Electronic Supplementary Information (ESI)

Citrate-stabilized Gold Nanoparticles hinder fibrillogenesis of a pathologic variant of β_2-microglobulin

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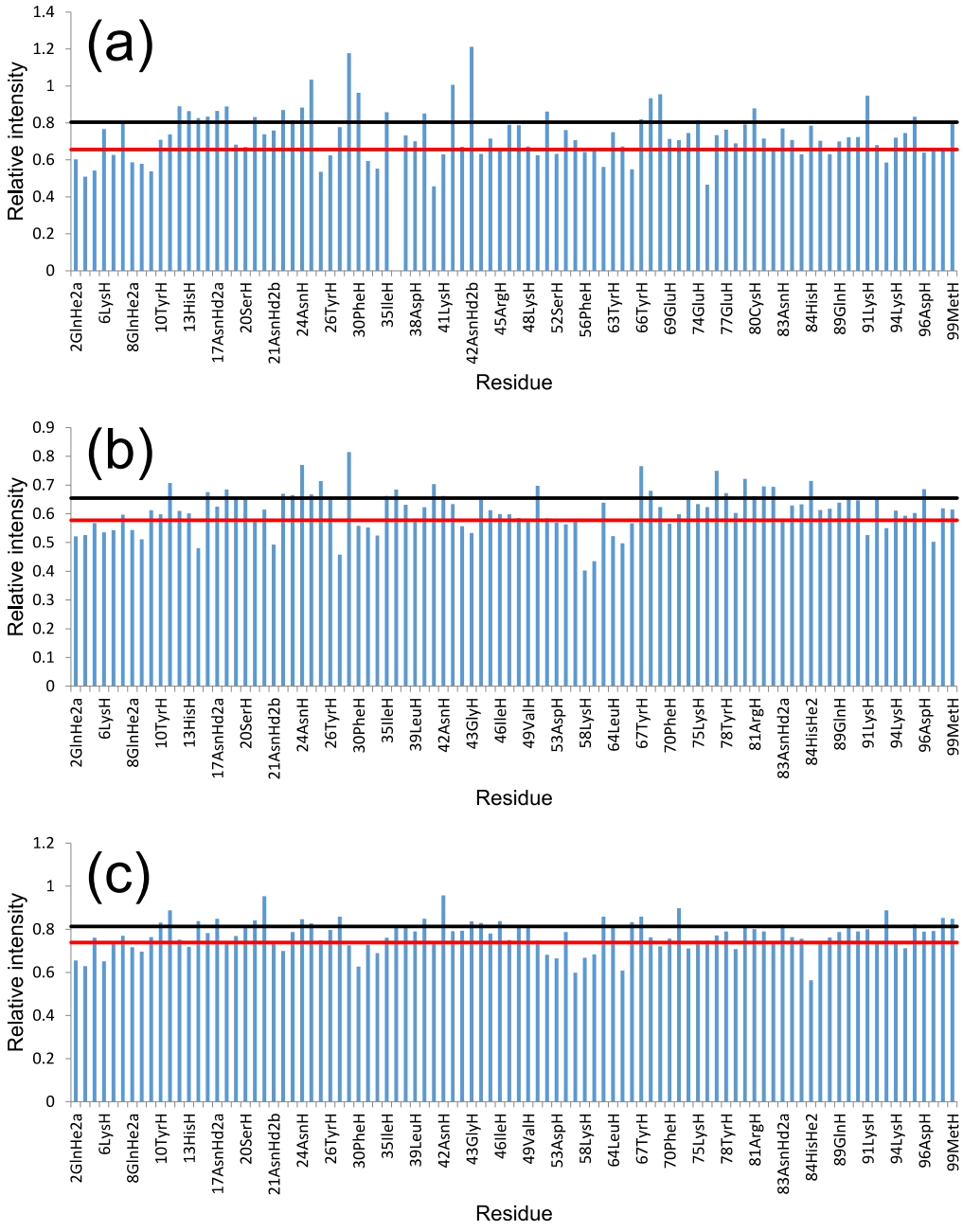

Fig. S1 Bar plots of individual peak attenuations calculated as intensity ratios of the corresponding signals in the HSQC spectra of D76N β2m with and without Cit-AuNPs at protein/NP ratio of 53 (a), 107 (b) and 213 (c). The two horizontal lines indicate the standard deviation levels above and below the average attenuation.

