Electronic Supplementary Material (ESI) for Dalton Transactions.

Supporting Information

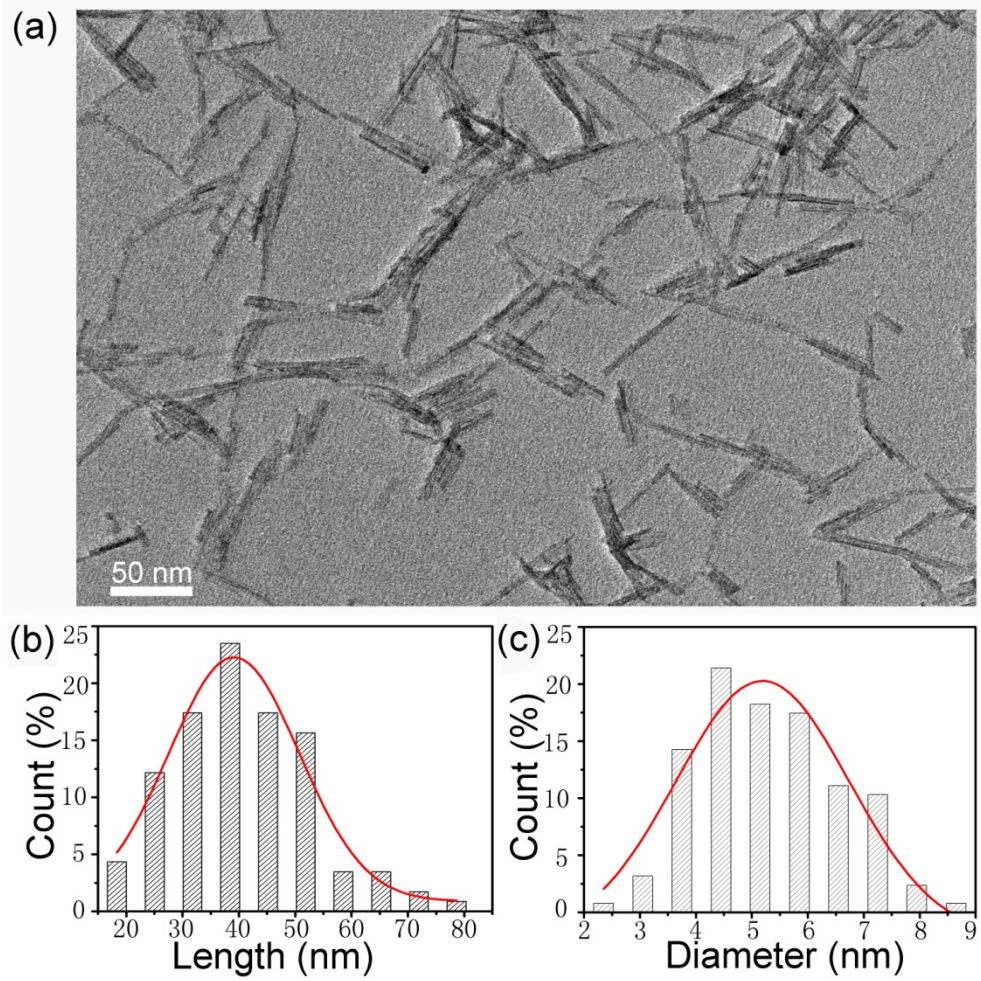

Fig.S1 (a)The TEM image of the PEGylated $Na_{0.3}WO_3$ nanorods; Size histograms represent the dimension distribution of the PEGylated $Na_{0.3}WO_3$ nanorods in length (b) and diameter (c), respectively.

