Electronic Supplementary Information (ESI)

Conjugation of photosensitisers to antimicrobial peptides increases the efficiency of photodynamic therapy in cancer cells

Francesca Moret[a,*], Marina Gobbo[b], Elena Reddi[a*].

[a] Department of Biology, University of Padova, via U. Bassi 58/B, Padova, Italy

[b] Department of Chemical Sciences, University of Padova, via F. Marzolo 1, Padova, Italy

[*]Corresponding authors: elena.reddi@unipd.it; francesca.moret@unipd.it

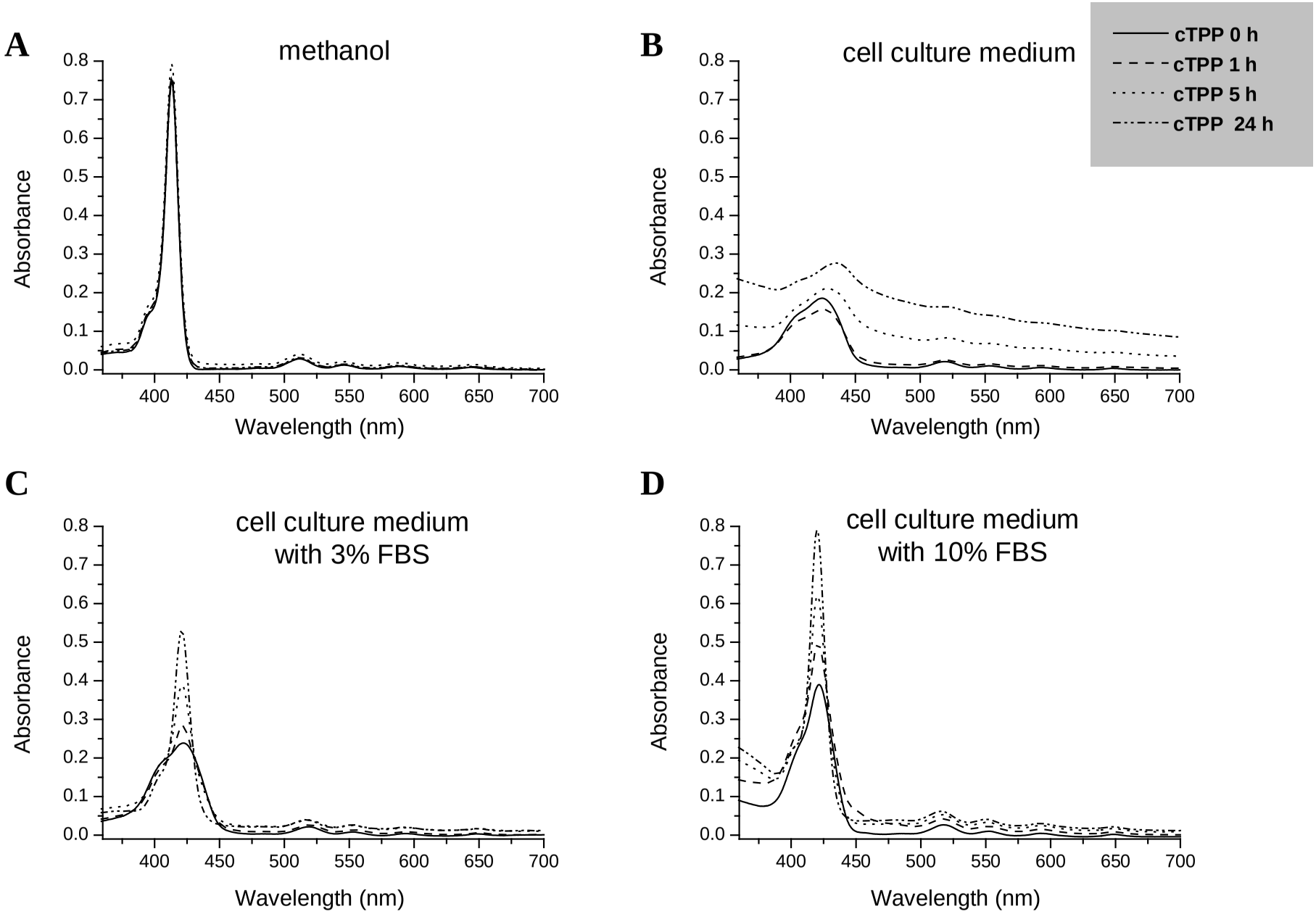

Fig. S1. Absorbance spectra of 2 µM cTPP diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

