Evidence that the human innate immune peptide LL-37 may be a binding partner of Aβ and inhibitor of fibril assembly: SUPPORTING INFORMATION

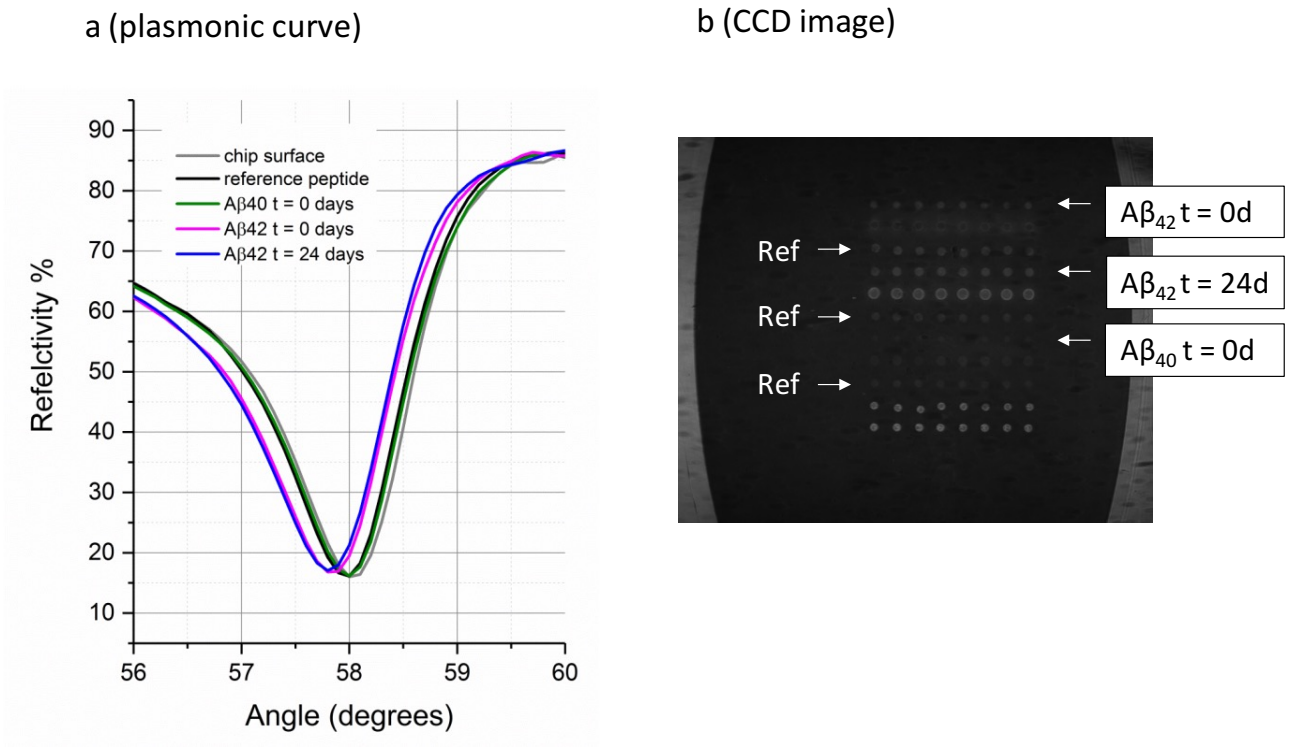

Figure Supp. 1: a) Plasmonic curves acquired before the injection of LL-37 peptide. The shift between these curves is related to the amount of molecules immobilized on the SPRi chip surface. In particular, the plasmonic curves related to both $A\beta_{40}$ (t = 0 days) and $A\beta_{42}$ (t = 24 days) show a significant shift from that related to $A\beta_{40}$ solubilized in PBS (t = 0) and from that of the reference peptide (negative) and to the chip (no molecules adsorbed); b) CCD image of the chip surface, the size of spots measured directly by this type of images was around 190 μm. The spots used in this study are described in the figure.

