Supplementary Information

An intelligent peptide recognizes and traps *Mycobacterium tuberculosis* to inhibit macrophage phagocytosis

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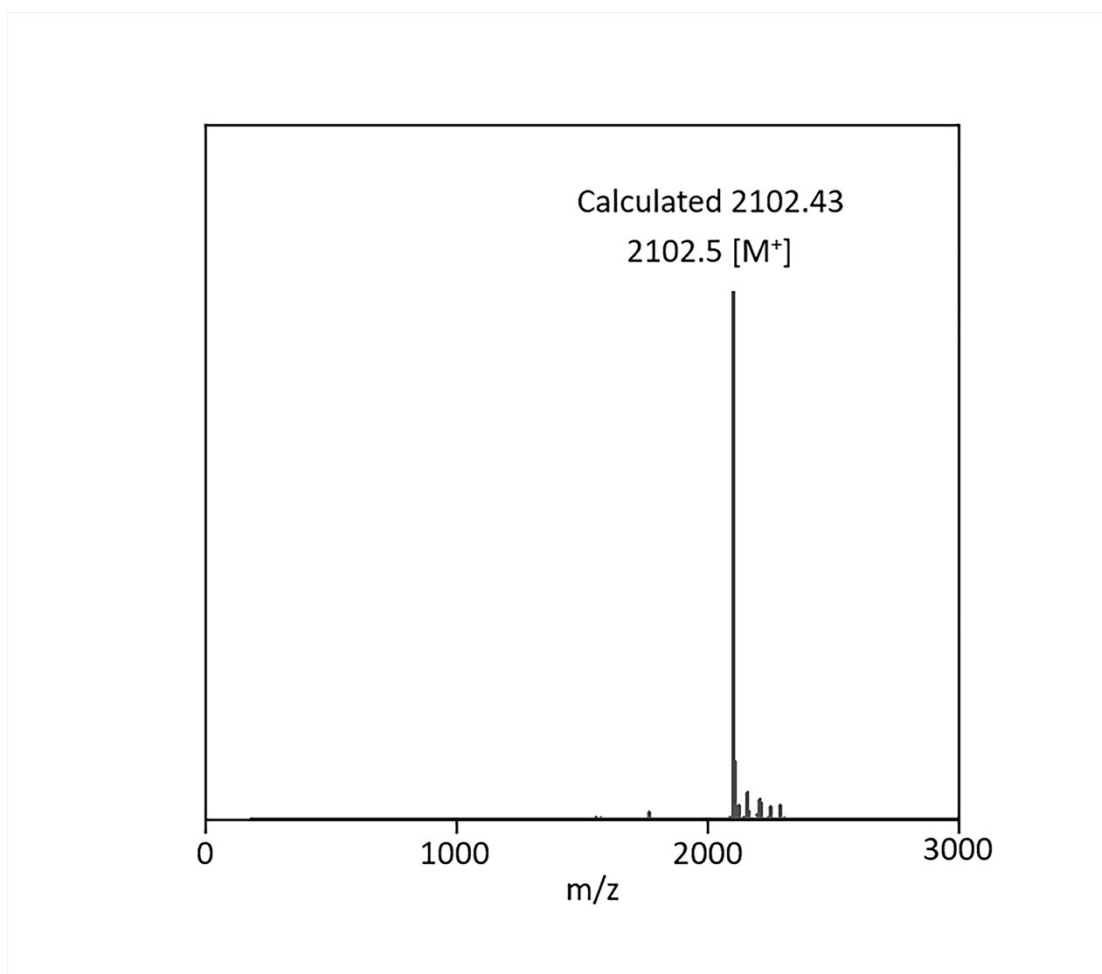Gui-Yuan Wang and Bin Lu contribute equally to the study.

