

Table S1 Full names and biological functions of 19 S100 family members

S100 protein family	Description	Encoded gene	Functions
S100A1	S100 calcium binding protein A1	<i>S100A1</i>	Inhibit microtubule assembly; inhibit protein kinase C-mediated phosphorylation
S100A2	S100 calcium binding protein A2	<i>S100A2</i>	Tumor suppressor
S100A3	S100 calcium binding protein A3	<i>S100A3</i>	High affinity for Zinc; highly expressed in human hair cuticle
S100A4	S100 calcium binding protein A4	<i>S100A4</i>	Motility; invasion; tumor metastasis
S100A5	S100 calcium binding protein A5	<i>S100A5</i>	Higher affinity of Ca^{2+}
S100A6	S100 calcium binding protein A6	<i>S100A6</i>	Stimulate Ca^{2+} dependent insulin release; stimulate prolactin secretion; exocytosis; implicated in melanoma
S100A7	S100 calcium binding protein A7	<i>S100A7</i>	Overexpressed in hyperproliferative skin diseases; antibacterial activity; immunomodulatory activity
S100A8	S100 calcium binding protein A8	<i>S100A8</i>	Antifungal and antibacterial activity; inhibit casein kinase
S100A9	S100 calcium binding protein A9	<i>S100A9</i>	Inhibit casein kinase; associated with the disease cystic fibrosis; antifungal and antibacterial activity
S100A10	S100 calcium binding protein A10	<i>S100A10</i>	exocytosis and endocytosis
S100A11	S100 calcium binding protein A11	<i>S100A11</i>	Motility; invasion; tubulin polymerization; tumor metastasis
S100A12	S100 calcium binding protein A12	<i>S100A12</i>	Signal transduction; modulate various neutrophil activities; antibacterial activity
S100A13	S100 calcium binding protein A13	<i>S100A13</i>	Signal transduction
S100A14	S100 calcium binding protein A14	<i>S100A14</i>	Tumor suppressor; lower in cancerous tissue
S100A16	S100 calcium binding protein A16	<i>S100A16</i>	Promote differentiation of adipocytes
S100B	S100 calcium binding protein B	<i>S100B</i>	Neurite extension; proliferation of melanoma cells, stimulate Ca^{2+} fluxes, inhibit PKC-mediated phosphorylation; inhibit microtubule assembly
S100P	S100 calcium binding protein P	<i>S100P</i>	Associated with prostate cancer
S100Z	S100 calcium binding protein Z	<i>S100Z</i>	Higher affinity of Ca^{2+}
S100A7A	S100 calcium binding protein A7A	<i>S100A7A</i>	Involved in epidermal differentiation and inflammation

