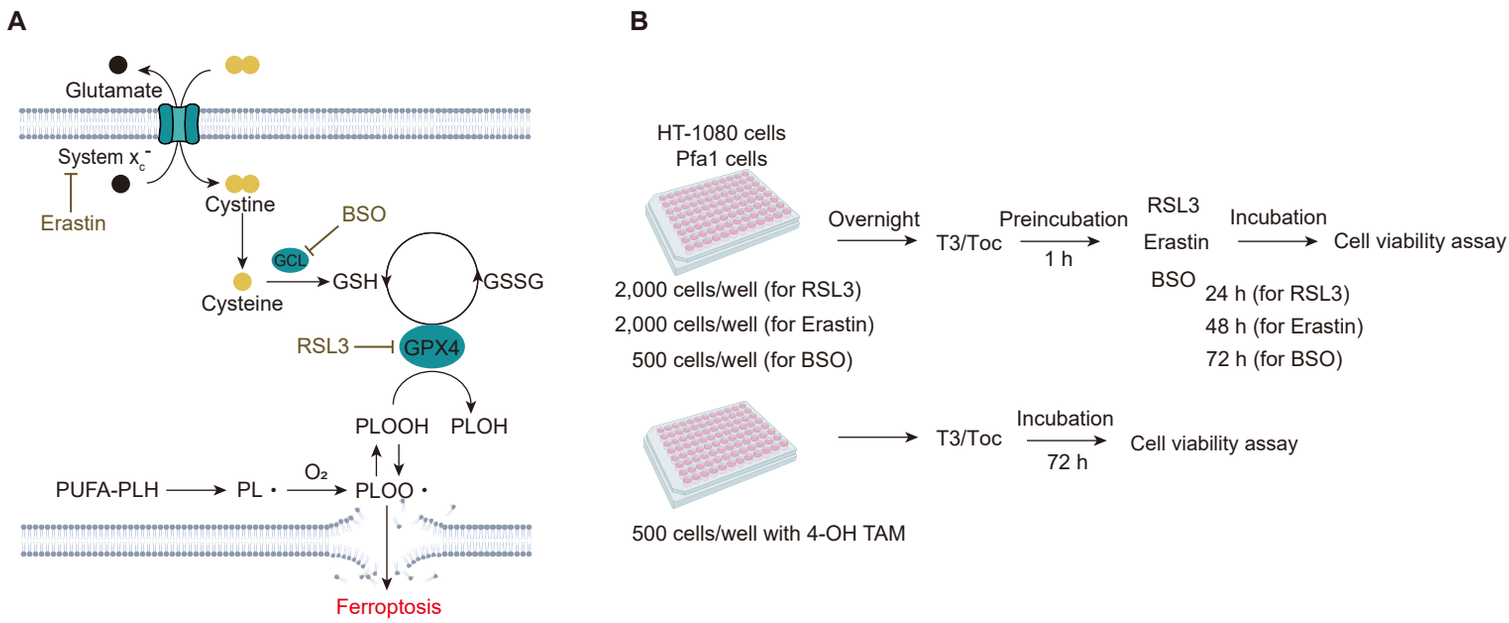
Supplementary Figure 1



Supplementary Figure 1. Schematic illustration of ferroptosis-inducing mechanisms and experimental workflow.

(A) Ferroptosis-inducing mechanisms. Erastin inhibits the cystine/glutamate antiporter (system Xc^-), reducing intracellular cystine and depleting glutathione (GSH). BSO inhibits glutamate–cysteine ligase (GCL), the rate-limiting enzyme in GSH synthesis. RSL3 directly inhibits GPX4.
(B) Schematic illustration of experimental workflow.

Supplementary Figure 2

A

RSL3

	α-T3	β-T3	γ-T3	δ-T3	α-Toc	β-Toc	γ-Toc	δ-Toc	Trolox
HT-1080	0.03	0.03	0.05	0.15	45.5	6.96	6.92	12.1	7.49
Pfa1	0.12	0.12	0.13	0.25	43.6	8.60	10.0	8.67	24.9

