**Additional Information**

**Biosynthesis of Flower-shaped Au Nanoclusters with EGCG and their Application for Drug Delivery**

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**The file includes**

1. Formula S1
2. Table S1-3
3. Figure S1-8

**Formula S1.** The formal chemical equations of the synthetic procedure of Au-Cys-MTX/DOX NCs

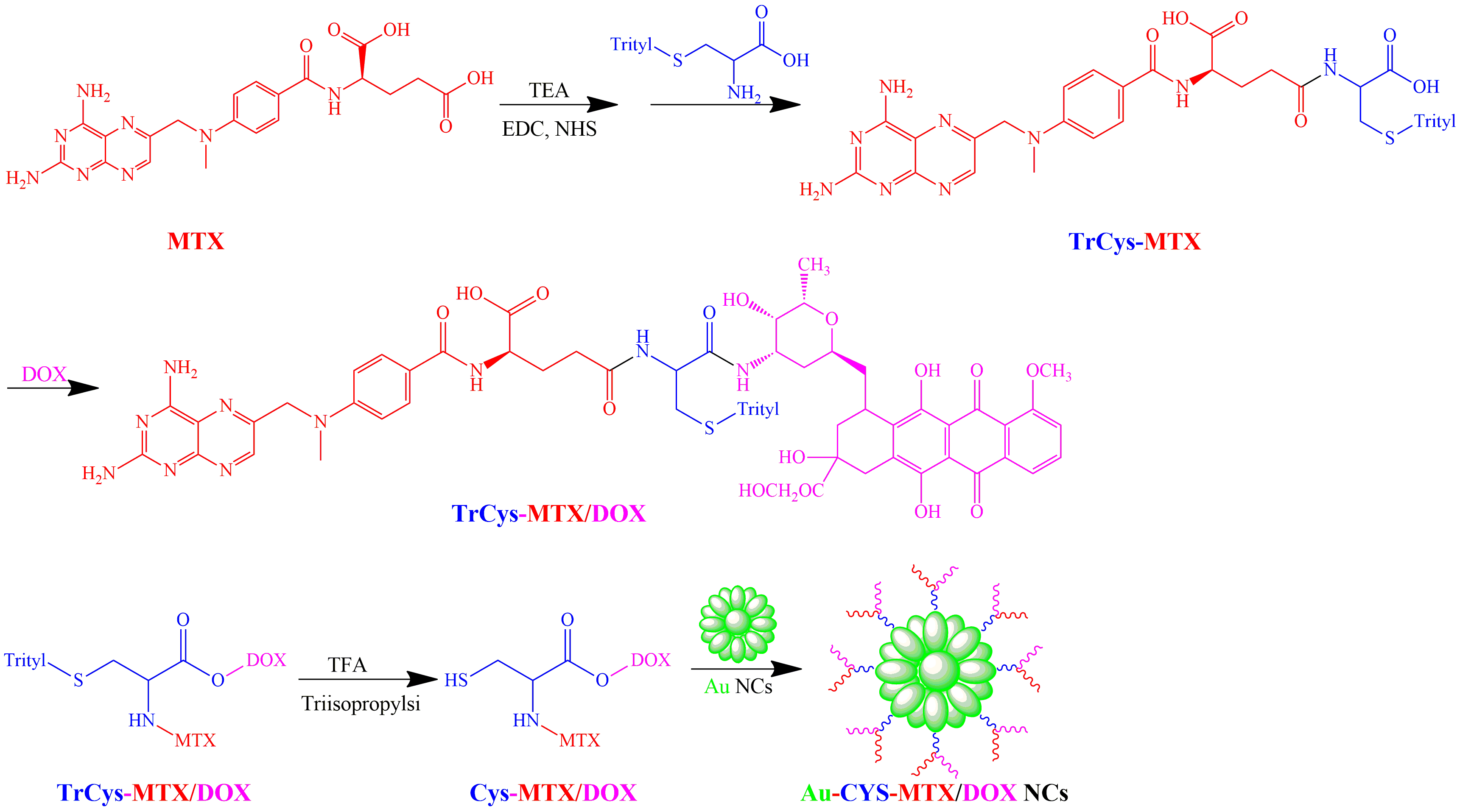


Table S1. The Element composition of Au NCs by EDS

|  |  |  |
| --- | --- | --- |
| Element | Weight% | Atomic% |
| C K | 4.38 | 27.07 |
| O K | 8.67 | 40.20 |
| N K | 0.00 | 0.00 |
| S K | 0.00 | 0.00 |
| Au K | 86.95 | 32.74 |
| Totals | 100 |  |

Table S2. The Element composition of Au-Cys-MTX/DOX NCs by EDS

|  |  |  |
| --- | --- | --- |
| Element | Weight% | Atomic% |
| C K | 6.31 | 20.68 |
| O K | 19.35 | 50.94 |
| N K | 6.99 | 16.53 |
| S K | 3.36 | 6.59 |
| Au K | 63.99 | 12.80 |
| Totals | 100 |  |

Table S3. The Drug loading, Zeta potential and stability of Au-Cys-MTX/DOX NCs

|  |  |  |  |
| --- | --- | --- | --- |
| Drug loading (TGA, wt%) | Drug loading (UV, wt%) | Zeta potential(mv) | Stability(d) |
| 0 | 0 | -25.7 ± 1.2 | 43.4 ± 4.2 |
| 8.2 ± 1.2 | 8.6 ± 1.6 | -21.4 ± 1.0 | 33.8 ± 5.6 |
| 13.4 ± 1.1 | 13.9 ± 1.5 | -20.3 ± 0.6 | 27.9 ± 6.1 |