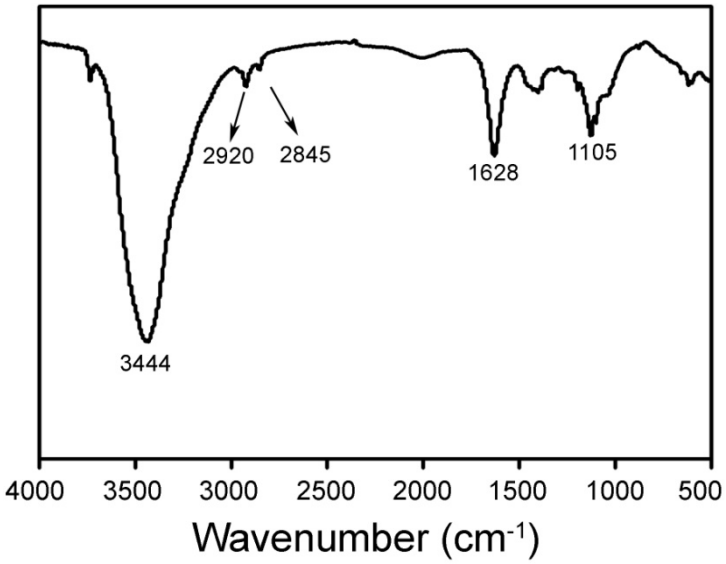

Fig. S2 FTIR spectra of the PEGylated $Na_{0.3}WO_3$ nanorods

Due to the O-H stretching vibration of adsorbed water and/or PEG-400, the sample exhibits a broad band at about 3444 cm^{-1}. The 2920 and 2845 cm^{-1} transmission bands are respectively assigned to the asymmetric (v_{as}) and symmetric (v_s) stretching vibrations of methylene (CH2) units in PEG-400 chain. The bands at 1628 cm^{-1} should be related to the bending modes of the hydroxyls of adsorbed water. The band at around 1105 cm-1 is corresponding to C-O stretching vibration coordinating to metal cations, which agreed well with the IR spectrum of pure PEG-400. These results revealed that there are PEG-400 ligands on the surface of the $Na_{0.3}WO_3$ nanorods, suggesting the formation of PEFylated $Na_{0.3}WO_3$ nanorods.

