Supporting Information

Double-ratiometric fluorescence imaging of H_2Se and $O_2^{\bullet-}$ under hypoxia for exploring Na_2SeO_3 induced HepG2 cells' apoptosis

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1. Excitation and emission spectra of NIR-H_2Se with H_2Se, DHE with $O_2^{\bullet-}$ and Rhodamine 110.

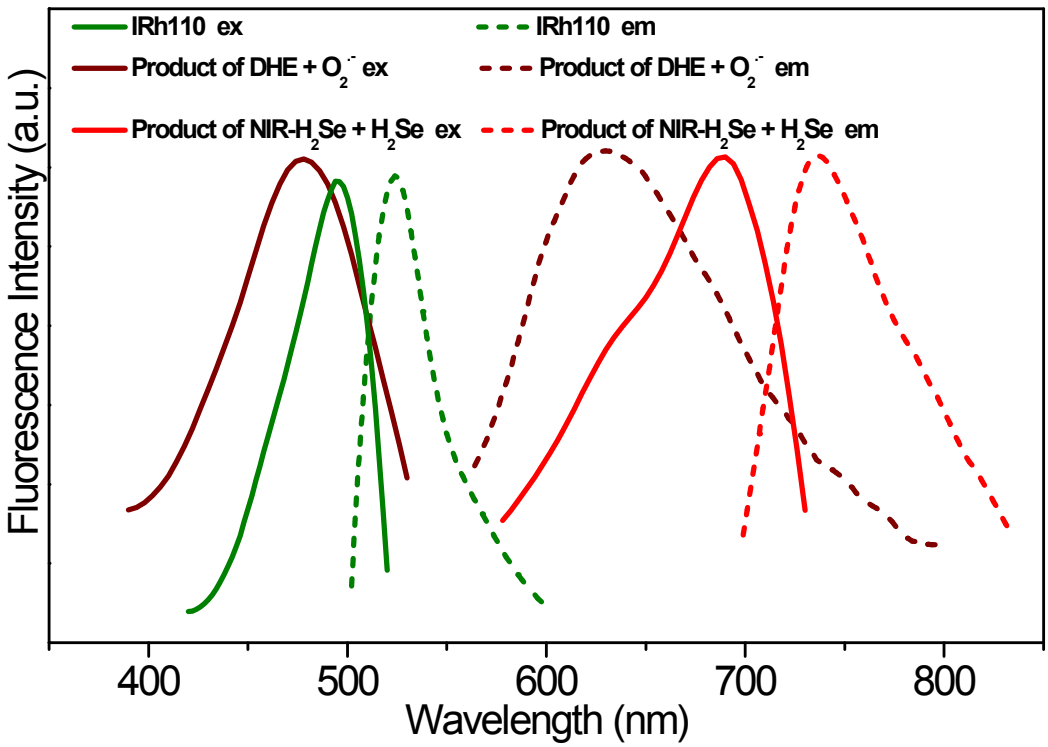

Figure S1. Excitation and emission spectra of the NIR-H_2Se with H_2Se, DHE with $O_2^{\bullet-}$ and Rhodamine 110, and their excitation and emission wavelengths are as follows respectively: $\lambda_{ex}/\lambda_{em}$ = 688/735 nm, $\lambda_{ex}/\lambda_{em}$ = 488/638 nm, $\lambda_{ex}/\lambda_{em}$ = 496/532 nm.

2. Confocal fluorescence images of endogenous H_2Se and $O_2^{\bullet-}$ in living HepG2 cells treated with various concentrations of Na_2SeO_3 under normoxic (20% O_2) conditions.