Calculated 2102.43
2102.5 [M$^+$]

Fig S1. The MALDI-TOF-MS spectrum of BFH.

a

BP-KAAGG-WHSGTPH (BAH)
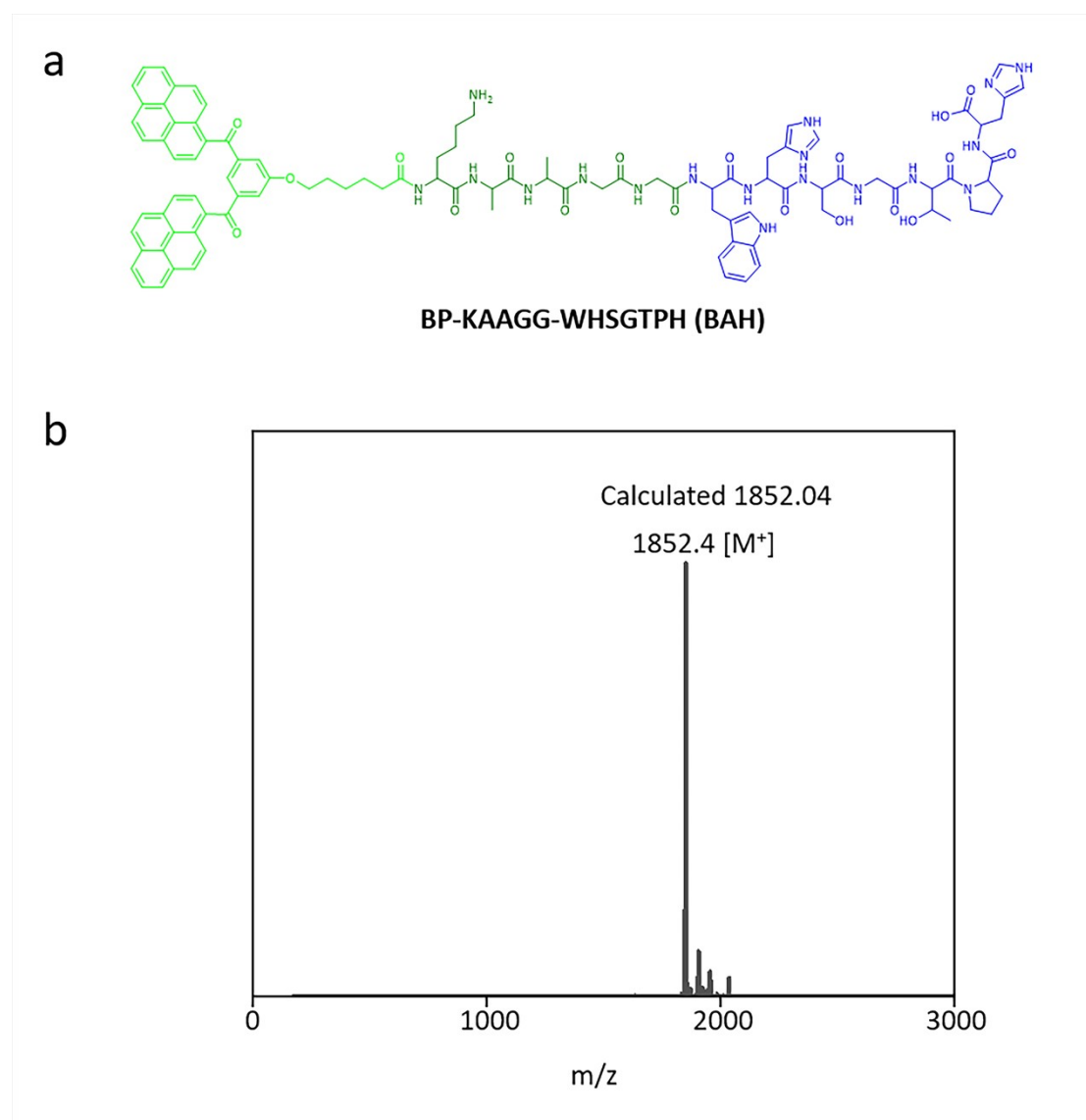
b

Calculated 1852.04

1852.4 [M⁺]

m/z

Fig S2. (a) Molecular structure of BAH. (b) The MALDI-TOF-MS spectrum of BAH.

