

Supplementary data

Fig. S1. Steady state UV vis absorption spectra of (1) CAZ (20 μM), (2) TEM β (5 μM), (3) summation of the spectra of (TEM + CAZ), (4) difference between the spectra of mixture of (TEM and CAZ) and sum of (TEM and CAZ) and (5) spectra corresponding to the mixture of TEM with CAZ.

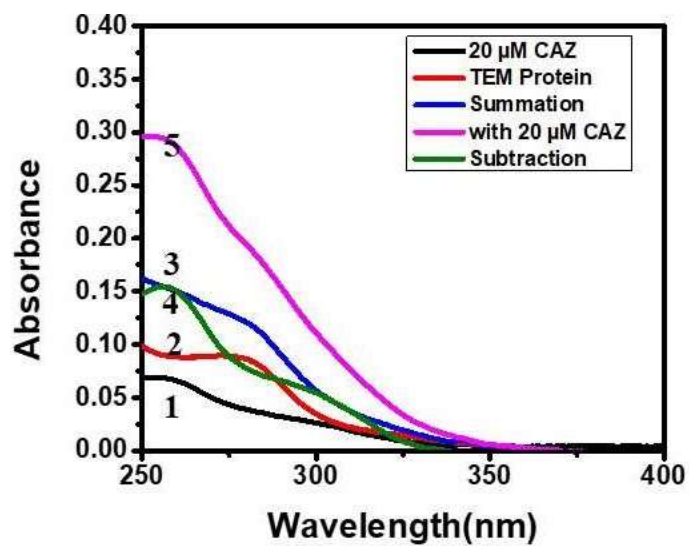


Fig S2: Thermal denaturation curve wild (A) TEM-1, and mutant (B) pUE184TEM, (C) pUE203TEM, (D) pUE210TEM β -lactamases at different temperature (298K, 303K, 308K and 311K) with 0.5 mM concentration.

