

Table S1 Statistical analysis of ZNF529 protein expression and its association with clinicopathological characteristics in HCC

Clinicopathological characteristics	Number	Mean	SD	t/F	P
Age, years				0.967	0.336
<60	71	10.77	1.63		
≥60	28	10.4	1.87		
Gender				−1.894	0.068
Male	82	10.55	1.76		
Female	17	11.22	1.24		
Pathological grade				0.263	0.932
I	3	10.67	2.31		
I–II	3	10.67	2.31		
II	53	10.66	1.76		
II–III	32	10.79	1.67		
III	7	10.17	1.34		
III–IV	1	12	0		
Tumor necrosis				−1.34	0.185
Yes	34	10.98	1.64		
No	65	10.5	1.71		
Satellite nodule				0.981	0.329
Yes	9	10.13	1.84		
No	90	10.72	1.68		
Vascular invasion				1.507	0.227
M0	51	10.38	1.78		
M1	35	11.02	1.58		
M2	13	10.8	1.61		
Lymph node invasion				0.201	0.841
Yes	10	10.56	1.92		
No	89	10.67	1.68		
TNM stage					
TNM_T				0.794	0.5
T1a	3	9.87	2.01		
T1b	42	10.42	1.82		
T2	44	10.9	1.58		
T3	9	10.76	1.67		
TNM_N				1.384	0.17
N0	96	10.7	1.67		
N1	3	9.33	2.31		
TNM_M				−0.79	0.431
M0	98	10.65	1.7		
M1	1	12	0		
AFP				−2.57	<0.05*
<400	58	10.31	1.79		
>400	41	11.15	1.44		
Child-Pugh categorization				−0.78	0.427
A	97	10.64	1.7		
B	1	12	0		
BCLC stage				1.51	0.219
0	1	8	0		
A	81	10.74	1.67		
B	13	10.62	1.71		
C	3	9.33	2.31		

*, P<0.05. BCLC stage: Barcelona Clinic Liver Cancer stage.

Table S2 Identification of potential ZNF529-targeting drugs in the DGB database

Drugs	Cell Line	Time	Dose	P value	q-value	logFoldChange	Specificity
Trichostatin-A	NPC	24h	10.0 μ M	2.02057×10^{-11}	8.5703×10^{-10}	-1.6083	0.000191791
Vorinostat	NPC	24h	10.0 μ M	1.42847×10^{-9}	4.29853×10^{-8}	-1.4928	0.000205423
Scriptaid	NPC	24h	10.0 μ M	7.11105×10^{-12}	7.83905×10^{-10}	-1.4197	0.000211327

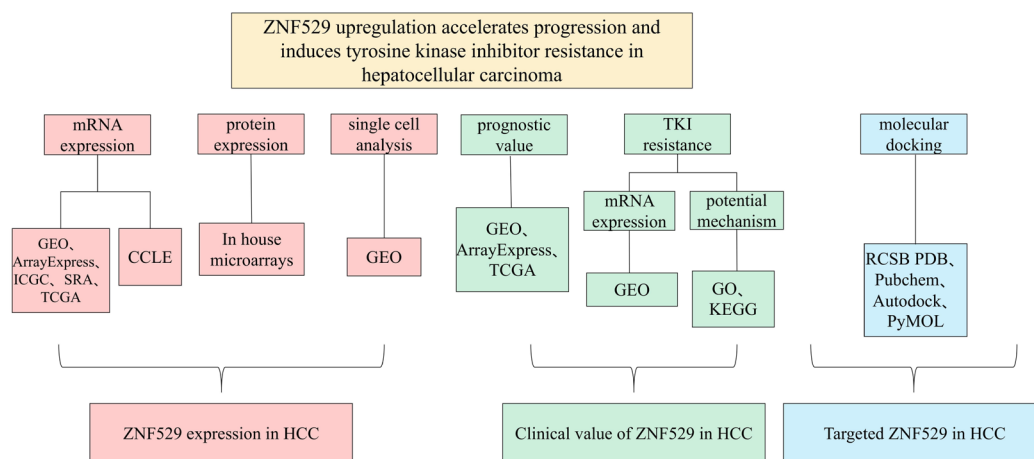


Figure S1 Study design overview.

