Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Biocompatible CdSe/ZnS quantum dot micelles for long-term cell imaging without alteration to the native structure of the blood plasma protein human serum albumin

Shanmugavel Chinnathambi[a], Norhidayah Abu[b], Nobutaka Hanagata[a,c*]

[a]Nanotechnology Innovation Station, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, Ibaraki 305-0047, Japan

[b]Advanced Materials Research Centre, SIRIM Berhad, Lot 34, Jalan Hi- Tech 2/3, Kulim, Hi-Tech Park, 09000 Kulim, Malaysia.

[c]Graduate School of Life Science, Hokkaido University, N10W8, Kita-ku, Sapporo, Hokkaido 060-0812, Japan

E-mail:HANAGATA.Nobutaka@nims.go.jp

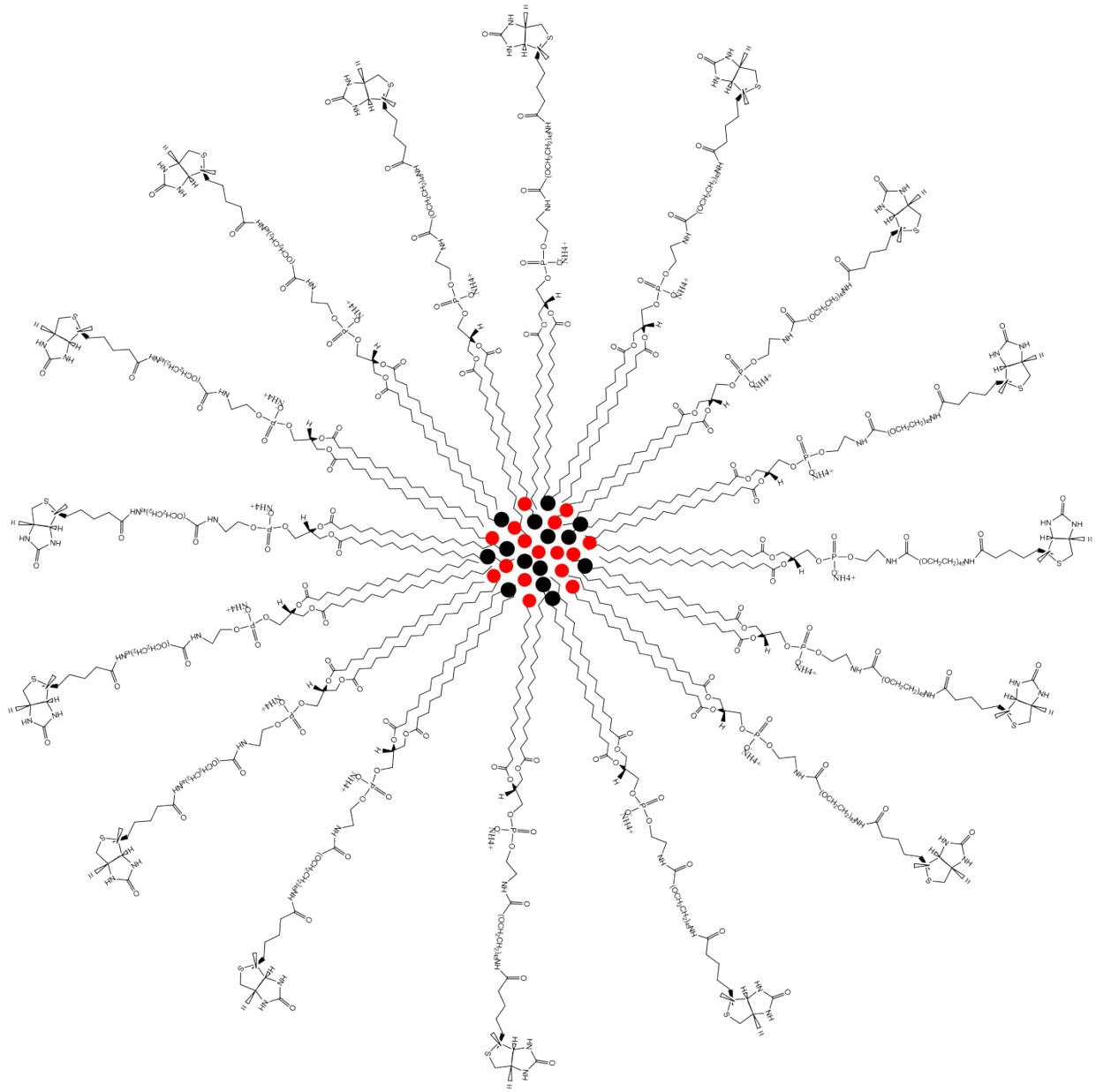

Fig.S1 Structure of micelle. CdSe/ZnS QDs (red dots) and Fe_3O_4 NPs (black dots) coencapsulated in a phospholipid [DSPE-PEG (2000)-biotin] micelle.