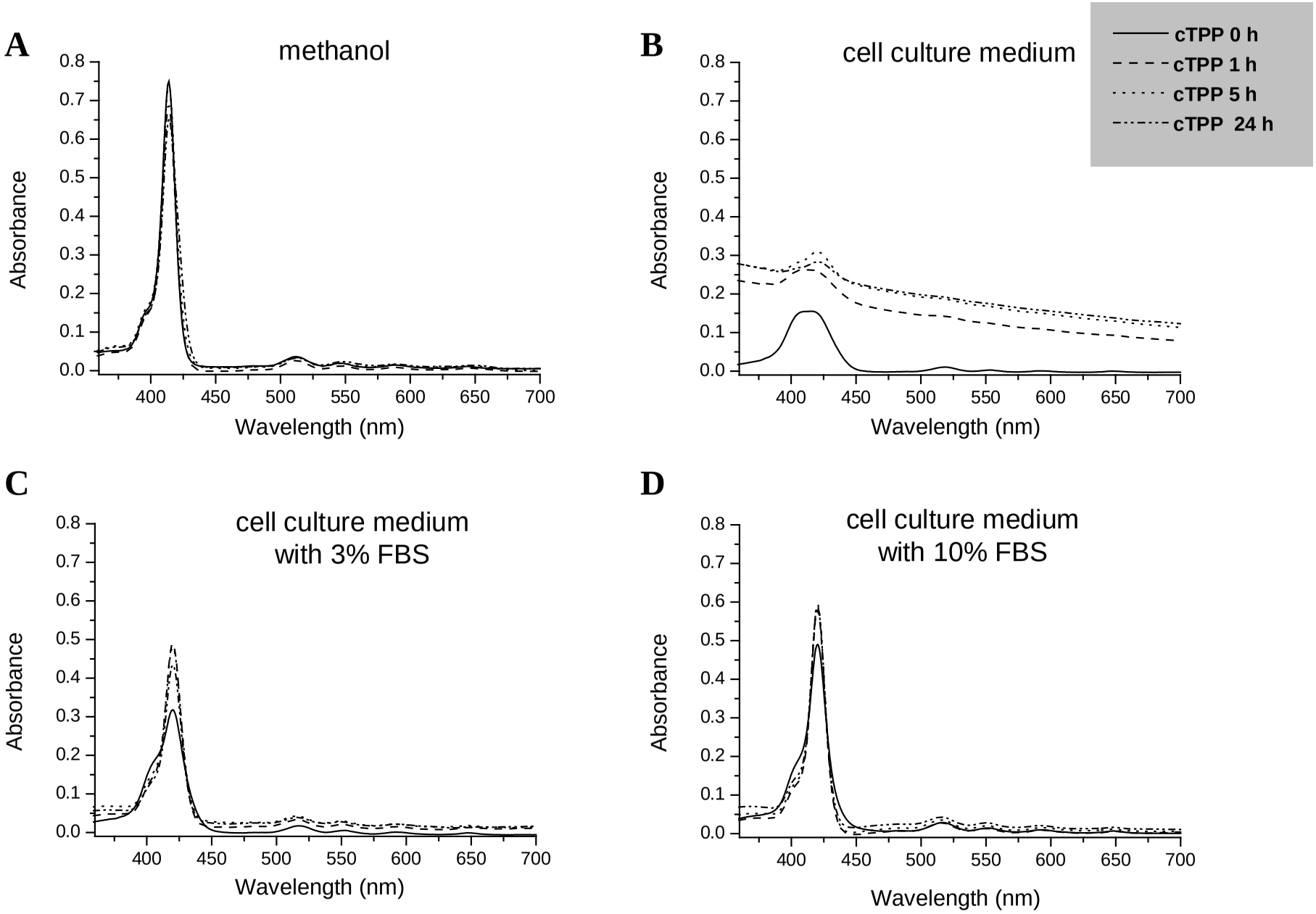

Fig. S2. Absorbance spectra of 2 µM cTPP-Buforin II diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