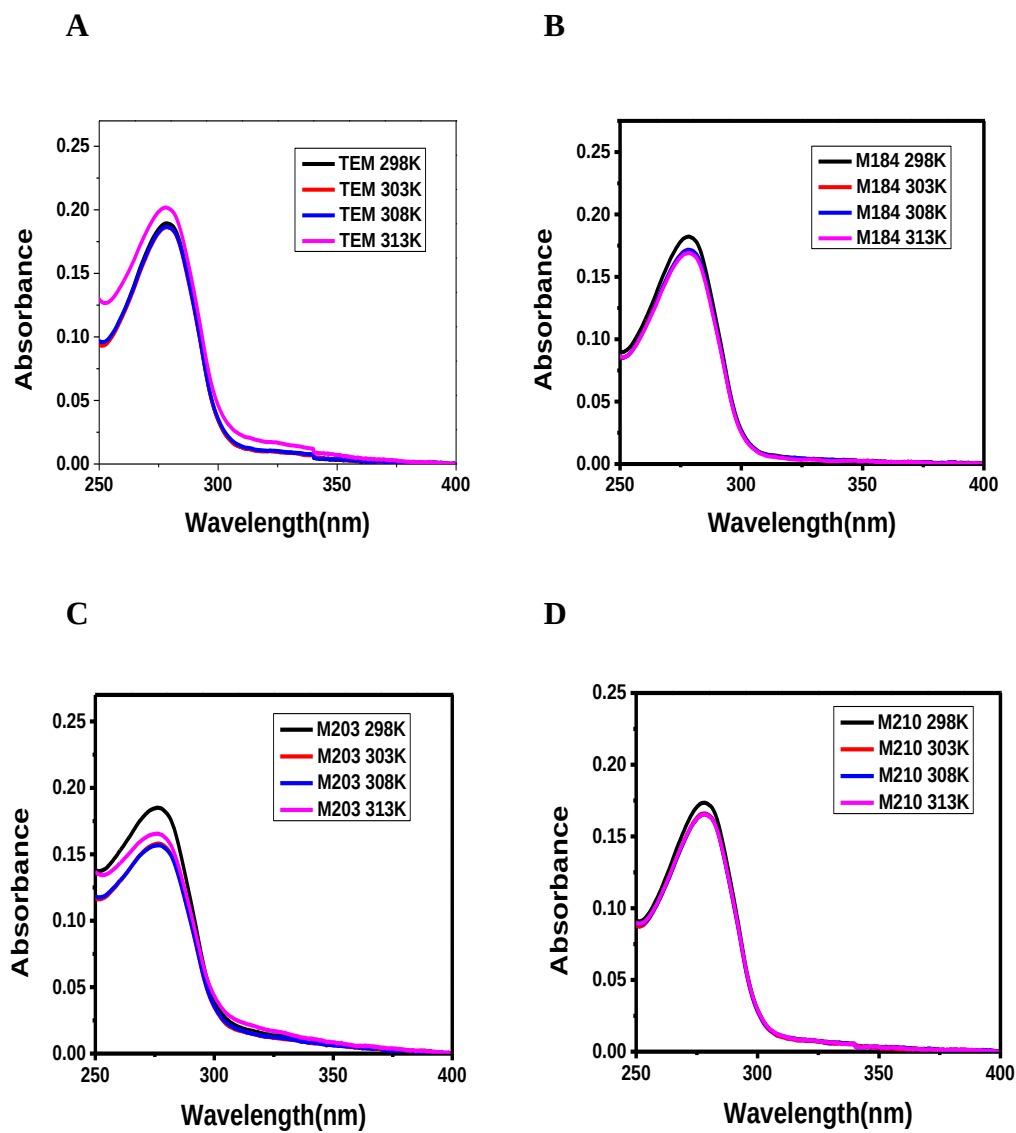
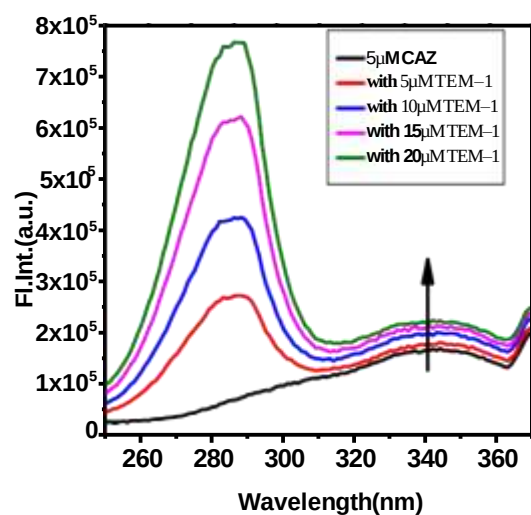
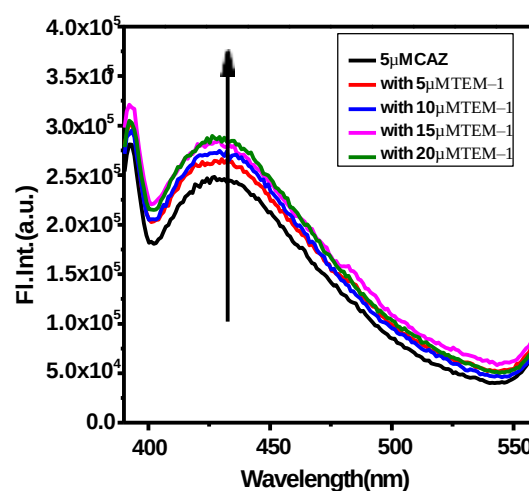


Fig. S3. Fluorescence excitation and emission spectra of **A,B** TEM- β lactamase (wild type) and mutant TEM β -lactamases **C,D** M184, **E,F** M203 and **G,H** M210 at increasing concentrations (5-20 μ M) of β -lactamases in presence of 5 μ M concentration of CAZ at temperature 298K.