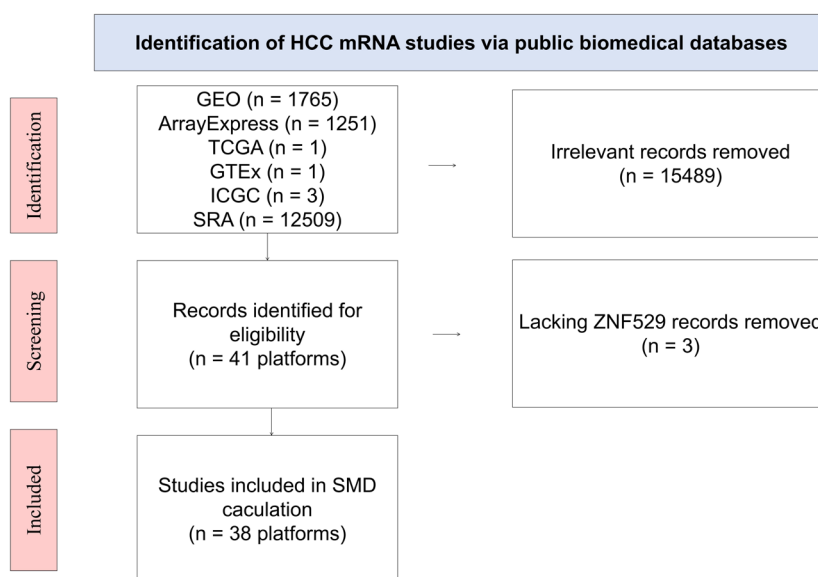


Figure S2 Flowchart for screening the zinc finger protein 529 (ZNF529) mRNA dataset.

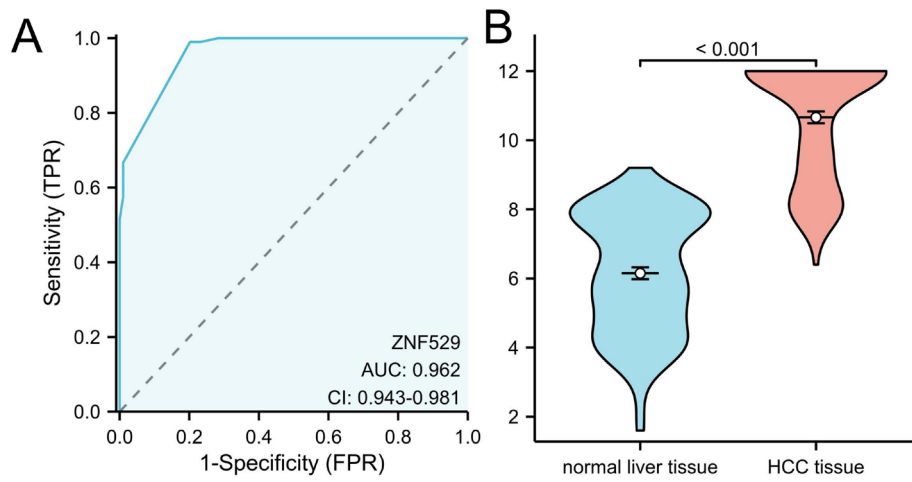


Figure S3 Elevated zinc finger protein 529 (ZNF529) protein levels in HCC. (A) Receiver operating characteristic (ROC) curve; (B) Violin plot.

