

Supplementary Table 1 The clinical characteristics of AML patients with low and high ACSL5 levels from TCGA cohort.

Variables	Low expression	High expression	P value
Number,(%)	53(50.00)	53(50.00)	P value
ACSL5 expression(z-score)	-0.3461[-0.50,-0.19]	0.7595[0.65,0.87]	<0.0001
Age,median(range),years	55.17[41.00,61.00]	47.36[37.00,66.00]	0.007313
Male,n(%)	29(54.72)	33(62.26)	0.5543
^a WBC,median(^b IQR),X10 ⁹ /L	25.90[10.70, 59.90]	29.40[2.60, 67.50]	0.5133
^c HB,median(IQR),X10 ⁹ /L	90.00(90.00,100.00)	100.00[90.00,100.00]	0.5697
^d PLT,median(IQR),X10 ⁹ /L	45.00[21.00, 96.00]	48.00[32.00, 87.00]	0.8646
Blast,median(IQR),X10 ⁹ /L	72.00[57.00,83.00]	75.00[59.00,86.00]	0.6855
^e FAB classification,n(%)			0.0816
M0	5(9.43)	6(11.32)	
M1	15(28.30)	19(35.85)	
M2	10(18.87)	15(28.30)	
M3	0	0	
M4	19(35.85)	6(11.32)	
M5	4(7.55)	4(7.55)	
M6	0(0)	2(3.77)	
Genes mutations,n(%)			
<i>FLT3</i>	16(30.19)	19(35.85)	0.6796
<i>NPM1</i>	19(35.85)	14(26.42)	0.5256
<i>DNMT3A</i>	14(26.42)	14(26.42)	1.0000
<i>CEBPA</i>	0(0)	12(22.64)	<0.001
<i>IDH1</i>	7(13.21)	6(11.32)	1.0000
<i>IDH2</i>	10(18.87)	3(5.66)	0.1567

^aWBC: white blood cell.

^bIQR: interquartile.

^cHB: hemoglobin.

^dPLT: platelet counts.

^eFAB: French-American-British classification system.

Supplementary Table 2 Multivariate analysis of prognostic factor for overall survival in TCGA AML cohort.

Variables	Overall survival	
	HR (95%CI)	P
ACSL5 expression (High vs Low)	1.904 (1.148, 3.156)	0.032
Age (> 60)	1.984 (1.169, 3.369)	0.011
WBC (> 10)	2.347 (1.147, 4.803)	0.019
<i>FLT3</i> -ITD	1.594 (0.857, 2.964)	0.141
<i>NPM1</i>	0.596 (0.312, 1.138)	0.117
<i>DNMT3A</i>	1.522 (0.868, 2.668)	0.142
<i>CEBPA</i>	0.620 (0.186, 1.054)	0.270
<i>IDH1</i>	0.914 (0.482, 1.396)	0.836
<i>IDH2</i>	0.818 (0.406, 1.530)	0.626