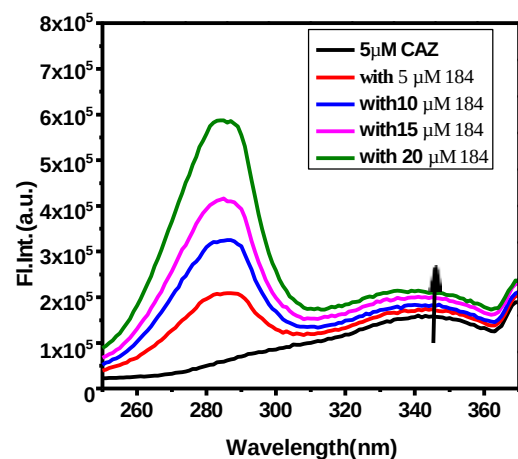
A



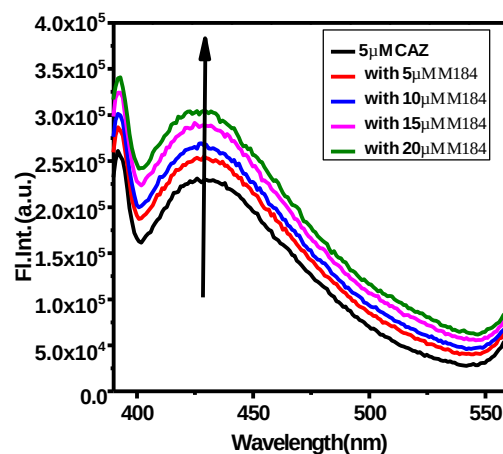
B



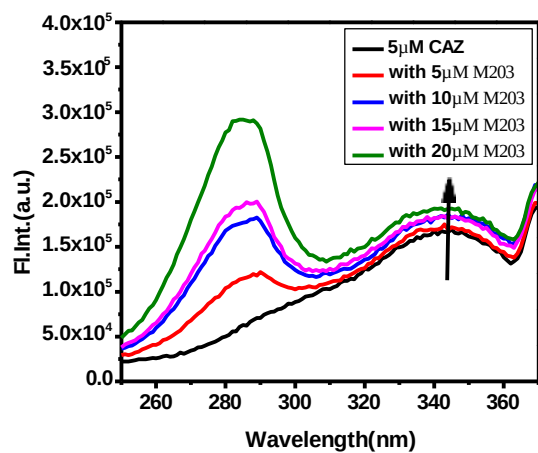
C



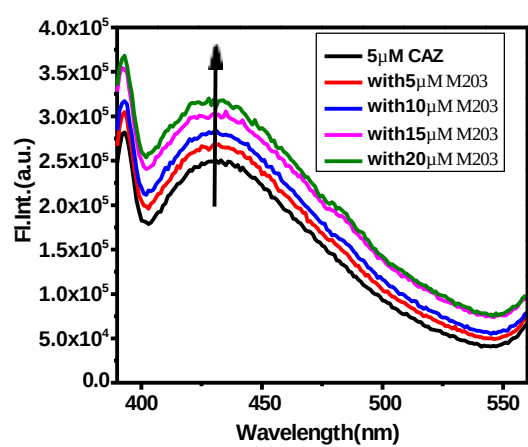
D



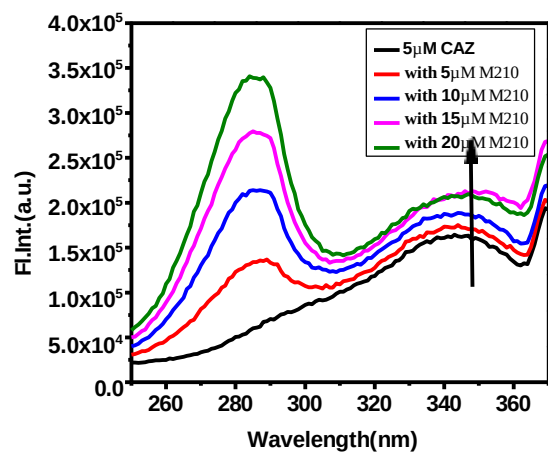
E



F



G



H

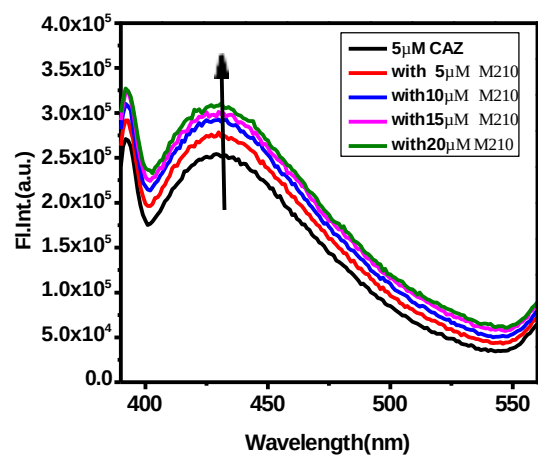
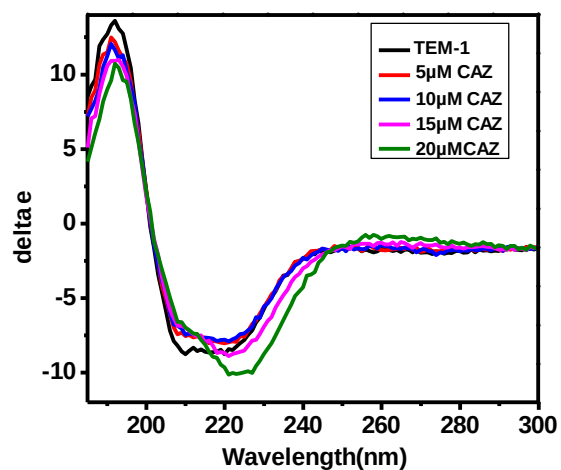