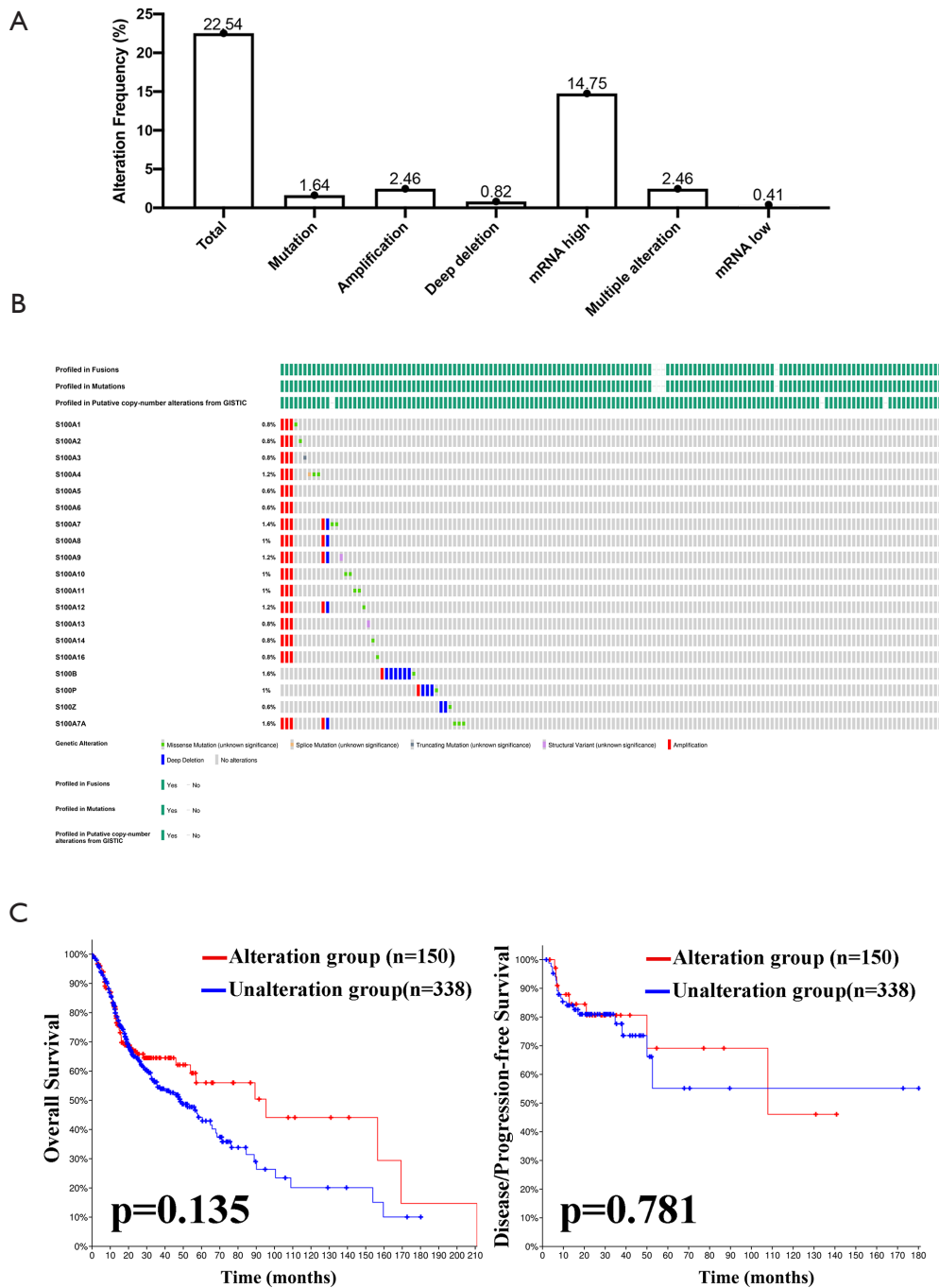


Figure S1 S100s gene mutation analysis in HNSCC. (A,B) S100 genes expression and mutations in 488 HNSCC patients were analyzed using cBioPortal. (C) Correlation between S100s gene mutation and survival in HNSCC patients. mRNA, messenger RNA; GISTIC, genomic identification of significant targets in cancer; HNSCC, head and neck squamous cell carcinoma.

