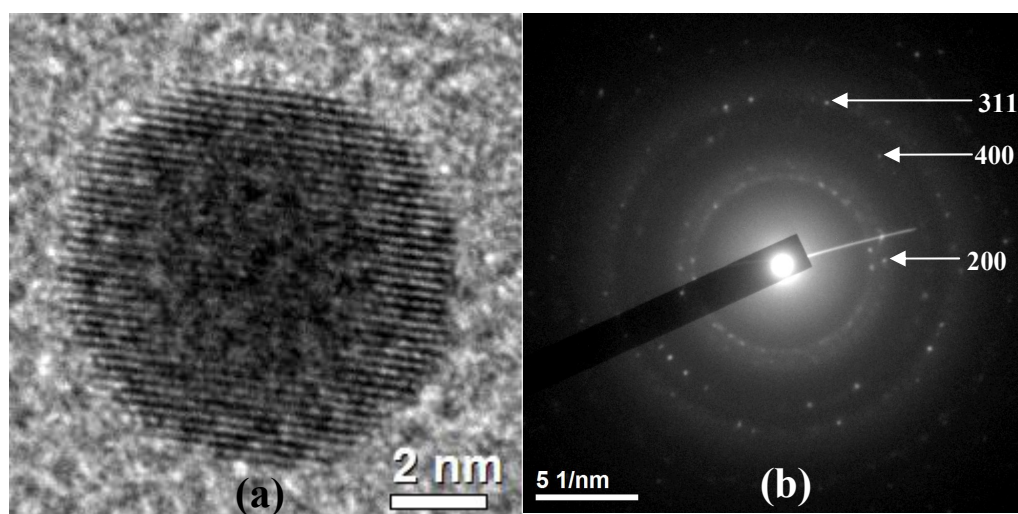


Supplementary Materials of the Manuscript:

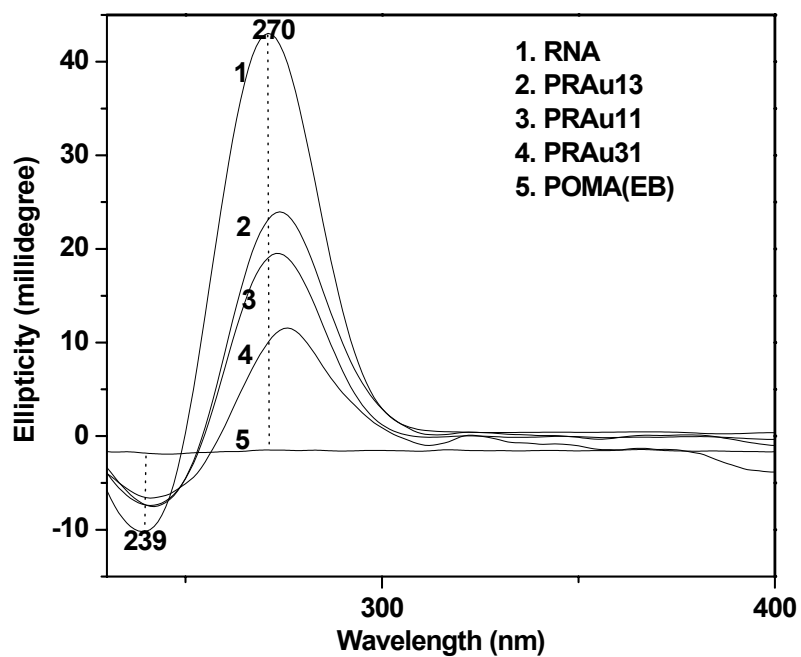
**Enhanced Optoelectronic Properties of RNA–Poly(*o*-methoxyaniline) Hybrid
Containing Monodispersed Au Nanoparticles**