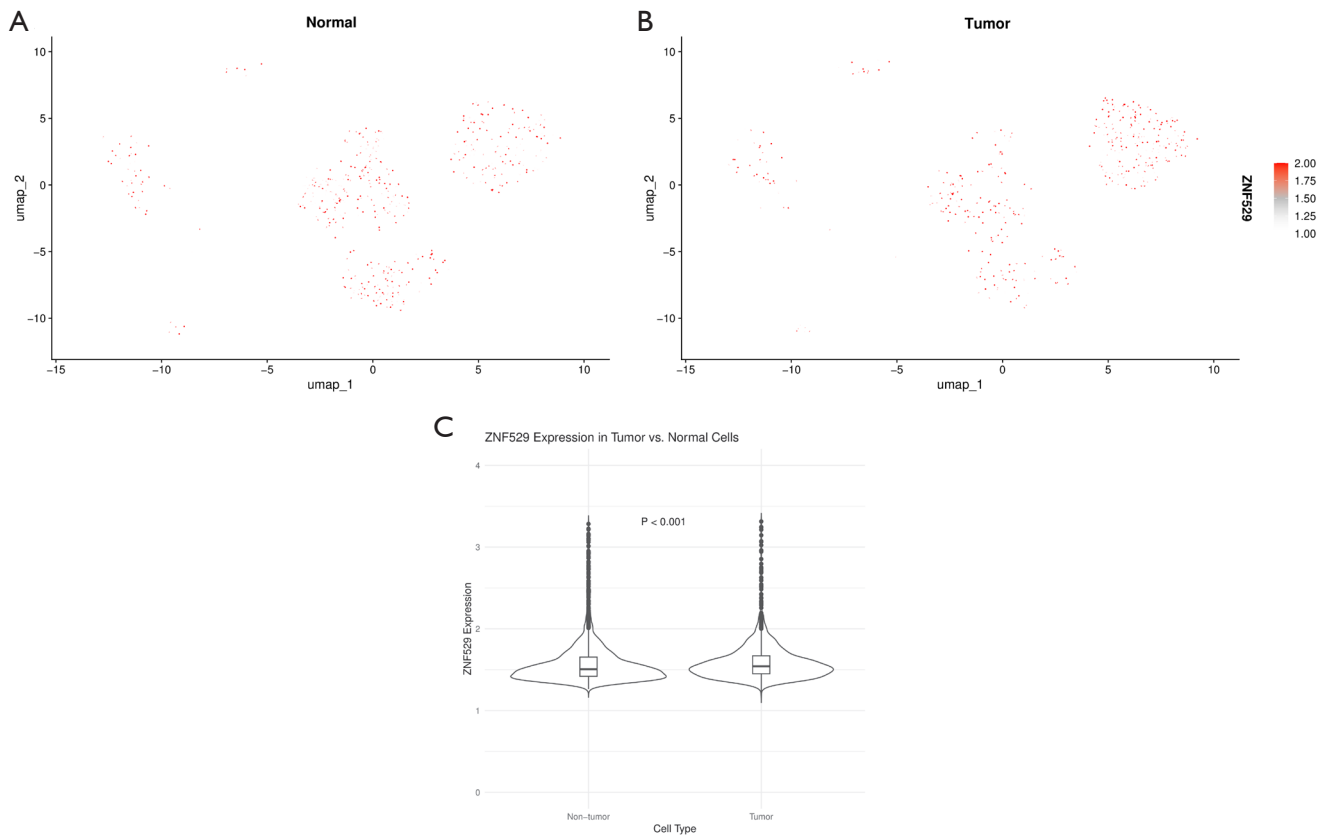


Figure S4 Single cell analysis of zinc finger protein 529 (ZNF529) expression. (A) Distribution in hepatocellular carcinoma (HCC) samples; (B) Distribution in normal liver samples; (C) Differential ZNF529 expression between HCC and normal cell.

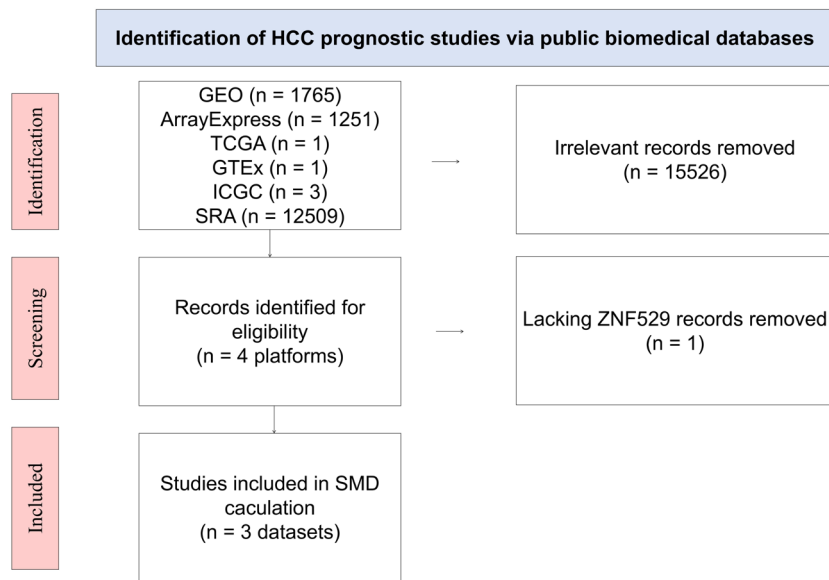


Figure S5 Dataset screening and selection visualization for survival analysis workflow.