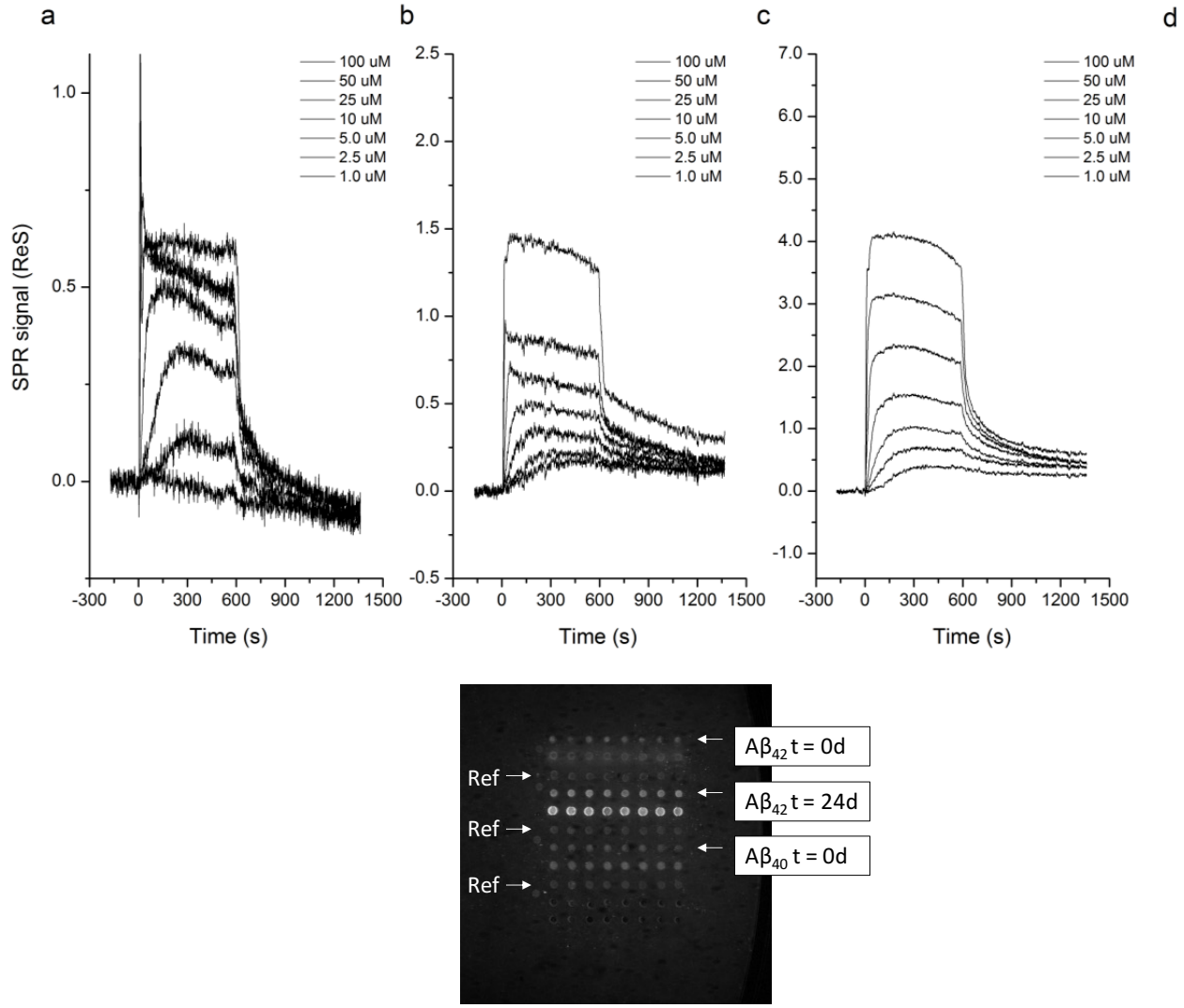

Figure Supp. 2: Reference-corrected responses related to seven dilutions of LL-37 injected on the SPRi-chip functionalized with **a**) Aβ(1–40) solubilized in PBS; **b**) Aβ(1–42) t = 0 days and **c**) Aβ(1–42) t = 24 days, used to calculate the equilibrium binding constants (K_D) in Figure 2. All the responses reached the equilibrium (plateau) before the end of the injection (500 s); **d**) CCD differential image of the SPRi-biochip during the late association phase (500 s) of LL-37 injected at concentration 25 µM. "Ref" is the reference peptide used as negative control on the chip surface.