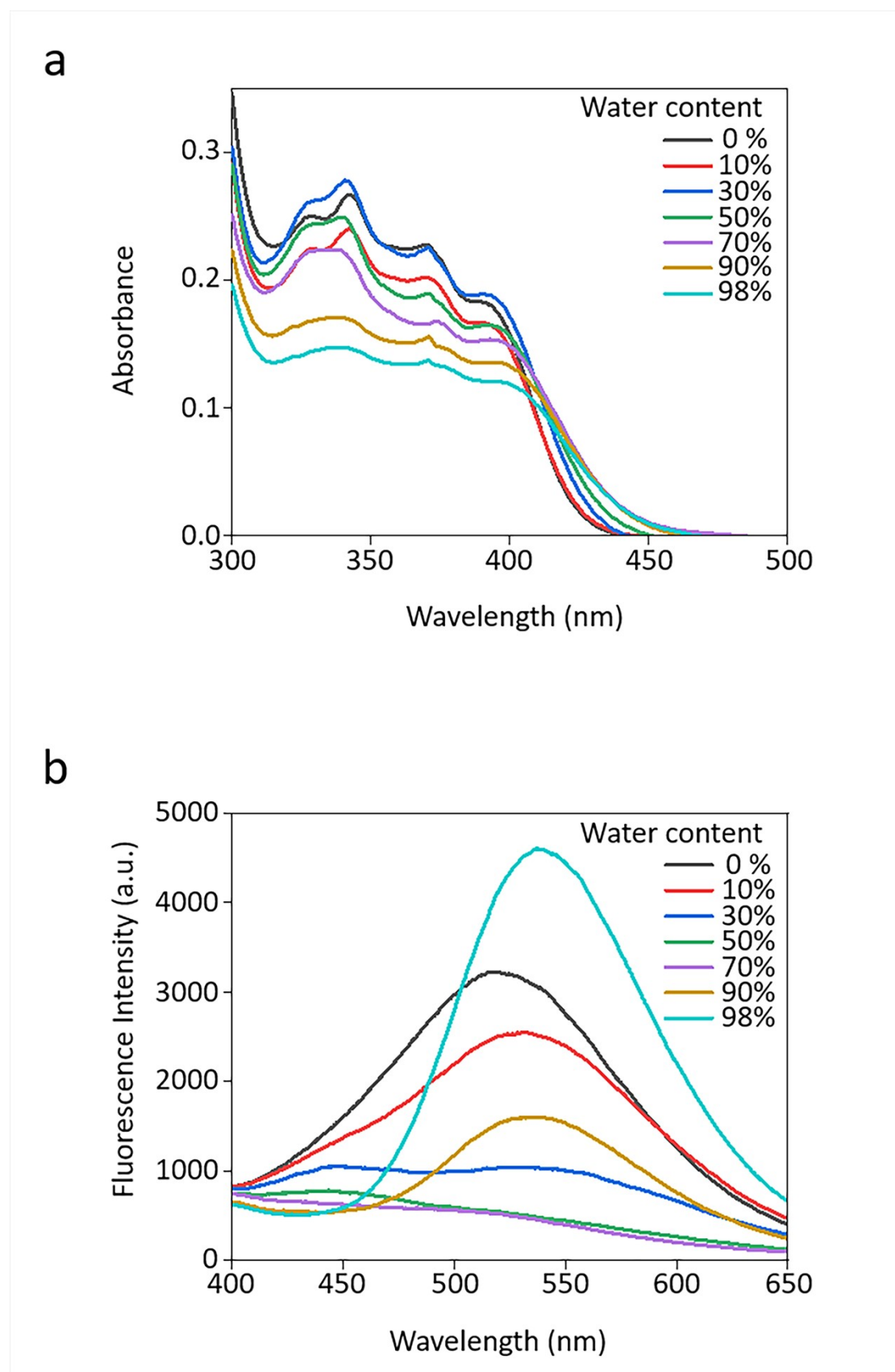**Fig S3.** (a) UV–vis and (b) fluorescence spectra characteristics of self-assembly process to form BAH NPs (30 μM) in mixed H_2O/DMSO solutions.
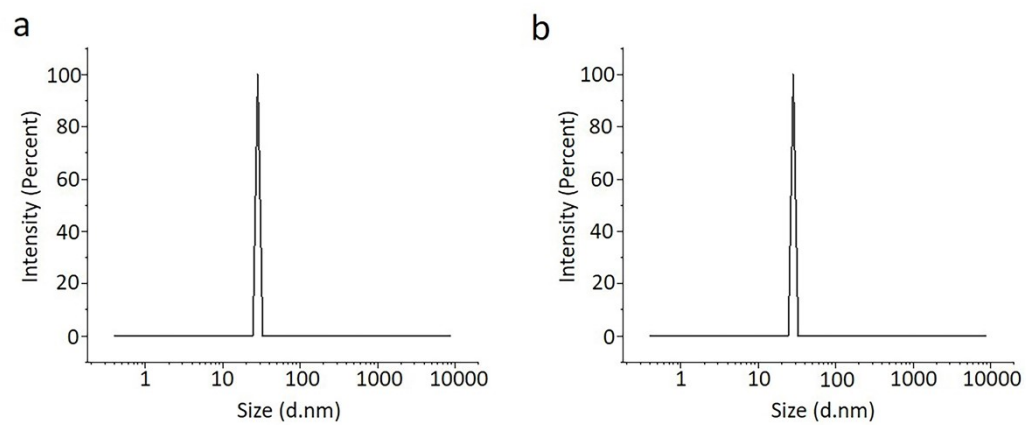
a