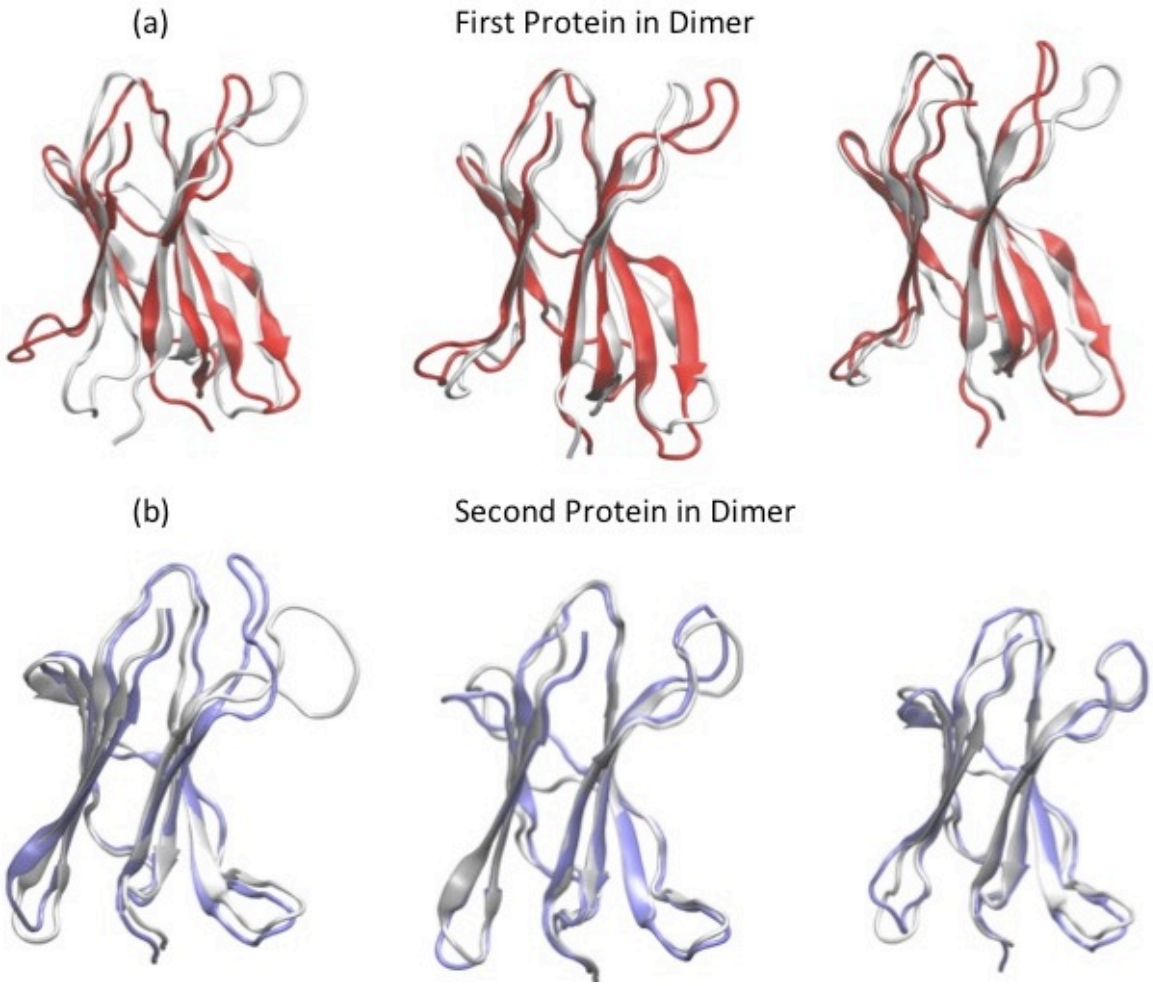

Fig. S2 Principal Component analysis: first three dominant fluctuations of the (a) first D76N β2m monomer in the dimer and (b) second D76N β2m in the same dimer simulated in solvent. The first protein has distortions which correlate AB and DE loop motions which are notably larger than those of the second protein.