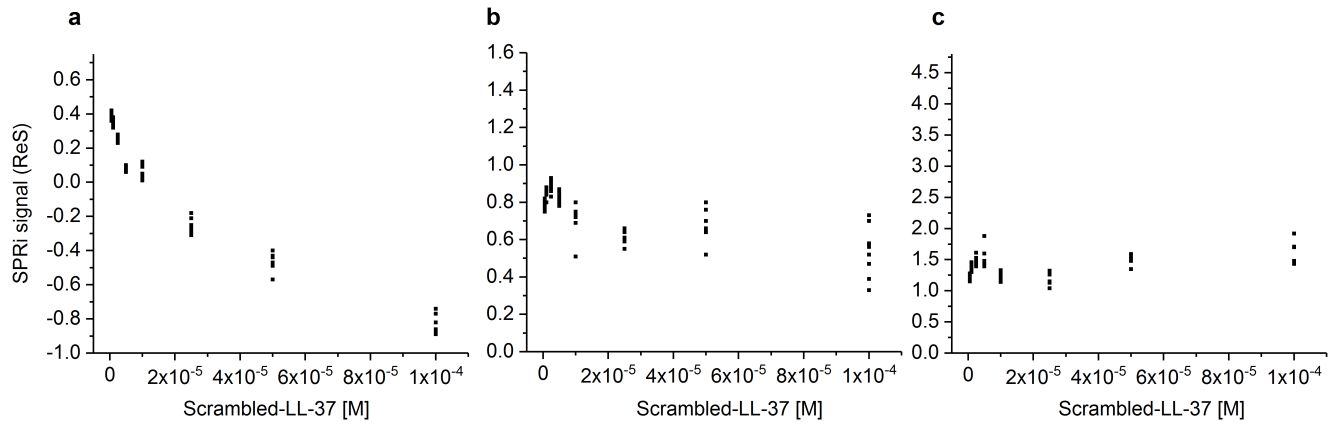

Figure Supp. 3: Equilibrium-binding analysis of the control scrambled LL-37 peptide, performed by surface plasmon resonance imaging (SPRi) using the same procedures and conditions used to study LL-37 (compare with Fig.2, bottom). The SPRi-chip was functionalized with Aβ40 (t = 0 days) (**a**); Aβ42 (t = 0 days) (**b**) and Aβ42 (t = 24 days) (**c**). The equilibrium binding constants and the fitting curves could not be calculated, due to the irregular and negative dose-response trend.

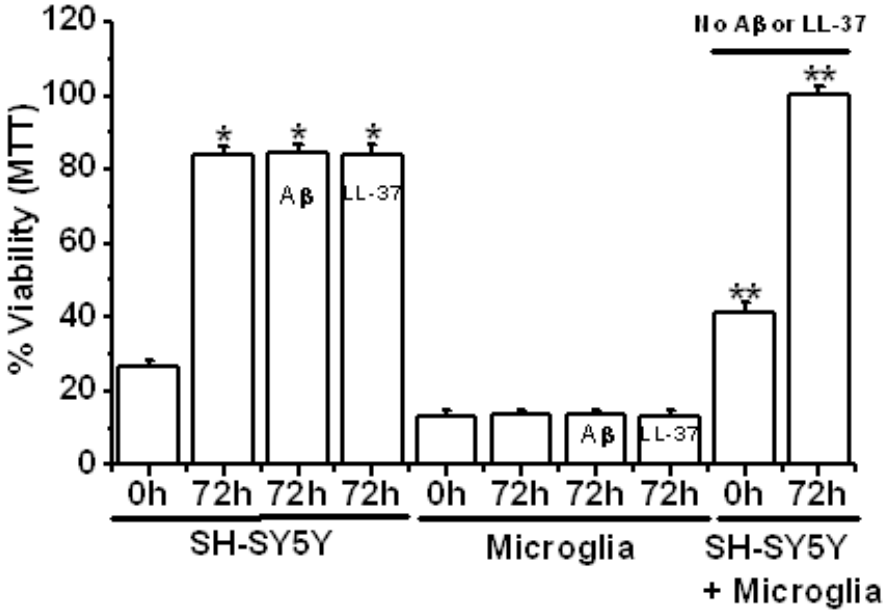

Figure Supp. 4: A) SH-SY5Y, Microglia and SH-SY5Y/Microglia viability changes induced by Aβ peptide and LL-37 peptide (30 μM each). Reductions in numbers of live cells are indicated by the MTT assay. Values are mean±SEM, n=4. One-way ANOVA was carried out to test significance. Multiple group comparisons were followed by a post-hoc Bonferroni test where necessary. * $P<0.01$ for cells in 72 h compared with the ones in 0 h and ** $P<0.01$ for SH-SY5Y plus microglia without Aβ or LL-37 peptides group compared with SH-SY5Y cells or microglial cells in the same incubation time. Note that the cell viability of SH-SY5Y and microglia co-culture is nearly equal to the sum of two cell culture group in 72 h, and that treatment with Aβ or LL-37 did not change viability of either cell type over the course of 72 h.