Supplementary Figures and Tables

Modification of the antibiotic, colistin, with dextrin causes enhanced cytotoxicity and triggers apoptosis in myeloid leukemia

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Table S1. Characteristics of cell lines used in this study.

Cell line	Source	Patient	Pathology	Culture medium	KDM1A mRNA expression (RNAseq)*
MV-4-11	Peripheral blood	Caucasian male, 10yrs	biphenotypic B myelomonocytic leukemia	IMDM withGlutaMAX™, 10% v/v heat-inactivated (HI)-FBS	5.08
THP-1	Peripheral blood	Japanese male, 1yr	acute monocytic leukemia	RPMI 1640 withGlutaMAX™, 10% HI-FBS	5.40
TF-1	Bone marrow	Japanese male, 35yrs	erythroleukemia	RPMI-1640, 10% v/v HI-FBS, 2ng/mL rhGM-CSF	6.11
HK-2	Kidney proximal tubule	Caucasian male, adult	Normal	K-SFM with L-glutamine, epidermal growth factor, bovine pituitary extract	N.D.

* from Barretina *et al*.[38] RNAseq TPM gene expression data for just protein coding genes using RSEM. Log2 transformed, using a pseudo-count of 1.
N.D., not determined

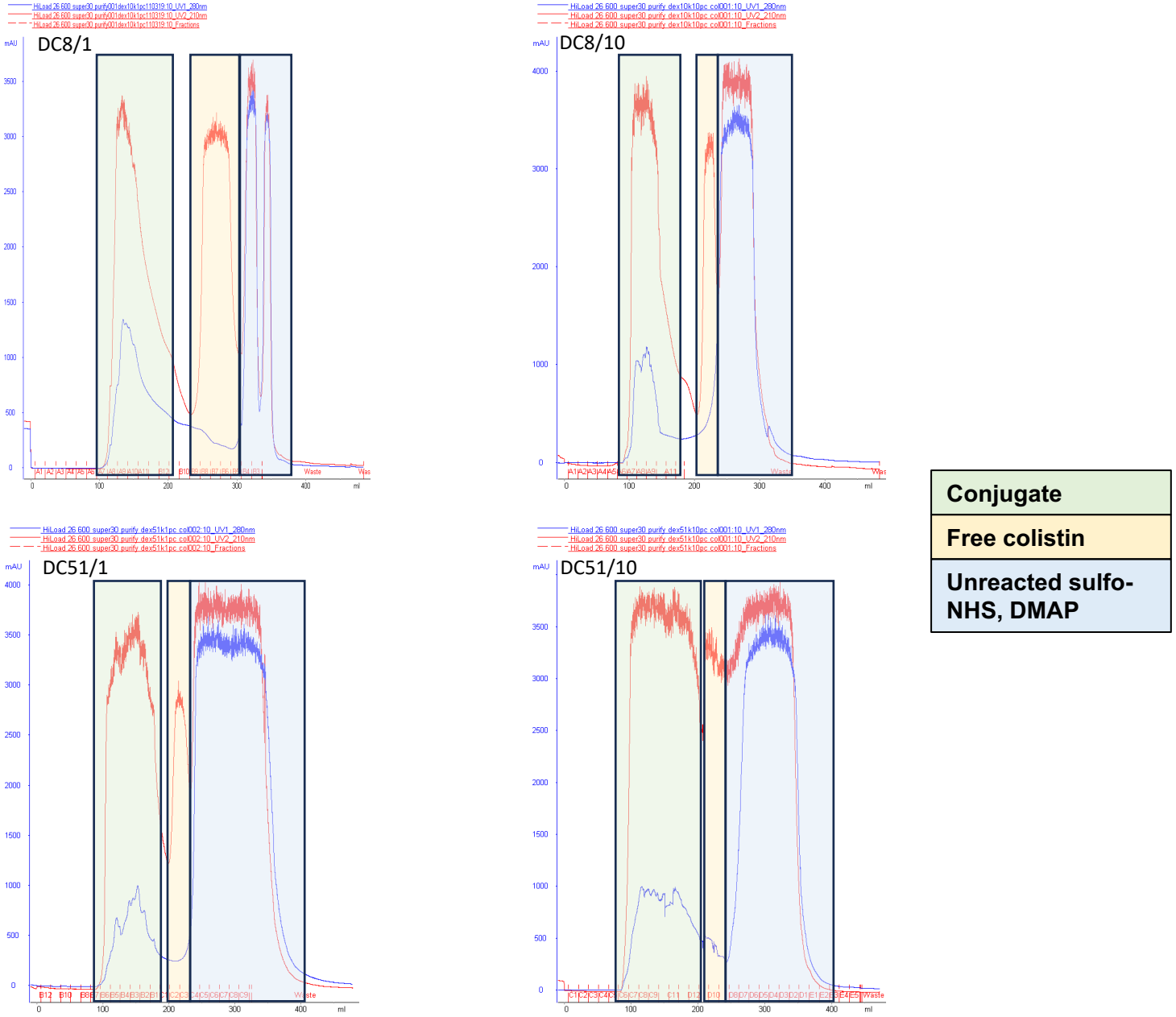

Figure S1. FPLC chromatograms of dextrin-colistin conjugate purification, where the blue line shows absorbance at 280nm and the red line shows absorbance at 210 nm. Fractions (15 mL) are marked along the x-axis. Shaded areas correspond to conjugated colistin, free colistin and unreacted sulfo-NHS and DMAP.