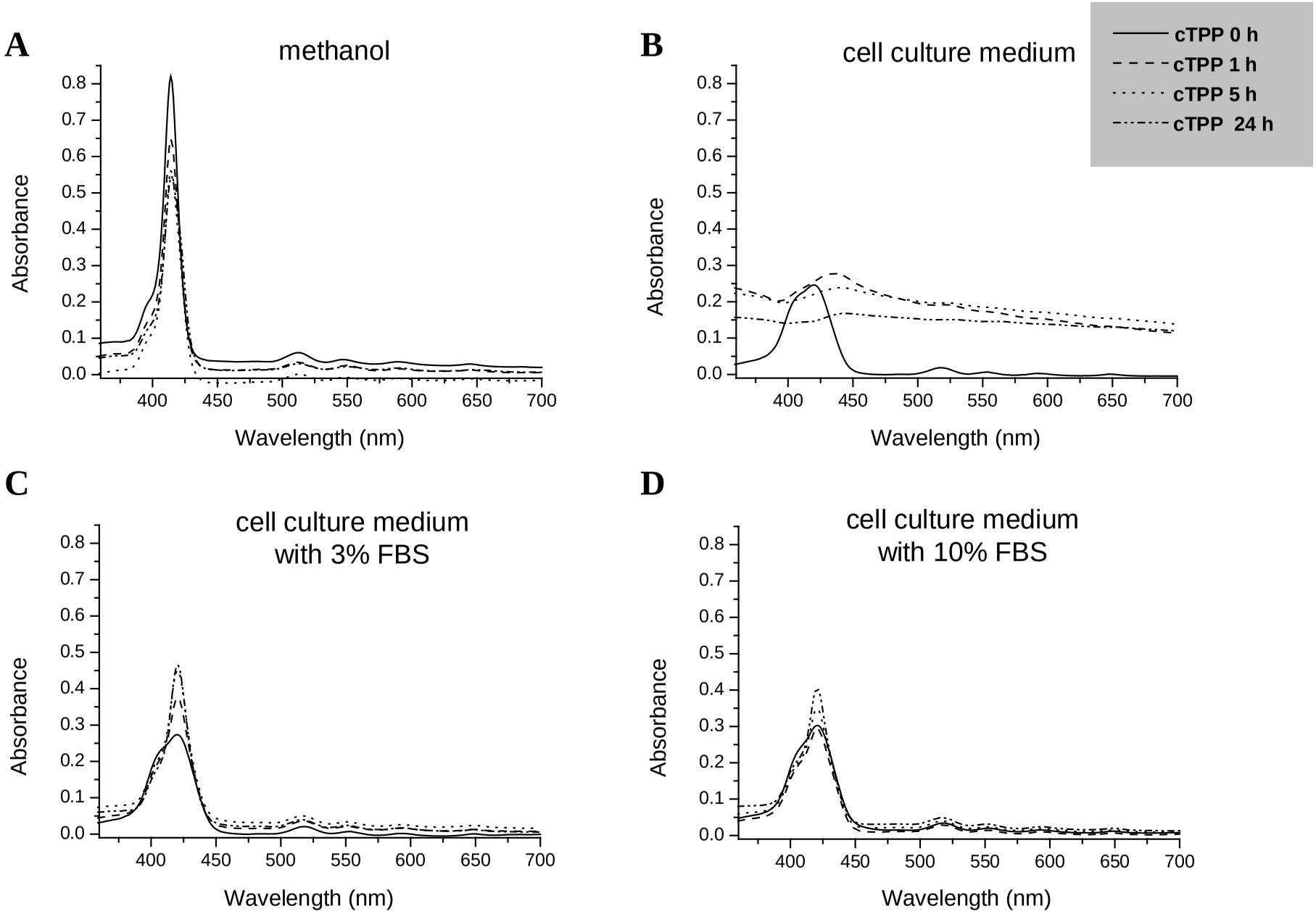

Fig. S3. Absorbance spectra of 2 μM cTPP-Magainin 2 diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

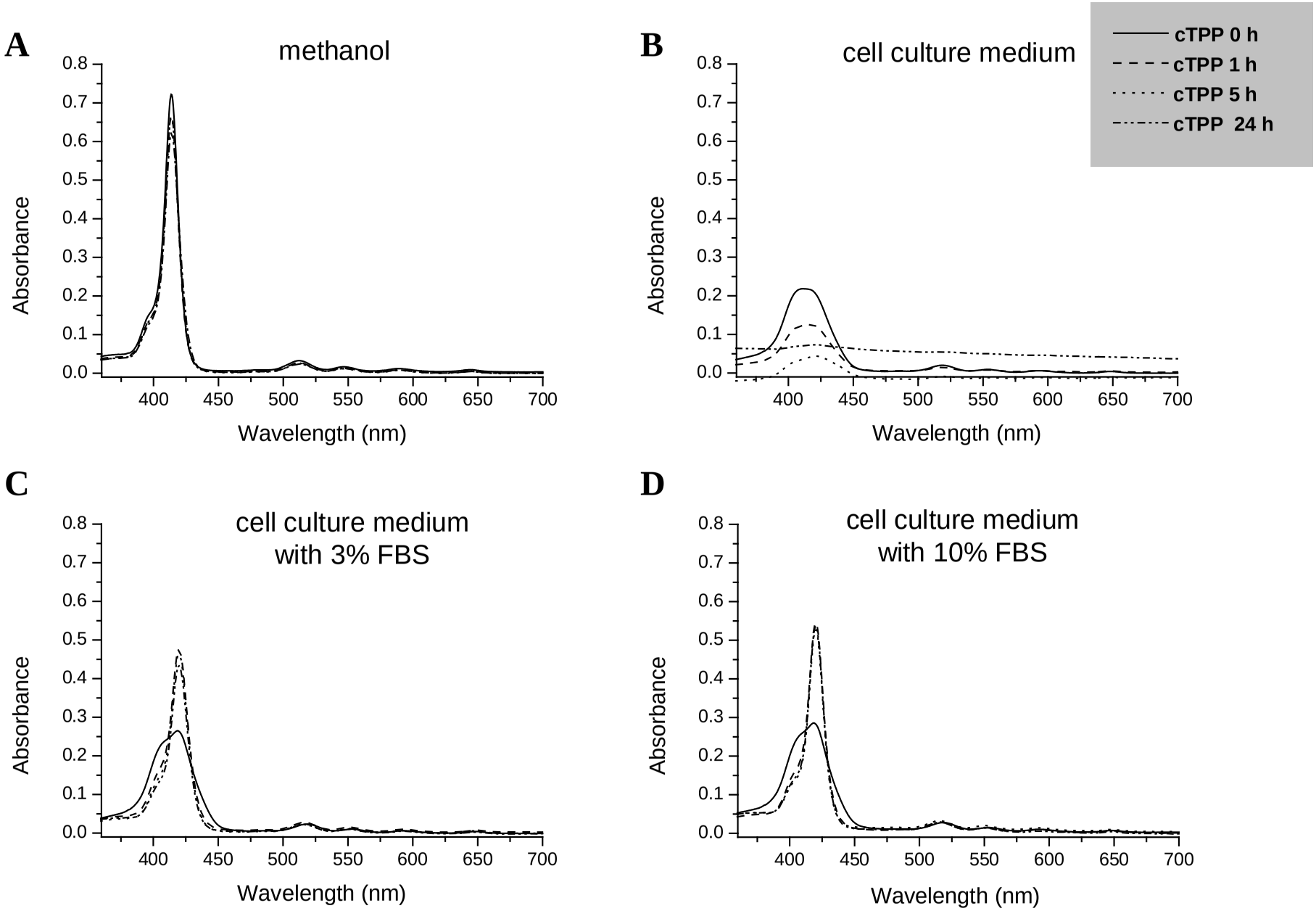

Fig. S4. Absorbance spectra of 2 µM cTPP-Apidaecin 1b diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

