

## Supplementary Materials of the Manuscript

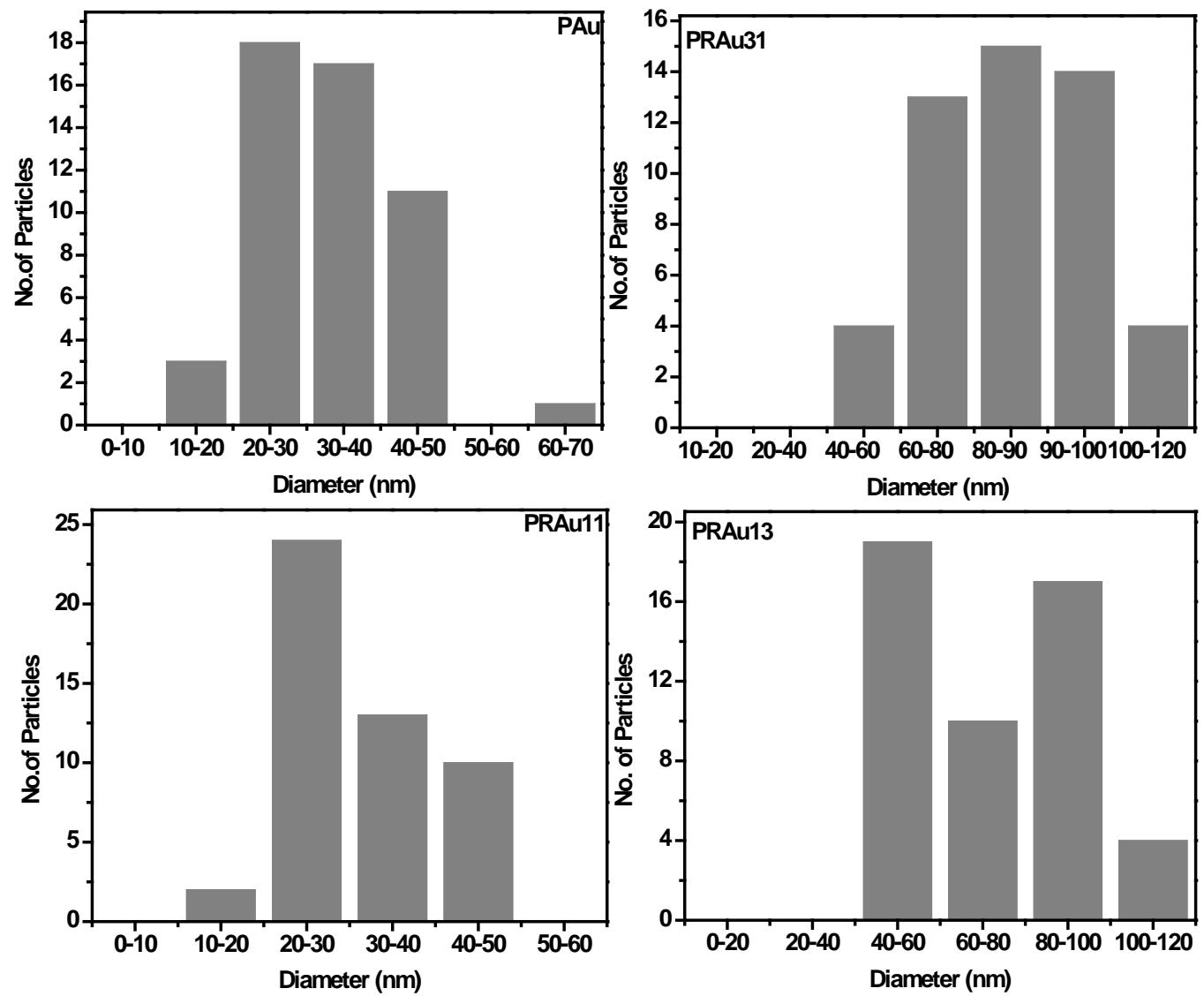
### **Polythiophene-g-poly(dimethylaminoethyl methacrylate) Stabilized Au Nanoparticles and its morphology tuning by RNA with variation of electronic Properties**