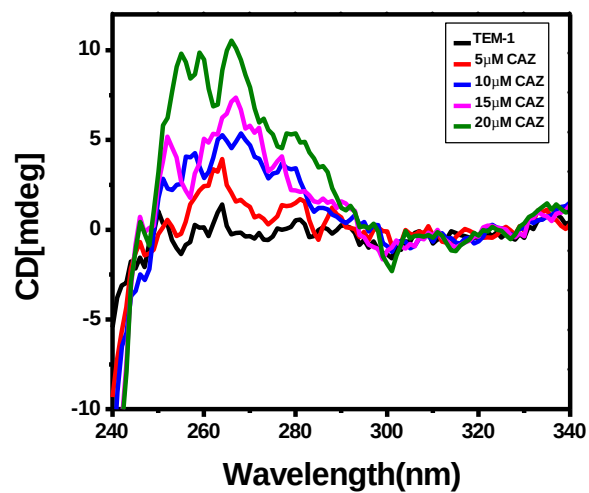


Fig. S4. Far-UV spectra and near-UV spectra of **A, B** TEM β lactamase (wild type protein) and mutant TEM β lactamases **C, D** M184, **E, F** M203 and **G, H** M210 at 5 μM concentration in the presence of CAZ (0-20 μM) in sodium phosphate buffer (pH 7.4).