Parimal Routh, Pratap Mukherjee, and Arun K. Nandi*

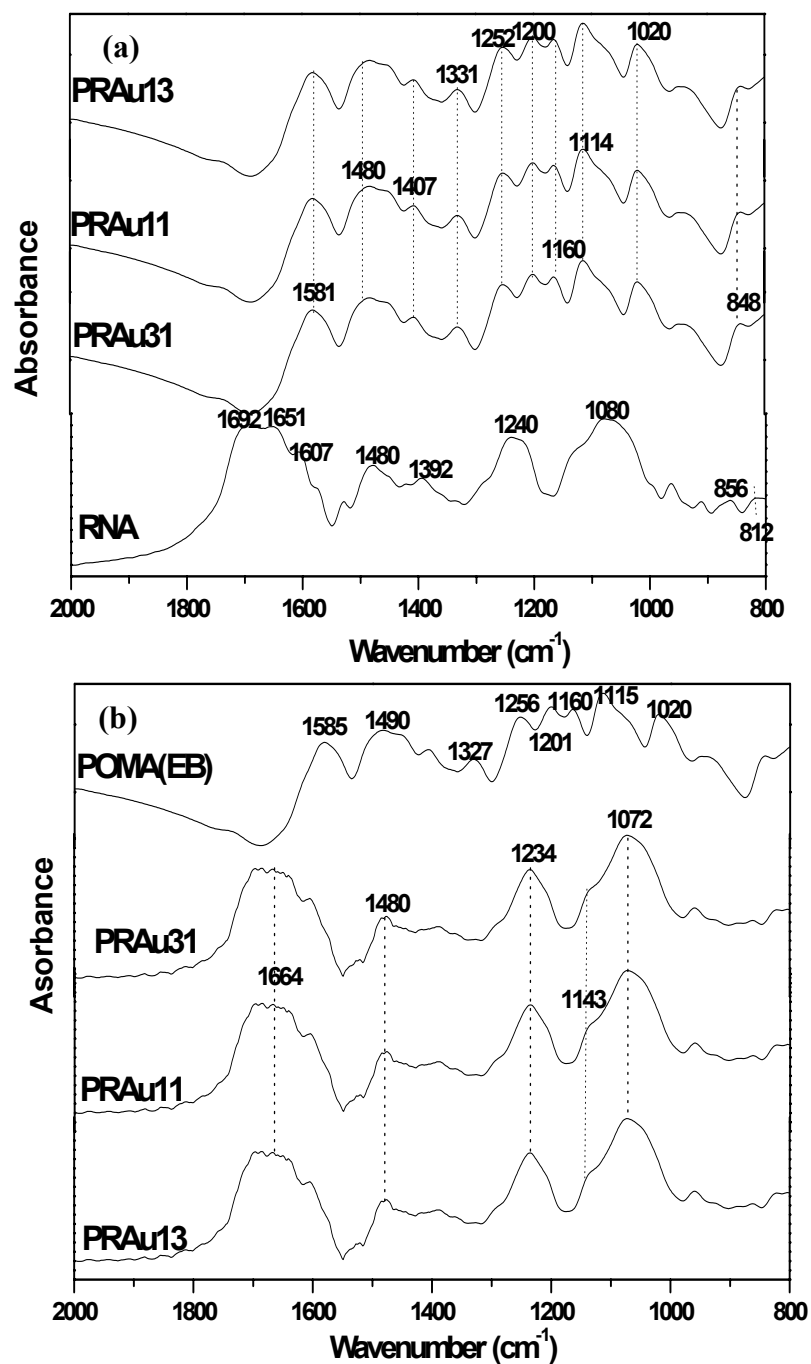
Polymer Science Unit, Indian Association for the Cultivation of Science, Jadavpur,
Kolkata-700 032, India