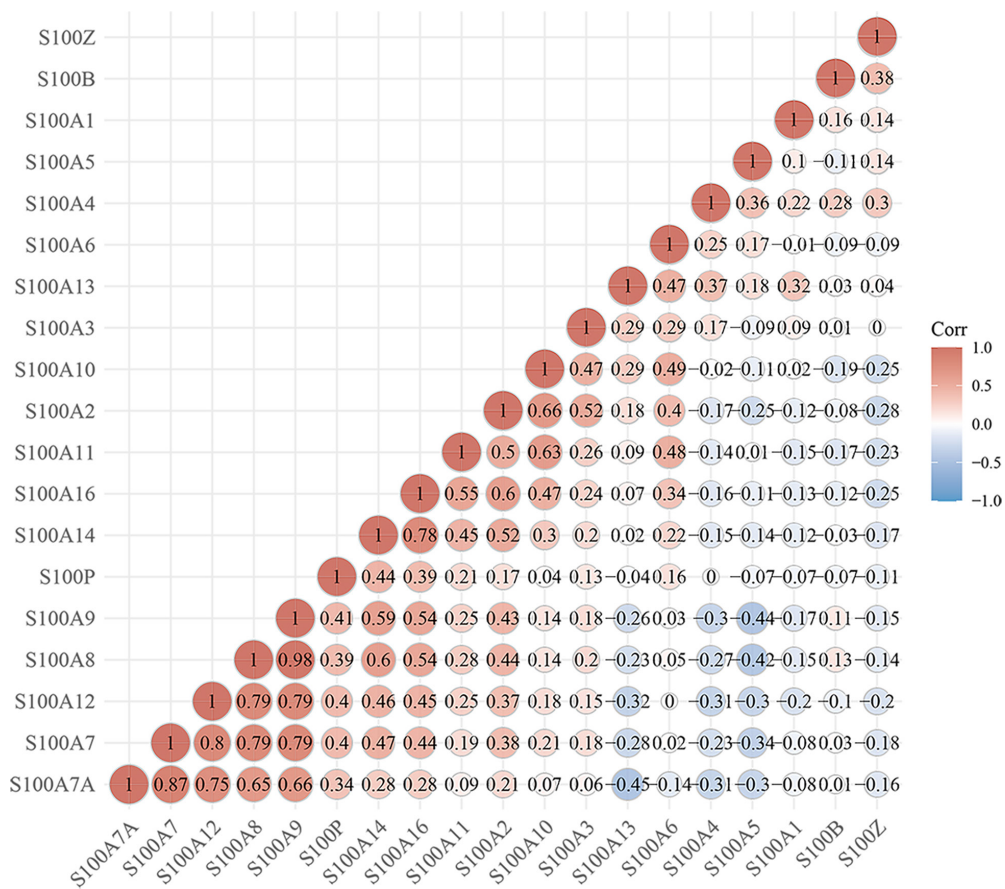


Figure S2 The associations among S100s in HNSCC were analyzed using the cBioPortal database. Darker colors indicate a stronger correlation. Corr, correlation; HNSCC, head and neck squamous cell carcinoma.

Table S2 The average values of high and low mRNA expression level for S100 family members in HNSCC patients

S100 protein family	mRNA expression level	Number of HNSCC patients	Average value	P value
S100A1	High	252	1.038	0.291
S100A1	Low	252	0.313	
S100A2	High	252	12.443	3.105
S100A2	Low	252	10.527	
S100A3	High	252	5.111	1.482
S100A3	Low	252	3.526	
S100A4	High	252	8.349	0.384
S100A4	Low	252	6.949	
S100A5	High	252	1.639	<0.001
S100A5	Low	252	0.527	
S100A6	High	252	11.898	3.247
S100A6	Low	252	10.635	
S100A7	High	252	12.479	0.108
S100A7	Low	252	7.537	
S100A7A	High	252	6.500	<0.001
S100A7A	Low	252	1.759	
S100A8	High	252	13.600	2.930
S100A8	Low	252	10.182	
S100A9	High	252	14.943	5.557
S100A9	Low	252	11.844	
S100A10	High	252	11.219	<0.01
S100A10	Low	252	10.019	
S100A11	High	252	12.768	0.053
S100A11	Low	252	11.927	
S100A12	High	252	7.799	0.235
S100A12	Low	252	3.938	
S100A13	High	252	4.164	3.514
S100A13	Low	252	2.888	
S100A14	High	252	10.978	6.704
S100A14	Low	252	9.182	
S100A16	High	252	10.550	<0.01
S100A16	Low	252	9.468	
S100B	High	252	4.364	<0.001
S100B	Low	252	2.355	
S100P	High	252	8.820	0.141
S100P	Low	252	5.169	
S100Z	High	252	0.229	<0.05
S100Z	Low	252	0.035	

mRNA, messenger RNA; HNSCC, head and neck squamous cell carcinoma.

