

## A 10-minute approach for the phase specific synthesis of Se nanoparticles with tunable morphology: their anticancer efficacy and role of ionic liquid

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### Supporting information

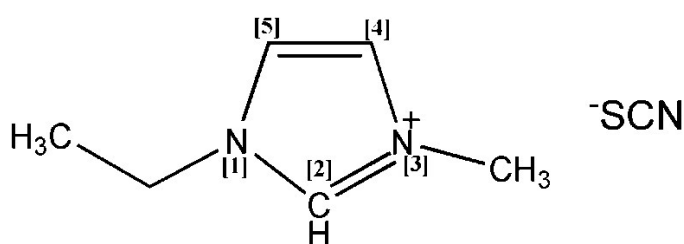


Fig.S1. Structure of RTIL, 1-Ethyl-3-methylimidazolium thiocyanate ([EMIM][SCN]).

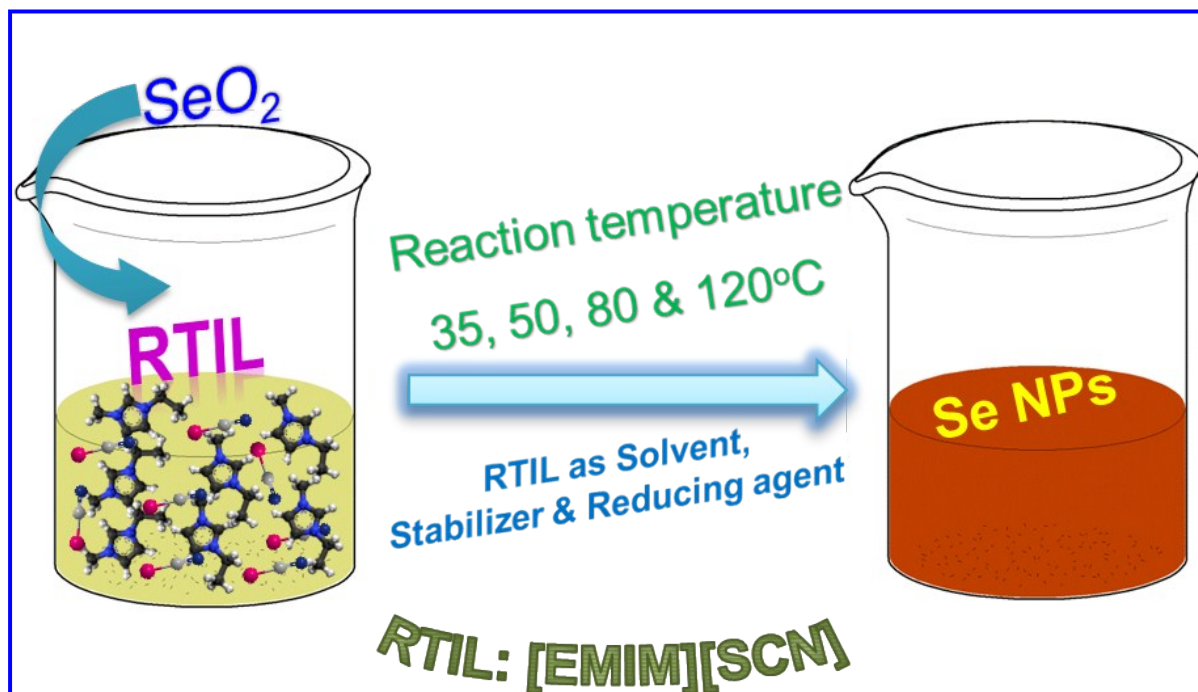
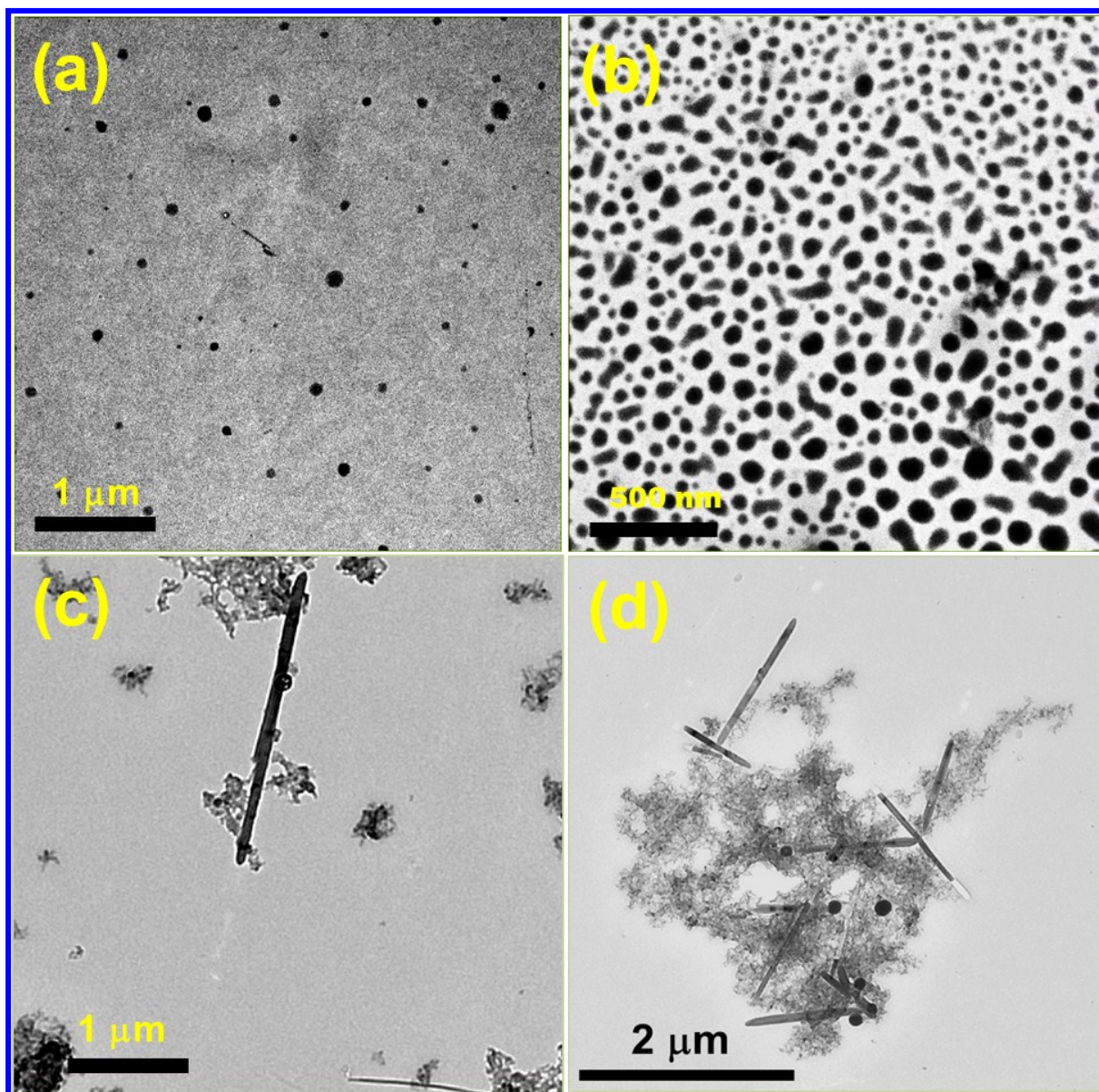
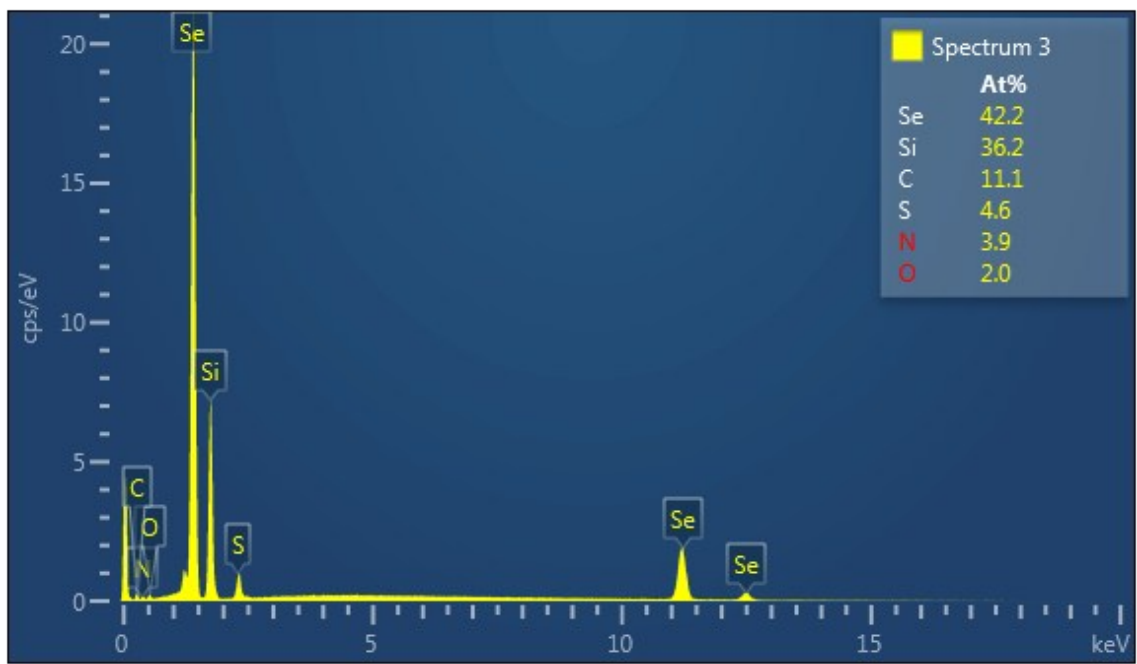