Intensity (Percent)
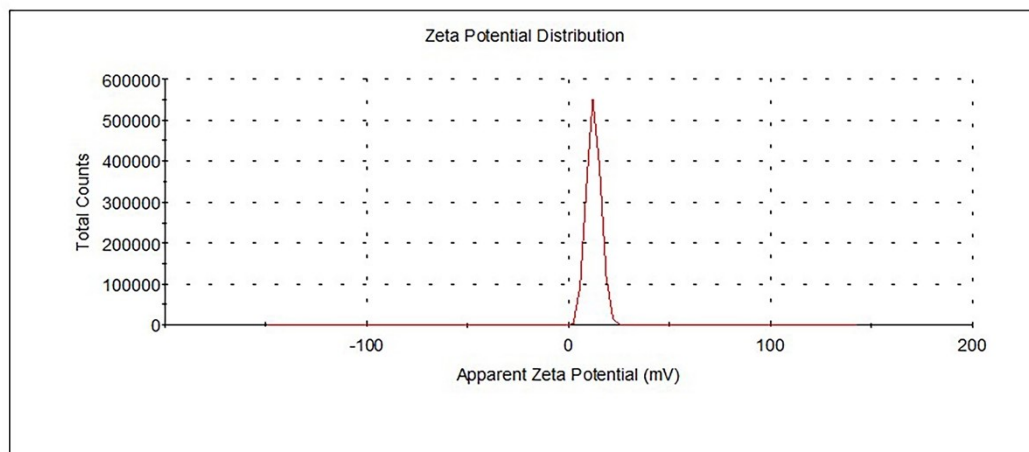
100
80
60
40
20
0

1   10   100   1000   10000
Size (d.nm)

b

Intensity (Percent)

100
80
60
40
20
0

1   10   100   1000   10000
Size (d.nm)

