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# Enhancement of therapeutic effect in breast cancer with a steroid-conjugated ruthenium complex

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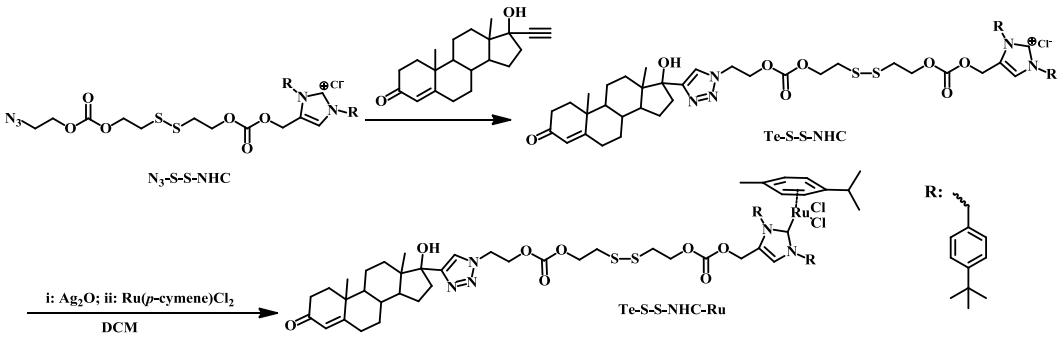