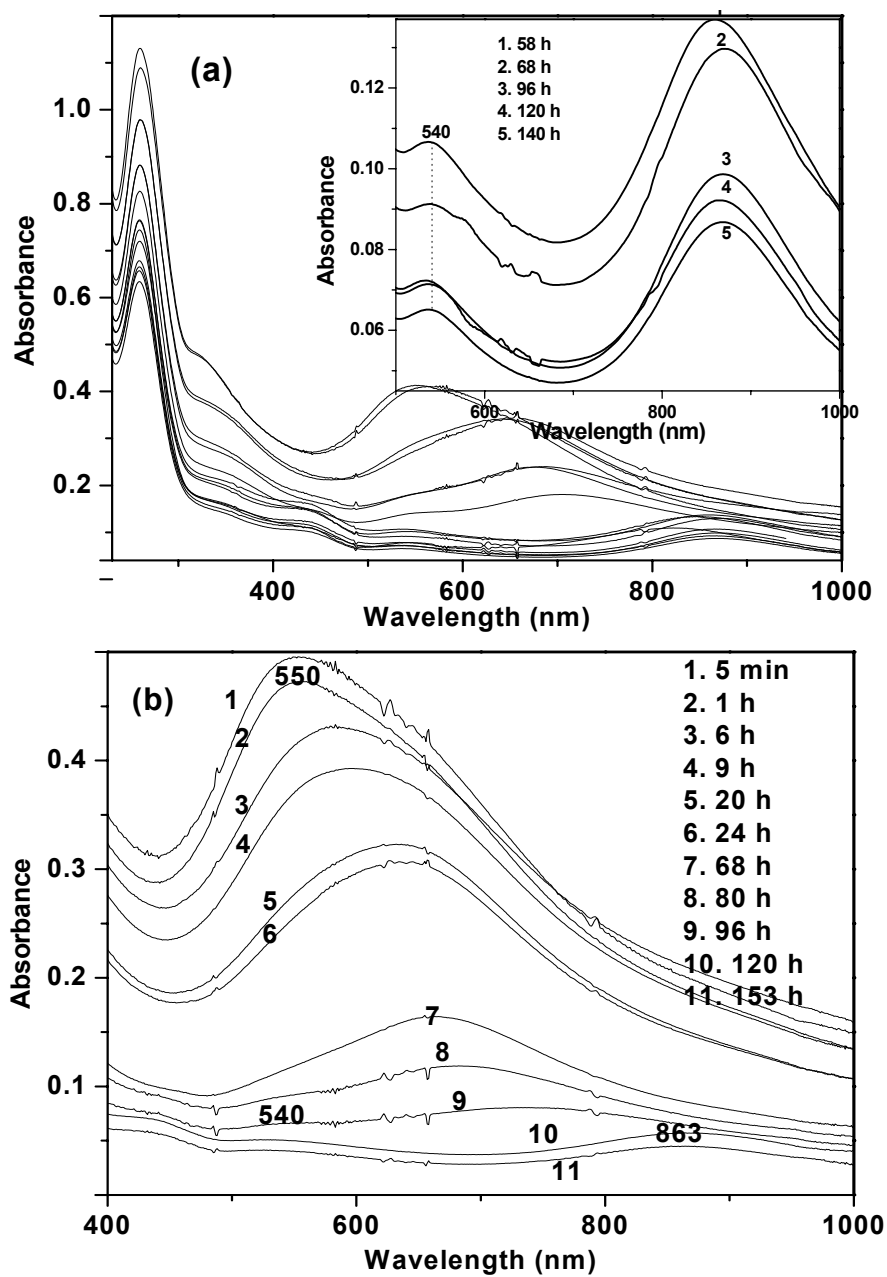
Suppl. Figure -1 (a) HRTEM image and (b) diffraction pattern of Au nanoparticles present on the POMA-RNA hybrid fibril