Fig S4. Particle size of (a) BFH NPs and (b) BAH NPs from DLS.

a

b
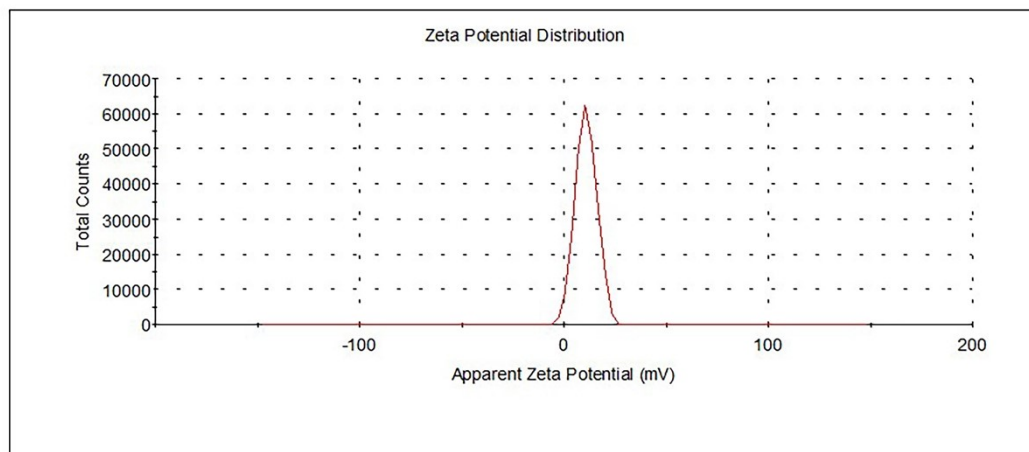
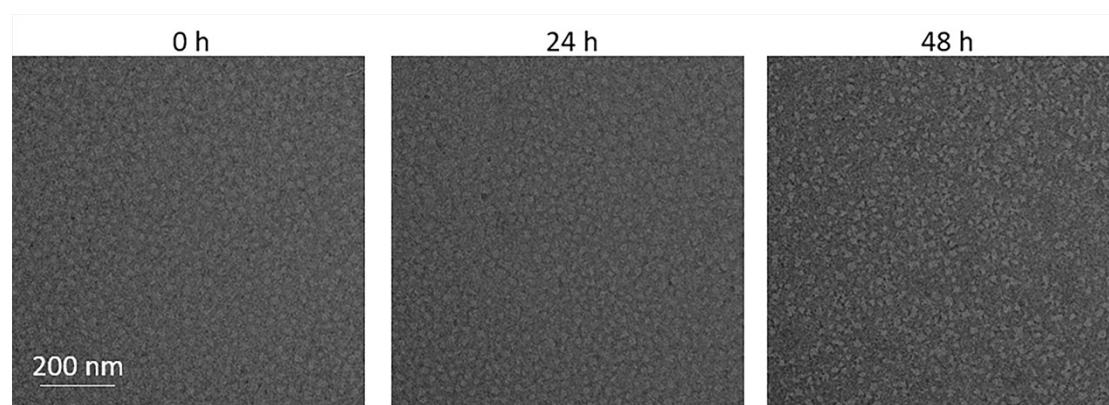**Fig S5.** Zeta potential of (a) BFH NPs and (b) BAH NPs.