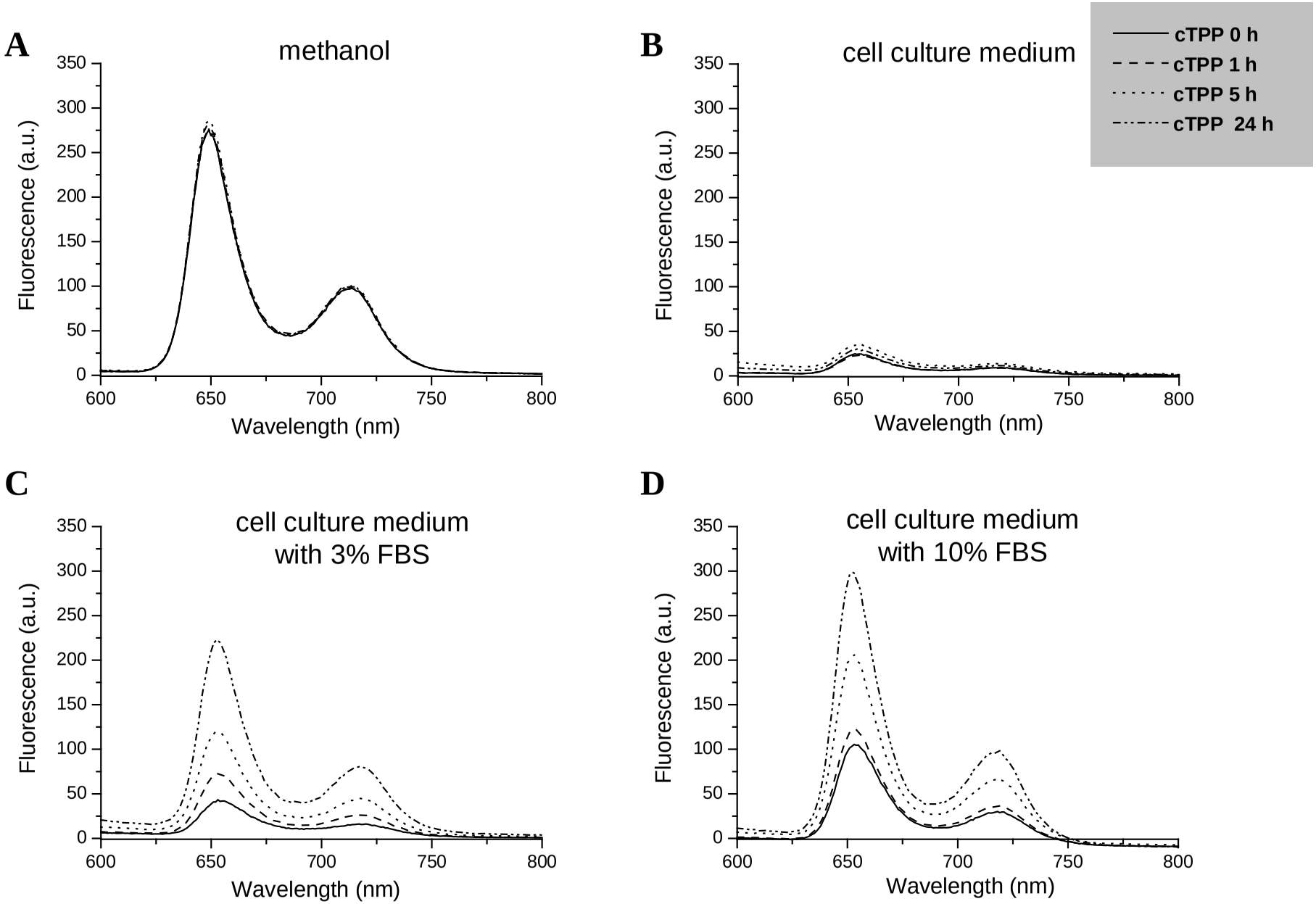

Fig. S5. Fluorescence spectra of 2 µM cTPP diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

