

CHPF promotes breast cancer malignancy

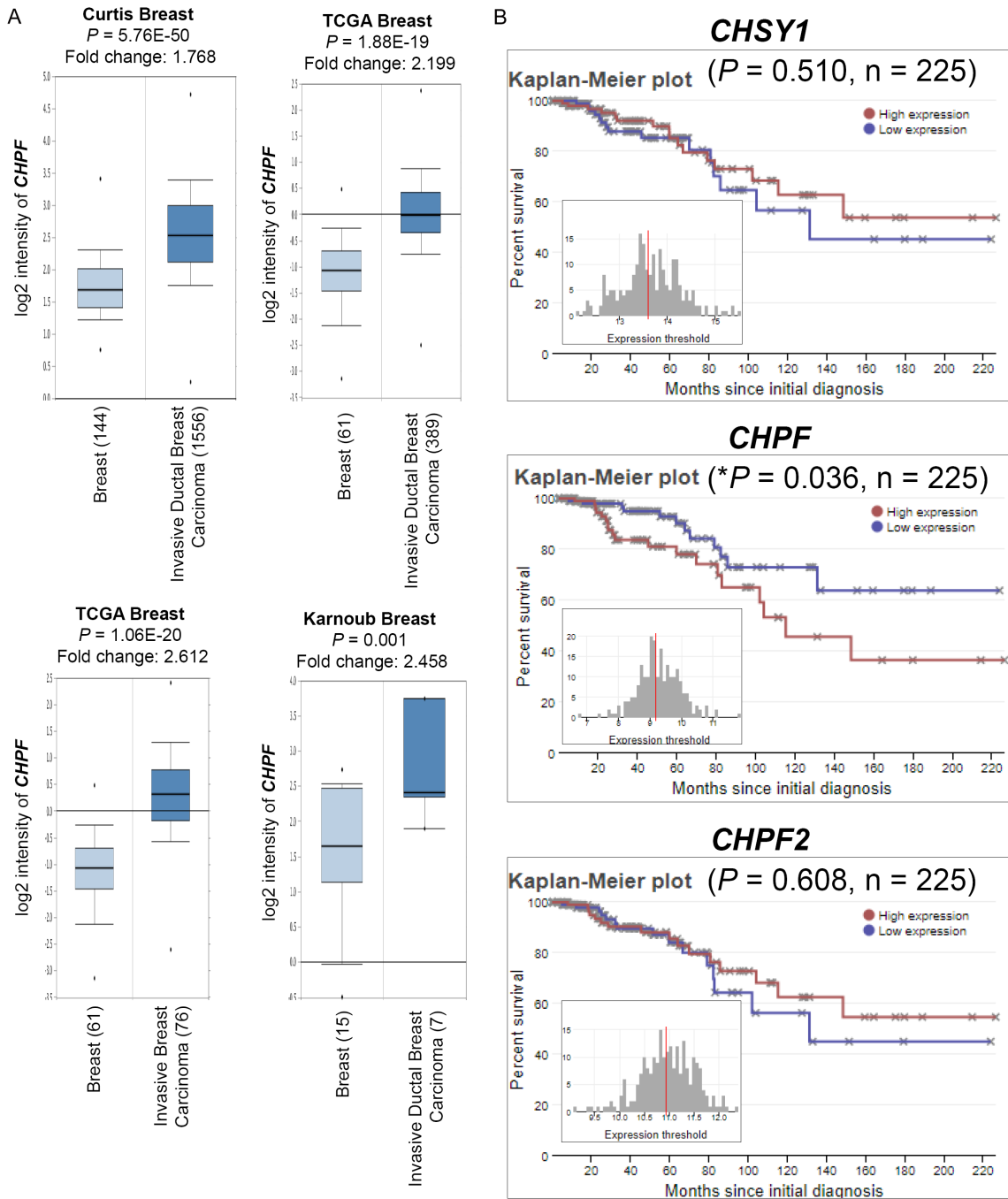


Figure S1. Expression of CS synthases in breast cancer patients. A. Expression of *CHPF* is significantly up-regulated in several breast cancer datasets from ONCOMINE database. B. Overall survival analysis of three major bifunctional chondroitin sulfate synthases (*CHSY1*, *CHPF*, and *CHPF2*) in breast cancer patients by Betastasis.com (<http://www.betastasis.com/>).