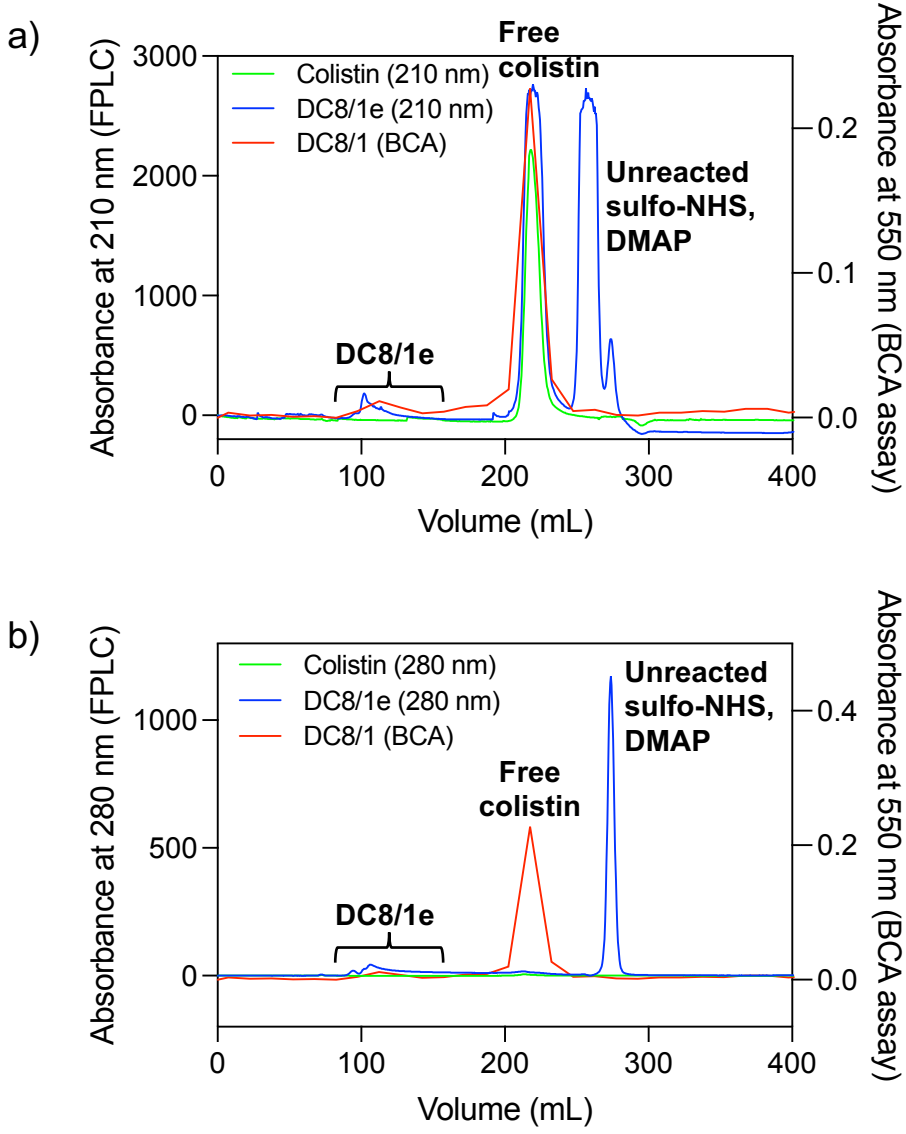

Figure S2. Overlay of FPLC chromatograms of colistin sulfate and DC8/1 purification at a) 210 nm and b) 280 nm, with protein content (by BCA assay) of each 15 mL fraction, confirming conjugation of dextrin and colistin.