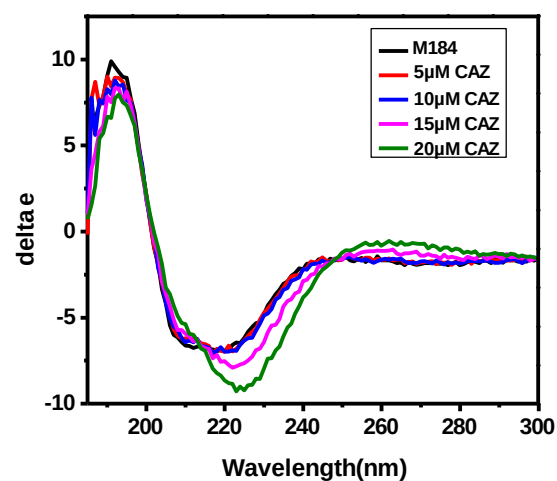
A



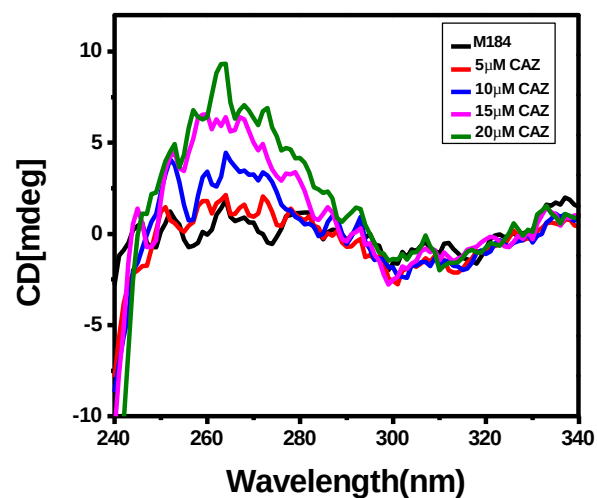
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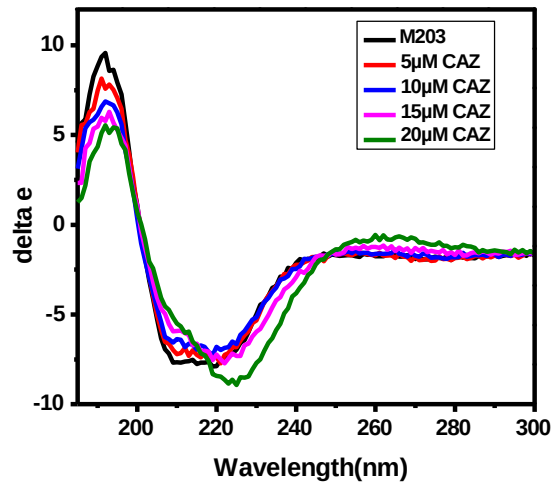
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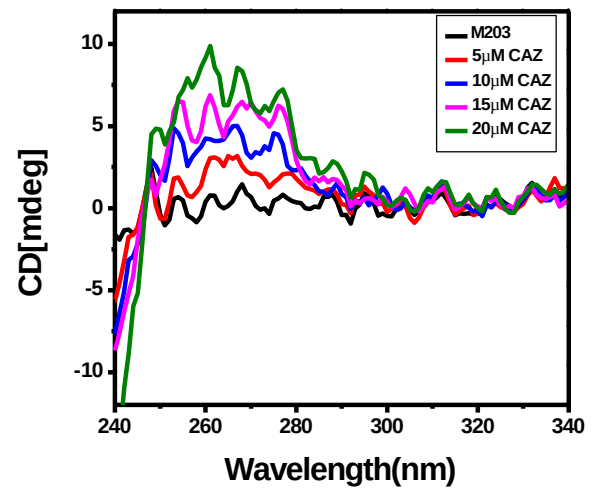
D



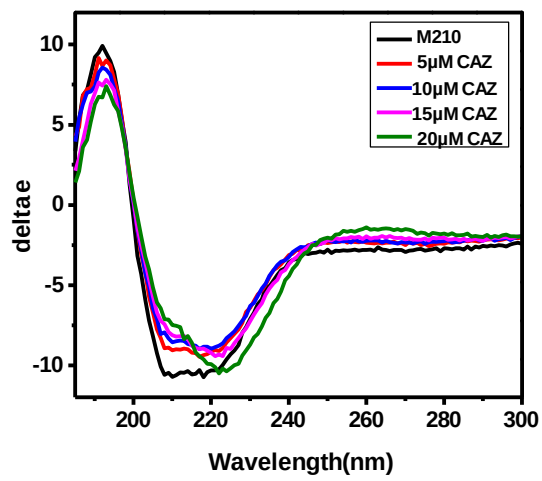
E



F



G



H

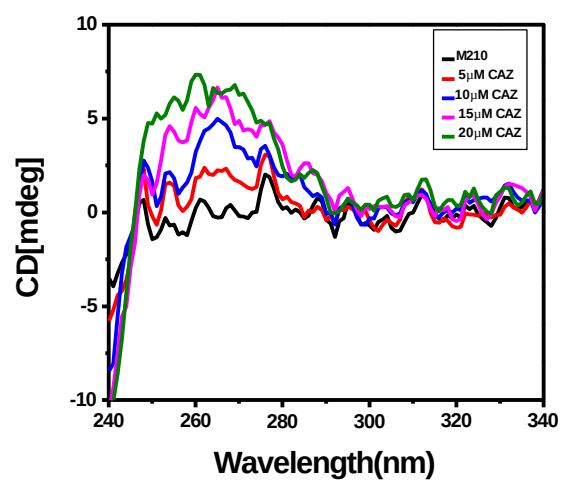


Fig. S5. Representative Raman spectra of ATEM- β lactamase (wild type protein, 1ZG4) and mutant TEM β -lactamases **B** M184, **C** M203, **D** M210 at 5 μ M in presence of increasing concentration of CAZ (0-15 μ M) at temperature 298K

