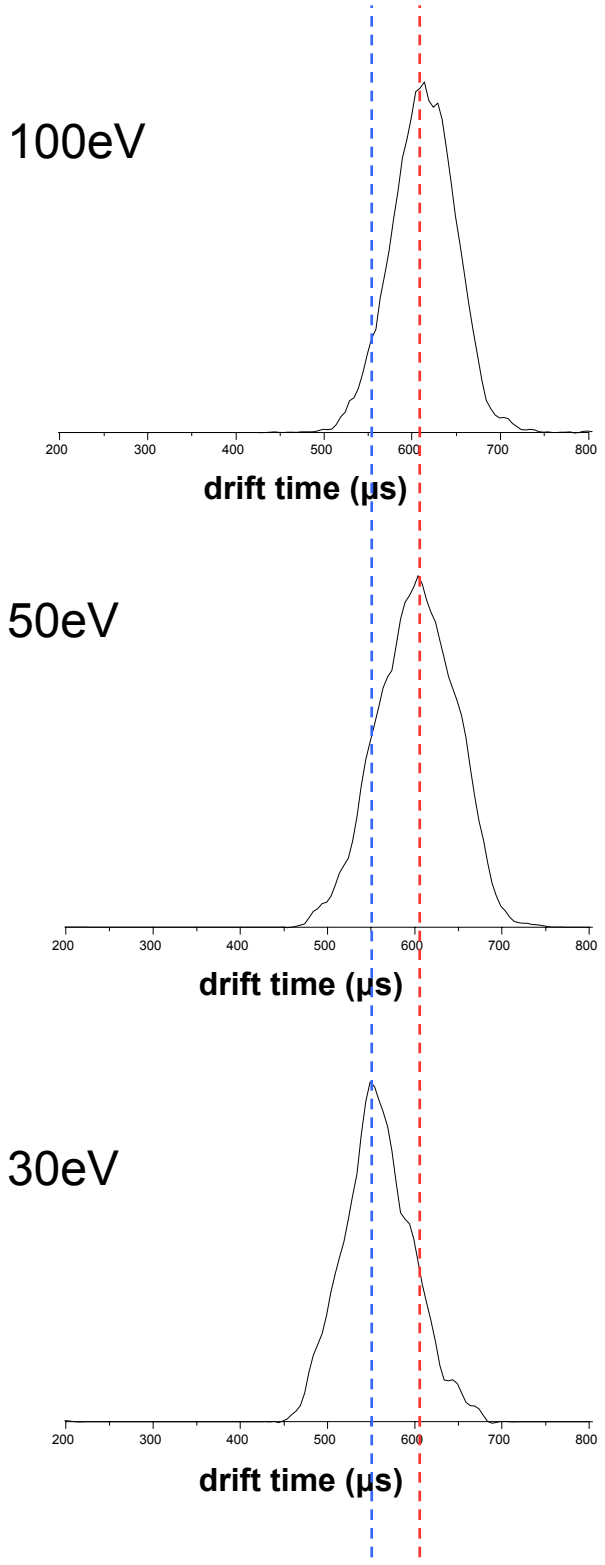


Table S1

Aβ40:Aβ42	z/n = -4	z/n = -3	z/n = -5/2[a]		
			Aβ40	Aβ40:Aβ42	Aβ42
1:1	10.66	7.15	1	0.33	0.09
1:2	3.45	2.37	1	0.89	0.33

[a]40 is the pure Aβ40 peak, 40/42 is the mixed Aβ40/Aβ42 peak and 42 is the pure Aβ42 peak.