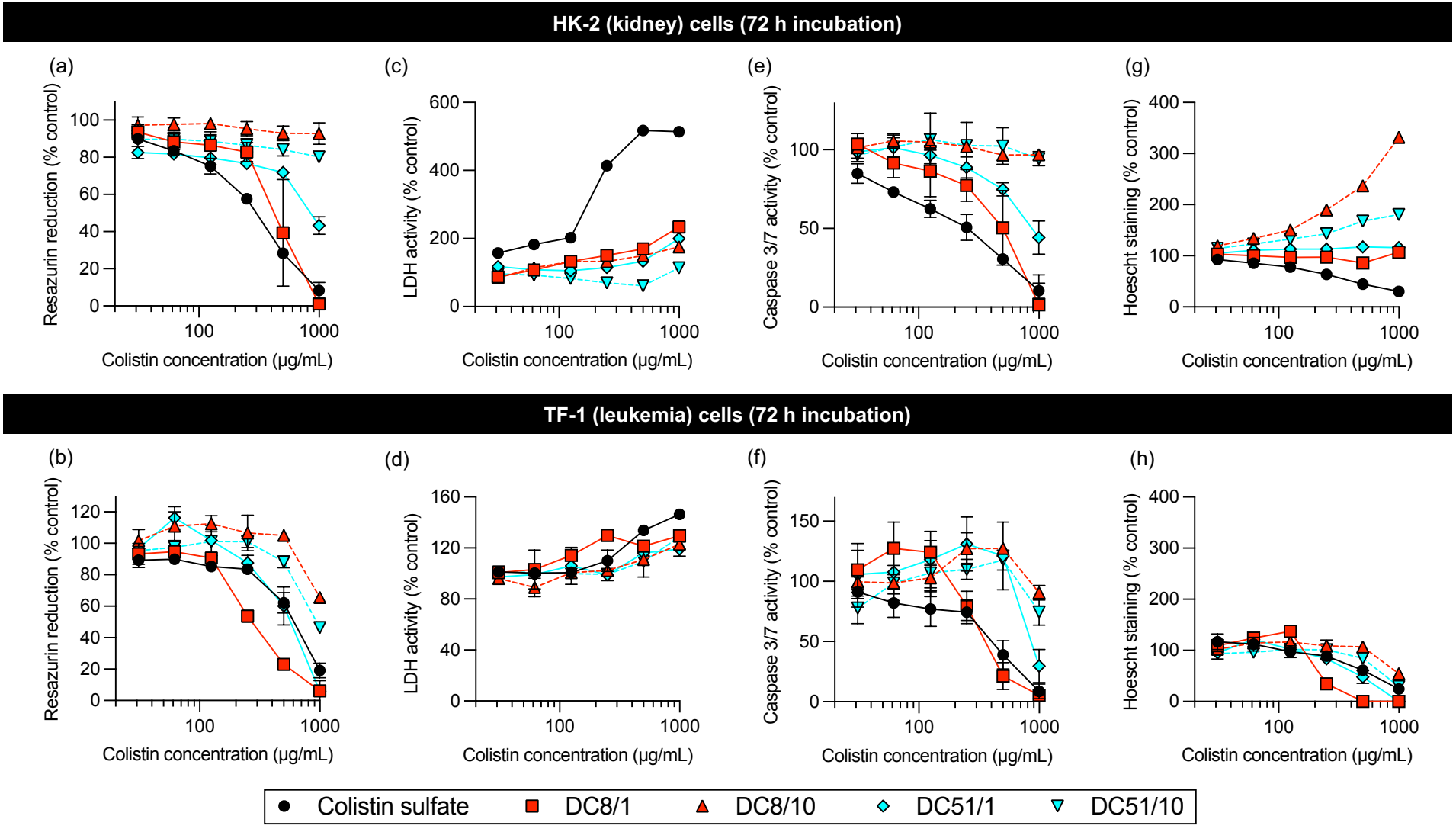

Figure S3. Detection of resazurin reduction (metabolic activity), LDH leakage (cell-membrane integrity, necrosis), caspase 3/7 activity (apoptosis) and Hoechst 33342 staining (DNA content) under multiplex conditions of (a,c,e,g) HK-2 and (b,d,f,h) TF-1 cells incubated for 72 h with colistin sulfate and dextrin-colistin conjugates. Data represent mean (±1SD, n =3). Where error bars are invisible, they are within size of data points.