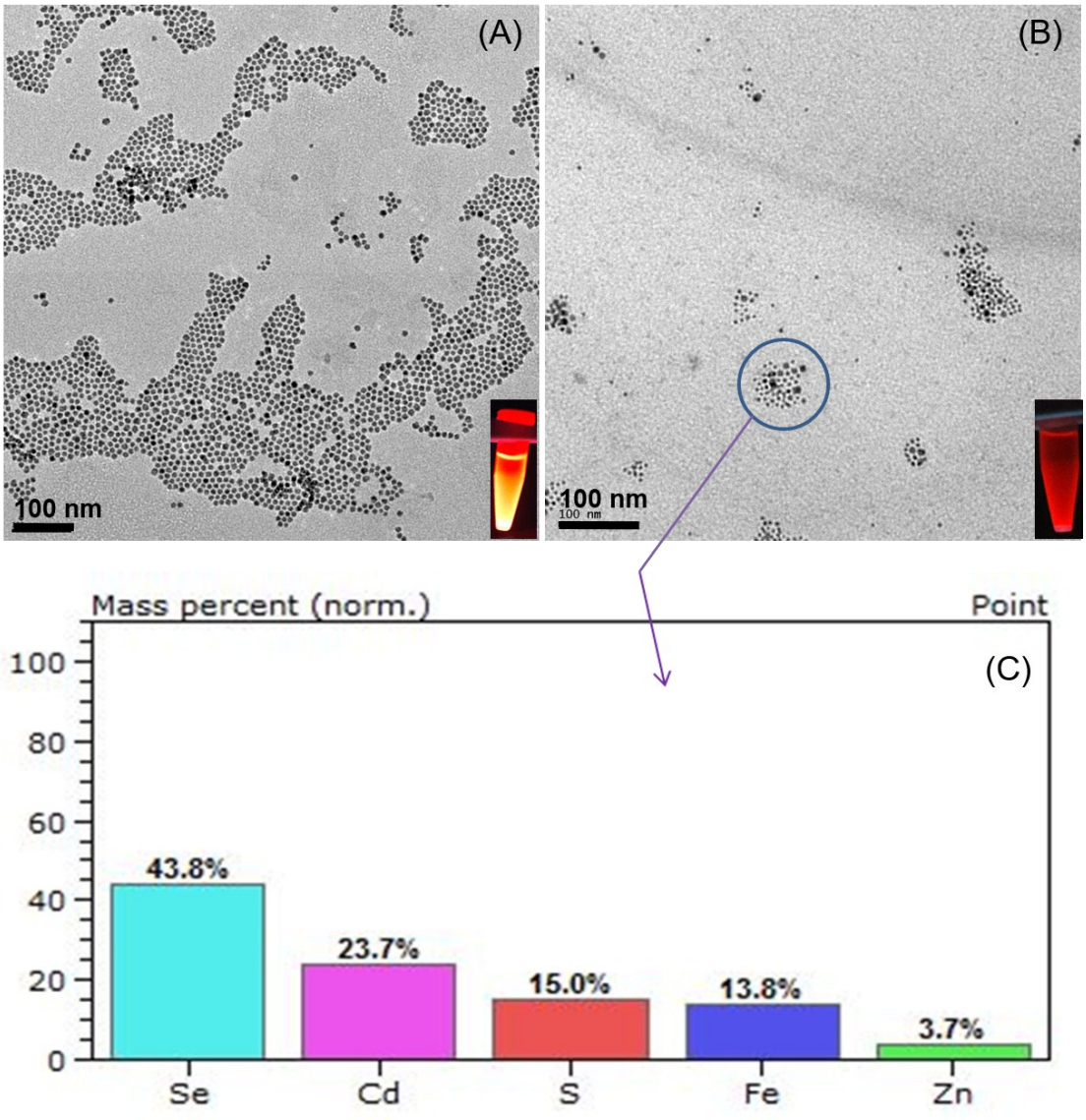

Fig.S2 (A) TEM micrograph of CdSe/ZnS QDs in chloroform.(B) Micelles [CdSe/ZnS + Fe_3O_4 NPs] in HPLC water. (C) Elemental analysis of micelles. (Inset A, B: Fluorescence emissions of the samples under UV light excitation)