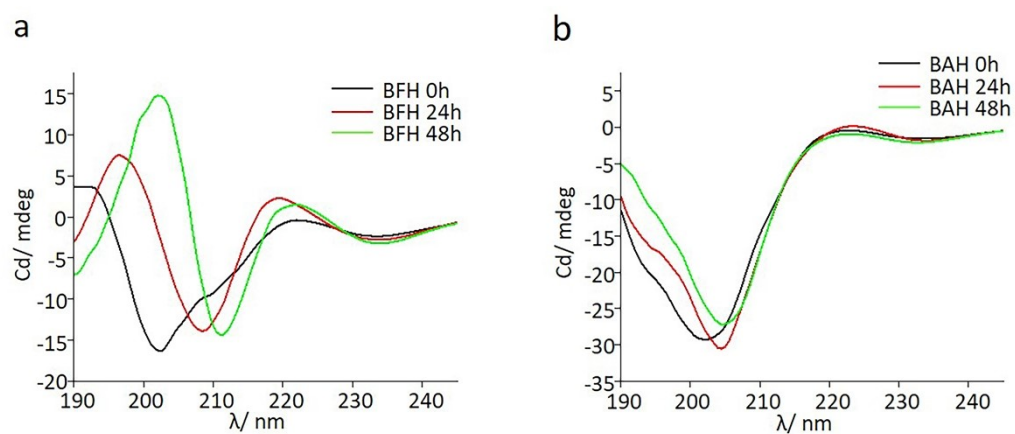**Fig S6.** TEM images of BAH (30 µM) NPs incubated with *BCG* in 48h.

Fig S7. CD spectra of *BCG* incubated with (a) BFH and (b) BAH in water/HFIP (v/v = 99/1) at different time points.
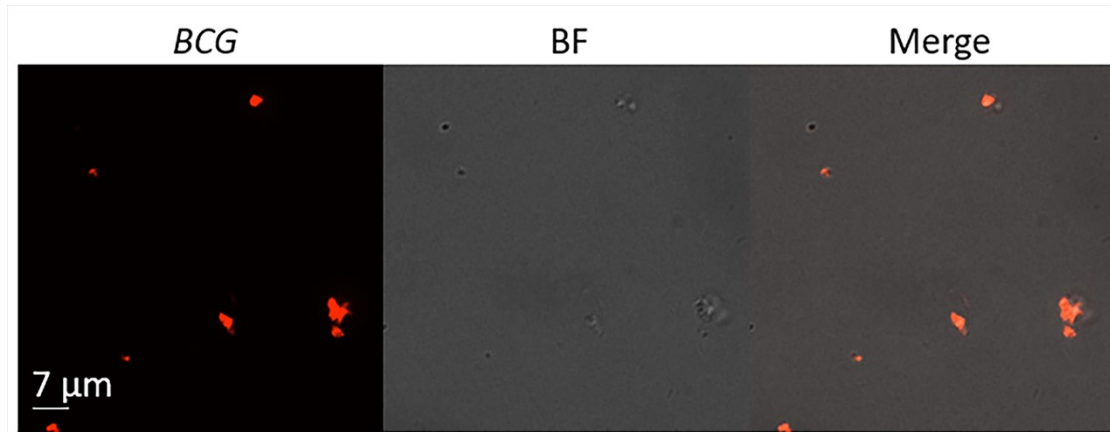
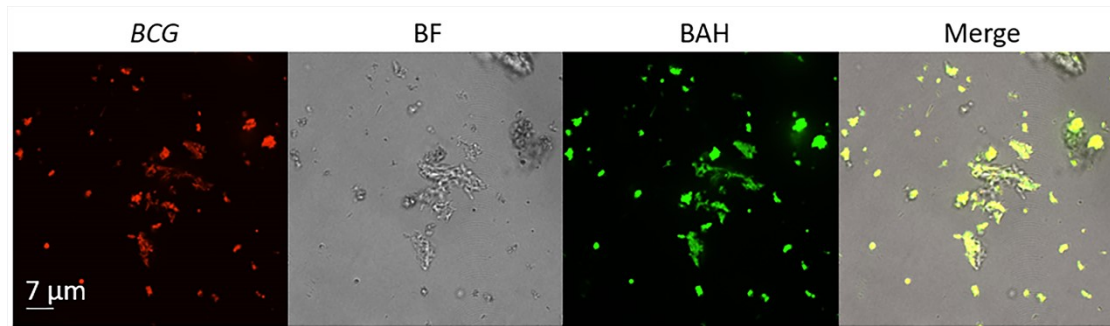**Fig S8.** CLSM image of Texas red-stained *BCG*.