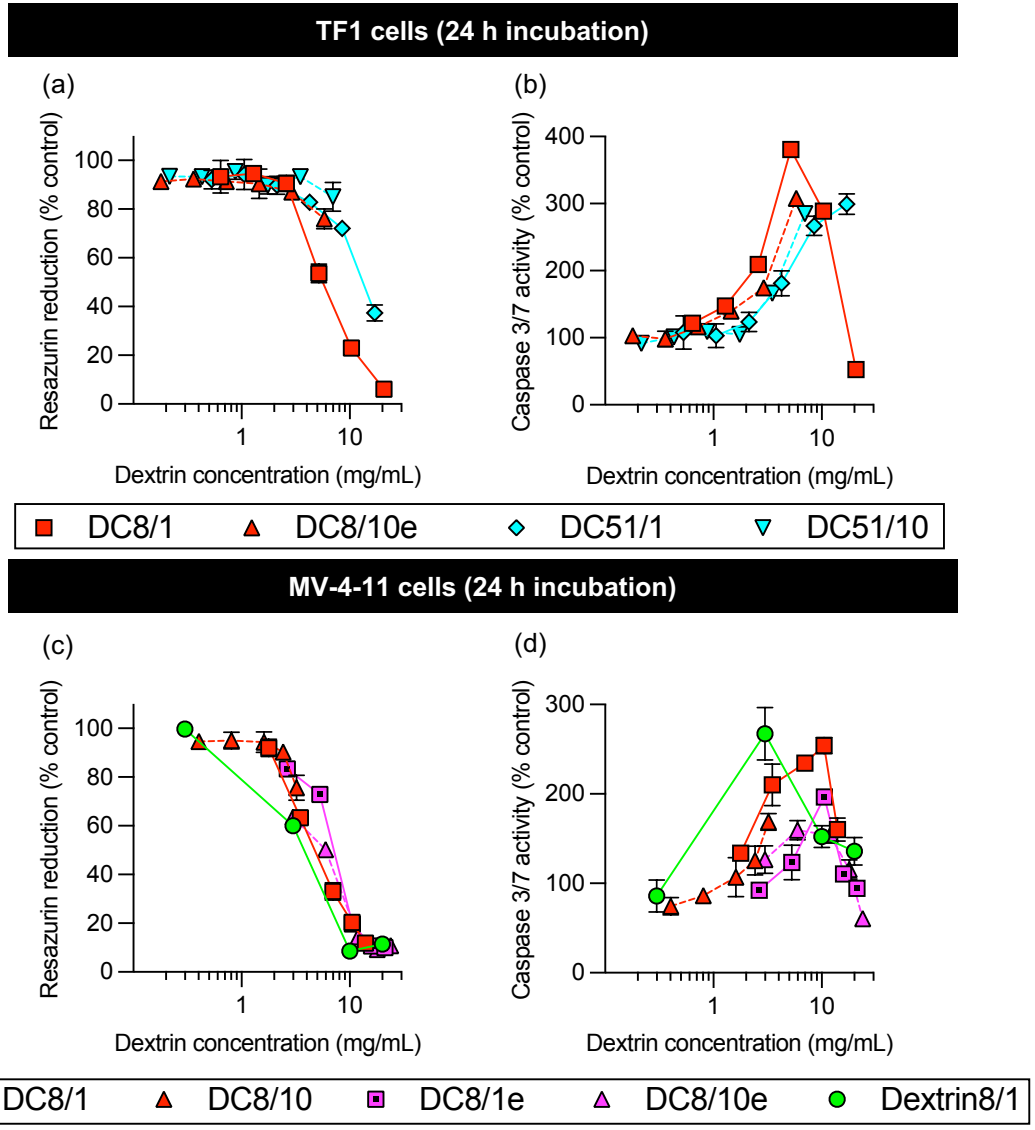

Figure S4. Detection of resazurin reduction (metabolic activity) (panels (a) and (c)) and caspase 3/7 activity (apoptosis) (panels (b) and (d)) under multiplex conditions of MV-4-11 cells incubated for 24 h with colistin sulfate and dextrin-colistin conjugates containing amide or ester linkers. Data represent