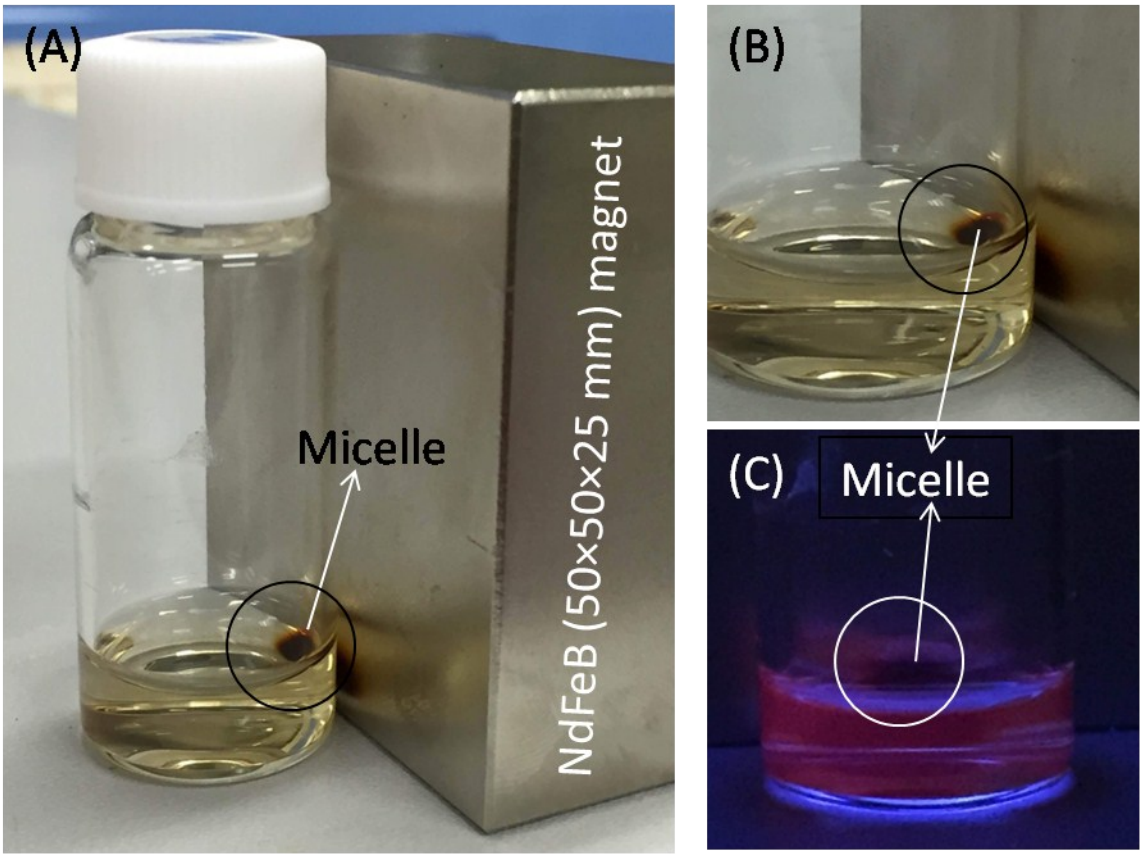

Fig.S3 Micelles under an external magnetic field. (A, B) Micelles under illumination with white light and 365-nm UV light (C).

