## **Supporting Information**

## Synthesis of 20-nm-sized CoAl-LDH nanoparticles modified with

## folic acid for enhanced cancer cell targeting

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Figure S1	2
Figure S2	3
Figure S3	4



Figure S1 (a) A TEM image and (b) particle size distribution of CoAl-LDH (pristine LDH before modification). The average particle diameter is 18 nm.



Figure S2 (a) XRD patterns of Ref-CoAl-LDH before and after heat treatment at 250 °C. (b) XRD patterns and (c) SEM images of Ref-CoAl-LDH before and after FA modification.

The synthesis of Ref-CoAl LDH was performed according to a previous report (Liu. Z, et al., *J. Am. Chem. Soc.* 128, 4872 (2006)). Briefly, 2.379 g of  $CoCl_2 \cdot 6H_2O$ , 1.207 g of  $AlCl_3 \cdot 6H_2O$ , and 2.102 g of urea were dissolved in 1 L of water to give a solution containing 10 mmol/L of  $Co^{2+}$ , 5 mmol/L of  $Al^{3+}$ , and 35 mmol/L of urea. The solution was stirred with refluxing for 2 days in a nitrogen atmosphere. Then, the obtained powder was collected by filtration, and washed with water (3 times) and ethanol (2 times). Drying at rom temperature yields Ref-CoAl-LDH. Ref-CoAl-LDH lost the original high crystallinity after the heat treatment at 250 °C, and the modification with FA was performed without heat treatment. As shown in Fig. S2(a), the heat treatment formed an impurity phase. One possible phase is boehmite (ICDD: 00-003-0065) though the peak potions are somehow different and there is a possibility of the mixture of its polymorphs.



Figure S3 (a) FTIR and (b) TG curves of Ref-CoAl-LDH before and after FA modification.