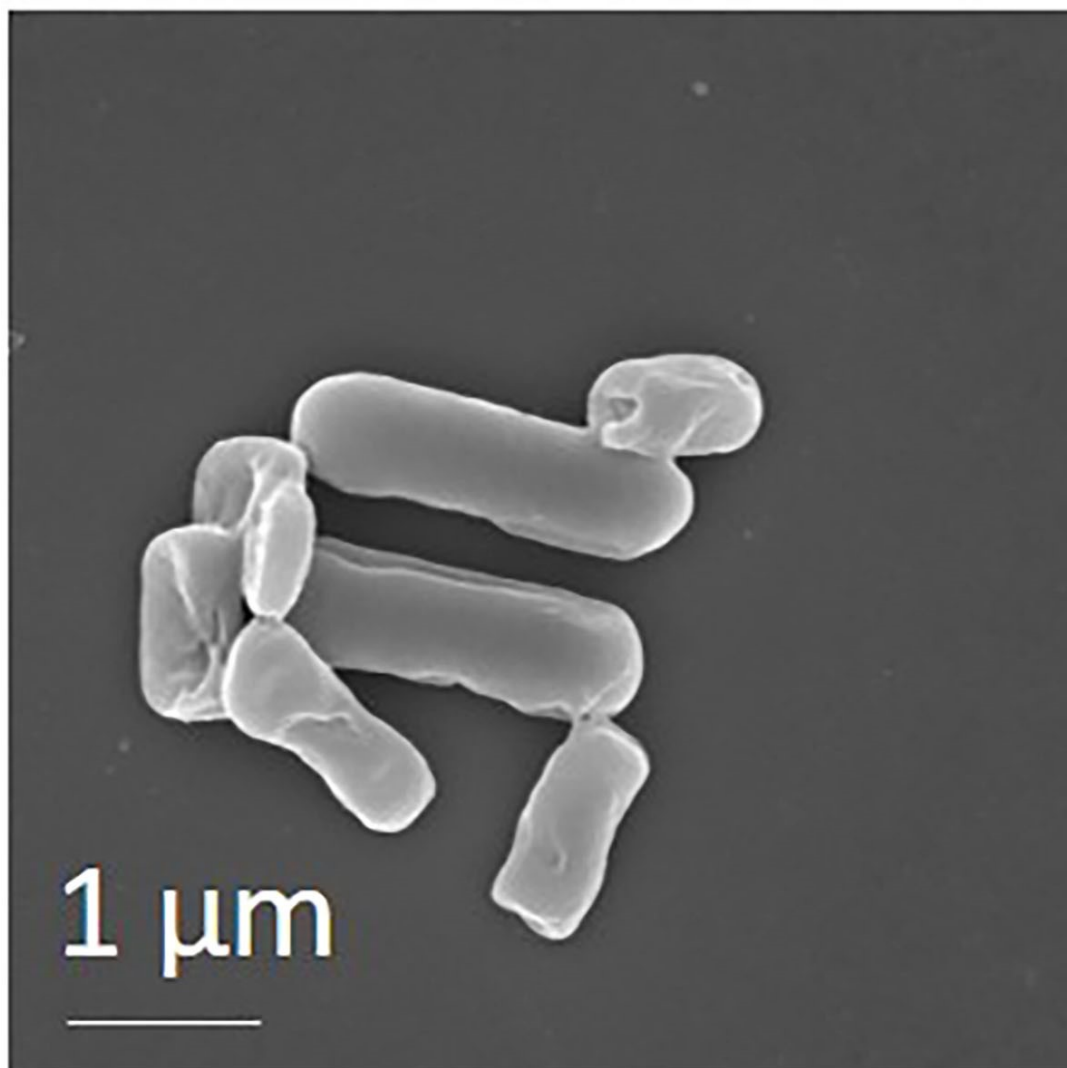**Fig S9.** CLSM images of BAH (30 µM) NPs with *BCG* for 4 h. The *BCG* was stained by Texas red.