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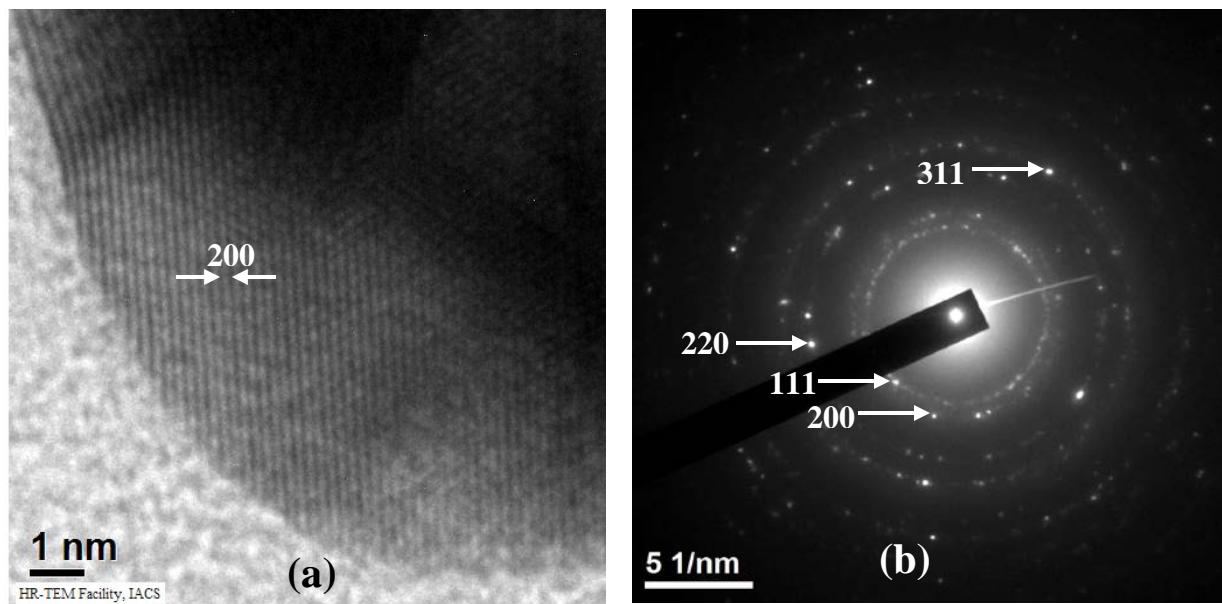
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Kolkata 700 032, India