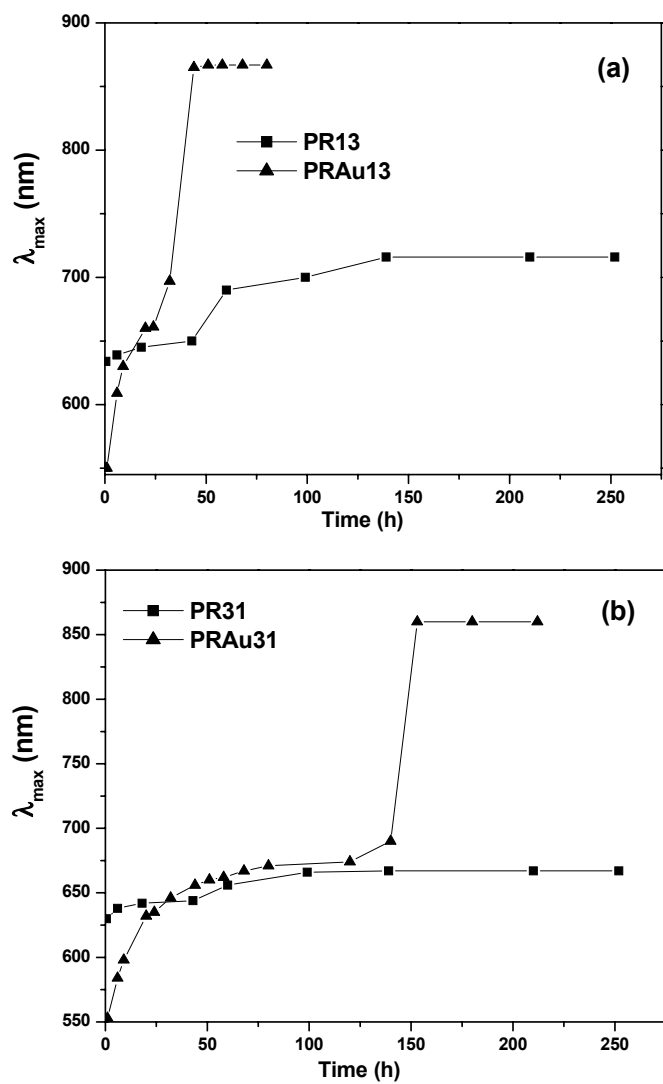
Suppl. Figure -2 Normalized CD spectra at 30 °C of RNA, POMA (EB) and nanobiocomposite (PRAu31, PRAu11 and PRAu13) solutions with respect to RNA



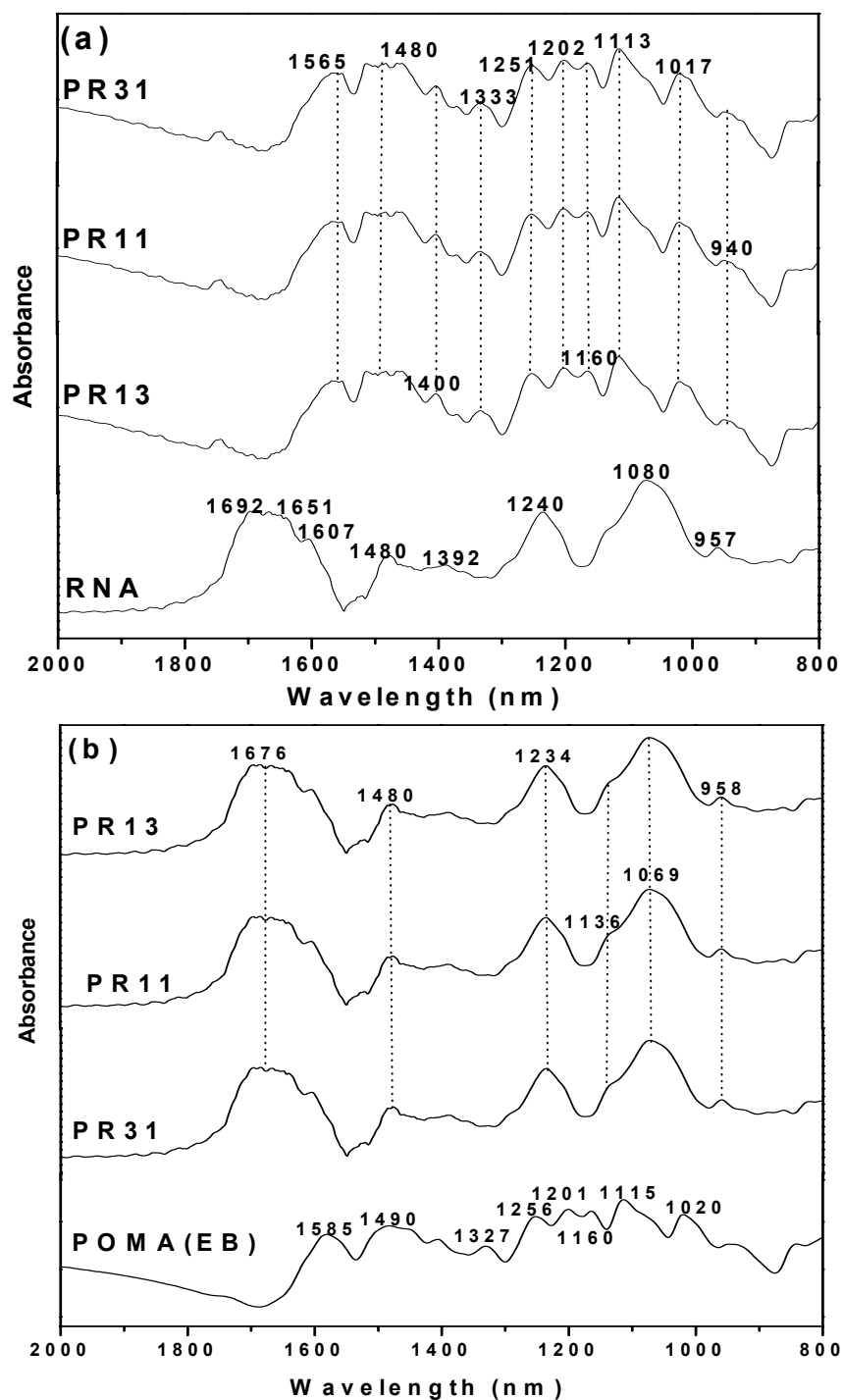
Suppl. Figure -3 FT-IR spectra of (a) pure RNA and POMA subtracted POMA-RNA-Au and (b) POMA(EB) and RNA subtracted POMA-RNA-Au nanobiocomposite