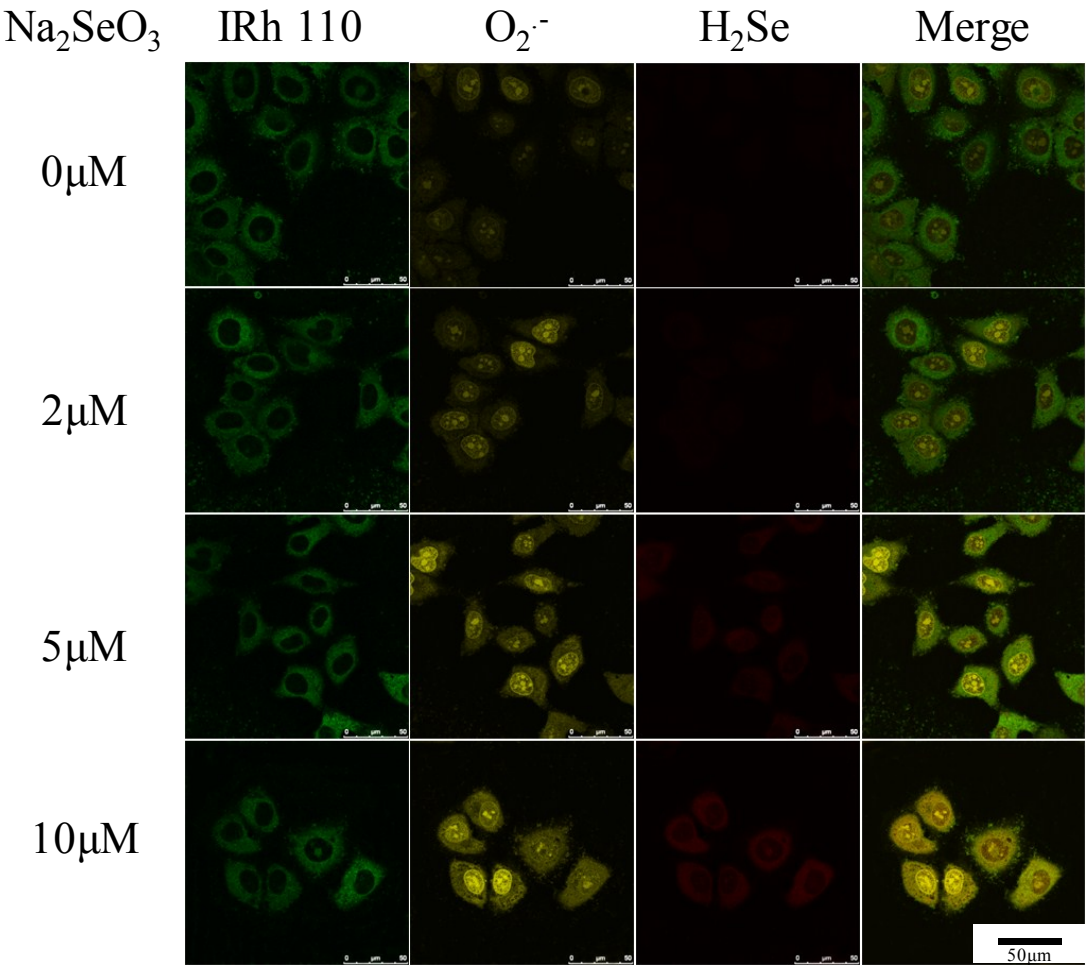

Figure S2. Confocal fluorescence images of endogenous H_2Se and $O_2^{\bullet-}$ in living HepG2 cells treated with various concentrations of Na_2SeO_3 under normoxic (20% O_2) conditions. The living HepG2 cells were treated with various concentrations of Na_2SeO_3 (0, 2, 5, 10 μM) for 12 h and then incubated with the mixture of 10 μM NIR-H_2Se, 5 μM DHE and 1 μM Rhodamine 110.

3. Confocal fluorescence images of endogenous H_2Se and $O_2^{\bullet-}$ in living HepG2 cells treated with various concentrations of Na_2SeO_3 under hypoxic (5% O_2 and 1% O_2) conditions.