**Figure S1** The synthesis procedure of Te-S-S-NHC-Ru.

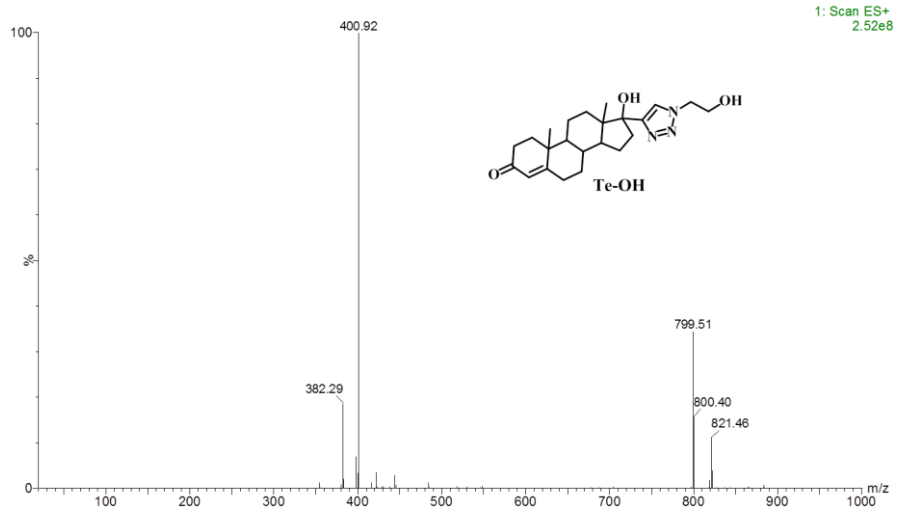


**Figure S2** The ESI-MS of compound Pr-OH.

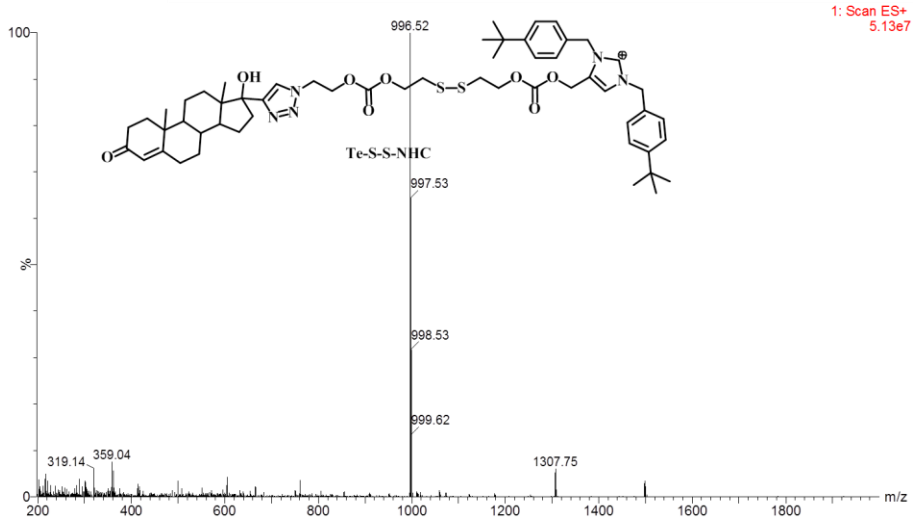


**Figure S3** The ESI-MS of compound Pr-S-S-NHC.

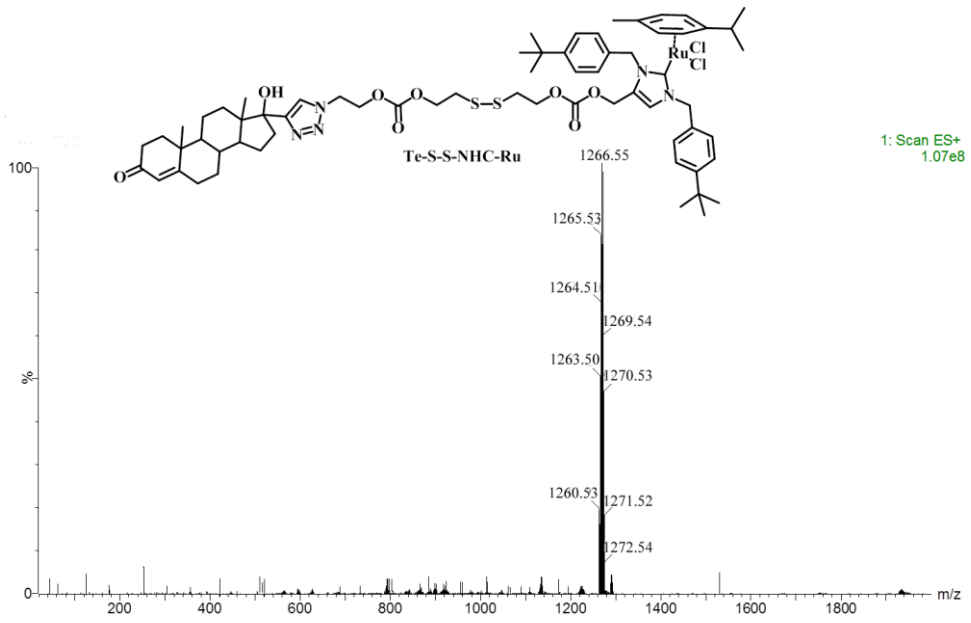


**Figure S4** The ESI-MS of compound Te-S-S-NHC-Ru.

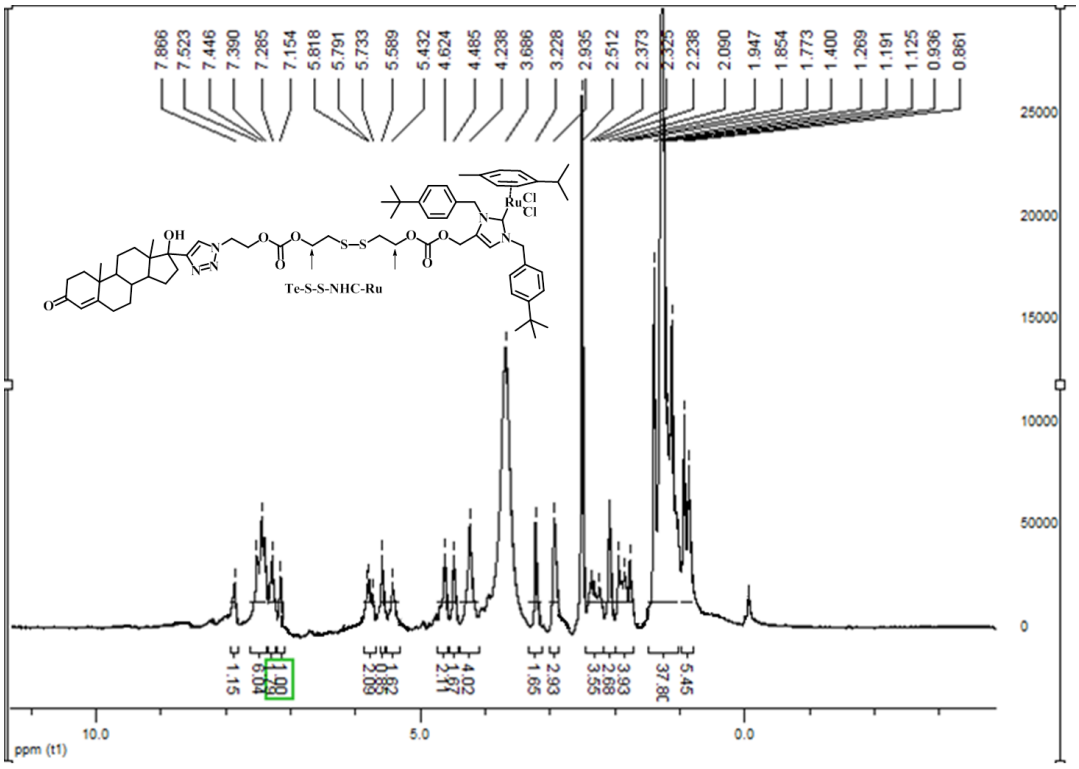


**Figure S5** The $^{1}$H/NMR spectrum of compound Te-S-S-NHC-Ru. (arrow point: four hydrogen atoms were covered by water signal.)