Figure S1

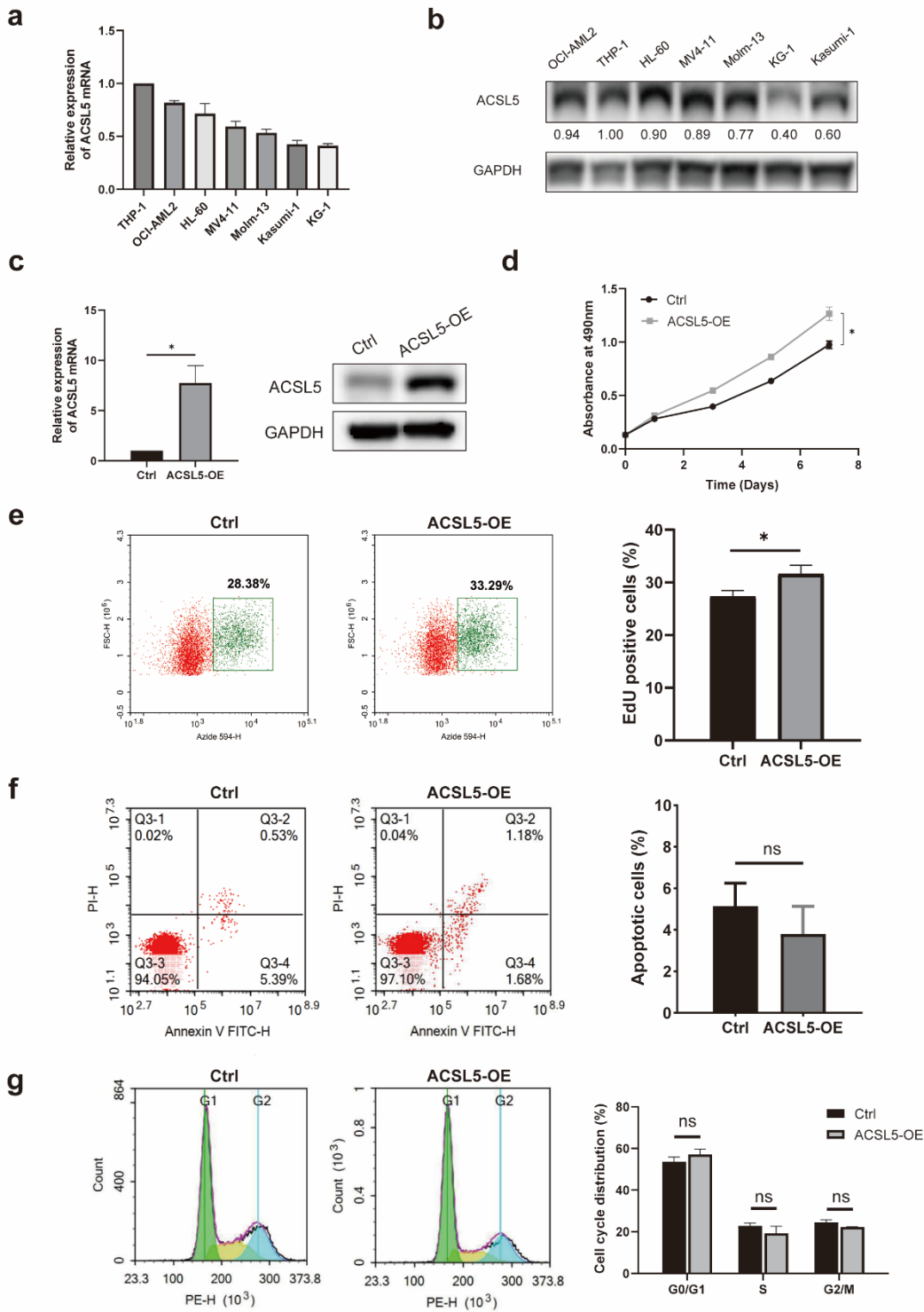


Figure S1 **a, b** ACSL5 expression in cell lines derived from acute myeloid leukemia was analyzed by qPCR (a) and western blot (b). **c** Construction of KG-1 cells with stable overexpression of ACSL5. The overexpression efficiency was tested using RT-qPCR and western blot. **d** Cell growth curves of ACSL5

overexpression or control KG-1 cell. **e** EdU staining to visualize the cell proliferation capacity of control or ACSL5-OE KG-1 cell, and statistical results are given. **f, g** Annexin V/PI (f) or PI staining for cell cycle (g) was analyzed. Representative result (left) and statistical bar charts (right) are shown. Data are mean of duplicates \pm SEM (n = 3).

