# Supplementary Material for

# Understanding the Molecular Basis for the Inhibition of the Alzheimer's Aβ-Peptide Oligomerization by Transferrin using Saturation Transfer Difference and Off-Resonance Relaxation NMR Spectroscopy

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**Supplementary Figure Captions**

**Figure S1**: *Tf does not significantly bind monomeric Aβ(12-28) under our experimental conditions*. 1D WG-NMR spectra of filtered 125 μM Aβ (12-28) before (A) and after (B) the addition of 65 μM Tf. A spin-lock is included in the pulse sequence prior to acquisition in order to suppress most of the Tf signal. The asterisks label the peaks of Tf that were not suppressed by the spin-lock. No significant differences are observed between the chemical shifts, intensities or line-widths of the spectra in panels A and B, indicating that under our experimental conditions Tf does not significantly bind monomeric Aβ (12-28). These data were acquired at 293 K and at 700-MHz using a Bruker TCI-Z cryoprobe. The horizontal axis reports the $^{1}$H chemical shift in ppm.

**Figure S2**: *Tf binds oligomeric Aβ(12-28) under our experimental conditions*. 1D WG-NMR spectra of filtered 650 μM Aβ (12-28) before (A) and after (B) addition of 60 mM NaCl, which promotes Aβ (12-28) self-association through electrostatic screening. (C) As panel (B) but after the addition of 10 μM Tf. The lower intensity of signals in panel (C) relative to those in panel (A) points to Tf binding Aβ (12-28) oligomers. These spectra were acquired at 293 K and at 700 MHz using a Bruker TCI cryoprobe. The horizontal axis reports the $^{1}$H chemical shift in ppm.

**Figure S3**: *Full size expansion of the spectra show in Fig. 1a-c.* The horizontal axis reports the $^{1}$H chemical shift in ppm.

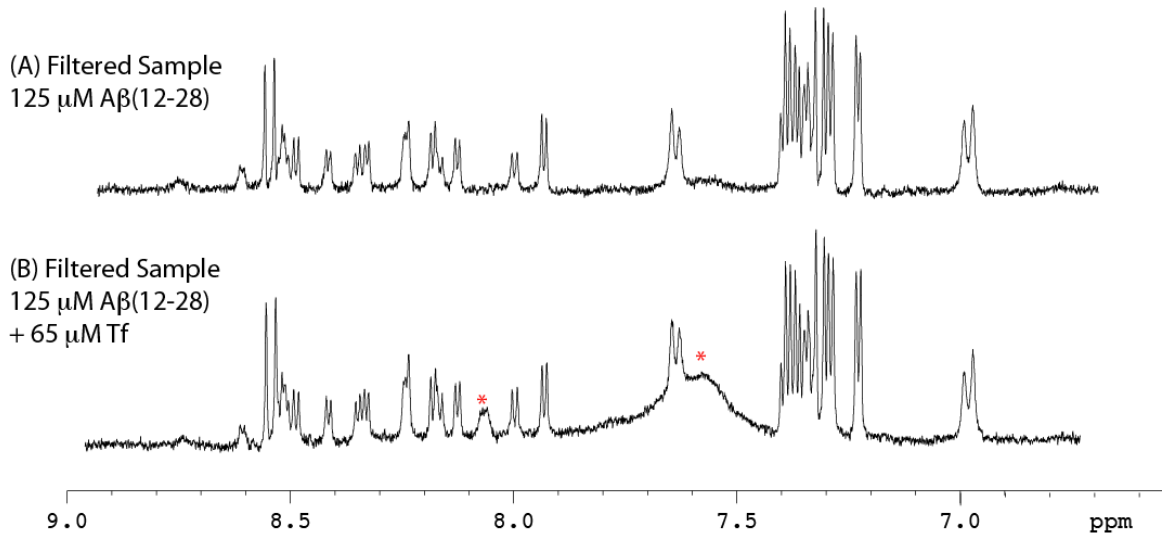
(A) Filtered Sample
125 μM Aβ(12-28)
(B) Filtered Sample
125 μM Aβ(12-28)
+ 65 μM Tf
*
*
9.0
8.5
8.0
7.5
7.0
ppm