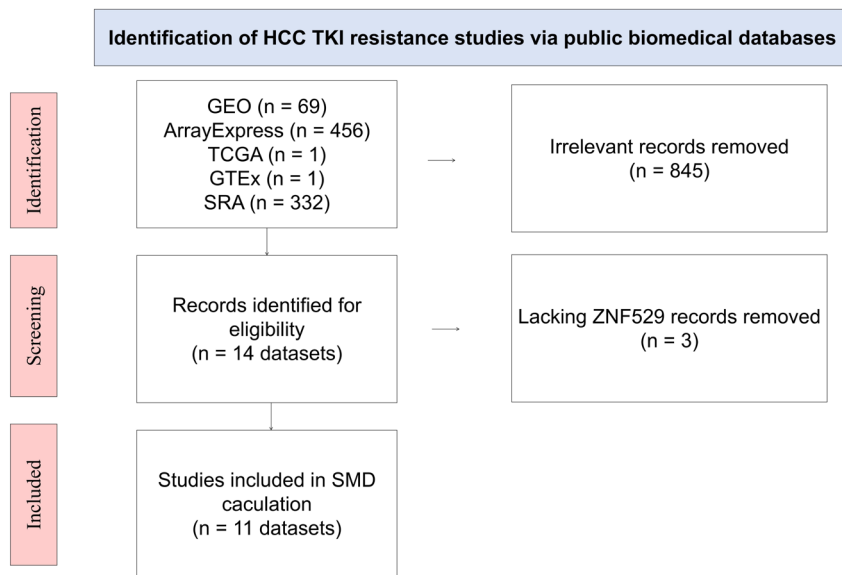


Figure S6 Dataset screening and selection flow diagram for transcriptomic analysis of tyrosine kinase inhibitor (TKI)-resistance.

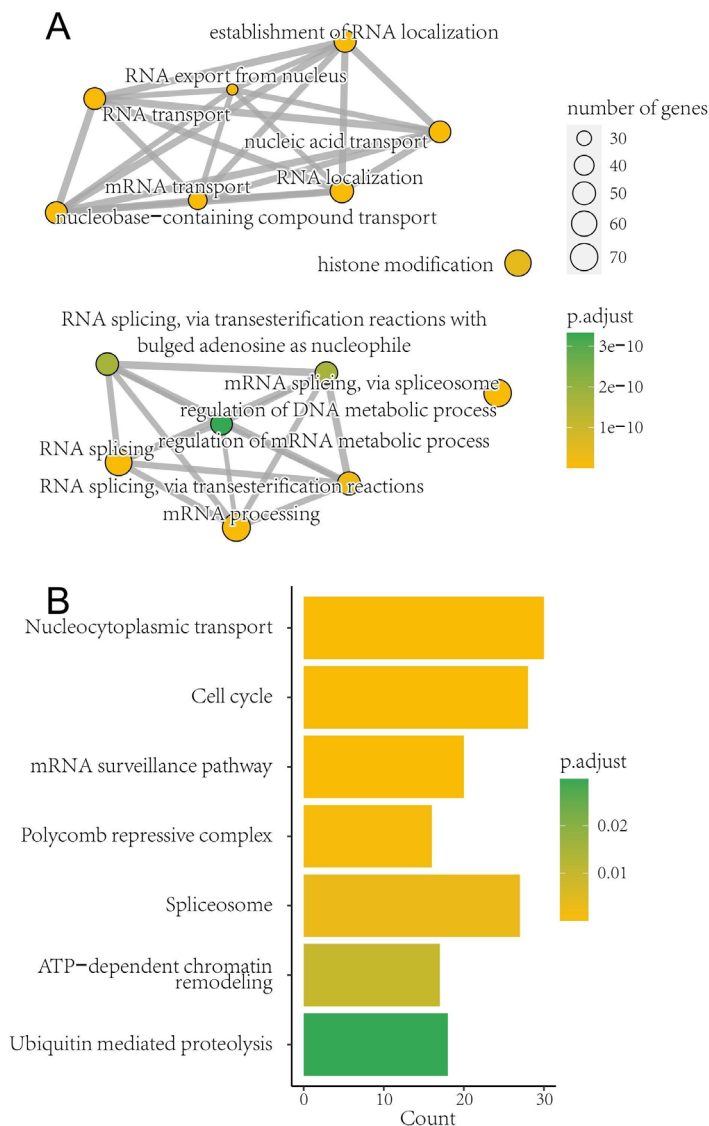


Figure S7 Investigation of zinc finger protein 529 (ZNF529)-mediated mechanisms of tyrosine kinase inhibitor (TKI) resistance in HCC. (A) Gene Ontology (GO) functional enrichment analysis of intersected genes in TKI-resistant samples; (B) Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analysis of intersected genes in TKI-resistant samples.