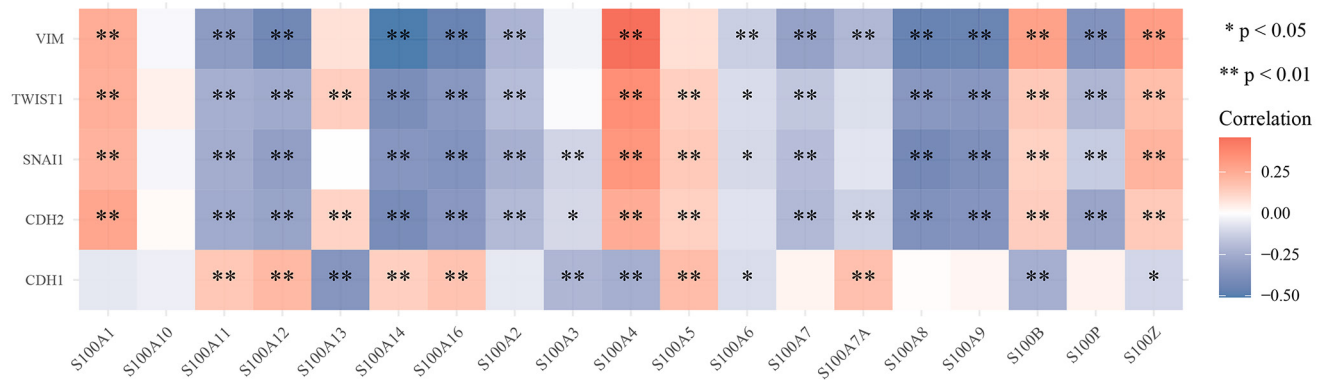


Figure S3 Heatmap of the correlations among five EMT genes and S100 genes in HNSCC. EMT, epithelial-mesenchymal transition; HNSCC, head and neck squamous cell carcinoma.

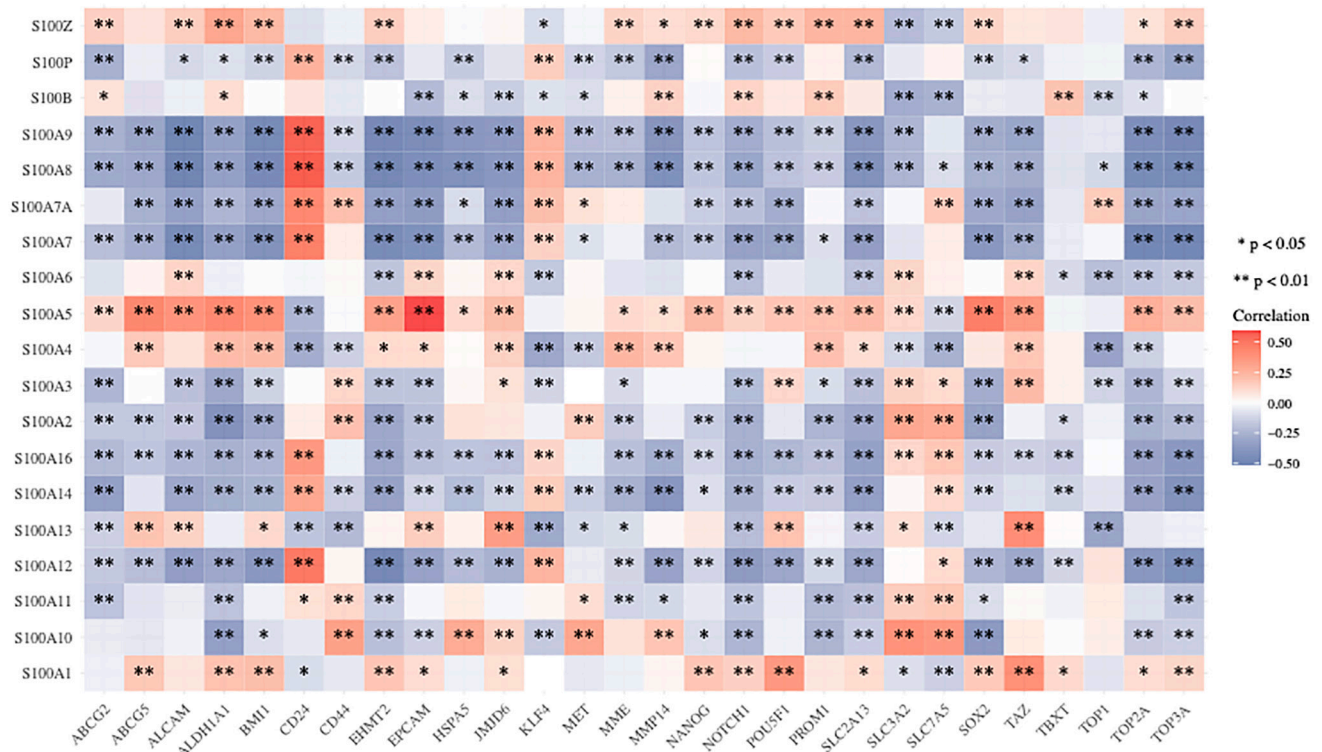


Figure S4 Heatmap of the correlations among CSC-related genes and S100 genes in HNSCC. CSC, cancer stem cell; HNSCC, head and neck squamous cell carcinoma.

