Supporting Information

A Ru^{3+}-Functionalized-NMOF Nanozyme as an Inhibitor and Disaggregater for β-Amyloid Aggregates

Wan-Chun Luo[a], Li-Na Bao[a], Yu Zhang[a], Zi-Tong Zhang[a], Xi Li[a], Meng-Meng Pan[a], Jin-Tao Zhang[a], Kun Huang[a,*], Xu Yu[a,*], Li Xu[a,*]

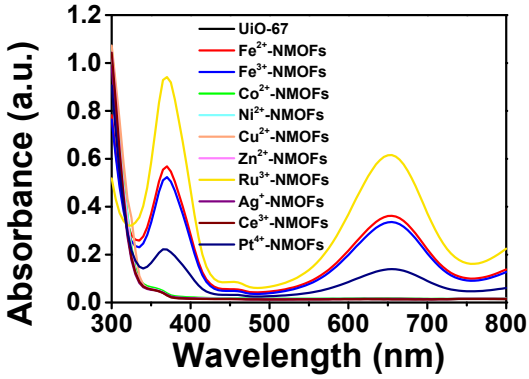

Figure S1. The absorption spectra corresponding to the oxidized TMB generated by a series of M^{n+}-NMOFs with H_2O_2.

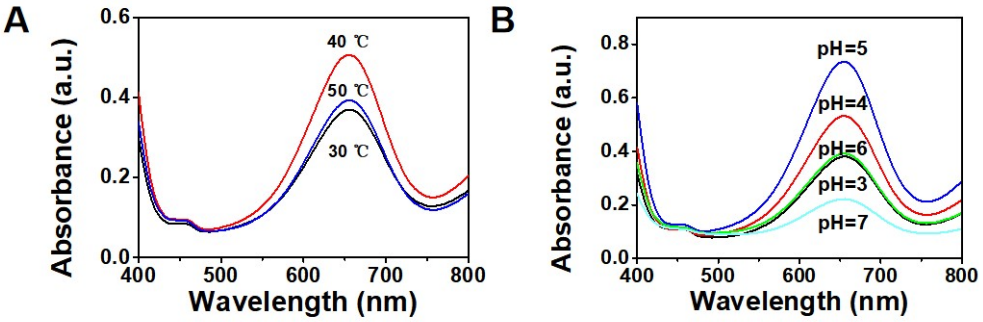

Figure S2. (A) The absorbance of TMB in the presence of Ru^{3+}-NMOF + H_2O_2 at 30, 40 and 50 ℃. (B) The absorbance of TMB in the presence of Ru^{3+}-NMOF + H_2O_2 in HAcO-NaAcO buffer (50 mM, pH=3-7).

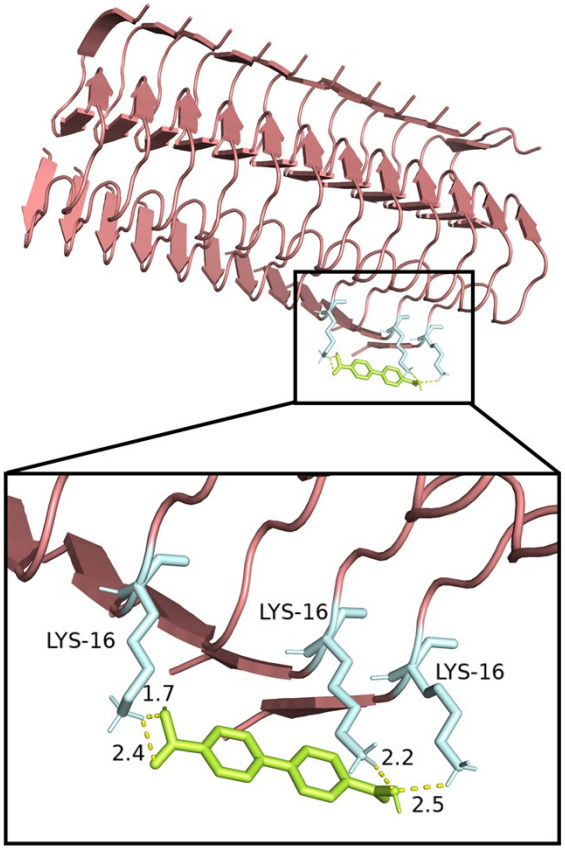

Figure S3. Molecular docking of 2,2'-bipyridyl-4,4'-dicarboxylic acid and Aβ fibril.