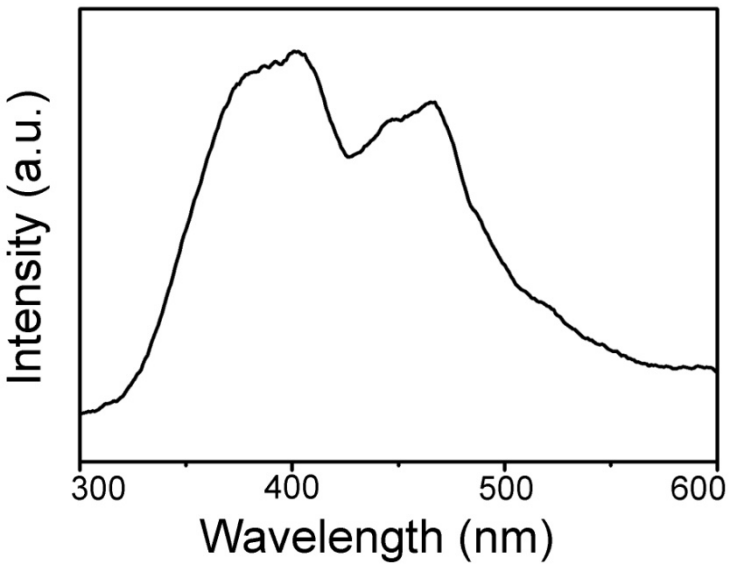

Fig.S3 photoluminescence spectrum of the PEGylated $Na_{0.3}WO_3$ nanorods

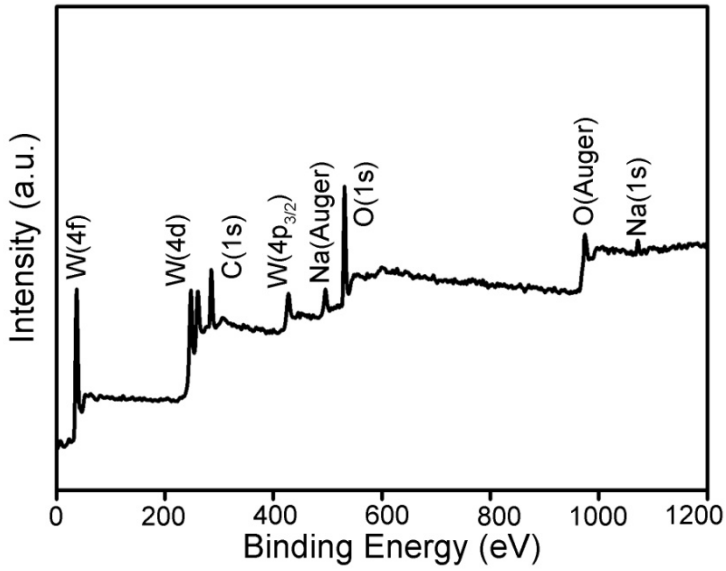

Fig. S4 XPS survey spectrum of the PEGylated $Na_{0.3}WO_3$ nanorods

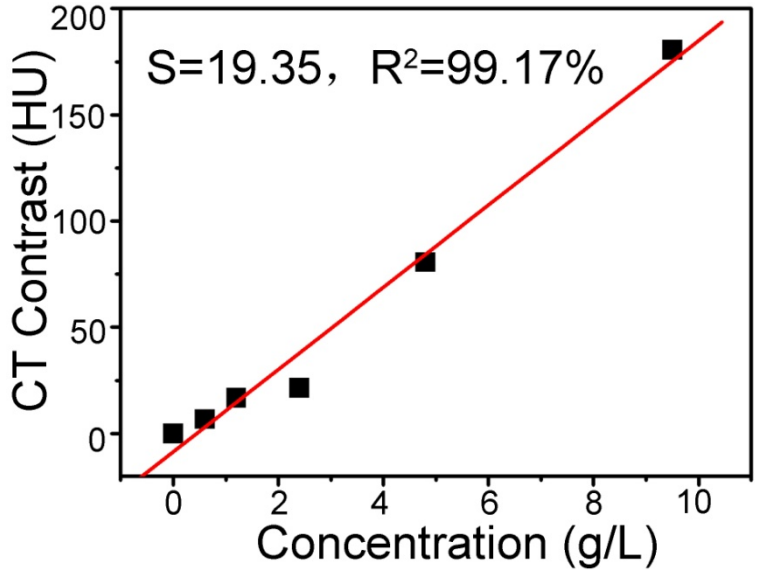

Fig.S5 HU values of iopamidol as the function of its concentrations

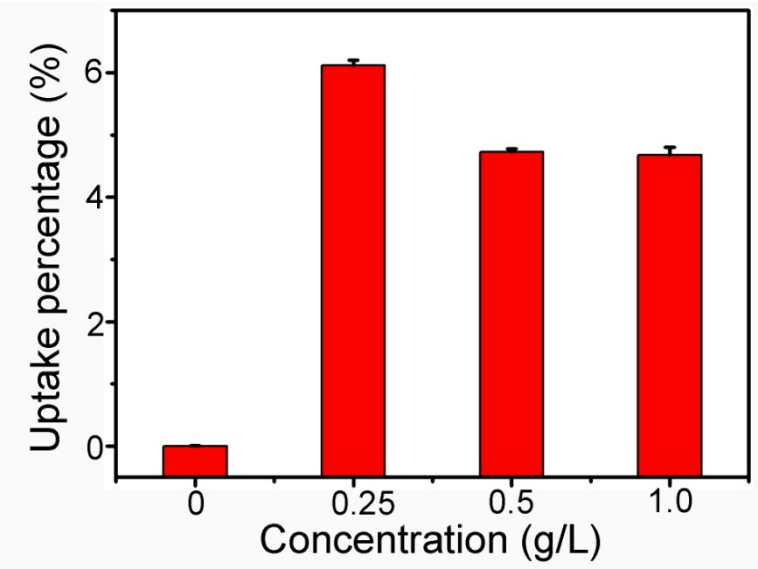

Fig. S6 Cellular uptake percentage of the $Na_{0.3}WO_3$ nanorods in vitro cells treated with the $Na_{0.3}WO_3$ nanorods with different concentrations.