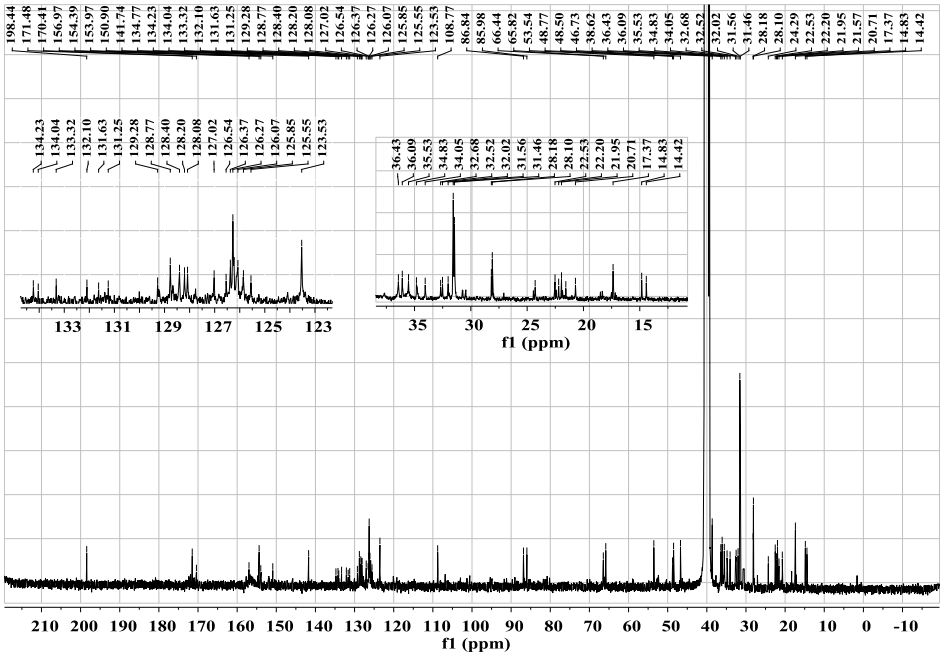


**Figure S6** The $^{13}$C/NMR spectrum of compound Te-S-S-NHC-Ru.

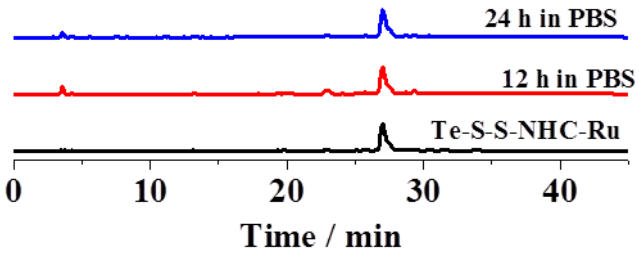


**Figure S7** The stability of compound Te-S-S-NHC-Ru in PBS (pH 7.4) at 12 h and 24 h.

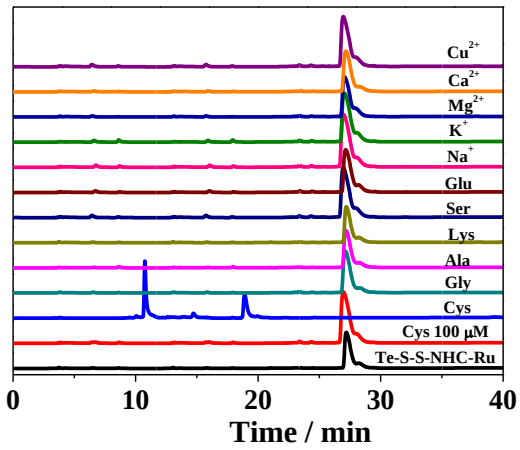


**Figure S8** The HPLC chromatogram of compound Te-S-S-NHC-Ru in various amino acids and metal salts solutions (5 mM) stirring at 37 ℃ for 60 min.

**Table S1** $IC_{50}$ values of complexes NHC-Ru, Te-S-S-NHC-Ru and cisplatin against MCF-7, MDA-MB-231 and LO2 cell lines.

| Complexes | $IC_{50}(\mu M)$ [a] | | |
|---|---|---|---|
| | MCF-7 | MDA-MB-231 | Hs 578Bst |
| NHC-Ru | 10.54±0.34 | 14.18±1.01 | 11.42±1.12 |
| Te-S-S-NHC-Ru | 4.48±0.17 | 20.71±0.92 | 37.36±1.89 |
| Cisplatin | 24.94±2.66 | 30.0±1.62 | 26.58±2.64 |

[a]Inhibitory activity was assayed by exposure of cell lines to the complex for 48 h and expressed as a concentration required to inhibit the cell proliferation by 50% ($IC_{50}$). Data were expressed as the means ± SD of three independent experiments.