CHPF promotes breast cancer malignancy

Table S1. Summary of multiple comparison of *CHPF* expression in breast cancer subtype

Comparisons (number of cases)	Mean Diff.	95% CI of diff.	Significant	P Value
Normal (104) vs. Normal-like (35)	-1.483	-1.95 to -1.02	Yes	< 0.0001
Normal (104) vs. LumA (483)	-1.293	-1.55 to -1.04	Yes	< 0.0001
Normal (104) vs. LumB (190)	-1.047	-1.34 to -0.76	Yes	< 0.0001
Normal (104) vs. Her2 (73)	-1.636	-2.00 to -1.27	Yes	< 0.0001
Normal (104) vs. Basal-like (166)	-1.381	-1.68 to -1.08	Yes	< 0.0001
Normal-like (35) vs. LumA (483)	0.1898	-0.23 to 0.61	No	0.9504
Normal-like (35) vs. LumB (190)	0.4359	-0.002 to 0.87	No	0.0521
Normal-like (35) vs. Her2 (73)	-0.1532	-0.64 to 0.34	No	0.9987
Normal-like (35) vs. Basal-like (166)	0.1017	-0.34 to 0.54	No	> 0.9999
LumA (483) vs. LumB (190)	0.2460	0.042 to 0.45	Yes	0.0062
LumA (483) vs. Her2 (73)	-0.3430	-0.64 to -0.044	Yes	0.0117
LumA (483) vs. Basal-like (166)	-0.08817	-0.30 to 0.13	No	0.9791
LumB (190) vs. Her2 (73)	-0.5890	-0.92 to -0.26	Yes	< 0.0001
LumB (190) vs. Basal-like (166)	-0.3342	-0.59 to -0.081	Yes	0.0017
Her2 (73) vs. Basal-like (166)	0.2549	-0.079 to 0.59	No	0.3209

Table S2. Summary of multiple comparison of *CHPF* expression within breast cancer stages

Comparisons (number of cases)	Mean Diff.	95% CI of diff.	Significant	P Value
Normal (104) vs. Stage I (165)	-1.293	-1.582 to -1.004	Yes	< 0.0001
Normal (104) vs. Stage II (555)	-1.260	-1.506 to -1.013	Yes	< 0.0001
Normal (104) vs. Stage III (210)	-1.355	-1.632 to -1.079	Yes	< 0.0001
Normal (104) vs. Stage IV (17)	-1.592	-2.196 to -0.9886	Yes	< 0.0001
Stage I (165) vs. Stage II (555)	0.03357	-0.1710 to 0.2381	No	> 0.9999
Stage I (165) vs. Stage III (210)	-0.06235	-0.3023 to 0.1776	No	0.9981
Stage I (165) vs. Stage IV (17)	-0.2990	-0.8866 to 0.2887	No	0.8117
Stage II (555) vs. Stage III (210)	-0.09593	-0.2828 to 0.09097	No	0.8035
Stage II (555) vs. Stage IV (17)	-0.3325	-0.9006 to 0.2355	No	0.6543
Stage III (210) vs. Stage IV (17)	-0.2366	-0.8183 to 0.3451	No	0.9467