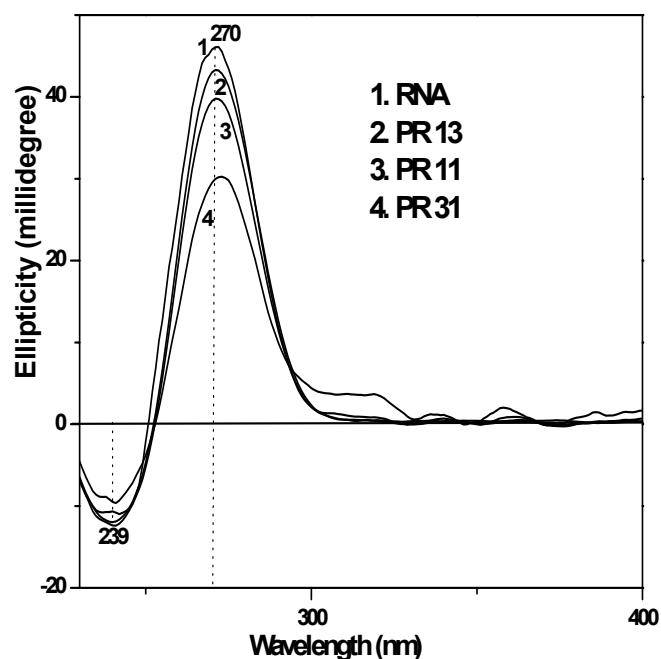
Suppl. Figure -4 UV-vis spectra of (a) PRAu11 and (b) PRAu31 solutions at 30 °C for indicated aging times