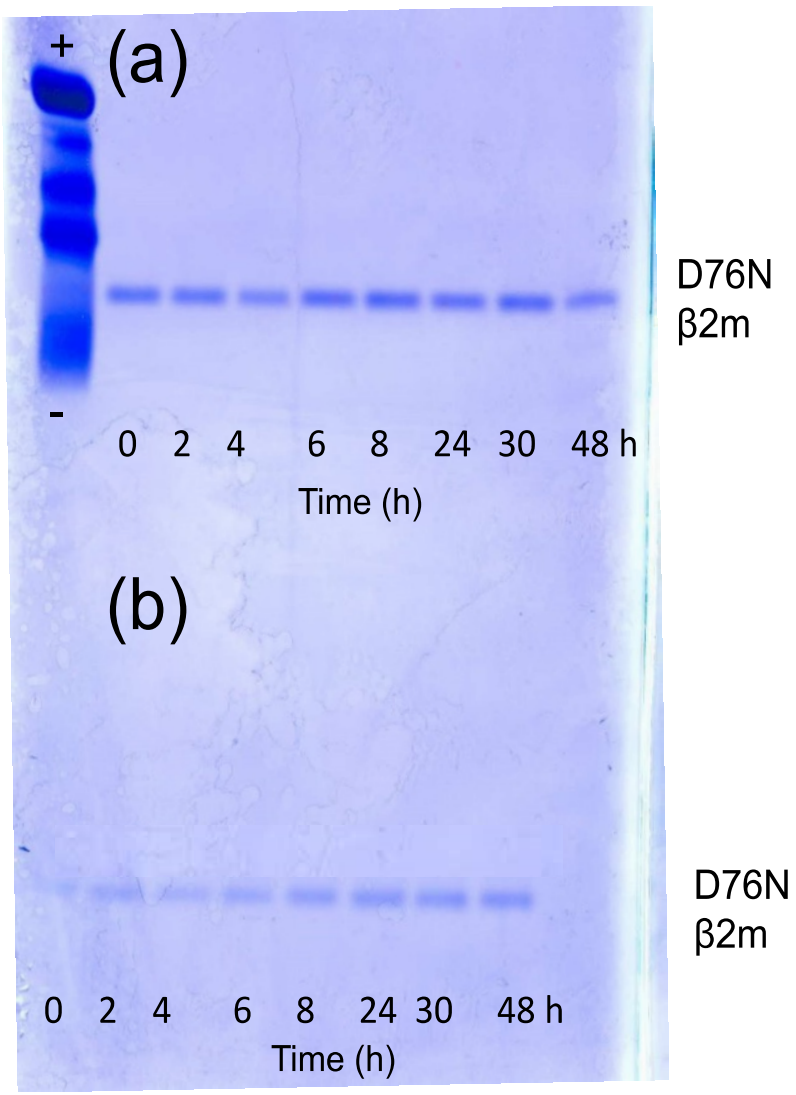

Fig. S3 Native agarose gel electrophoresis of 20 μM D76N β2m in non-fibrillogenic conditions (a) without Cit-AuNPs and (b) with Cit-AuNPs, at different incubation times. The loss of protein in presence of Cit-AuNPs can be observed also in non-fibrillogenic conditions: the amount of free protein is lower if it is incubated with Cit-AuNPs (b) with respect to the control (a). In addition, the second species detected in presence of Cit-AuNPs when the protein is exposed to fibrillogenic conditions (see Fig. 10b in the main text) is absent.