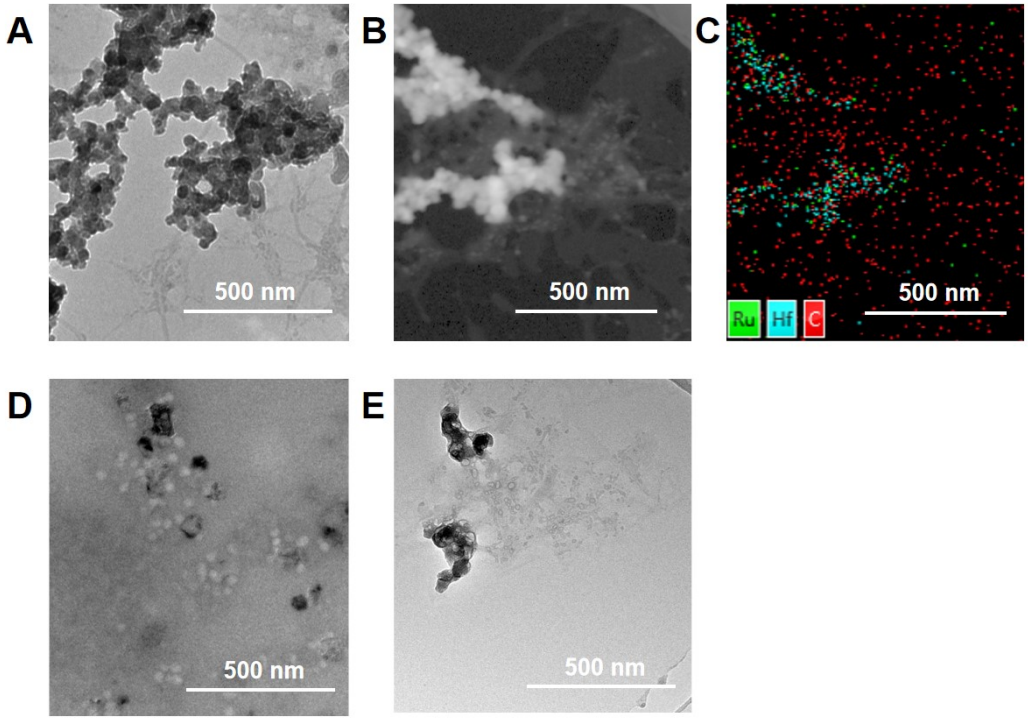

Figure S4. (A) The TEM images of Ru^{3+}-NMOF and Aβ fibrils. (B) TEM dark field of Ru^{3+}-NMOF and Aβ fibrils. (C) The element mapping corresponding to the K-edge signal of Ru^{3+}-NMOF and Aβ fibrils. (D) The TEM images of the product of Ru^{3+}-NMOF and Aβ in the inhibition test. (E) The TEM images of the product of Ru^{3+}-NMOF and Aβ in the disaggregation test.

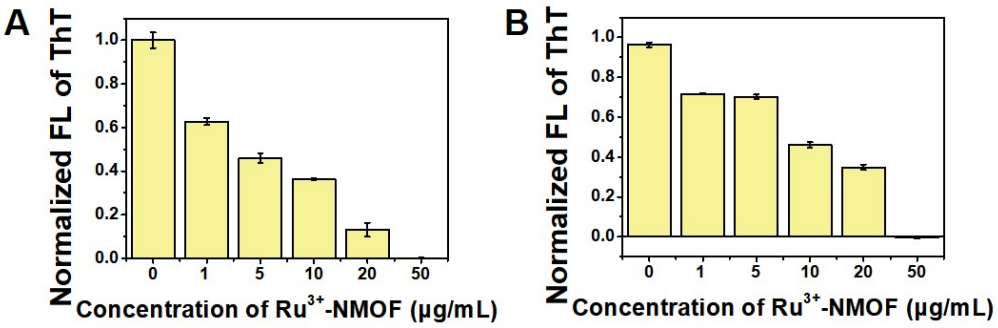

Figure S5. (A) The ThT assay of the final Aβ products in presence of Ru^{3+}-NMOF (1-50 μg/mL) + H_2O_2 (1 mM) in the inhibition test. (B) The ThT assay of Aβ fibrils treated by Ru^{3+}-NMOF (1-50 μg/mL) + H_2O_2 (1 mM) in the disaggregation test.