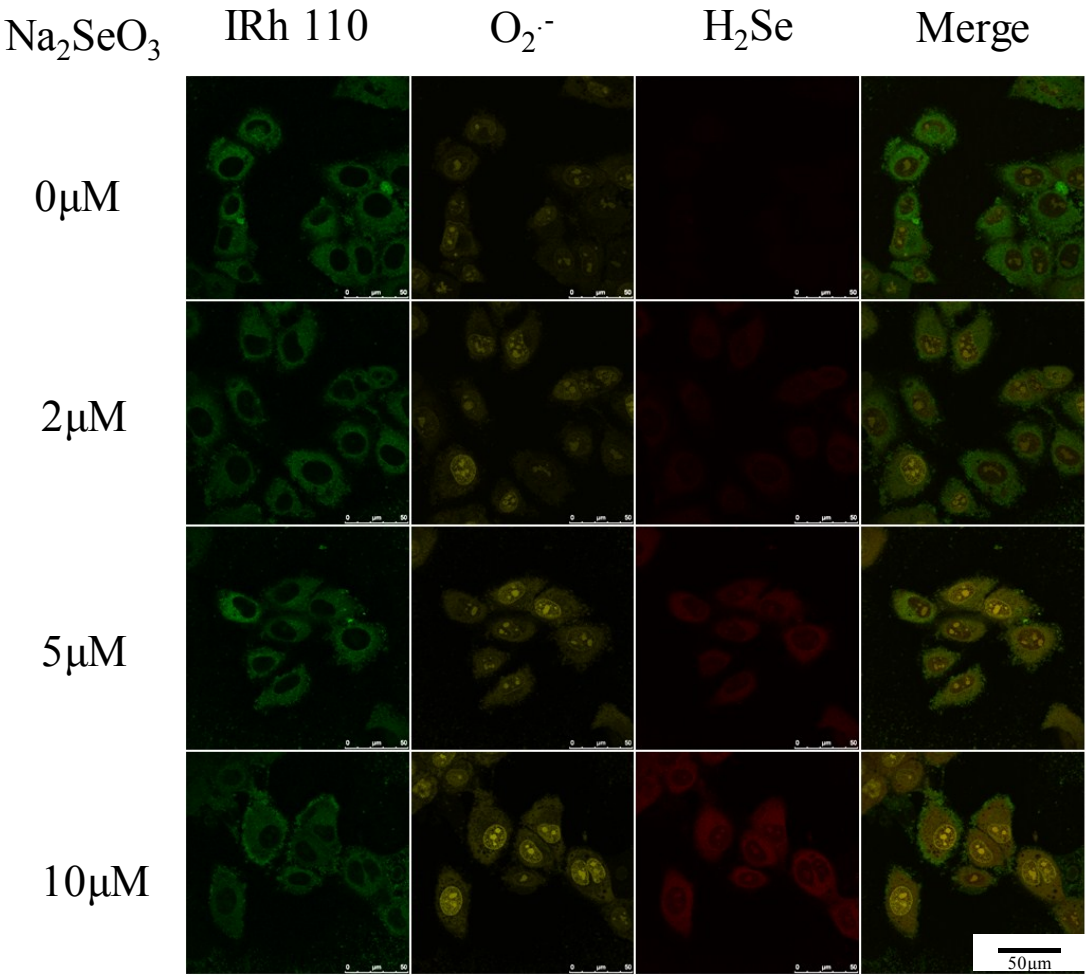

Figure S3. Confocal fluorescence images of endogenous H_2Se and $O_2^{\bullet-}$ in living HepG2 cells treated with various concentrations of Na_2SeO_3 under hypoxic (5% O_2) conditions. The living HepG2 cells were treated with various concentrations of Na_2SeO_3 (0, 2, 5, 10 μM) for 12 h and then incubated with the mixture of 10 μM NIR-H_2Se, 5 μM DHE and 1 μM Rhodamine 110.