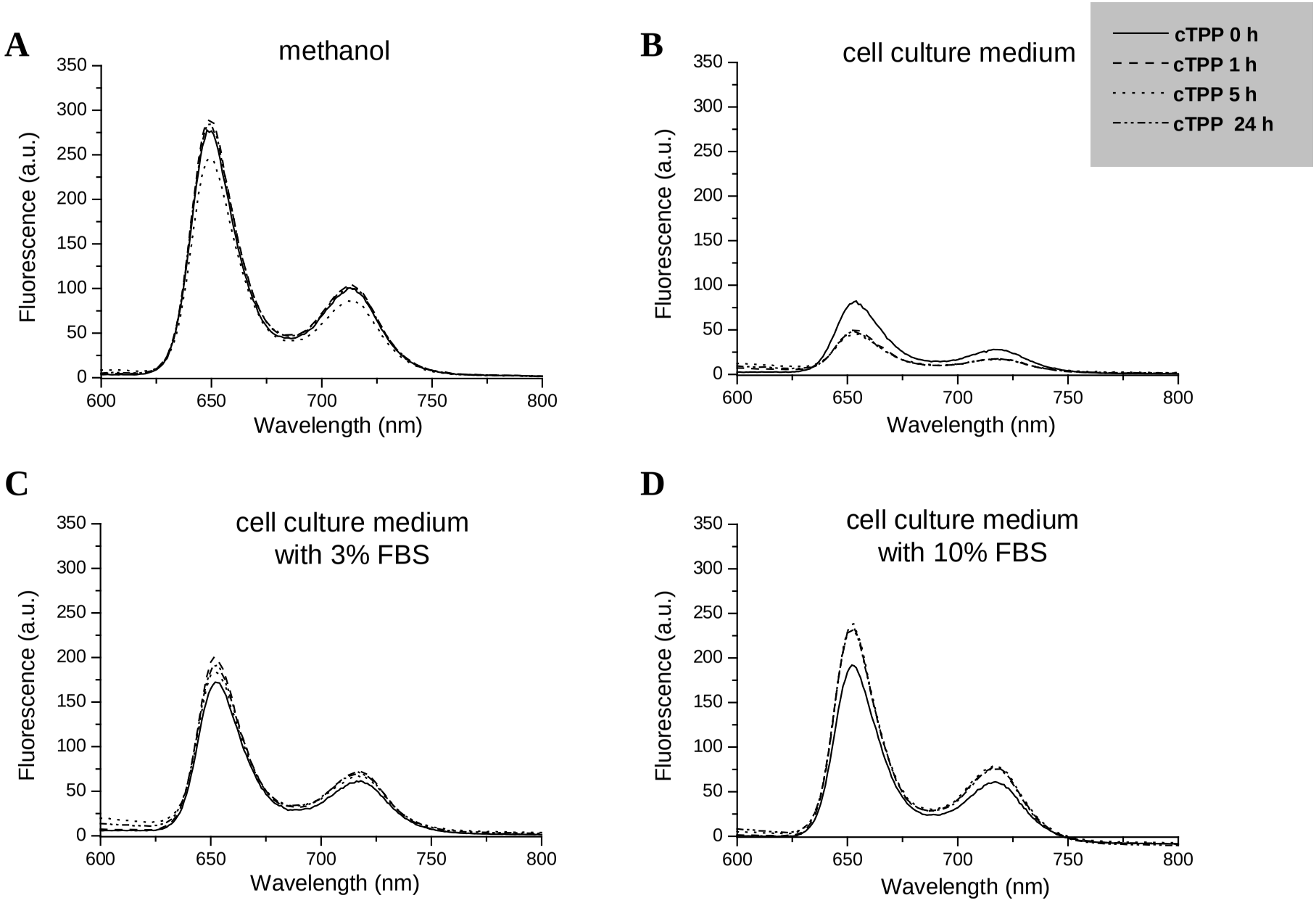

Fig. S6. Fluorescence spectra of 2 µM cTPP-Buforin II diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

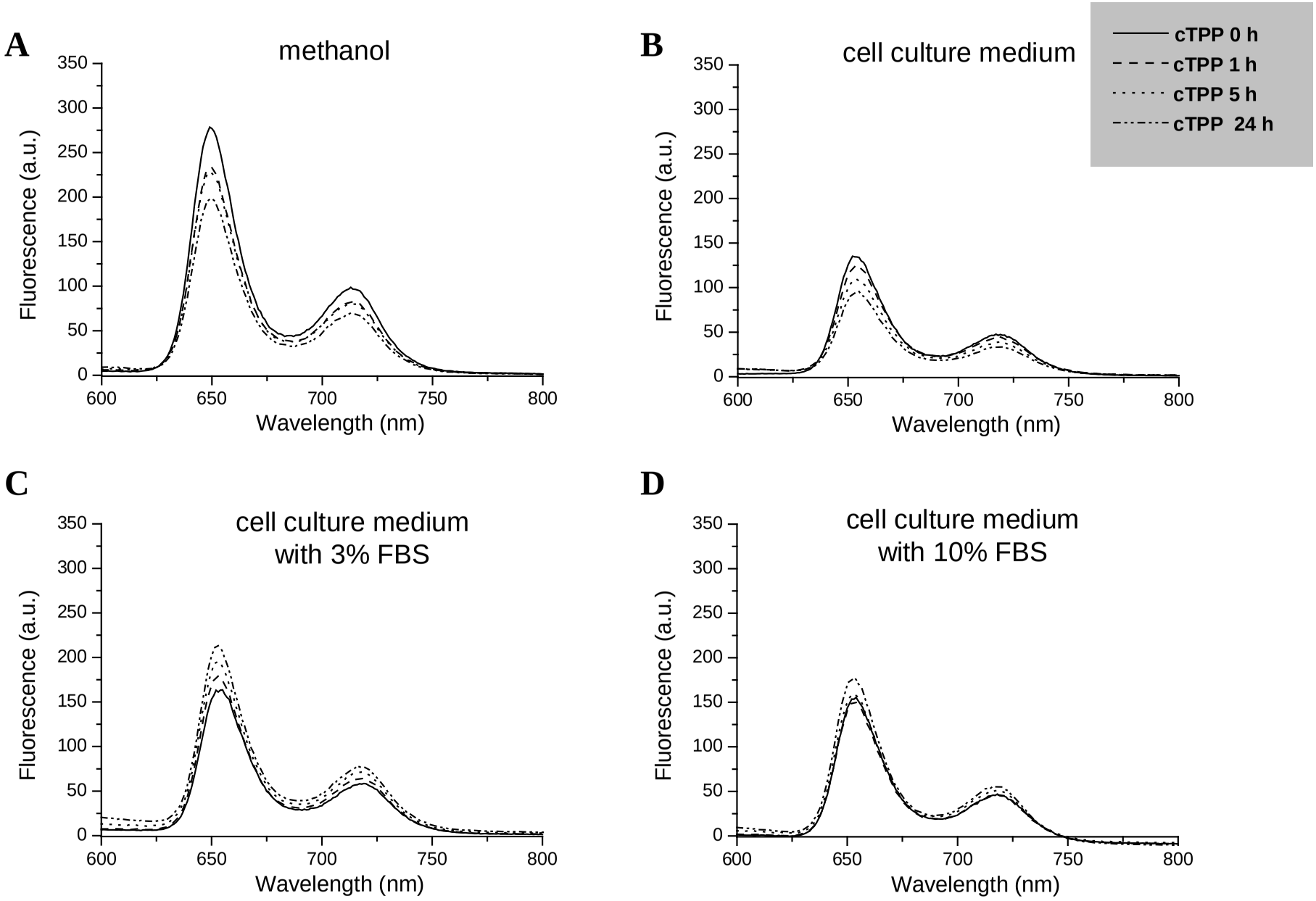

Fig. S7. Fluorescence spectra of 2 µM cTPP-Magainin 2 diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