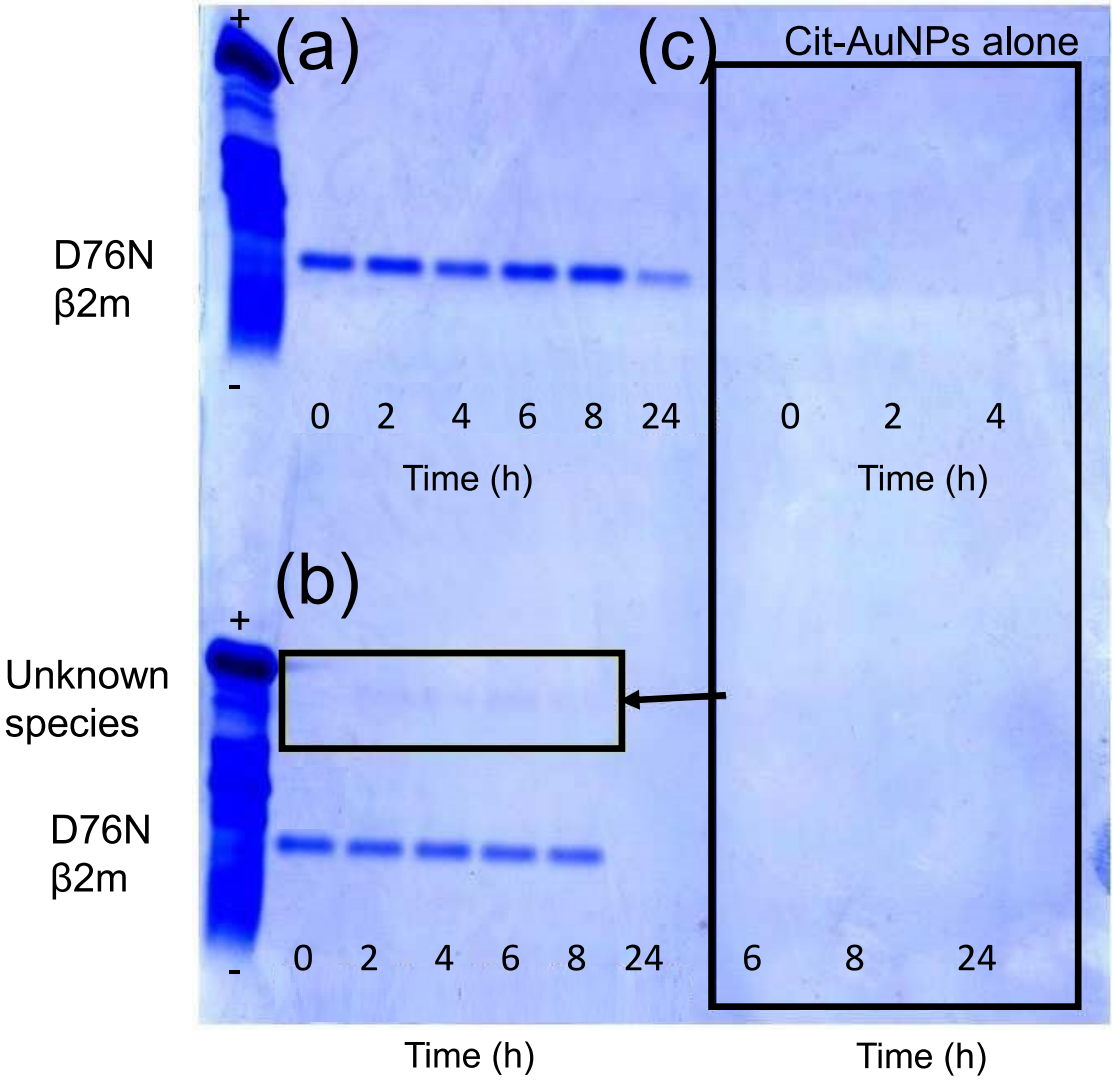

Fig. S4 Native agarose gel electrophoresis of 20 µM D76N β2m incubated under fibrillogenic conditions (a) without Cit-AuNPs and (b) with Cit-AuNPs, at different incubation times (the black box indicates the unknown species that was invariably observed in the presence of Cit-AuNPs). In (c) only Cit-AuNPs were loaded on the gel as a control of the absence of any staining due to Cit-AuNPs.