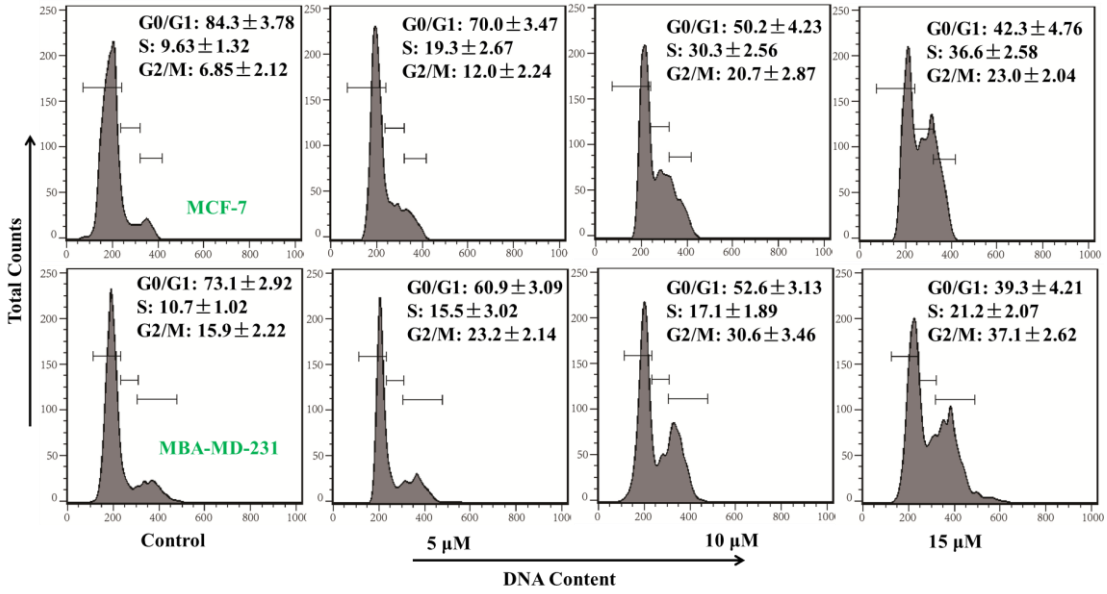


**Figure S9**. Cell cycle distribution of MCF-7 and MBA-MD-231 cancer cells treated with Te-S-S-NHC-Ru (5, 10, and 15 μM) for 48 h.

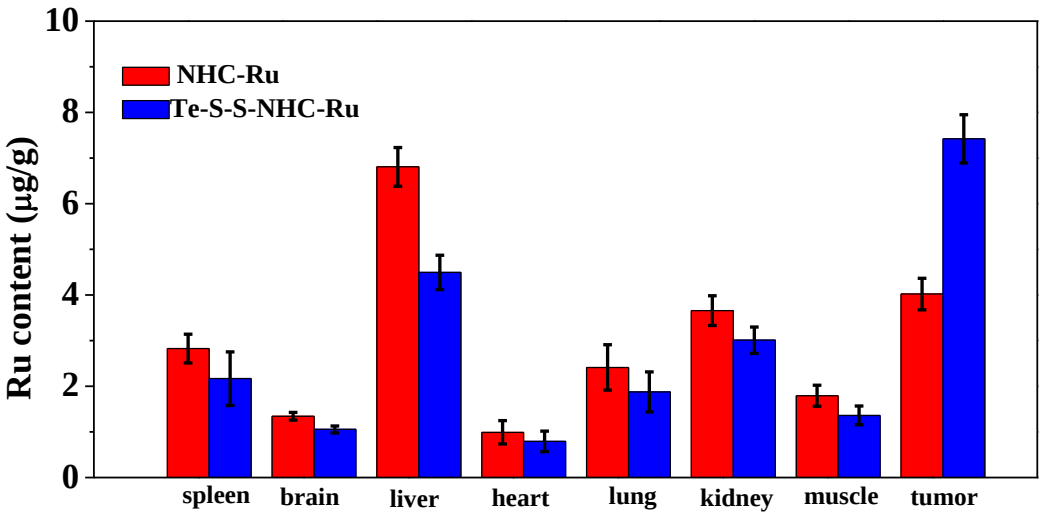


**Figure S10**. Biodistribution of Ru in main organs after two weeks treatment of NHC-Ru and Te-S-S-NHC-Ru in MCF-7 xenografts nude mice by using ICP-MS.