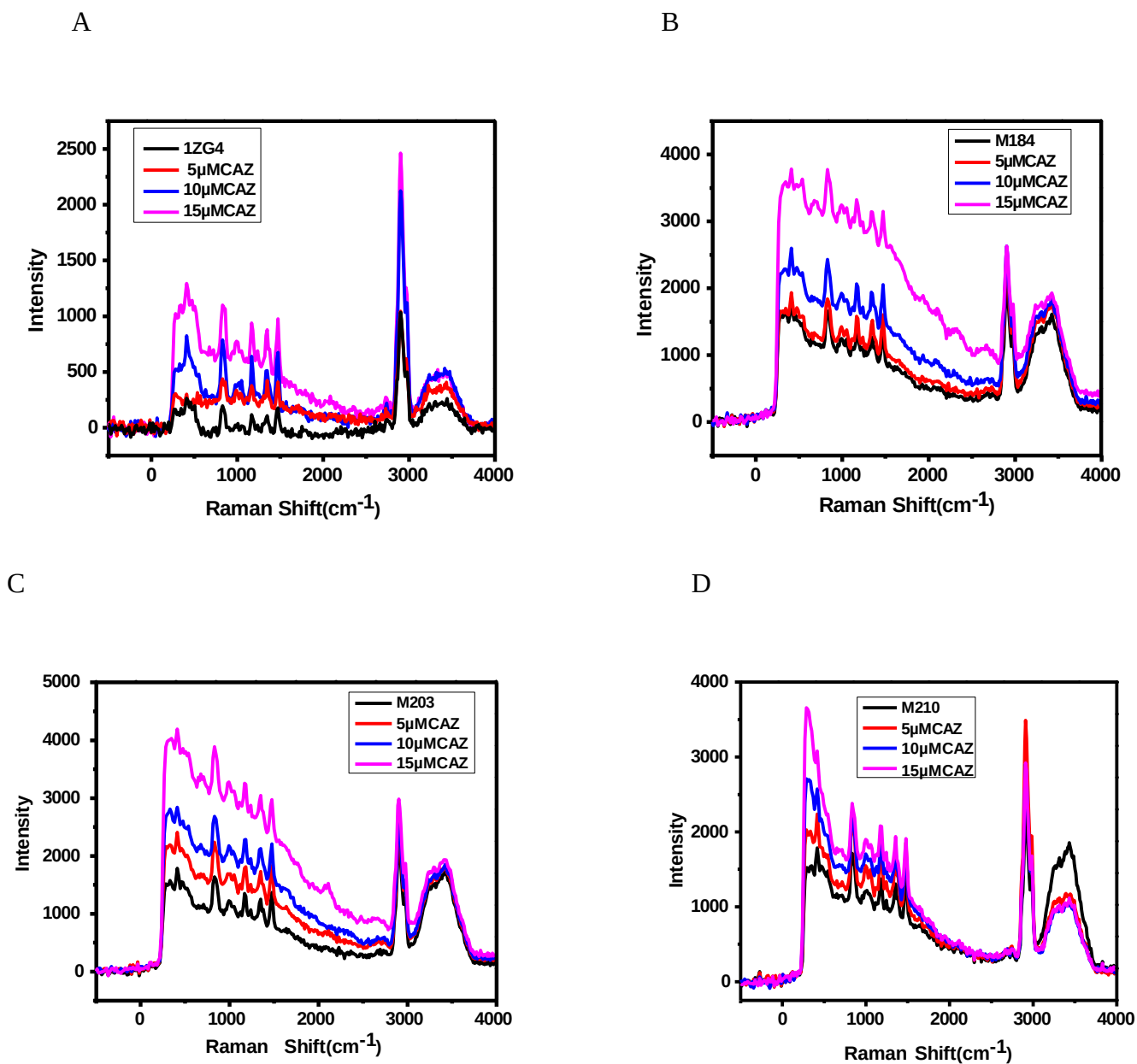


Fig. S6. Overlapping absorption spectrum of CAZ (acceptor) and the fluorescence spectrum of TEM-1 β -lactamase(donor)