E. coli

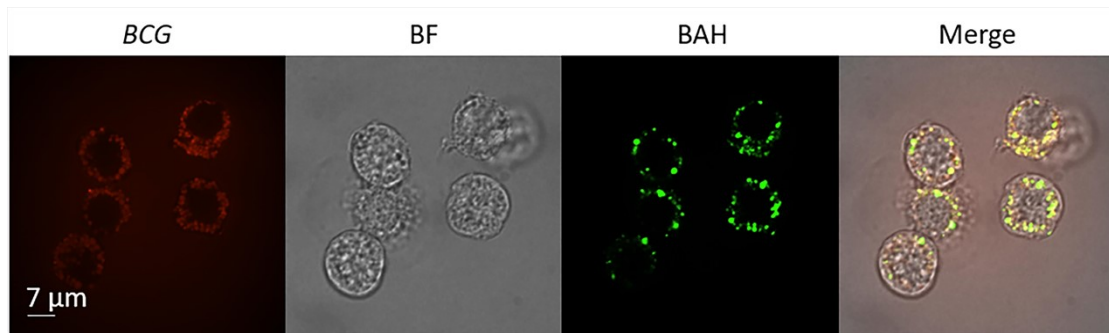

Fig S10. SEM image of BHF NPs incubated *E. coli* for 4 h.

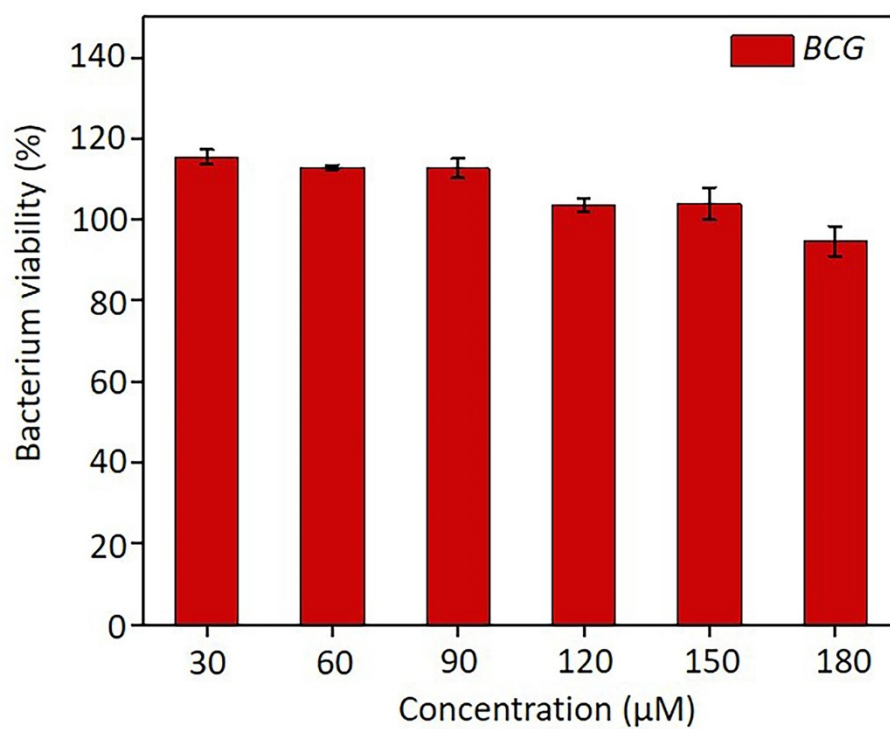**Fig S11.** CLMS images of co-incubation of BAH NPs, *BCG* and macrophages.

Fig S12. The toxicity of BFH NPs to *M. tuberculosis*.