CHPF promotes breast cancer malignancy

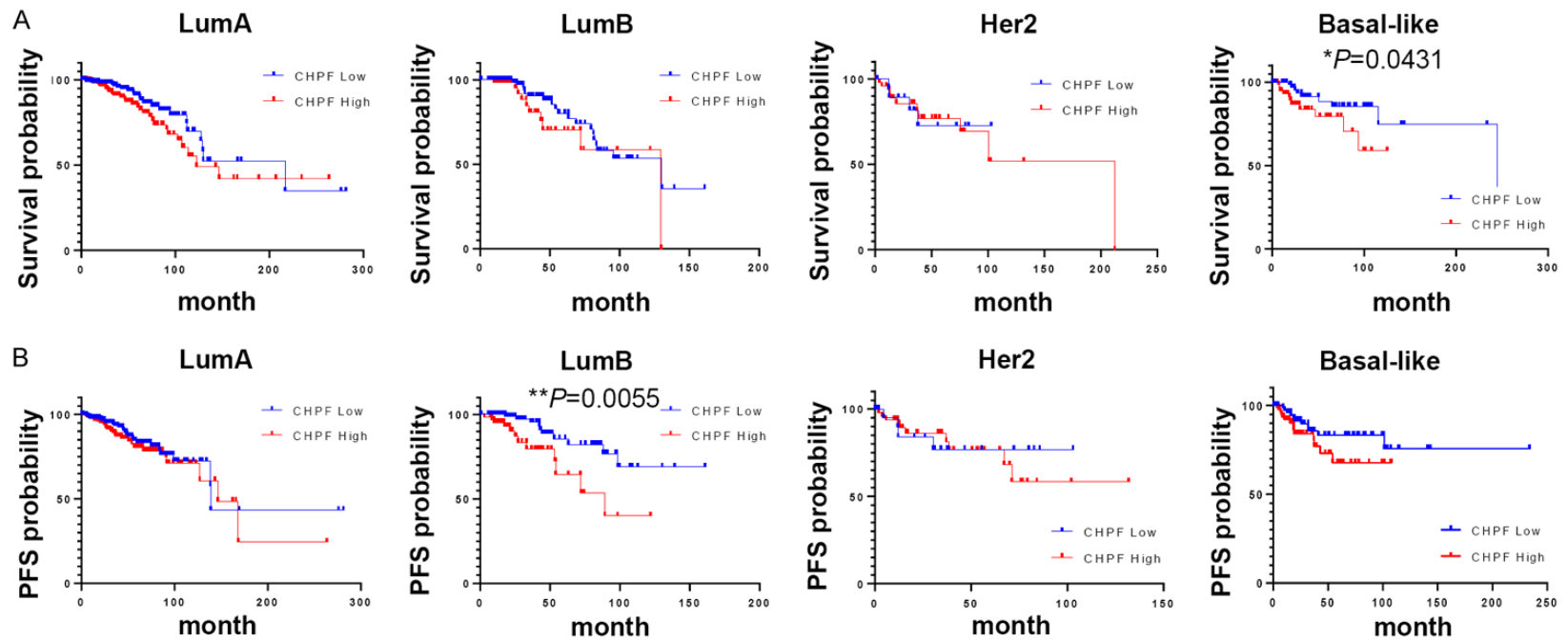


Figure S2. Overall survival and progression-free survival analysis according to expression of CHPF in different breast cancer subtypes. (A) Overall survival (B) progression-free survival (PFS). luminal A (LumA), luminal B (LumB), HER2-enriched (Her2), and Triple-negative (basal-like).

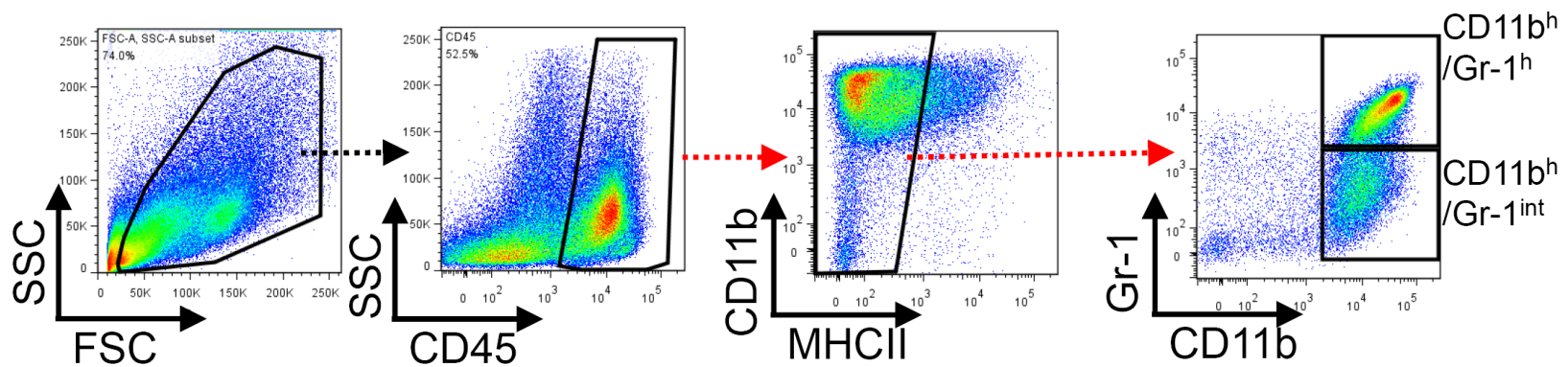


Figure S3. Representative gating strategy for myeloid-derived suppressor cell population in tumor tissue.