Suppl. Figure -5 Plot of λ_{\max} vs time of PRAu and PR hybrid solutions

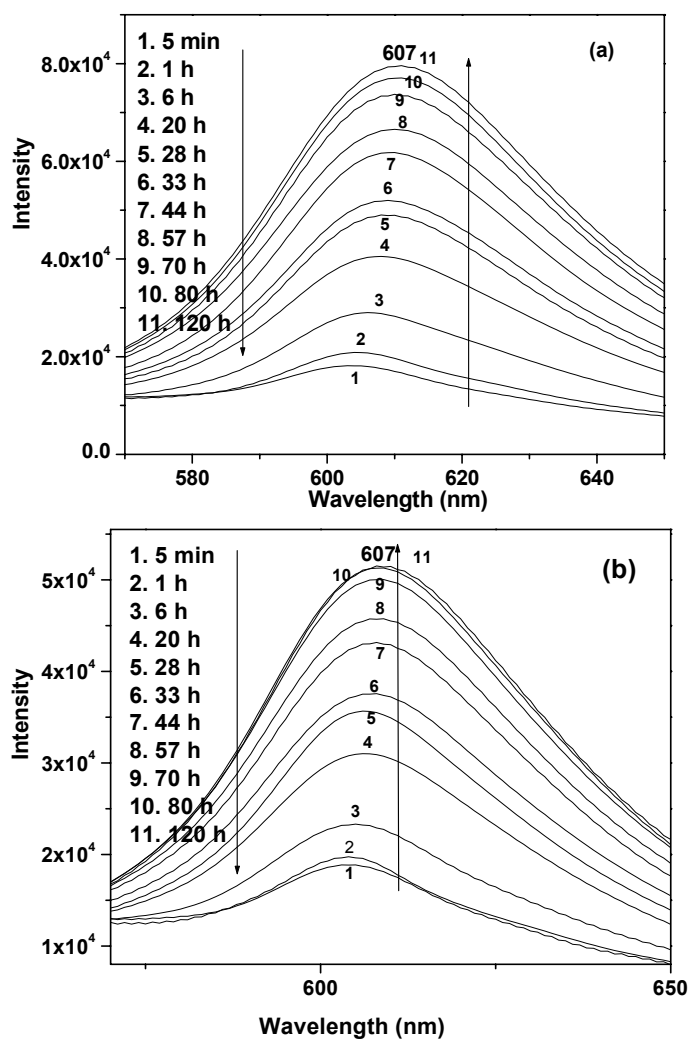


Suppl. Figure - 6 FT-IR spectra of (a) pure RNA and POMA subtracted POMA-RNA and (b) POMA (EB) and RNA subtracted POMA-RNA hybrid

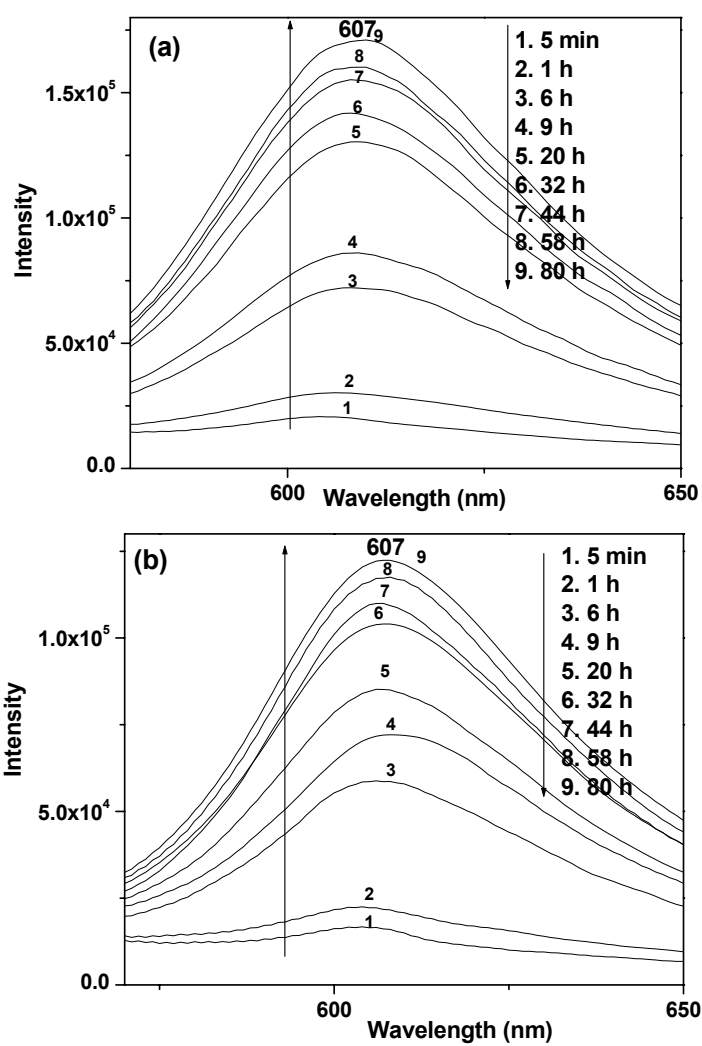


Suppl. Figure -7 Normalized CD spectra at 30 °C of RNA and hybrid (PR13, PR11 and PR31) solutions with respect to RNA

