Supporting Information

Neuron-like cell differentiation of hADSCs promoted by copper sulfide nanostructure mediated plasmonic effect driven by near-infrared light

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S1. Raman spectrum of CuS nanostructures.

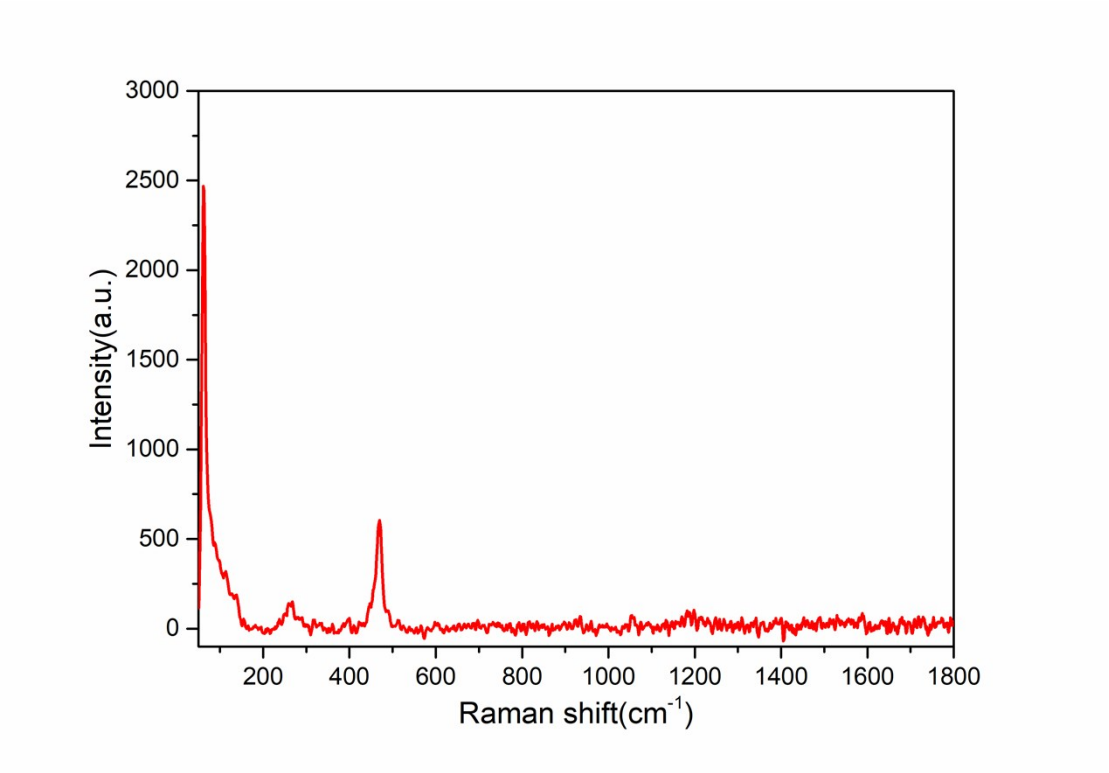

Figure S1. Raman spectrum of CuS nanostructures.

The Raman spectrum of CuS nanostructures exhibited very sharp peaks at 61 cm^{-1} and 470 cm^{-1}, which can be assigned to the lattice vibrations of CuS and showed that the lattice atoms are aligned in the periodic array.[1,2]

S2. The live/dead cell number counted by Image J.