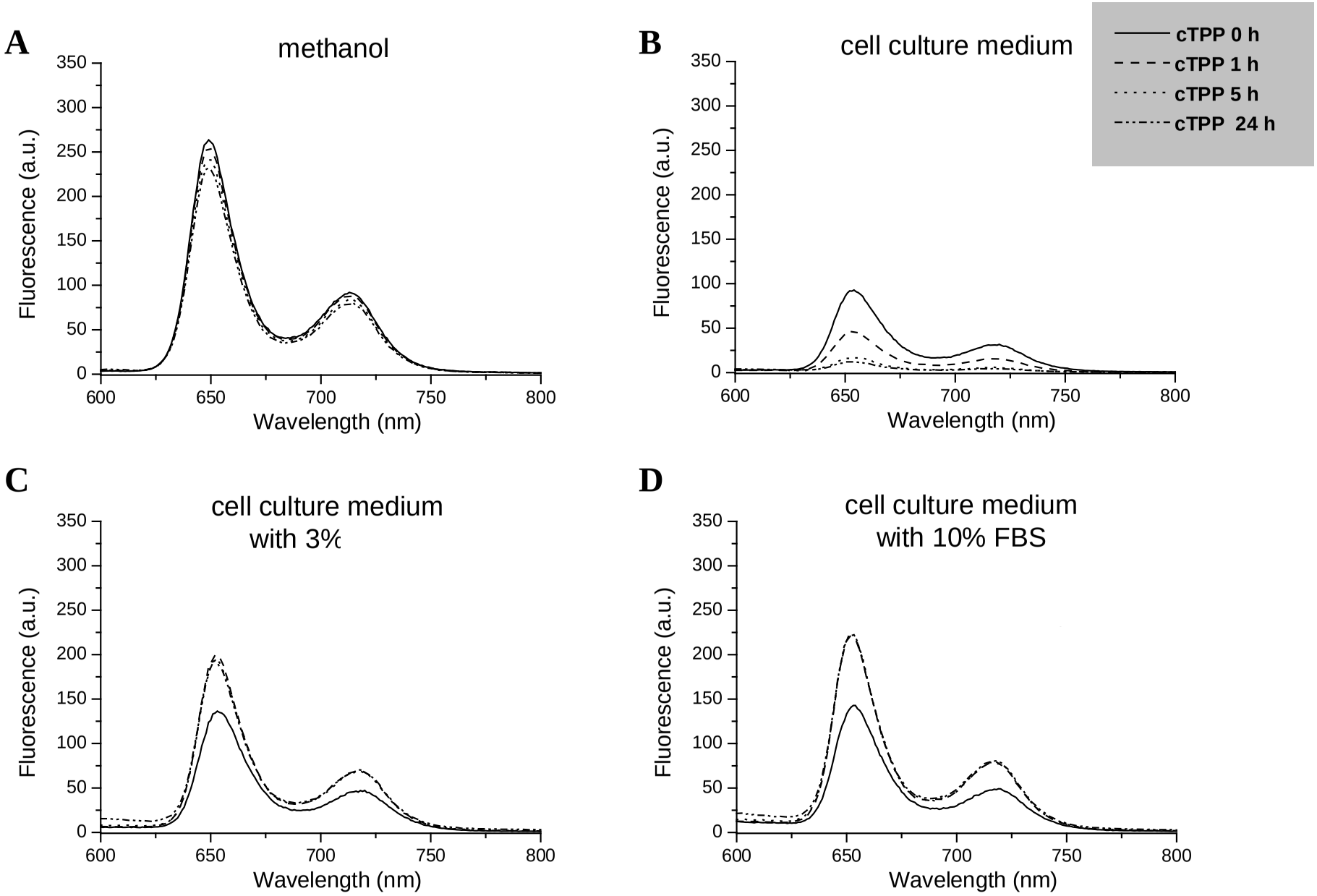

Fig. S8. Fluorescence spectra of 2 µM cTPP-Apidaecin 1b diluted in: A) methanol; B) cell culture medium; C) cell culture medium added with 3% serum; D) cell culture medium added with 10% serum. Spectral changes were monitored up to 24 h after dilution of cTPP in water into the indicated medium.

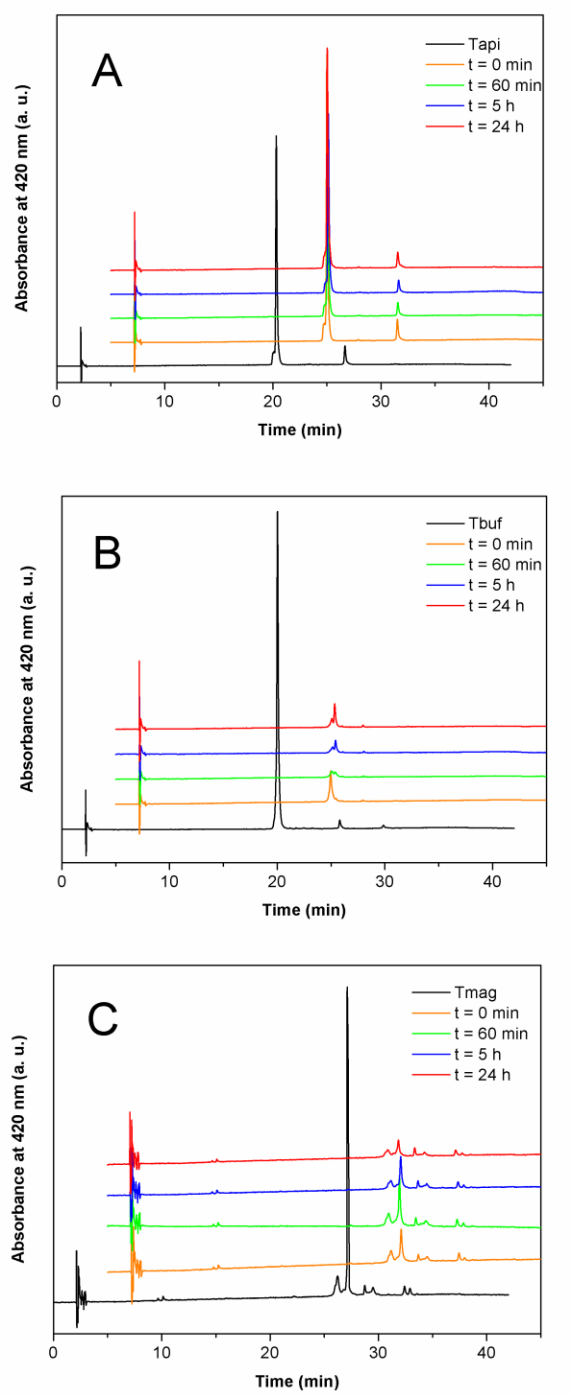

Fig. S9. HPLC profiles of aliquots of conjugates in methanol, before (black line) and after incubation at 37°C in serum for different times (colored lines). (A) cTPP-Apidaecin; (B) cTPP-Buforin; (C) cTPP-Magainin. Chromatograms are reported at the detection wavelength of porphyrin.