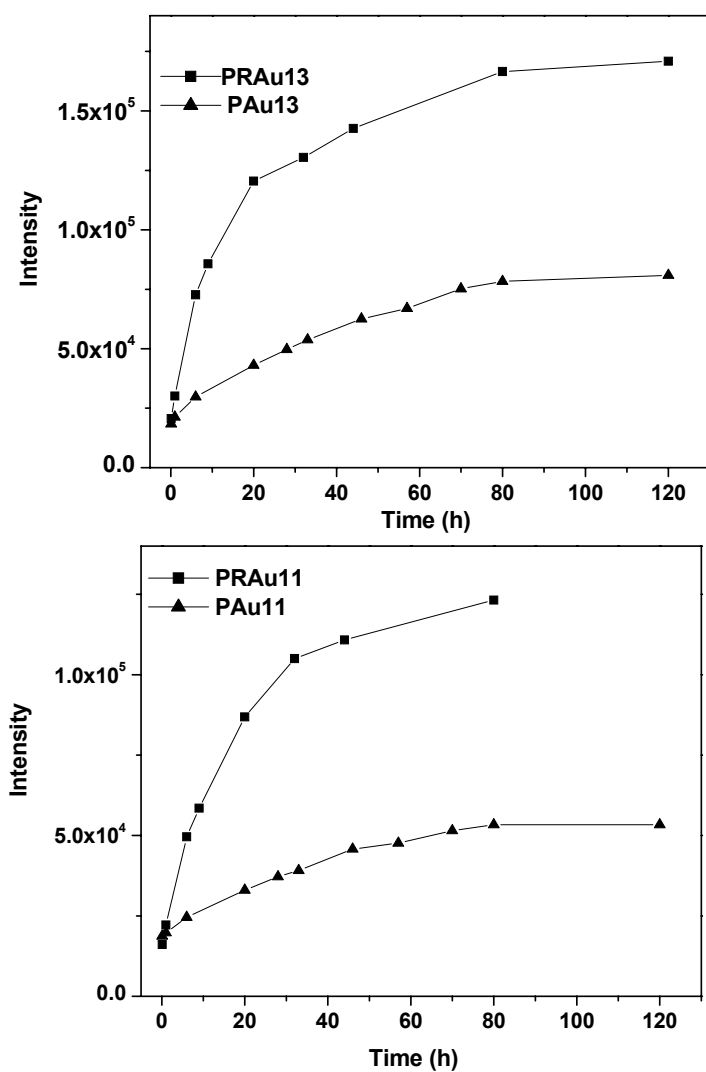
The FTIR and CD spectra (suppl. fig. 6, 7) indicate POMA-RNA hybrid formation after mixing the solution of the components for seven days. In the POMA subtracted FTIR spectra of the hybrid the asymmetric P=O stretching vibration has shifted from 1240 to 1202 cm^{-1} and the symmetric P=O stretching vibration 1080 cm^{-1} shifts to 1017 cm^{-1} . These results indicate H-bond formation between P=O group of RNA with N-H group of POMA. Similarly in the RNA subtracted FTIR spectra of the composite 1160 cm^{-1} peak of N=Q=N vibration is shifted to 1136 cm^{-1} indicating doping of POMA (EB) by ammonium ion of RNA. Thus POMA (ES) is produced due to doping by diethyl ammonium ethanol ion of RNA and ionic interaction between POMA (ES) and phosphate anion helps to produce the hybrid. In CD spectra a red shift of the 270 nm peak by 2 nm is also suggestive of the hybrid formation.



Suppl. Figure -8 PL spectra of (a) P Au13 and (b) P Au11 solutions at 30 °C for indicated aging times



Suppl. Figure -9 PL spectra of (a) PRAu13 and (b) PRAu11 solutions at 30 °C for indicated aging times



Suppl. Figure -10 Plot of Emission Intensity vs time of PRAu and P Au hybrid solutions