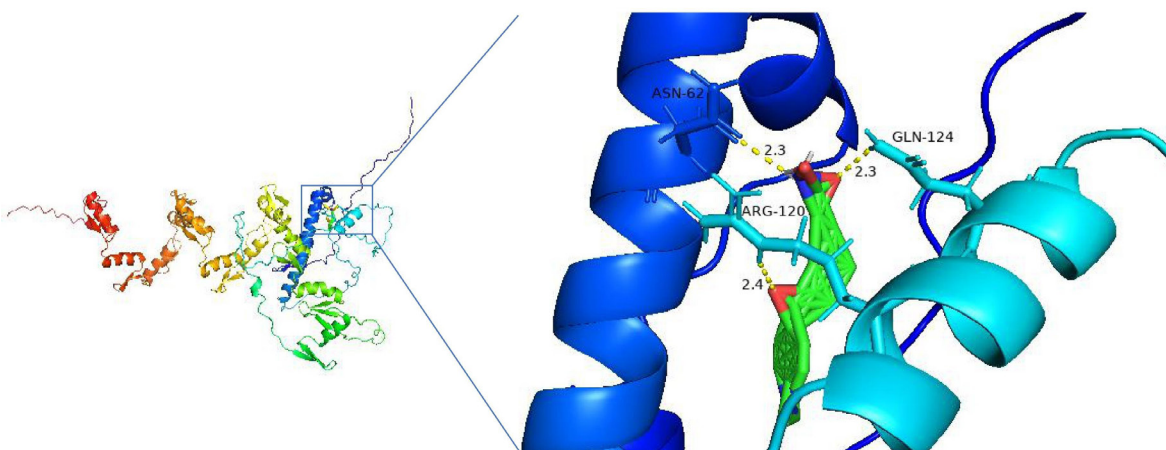


Figure S8 Molecular docking of trichostatin A with zinc finger protein 529 (ZNF529) (affinity energy: -9.1 kcal/mol).

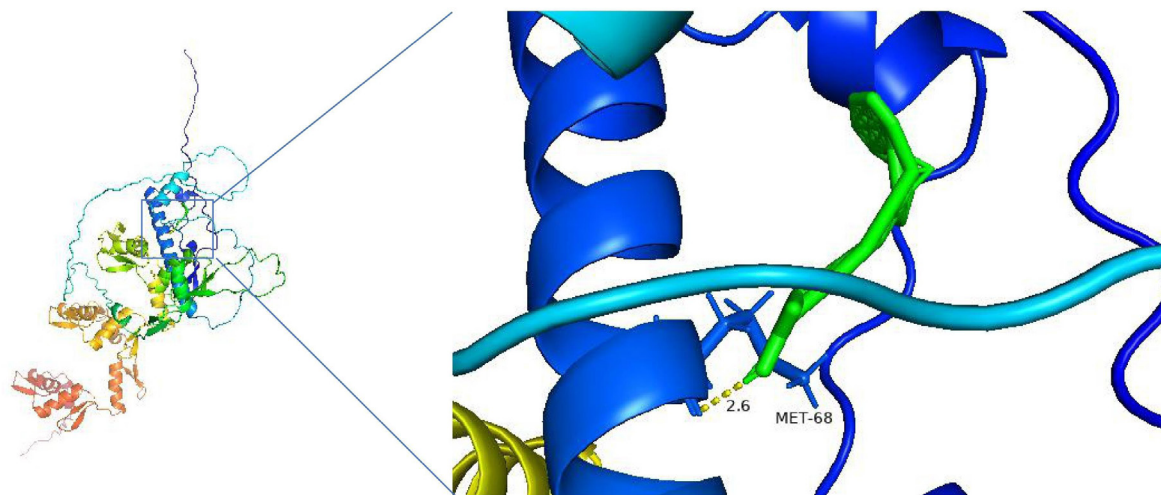


Figure S9 Molecular docking of vorinostat with zinc finger protein 529 (ZNF529) (affinity energy: -7.1 kcal/mol).