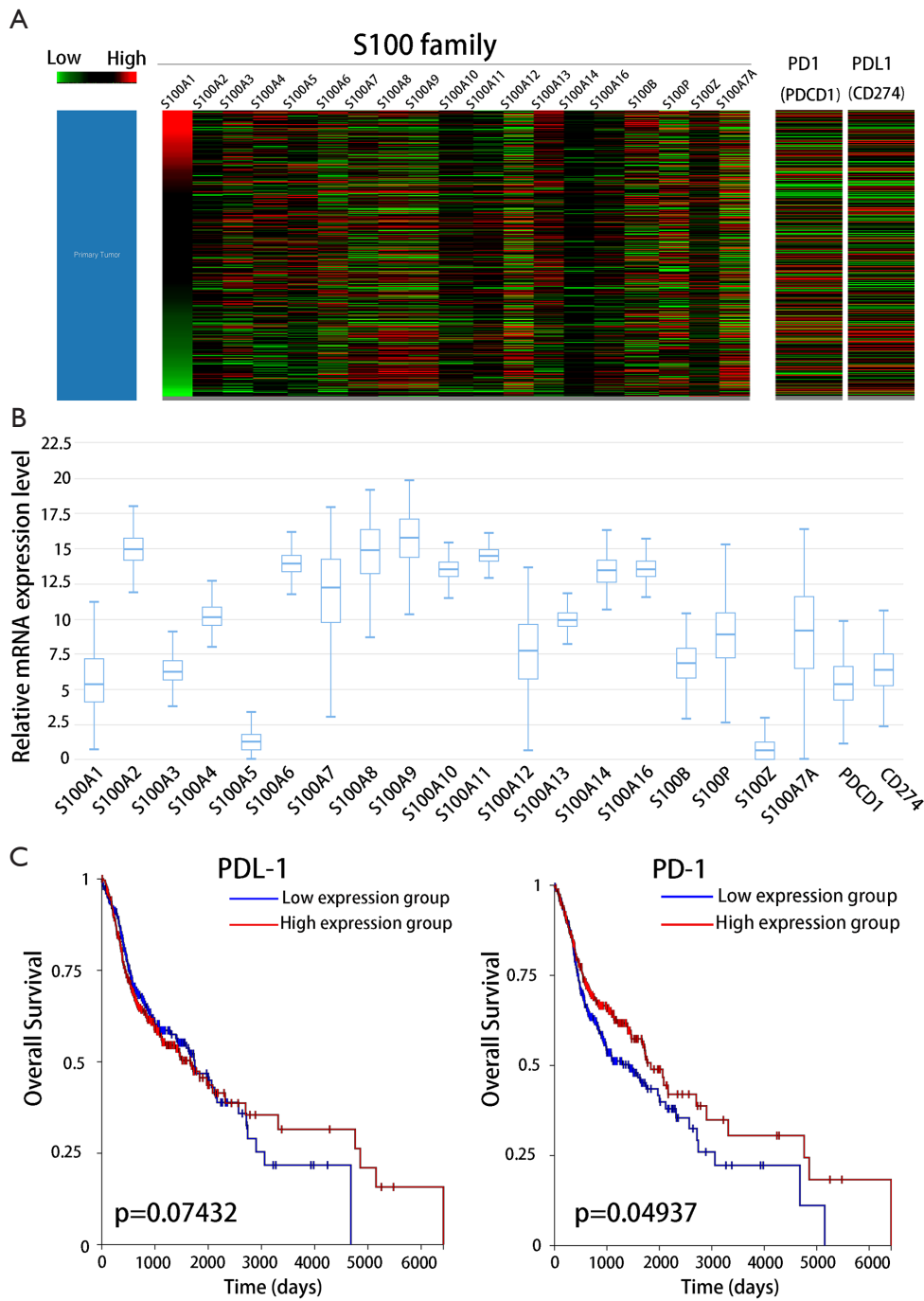


Figure S5 Roles of gene PD-1, PD-L1 in HNSCC. (A) Heatmap of the expression of gene PD-1, PD-L1 and S100 genes in HNSCC. (B) Transcriptional expression of gene PD-1, PD-L1 and S100 genes in HNSCC. (C) Correlation between PD-1, PD-L1 expression and OS in HNSCC patients. PD-1, programmed death 1; PD-L1, programmed death ligand 1; HNSCC, head and neck squamous cell carcinoma; OS, overall survival.