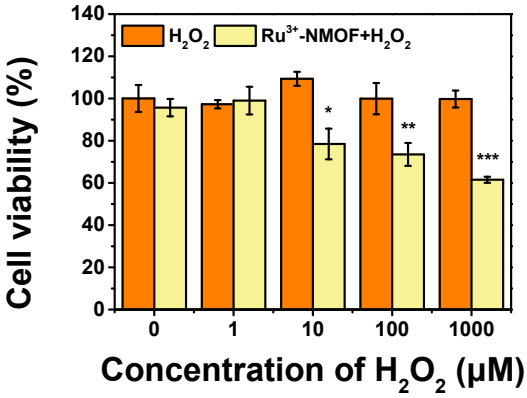

Figure S6. Cell viability in the presence of 1-1000 μM of H_2O_2 with and without 10 μg/mL of Ru^{3+}-NMOF.

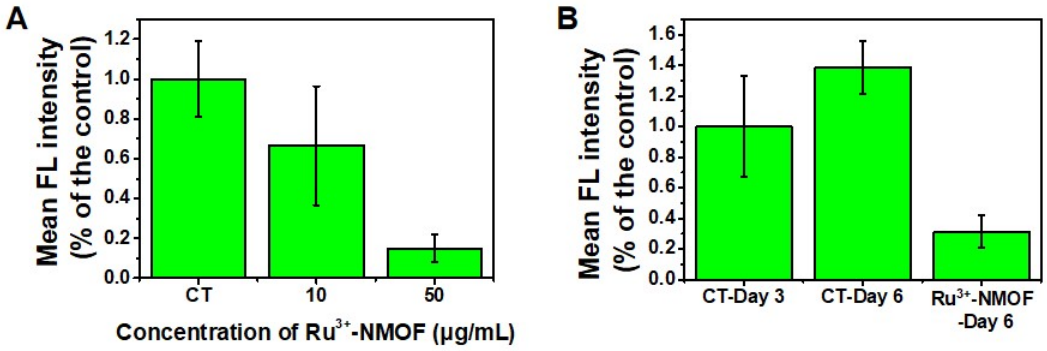

Figure S7. (A) The mean fluorescence intensity of CL2120 treated by Ru^{3+}-NMOF (10 or 50 μg/mL) for inhibiting the aggregation of Aβ. (B) The mean fluorescence intensity of CL2120 treated by Ru^{3+}-NMOF (10 μg/mL) for disaggregating Aβ fibrils.

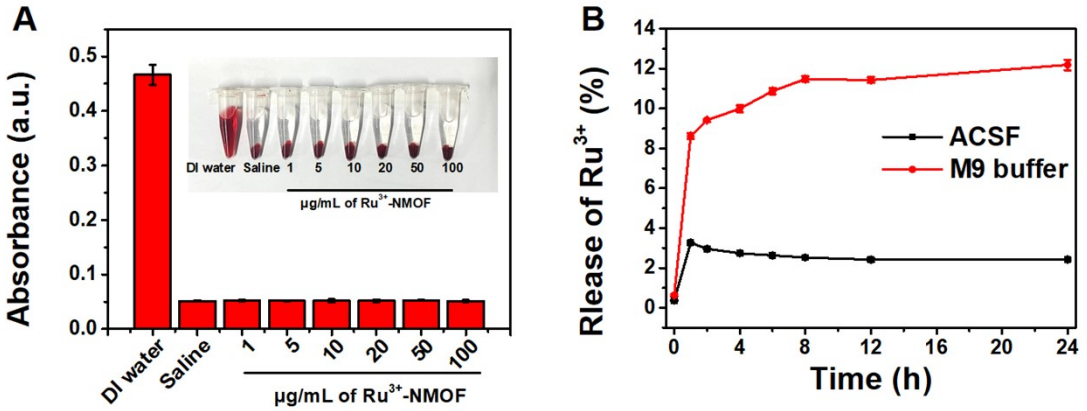

Figure S8. (A) The absorbance (λ=540 nm) of 5% blood cells with deionized water, saline, and concentrations of Ru^{3+}-NMOF (1, 5, 10, 20, 50, 100 μg/mL) in hemolysis test. Insert: the photos corresponding to the groups as noted. (B) The release of Ru^{3+} from Ru^{3+}-NMOF (100 μg/mL) at 0, 1, 2, 4, 6, 8, 12, 24 h in ACSF and M9 buffer.