mean (±1SD, n =3). Where error bars are invisible, they are within size of data points.

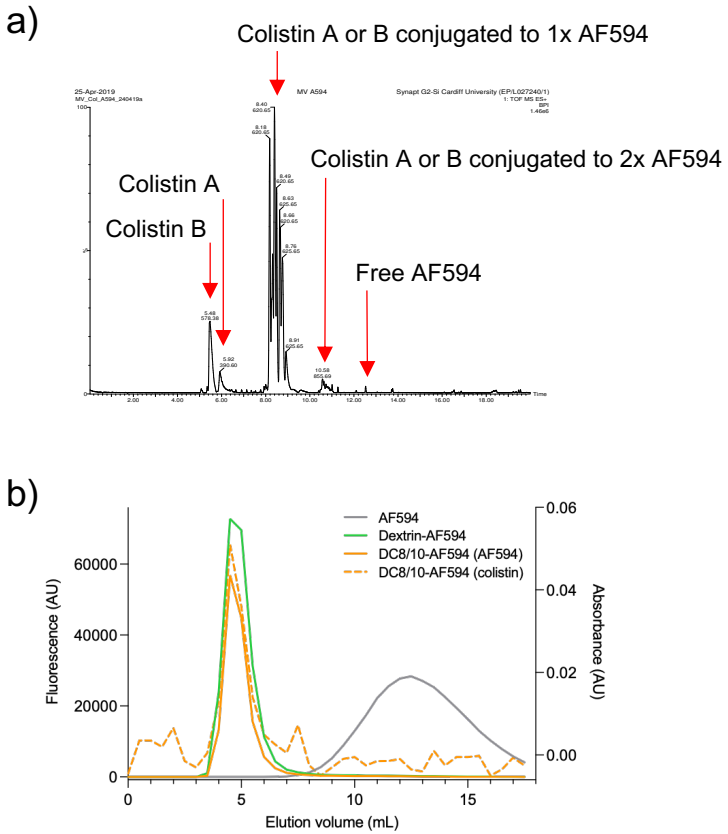

Figure S5. Representative characterization of AF594-labelled conjugates using (a) LC-MS and (b) PD-10 column separation and analysis of fractions using fluorescence (AF594 content) and absorbance (colistin content).