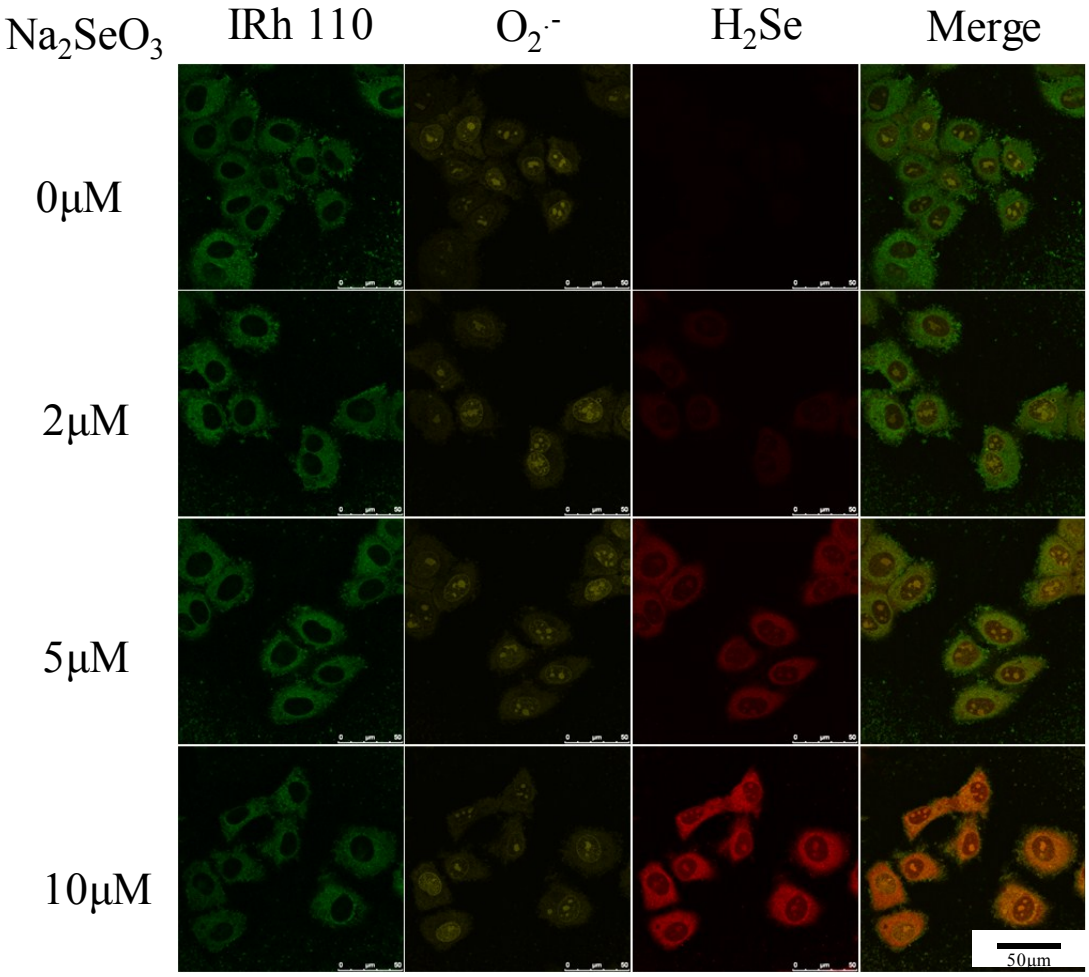

Figure S4. Confocal fluorescence images of endogenous H_2Se and $O_2^{\bullet -}$ in living HepG2 cells treated with various concentrations of Na_2SeO_3 under hypoxic (1% O_2) conditions. The living HepG2 cells were treated with various concentrations of Na_2SeO_3 (0, 2, 5, 10 μM) for 12 h and then incubated with the mixture of 10 μM NIR-H_2Se, 5 μM DHE and 1 μM Rhodamine 110.

4. **Scheme S1:** The chemical formula of NIR-H_2Se, DHE and their respective reaction product.