Figure S2

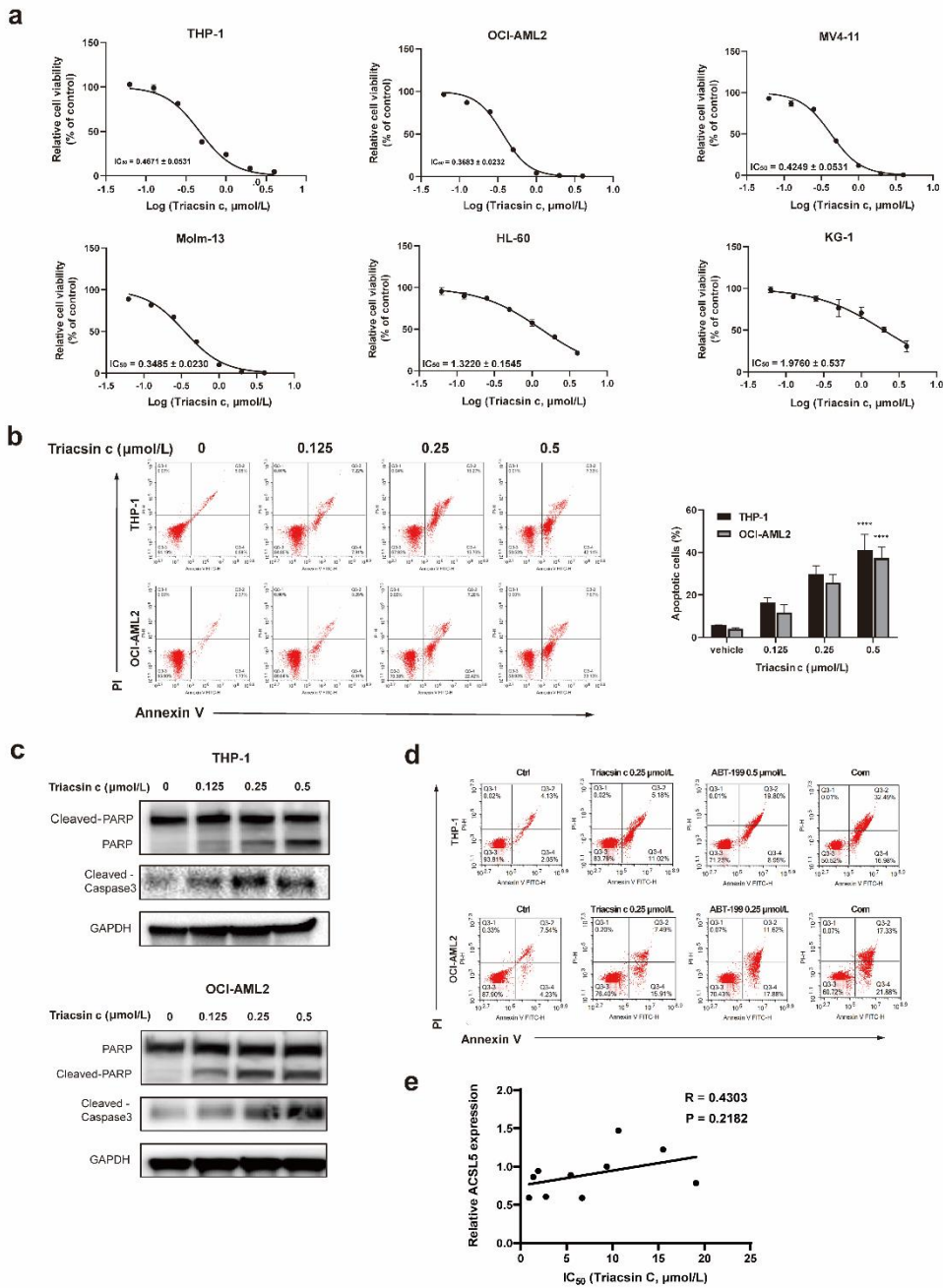


Figure S2 a Triacsin c inhibit cell growth in a panel of AML cell lines including THP-1, OCI-AML2, MV4-11, Molm-13, HL-60 and KG-1. **b** Measurement of Annexin V/PI staining at 48 hours after culture in various concentrations of triacsin c by flow cytometry. Representative result (left) and statistical bar charts (right) are shown. **c** Western blot of cleaved Caspase 3 and cleaved PARP in AML cells. **d** Representative flow plots of cells treated with either single agent alone or combination therapy. **e** Sperman's correlation of ACSL5 expression levels with the IC₅₀ values of triacsin c in ten AML primary cells.