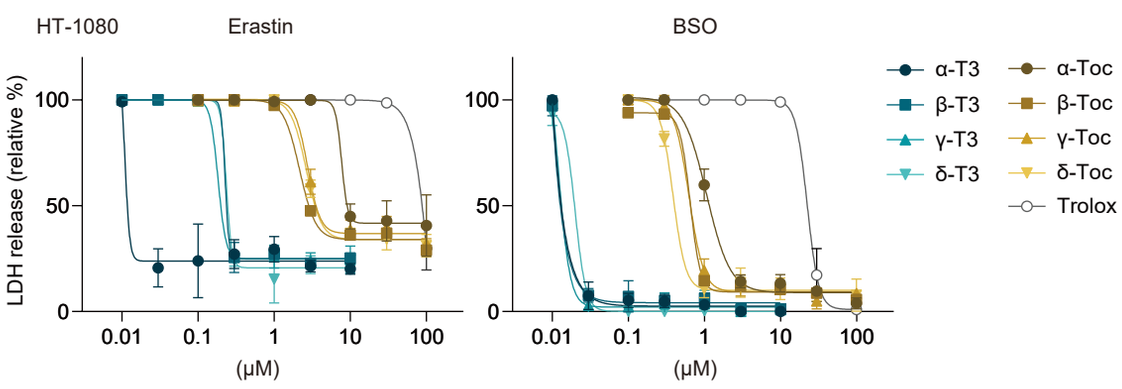
Erastin

	α-T3	β-T3	γ-T3	δ-T3	α-Toc	β-Toc	γ-Toc	δ-Toc	Trolox
HT-1080	0.45	0.51	0.51	0.52	4.67	3.27	3.43	3.41	59.4
Pfa1	0.20	0.43	0.31	0.35	3.73	2.21	2.80	2.52	36.3

BSO

	α-T3	β-T3	γ-T3	δ-T3	α-Toc	β-Toc	γ-Toc	δ-Toc	Trolox
HT-1080	0.11	0.18	0.15	0.30	0.83	0.46	0.46	0.33	10.0
Pfa1	0.18	0.41	0.22	0.38	3.74	1.72	1.78	0.69	30.6

B

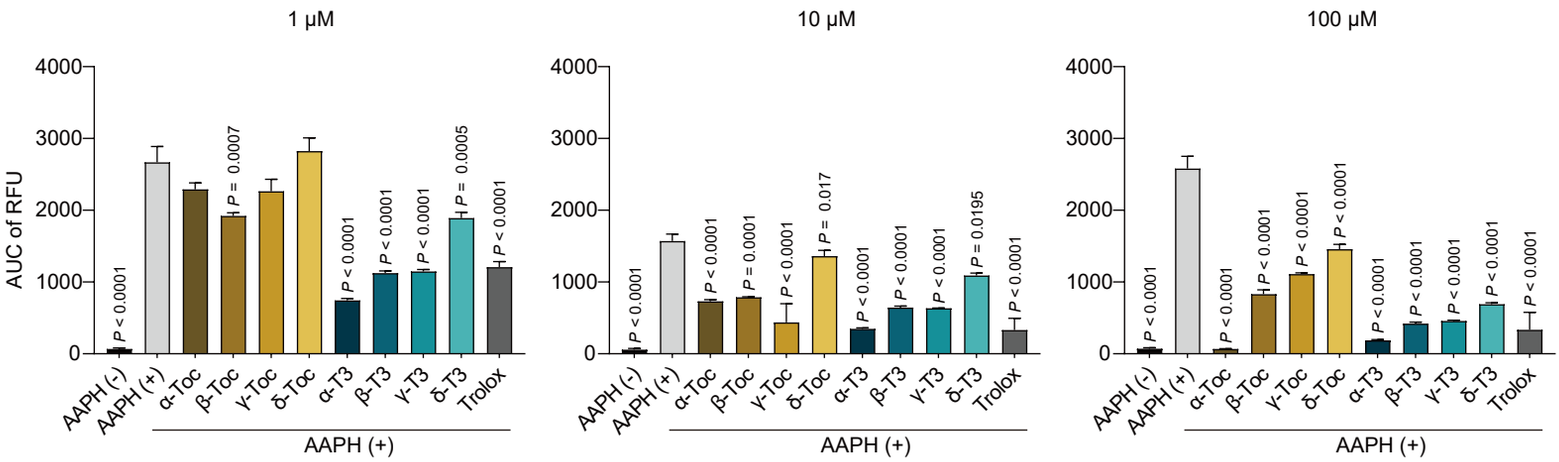


Supplementary Figure 2. EC_{50} values of vitamin E analogs under ferroptosis-inducing conditions and LDH assay.

(A) EC_{50} (μM) values of each vitamin E analog for preventing ferroptosis induced by RSL3, erastin, and BSO based on cell viability assay.

(B) LDH assays were performed using erastin (1 μM, 48 h) or BSO (10 μM, 48 h) in the presence of tocotrienols (0–10 μM), tocopherols (0–100 μM), or Trolox (0–100 μM) for 48 h. Data are presented as mean ± SD (n = 3).

Supplementary Figure 3



Supplementary Figure 3. Quantification of the area under the curve from FENIX assay data.

Area under the curve (AUC) values derived from FENIX assay fluorescence curves were shown. One-way ANOVA using AAPH (+) as the control group, followed by Dunnett's post hoc test. Values of $P < 0.05$ are indicated.