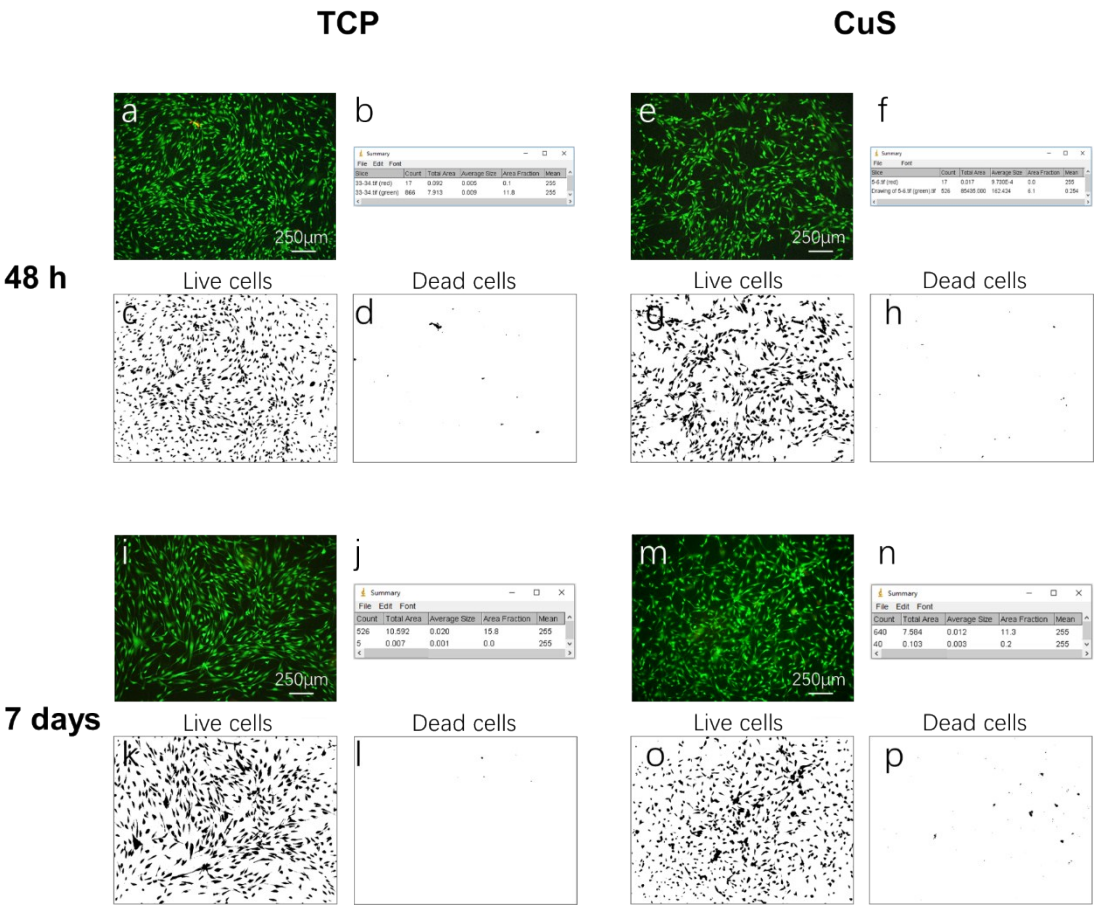

Figure S2. The live/dead cell number counted by Image J after hADSCs were cultured on TCP and CuS nanostructures modified TCP for 48 h and 7 days. There were about 1.9% dead cells on TCP and about 3.1% dead cells on CuS nanostructures after cultured for 48 h, and about 1.0% dead cells on TCP and about 5.9% dead cells on CuS nanostructures after cultured for 7 days which demonstrated the good cytocompatibility.

S3. The temperature variation during NIR irradiation.

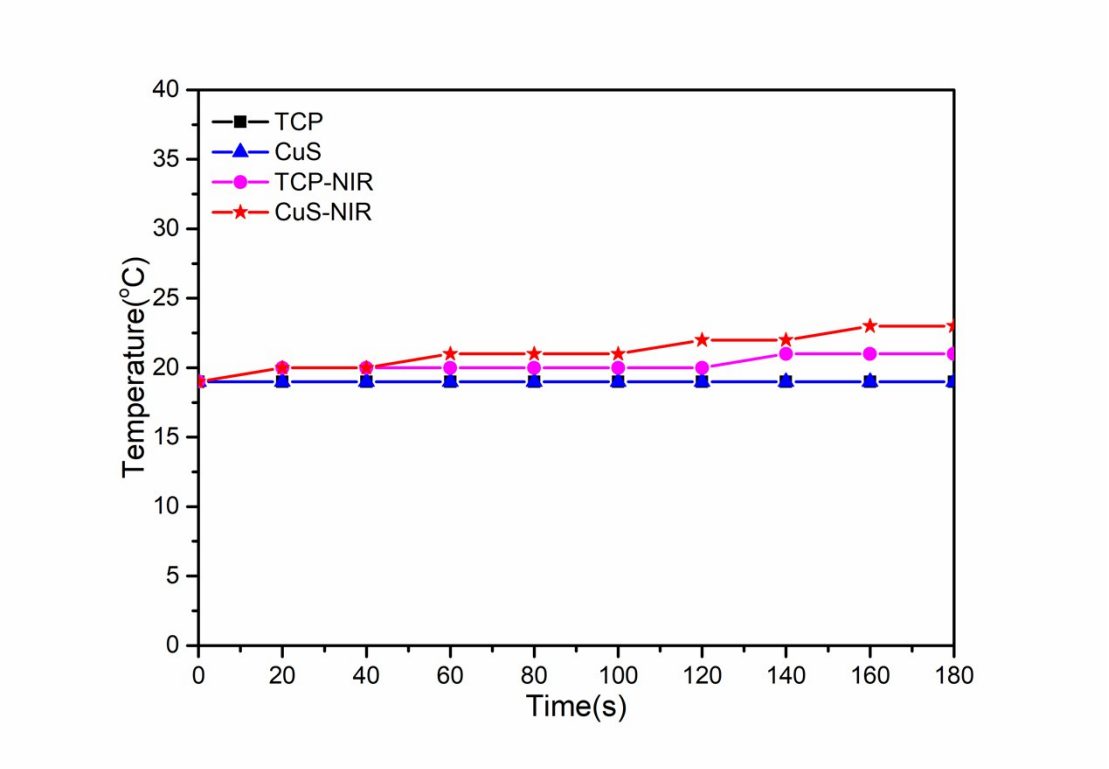

Figure S3. The temperature variation of TCP, CuS, TCP-NIR and CuS-NIR (during the irradiation of 180 s).