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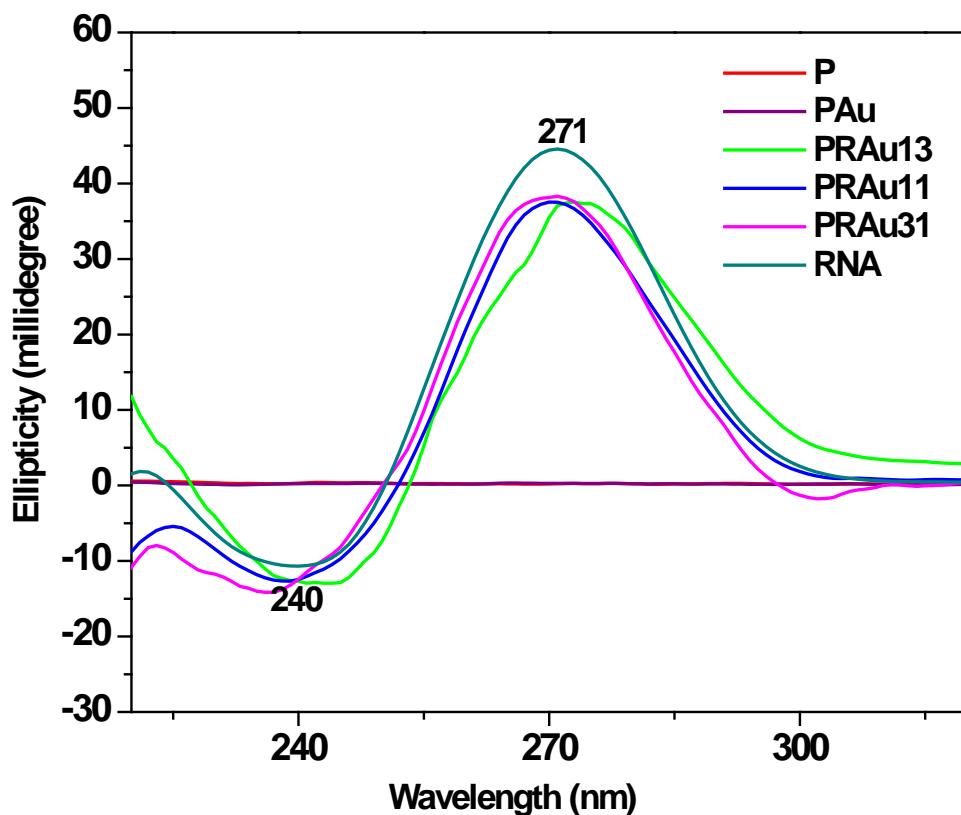
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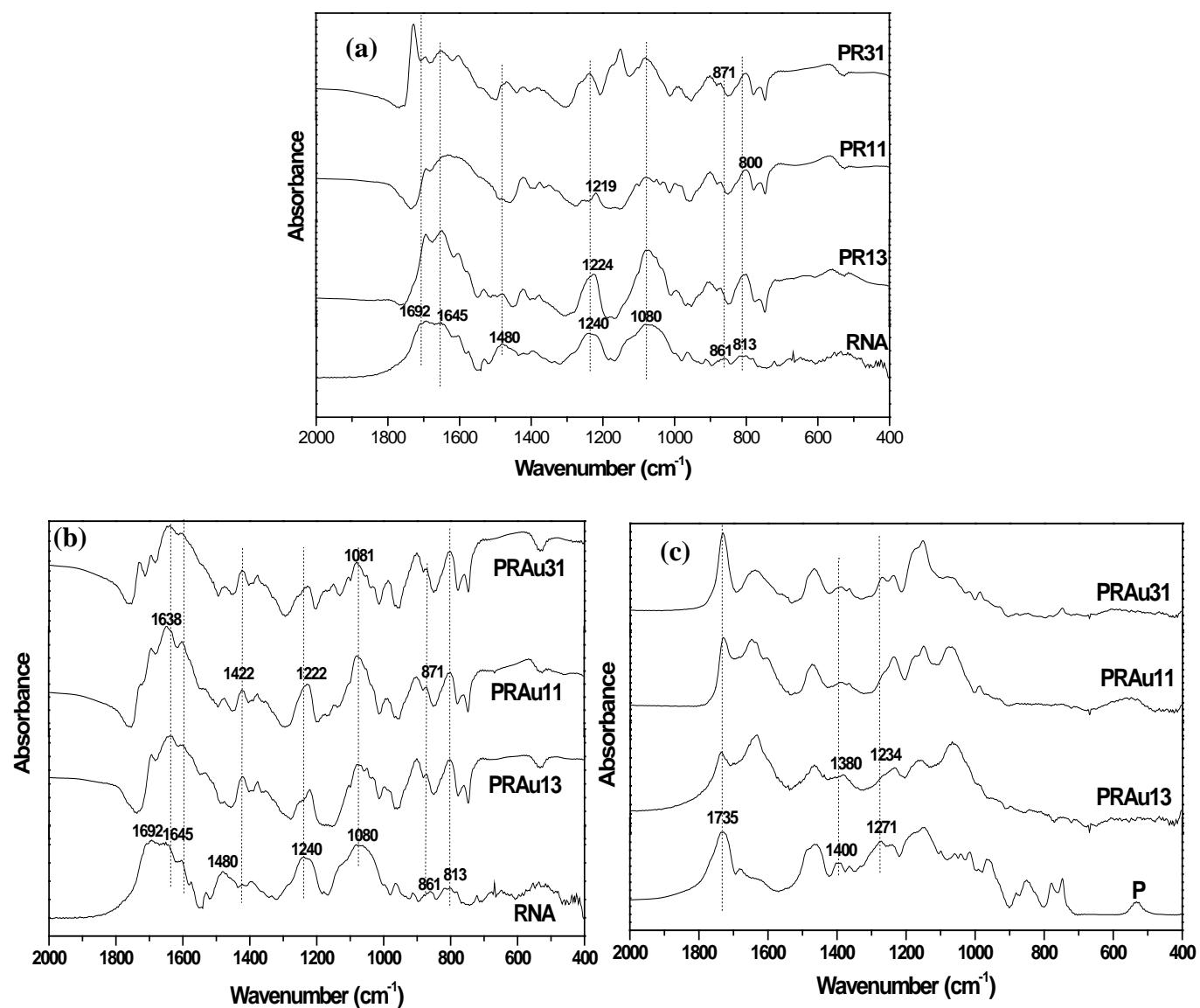
**SI.Fig. -1:** Particle size distribution of PAu, PRAu11, PRAu13, PRAu31