| 17.1 ± 1.5 | 17.9 ± 1.9 | -15.6 ± 0.7 | 15.4 ± 3.8 |
| 20.9 ± 2.4 | 21.3 ± 2.8 | -10.5 ± 0.9 | 3.4 ± 2.2 |

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**Figure S1.** HRTEM image (A) and the SAED pattern (B) of Au NCs.

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**Figure S2.** The Zeta potential of Au NCs (A) and Au-Cys-MTX/DOX NCs (B).

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**Figure S3.** The Size distributions of Au NCs and Au-Cys-MTX/DOX NCs.

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**Figure S4.** The H1NMR of TRCys-MTX (A) and TRCys-MTX/DOX (B).

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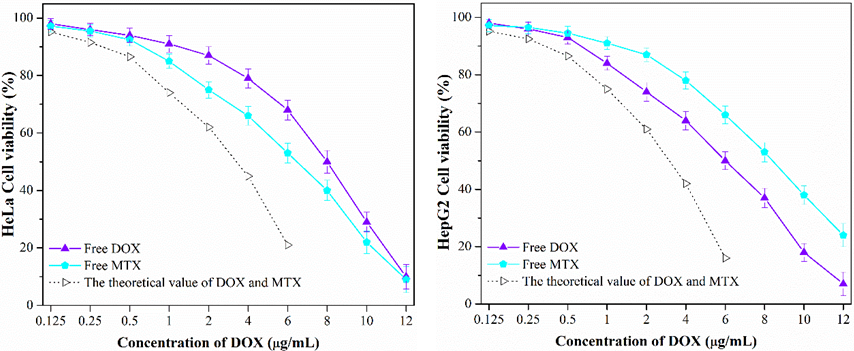
**Figure S5.** TGA curves Au NCs (a) and Au-Cys-MTX/DOX NCs (b-e) with different drug loading.

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**Figure S6.** UV/Vis absorbance spectras of Cys-MTX/DOX (a) and Au-Cys-MTX/DOX NCs (b).

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**Figure S7.** *In vitro* release profiles of free MTX, free DOX, and Au-Cys-MTX/DOX NCs.



**Figure S8.** *In vitro* cell viability of HeLa cells or HepG2 cells treated with the free MTX, free DOX, and the theoretical value of bulk DOX and MTX after incubation of 24 h.