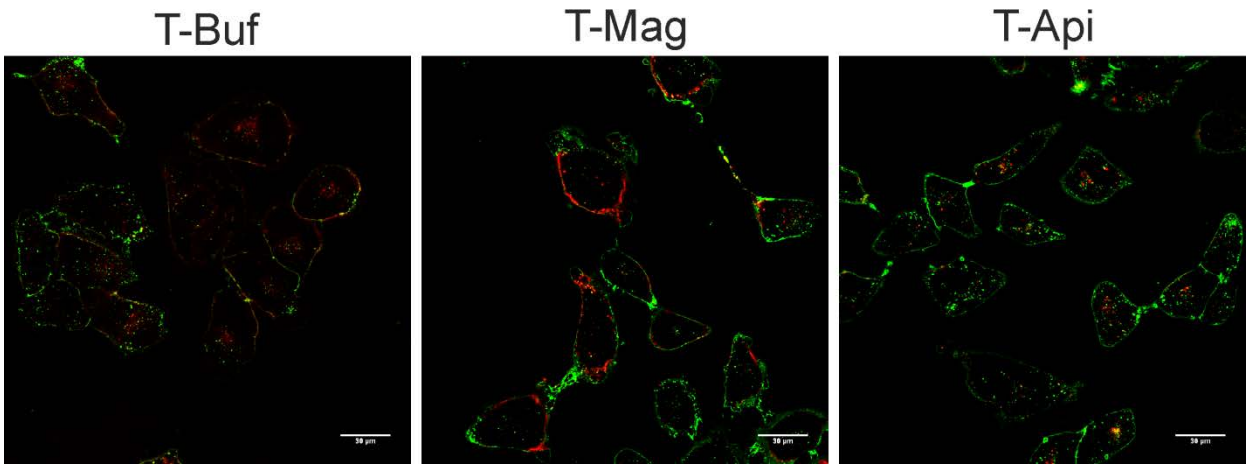

Fig. S10. Merged images showing co-localization of AMP-conjugated cTPP with WGA Alexa Fluor® 488 conjugate, staining the plasma membrane, in A549 cells incubated with the PSs for 1 h.

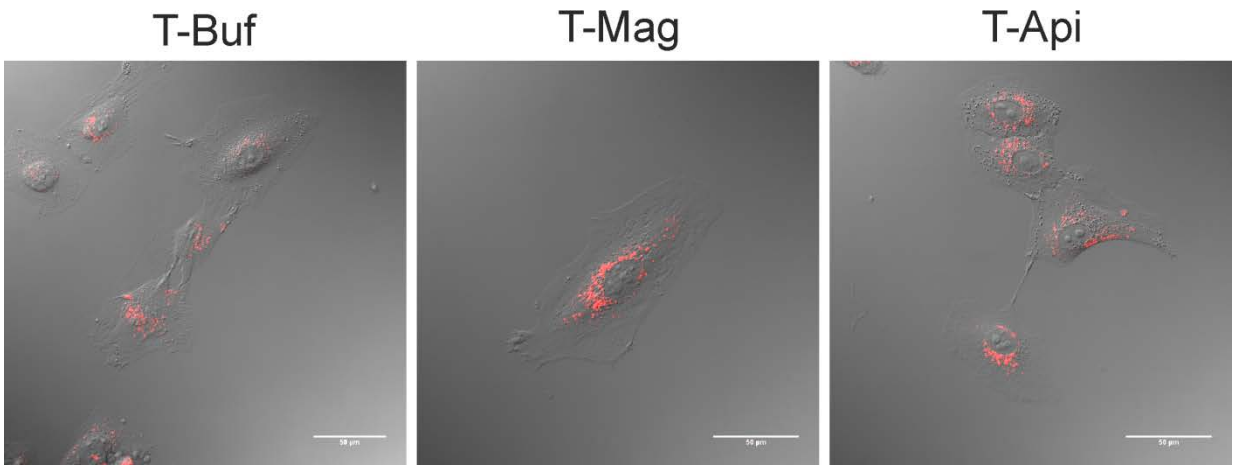

Fig. S11. Confocal microscopy images of A549 cells incubated at 37 °C for 5 h with 1 µM cTPP-AMP conjugates showing the intracellular fluorescence of the PS for all the three conjugates.