**Figure S1**

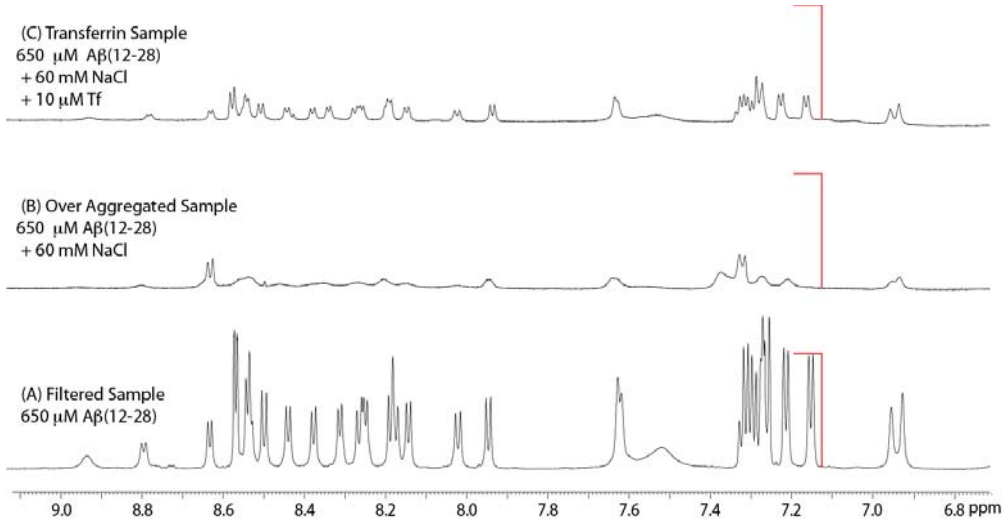
(C) Transferrin Sample
650 μM Aβ(12-28)
+ 60 mM NaCl
+ 10 μM Tf
(B) Over Aggregated Sample
650 μM Aβ(12-28)
+ 60 mM NaCl
(A) Filtered Sample
650 μM Aβ(12-28)
9.0
8.8
8.6
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
6.8 ppm

**Figure S2**

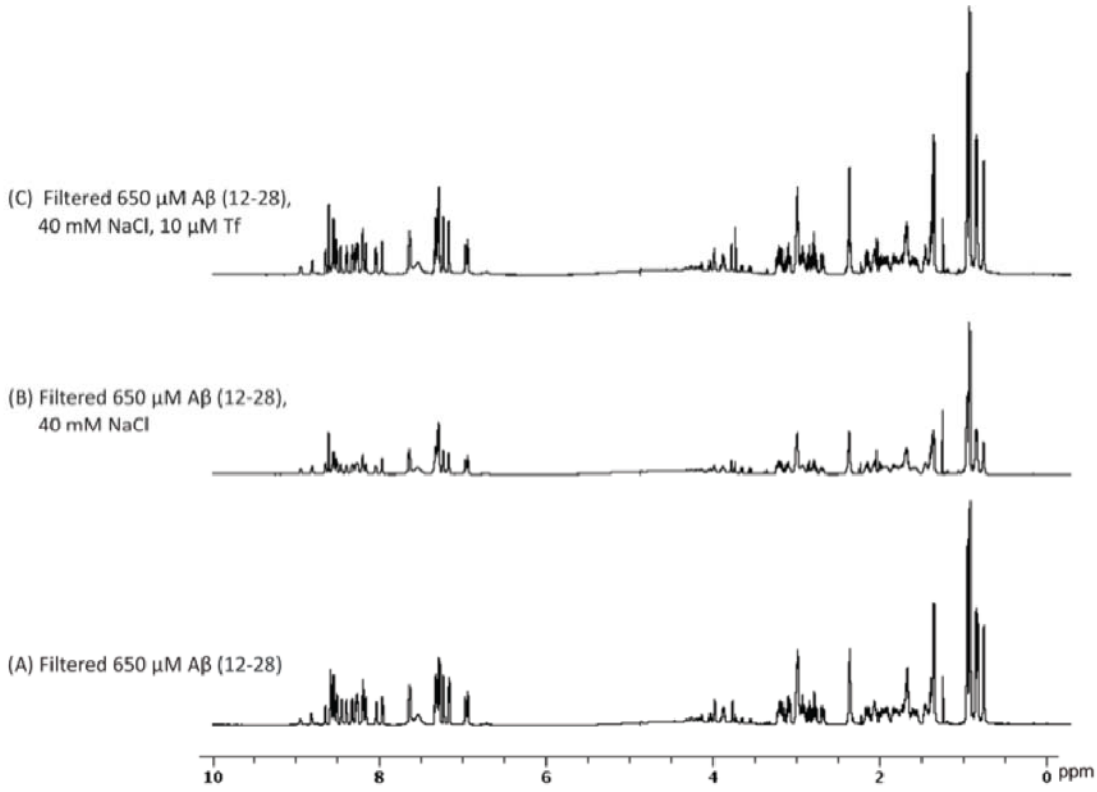
(C) Filtered 650 µM Aβ (12-28),
40 mM NaCl, 10 µM Tf
(B) Filtered 650 µM Aβ (12-28),
40 mM NaCl
(A) Filtered 650 µM Aβ (12-28)
10
8
6
4
2
0
ppm

**Figure S3**