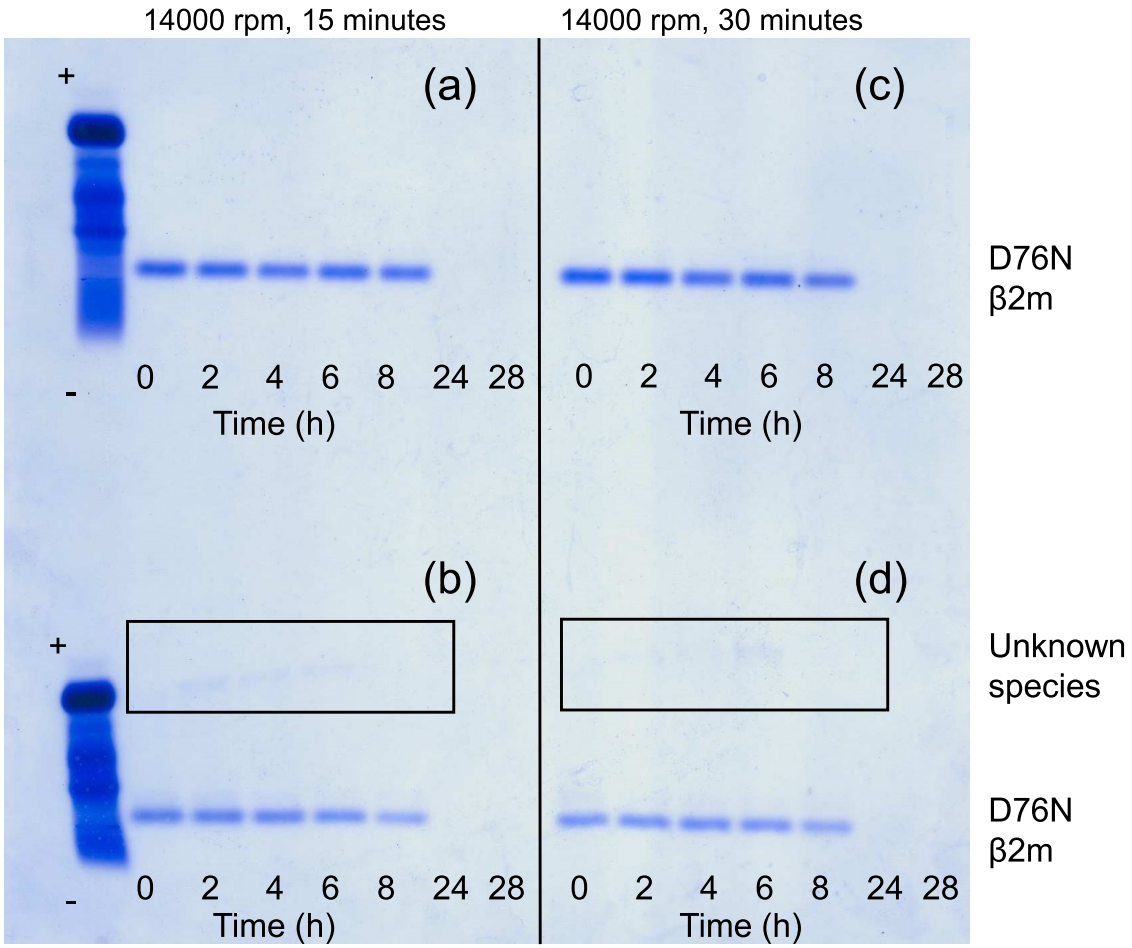

Fig. S5 Native agarose gel electrophoresis of 20 µM D76N β2m incubated under fibrillogenic conditions: (a) and (c) without Cit-AuNPs and (b) and (d) with Cit-AuNPs. The gels reported in (c) and (d) were run after long centrifugation (14000 rpm, 30 minutes) that ensures complete precipitation of Cit-AuNPs, as checked by UV-Vis. Even in (d) the presence of the unknown species (boxed in black) is noticeable, confirming the absence of nanoparticles in this species.