We have calculated the cell uptake percentage of the hydrophilic $Na_{0.3}WO_3$ nanorods with different concentrations (0, 0.25, 0.5, 1.0 g/L). As shown in Fig. S6, the cellular uptake percentage is nearly 6.2% when the concentration is 0.25 g/L. However, the cellular uptake percentage declined with the increase of concentration, because the cell viability dropped at the same time. An average percentage can reach to ~ 5%. Compared with silica modified Pd nanosheets (~ 1.3%),[1] the cellular uptake efficiency of the hydrophilic $Na_{0.3}WO_3$ nanorods was almost 4 times higher than the former. Thus, it is believed that the hydrophilic $Na_{0.3}WO_3$ nanorods have high cell uptake efficiency and can be a promising candidate for an efficient drug carrying system.

Reference

1 **S. H. Tang, X. Q. Huang, N. F. Zheng, *Chem. Commun.* 2011, 47,3948.**

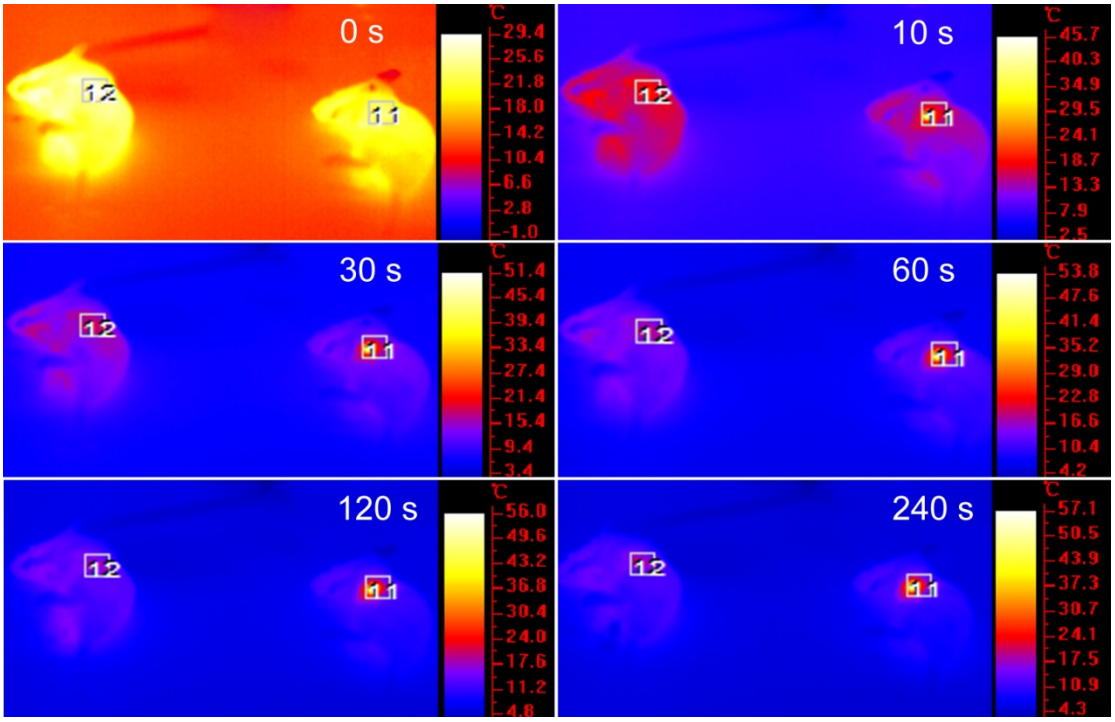

Fig. S7 The full-body thermographic images of mice containing tumors which were injected with saline solution (left mouse, indicated region 12) and saline solution containing PEGylated $Na_{0.3}WO_3$ nanorods (right mouse, indicated region 11), under the irradiation of 915-nm laser with the safe density of 1.2 Wcm^{-2} for different time (0-240 s).