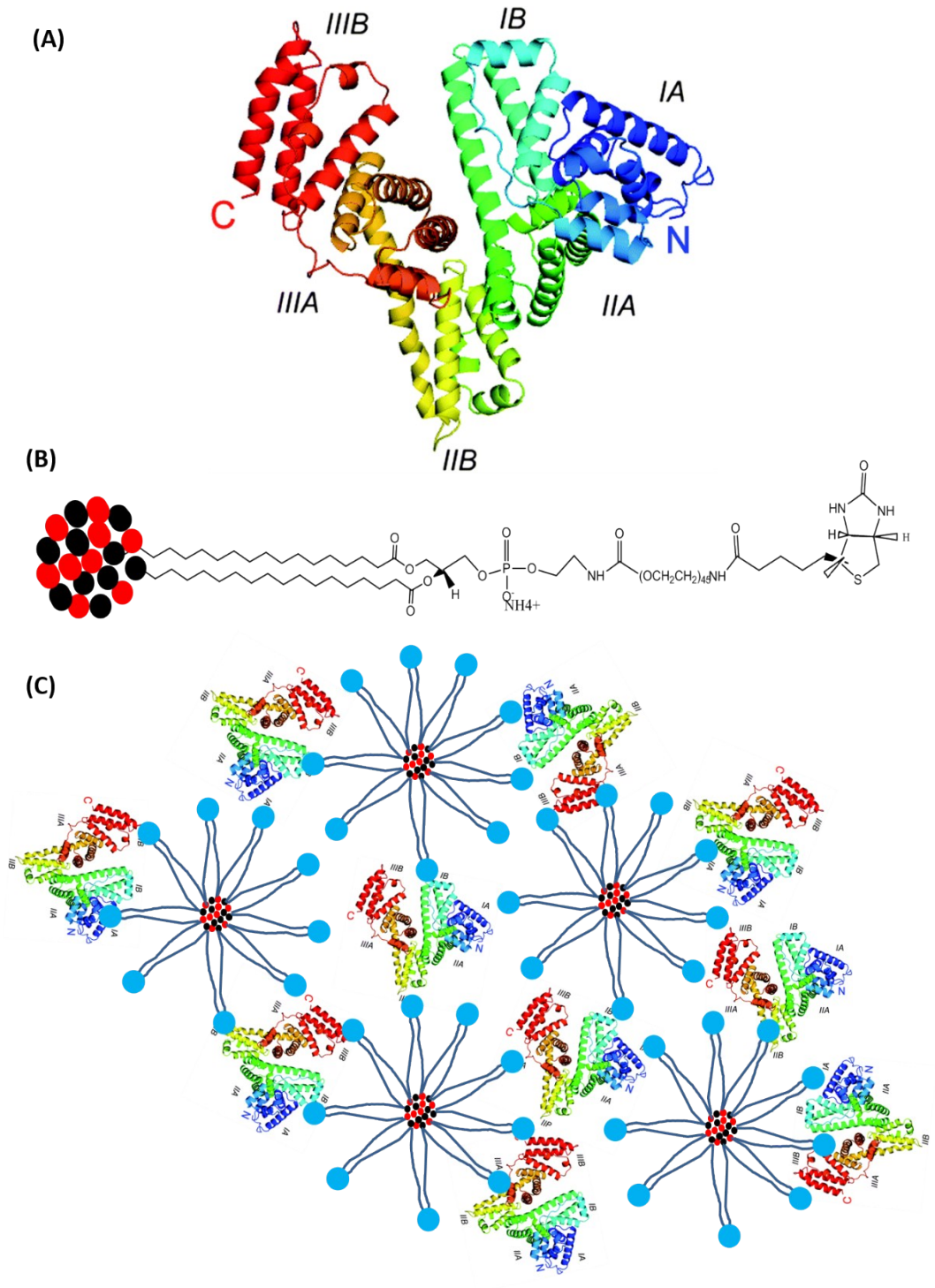

Fig.S4 (A) Crystal structure of HSA. (B) Phospholipid binding on the surface of CdSe/ZnS QDs (red dots) and Fe_3O_4NPs (block dots). (C) Schematic illustration of micelle-protein assemblies. The blue dot indicates biotin molecule.