S4. Statistical analysis of immunofluorescence staining results.

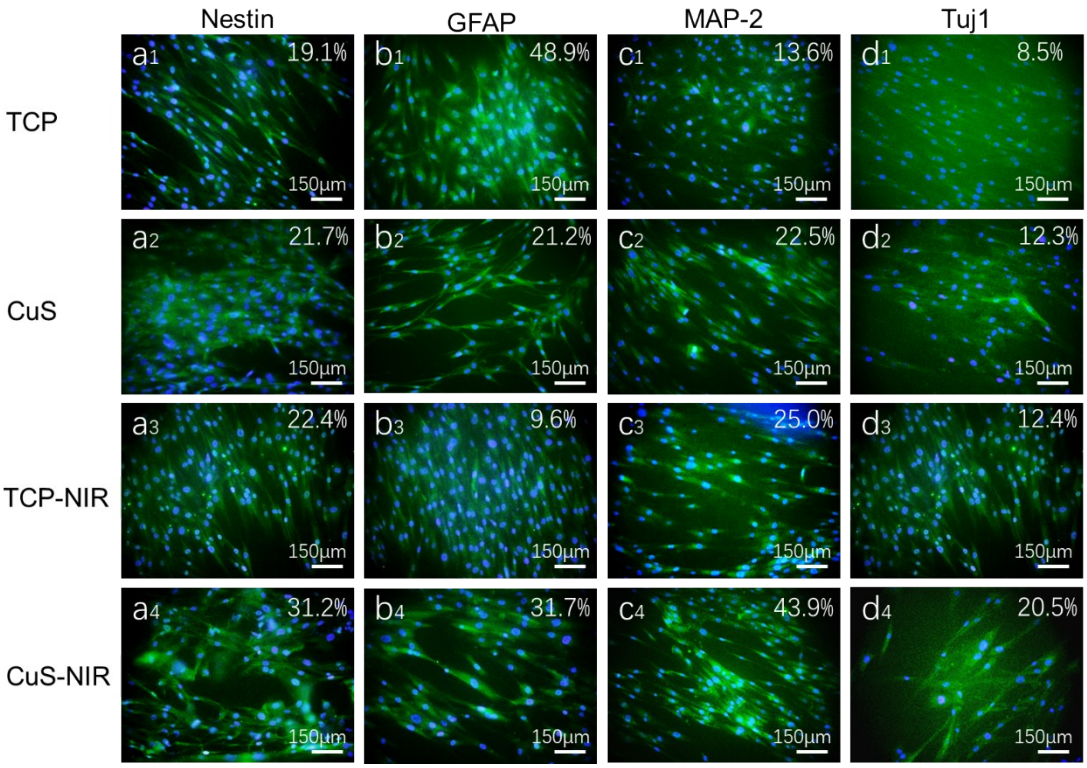

Figure S4. Statistical analysis of immunofluorescence staining results calculated by ImageJ. The percentages of nestin positive cells of TCP, CuS, TCP-NIR and CuS-NIR are respectively 19.1%, 21.7%, 22.4% and 31.2%; The percentages of GFAP positive cells of TCP, CuS, TCP-NIR and CuS-NIR are respectively 48.9%, 21.2%, 9.6% and 31.7%; The percentages of MAP-2 positive cells of TCP, CuS, TCP-NIR and CuS-NIR are respectively 13.6%, 22.5%, 25.0% and 43.9%; The percentages of Tuj1 positive cells of TCP, CuS, TCP-NIR and CuS-NIR are respectively 8.5%, 12.3%, 12.4% and 20.5%.

Table S1. Sequences of q-PCR primers.

Gene	Forward primers (5’-3’)	Reverse primers (5’-3’)
β-actin	CATGTACGTTGCTATCCAGGC	CTCCTTAATGTCACGCACGAT
Nestin	CACCTGTGCCAGCCTTTCTTA	TTTCCTCCCACCCTGTGTCT
GFAP	CAACCTGCAGATTCGAGAAA	GTCCTGCCTCACATCACATC
MAP-2	CGCTCAGACACCCTTCAGATAAC	AAATCATCCTCGATGGTCACAAC
Tuj1	GGCCTTTGGACATCTCTTCA	ATACTCCTCACGCACCTTGC

References

1. N. A. Yeryukov, A. G. Milekhin, L. L. Sveshnikova, T. A. Duda, L. D. Pokrovsky, A. K. Gutakovskii, S. A. Batsanov, E. E. Rodyakina, A. V. Latyshev, D. R. T. Zahn, J. Phys. Chem. C, 2014, **118**, 23409-23414.

2. S. He, G. S. Wang, C. Lu, X. Luo, B. Wen, L. Guo, M. S. Cao, ChemPlusChem, 2013, **78**, 250-258.