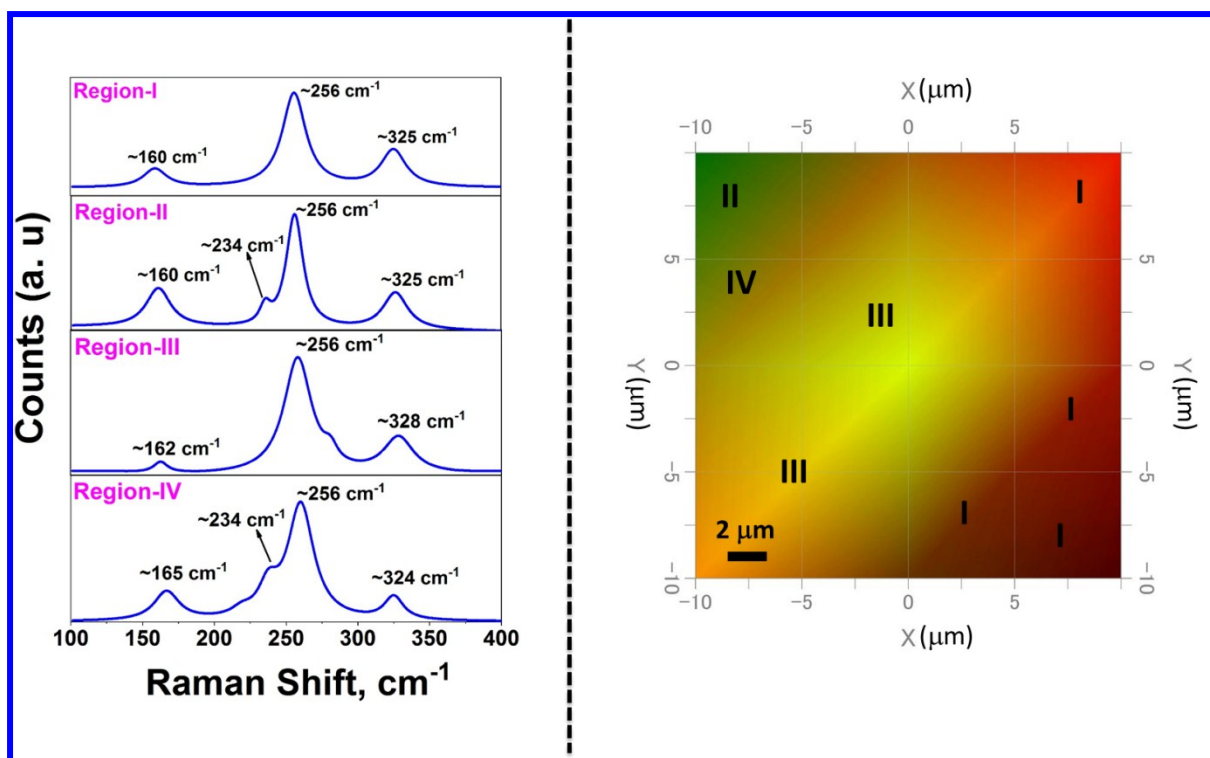
Fig.S2. Schematic representation of the synthesis of Se NPs using RTIL as a host matrix at different reaction temperatures.



**Fig.S3.** TEM images (a), (b), (c) & (d) of Se NPs synthesized at different temperatures, i.e., 35, 50, 80 and 120°C, respectively. Please note that image (a) is just a representative one, while the average size of the SeT35 NPs was determined by taking into consideration of more than 100 particles from different TEM images recorded at different regions.



**Fig.S4.** EDX spectrum showing Se as the major element in the sample.



**Fig.S5.** (A) Representative Raman spectra (Baseline corrected and peak fitted) of SeT35 NPs (extracted from more than 1-month old sample) at various regions; (B) Raman image generated using phonon peak intensities. The regions marked in the Raman image corresponds to the Raman spectra shown in panel A. Both red (attributed to high intensity phonon peak at  $\sim 256\text{ cm}^{-1}$ ) and the orange-yellow (assigned to low intensity phonon peak at  $\sim 256\text{ cm}^{-1}$ ) colour corresponds to the a-Se NPs, while a small area with green colour indicates the presence of slight crystallinity in the NPs.