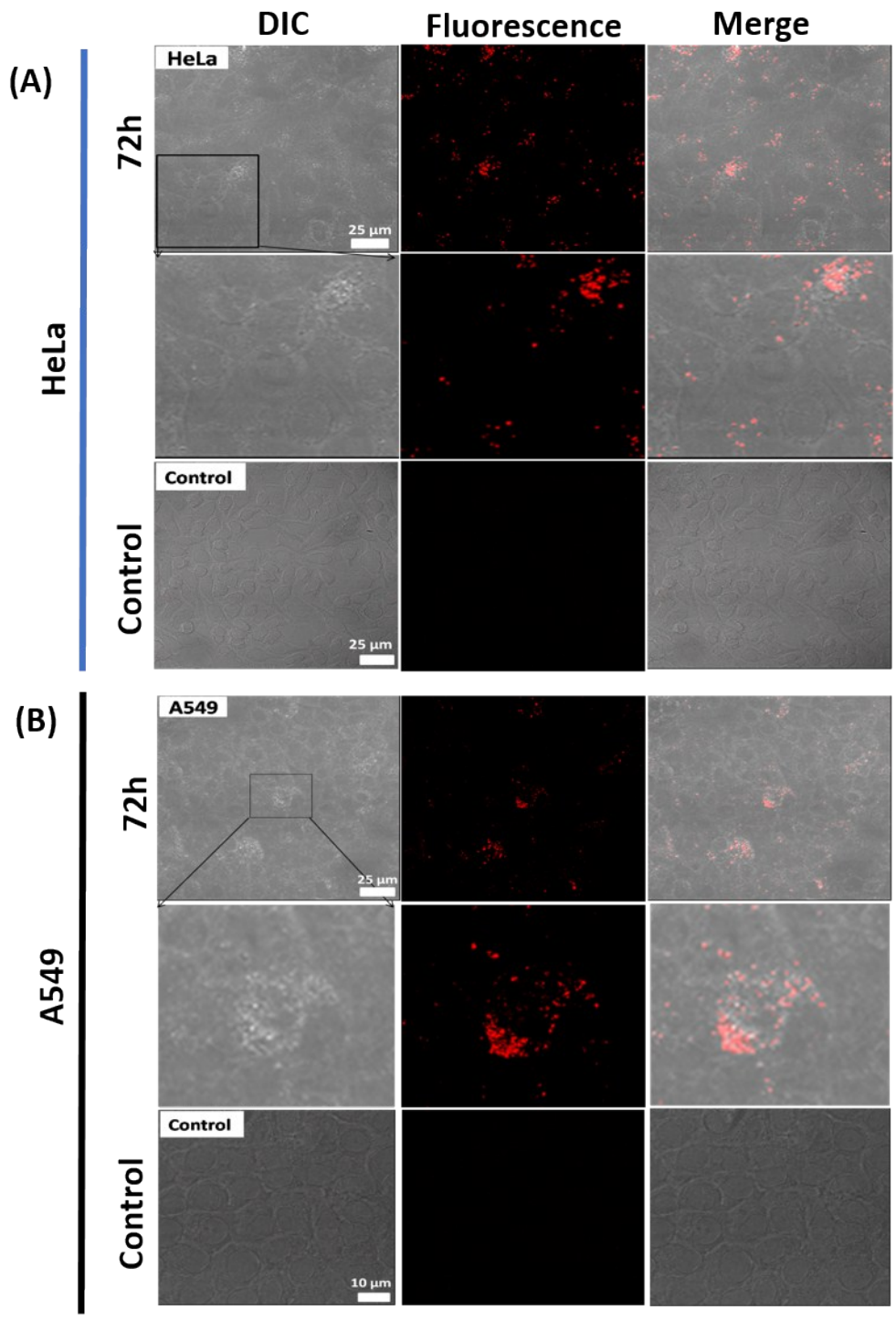

Fig.S5 Cellular uptake of micelles. HeLa (A) and A549 (B) cells were exposed to micelles for 72 h; cells were then reseeded and cultured for 72 h before detection of micelles by confocal