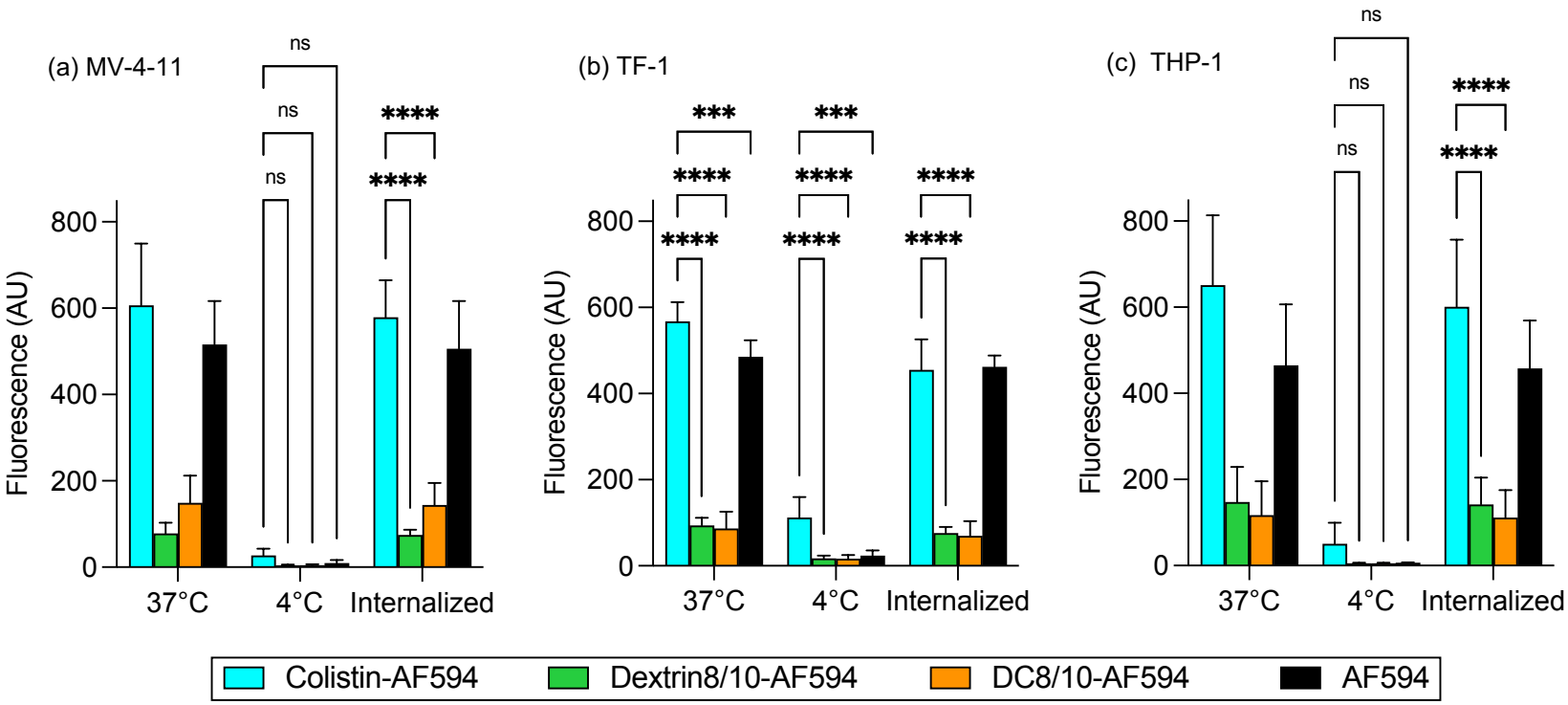

Figure S6. Cell-associated fluorescence at 37˚C (total association) and 4˚C (external binding) of AF594-labelled colistin, dextrin and dextrin-colistin conjugate (DC8/10) by (a) MV-4-11, (b) TF-1 and (c) THP-1 cells after 1 h incubation at 4 and 37˚C (±1SD, n = 5 to 8), where *** indicates significance $p<0.001$ and **** indicates significance $p<0.0001$ compared to colistin-AF594. Where significance is not shown, $p>0.05$ (*ns*, not significant).