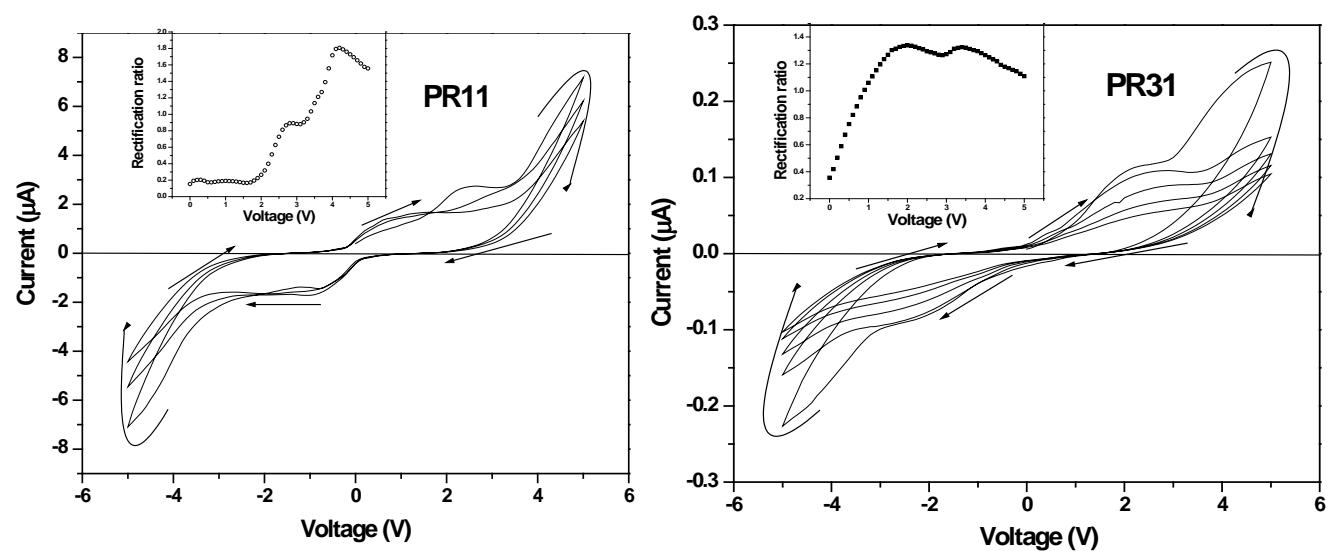
**SI.Fig. -2** (a) Electron diffraction pattern and (b) HRTEM image of PRAu13 system to conform the presence of Au NPs on the PR hybrid.



**SI.Fig. -3** Normalized CD spectra of RNA, P, PAu and nanobiocomposite (PRAu13, PRAu11 and PRAu31) with respect to RNA concentration at 30 °C



**SI.Fig. -4** FT-IR spectra of (a) pure RNA and P subtracted PR hybrid, (b) pure RNA and P subtracted PRAu, (c) pure P and RNA subtracted PRAu nanobiocomposite



**SIFig. - 5** Current-Voltage (I-V) characteristic curves of PR11 and PR31 hybrids. (inset: plot for rectification ratio vs voltage (V) of the respective hybrids)