microscopy. The third row of each panel shows the control cells.

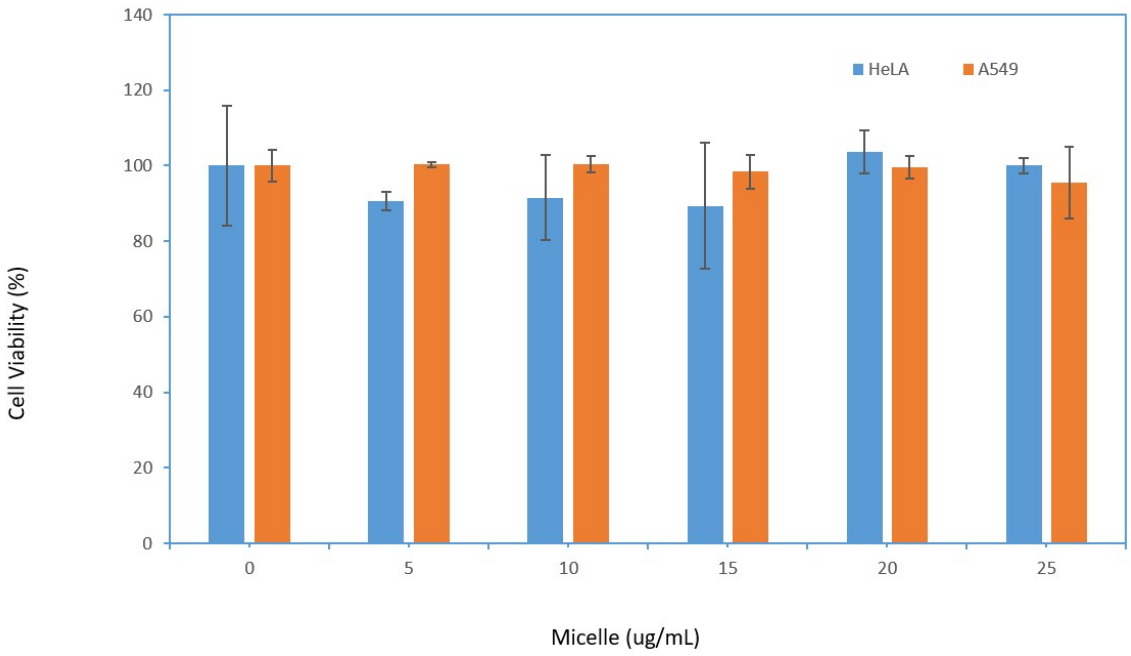

Fig.S6 Toxicity of micelles encapsulating magnetic CdSe/ZnS QDs. HeLa and A549 cells were incubated with micelles for 72 h.