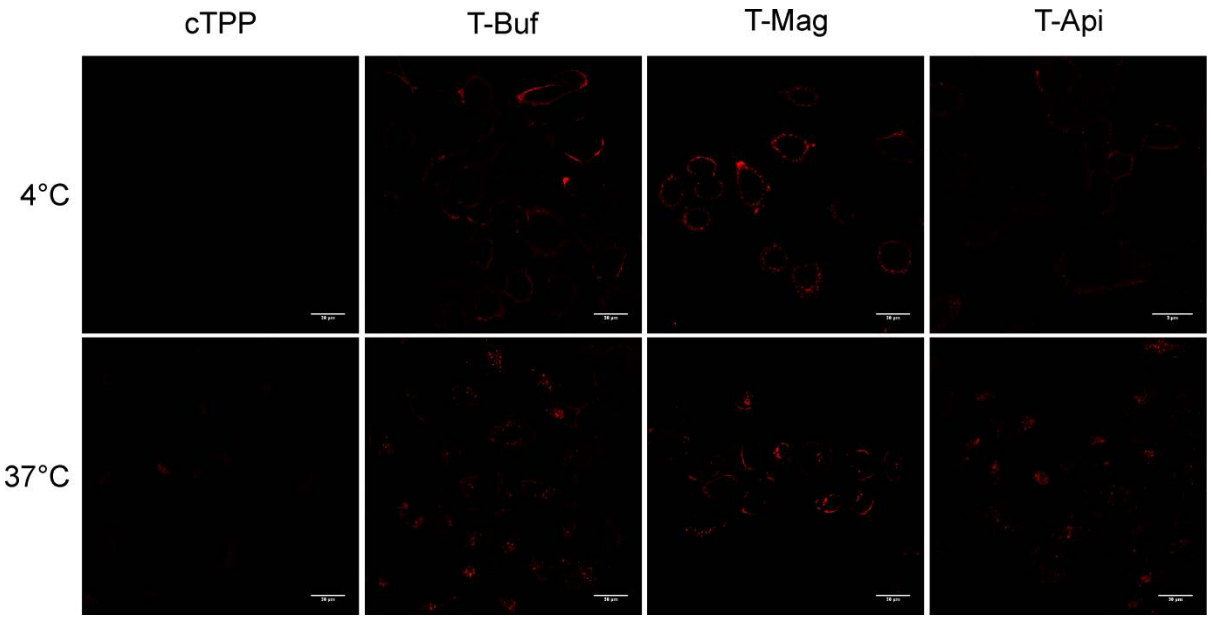

Fig. S12. Effect of temperature on binding/internalisation of cTPP and cTPP-peptide conjugates in A549 cells incubated for 2 h.

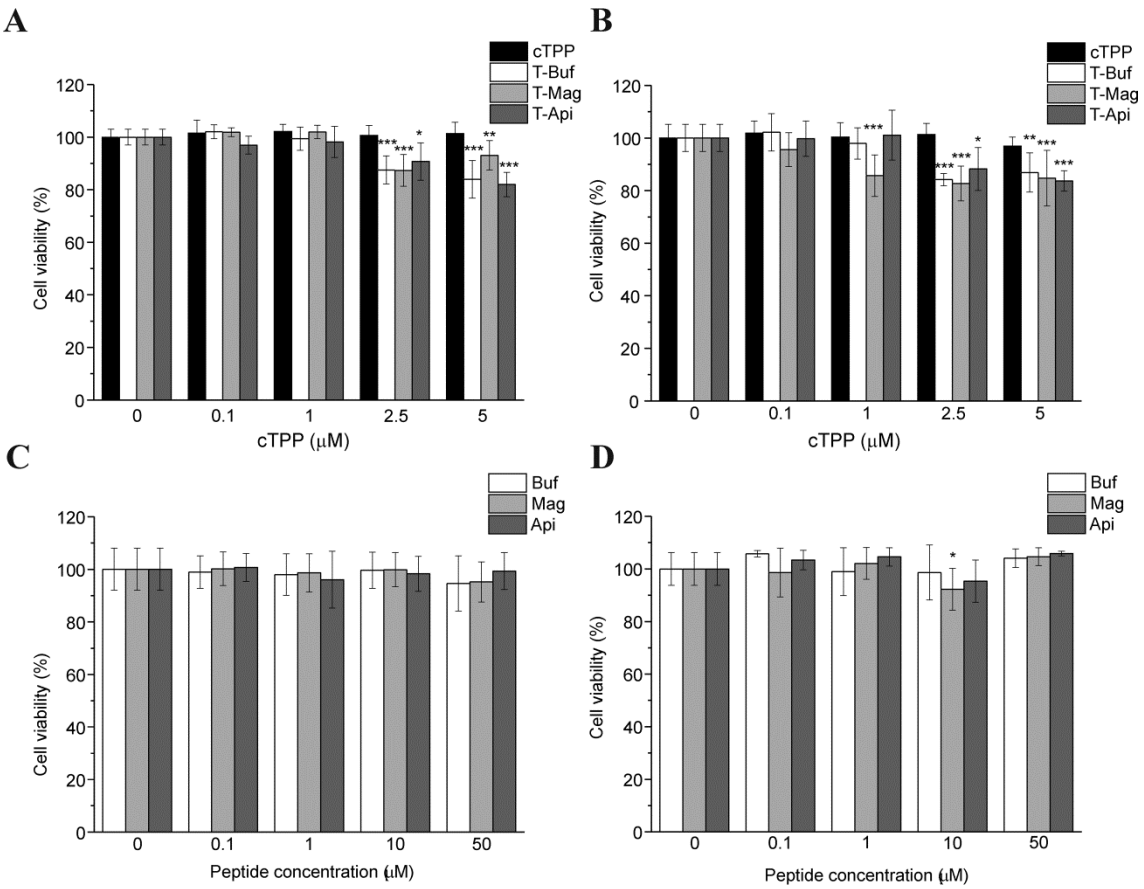

Fig. S13. Dark toxicity of un-conjugated cTPP, cTPP-AMP conjugates and AMPs in A549 cells. Cell viability was measured with the MTS assay after 24 h of incubation (A, C), and 24 h after the

release of the cells in PS or AMP-free medium (24 + 24 h) (B, D). Data are means ± S.D of at least three independent experiments. *, $p < 0.05$; **, $p < 0.01$; ***, $p < 0.001$ compared to controls (Student t test).