Supplementary Table 1. The sequences of shRNA were used in this study

shHDGF	1	Sence	5'CcggtgCCGTGAAATCAACAGCCAACTCGAGTTGGCTGTTGATTTCACGGCATTTTTg 3'
		Antisence	5'aattcaaaaatgCCGTGAAATCAACAGCCAACTCGAGTTGGCTGTTGATTTCACGGCA 3'
	2	Sence	5'CcgggaACGAGAAAGGAGCGTTGAACTCGAGTTCAACGCTCCTTTCTCGTTCTTTTTg 3'
		Antisence	5'aattcaaaaagaACGAGAAAGGAGCGTTGAACTCGAGTTCAACGCTCCTTTCTCGTTC 3'
	3	Sence	5'CcggcgAGAACAACCCTACTGTCAACTCGAGTTGACAGTAGGGTTGTTCTCGTTTTTg 3'
		Antisence	5'aattcaaaaacgAGAACAACCCTACTGTCAACTCGAGTTGACAGTAGGGTTGTTCTCG 3'
shZEB1	1	Sence	5'CcggccTCTCTGAAAGAACACATTACTCGAGTAATGTGTTCTTTCAGAGAGGTTTTT 3'
		Antisence	5'aattaaaaacctCTCTGAAAGAACACATTACTCGAGT AATGTGTTCTTTCAGAGAGG 3'
	2	Sence	5'ccgggcTGTTGTTCTGCCAACAGTTCTCGAGAACTGTTGGCAGAACAACAGCTTTTT 3'
		Antisence	5'aattaaaaagcTGTTGTTCTGCCAACAGTTCTCGAGA ACTGTTGGCTGAACA ACAGC 3'
	3	Sence	5'ccggccTACCACTGGATGTAGTAAACTCGAGTTTACTACATCCAGTGGTAGGTTTTTg 3'
		Antisence	5'aattcaaaaaccTACCACTGGATGTAGTAAACTCGAGTTTACTACATCCAGTGGTAGG 3'

Supplementary Table 2. The sequences of siRNA were used in this study

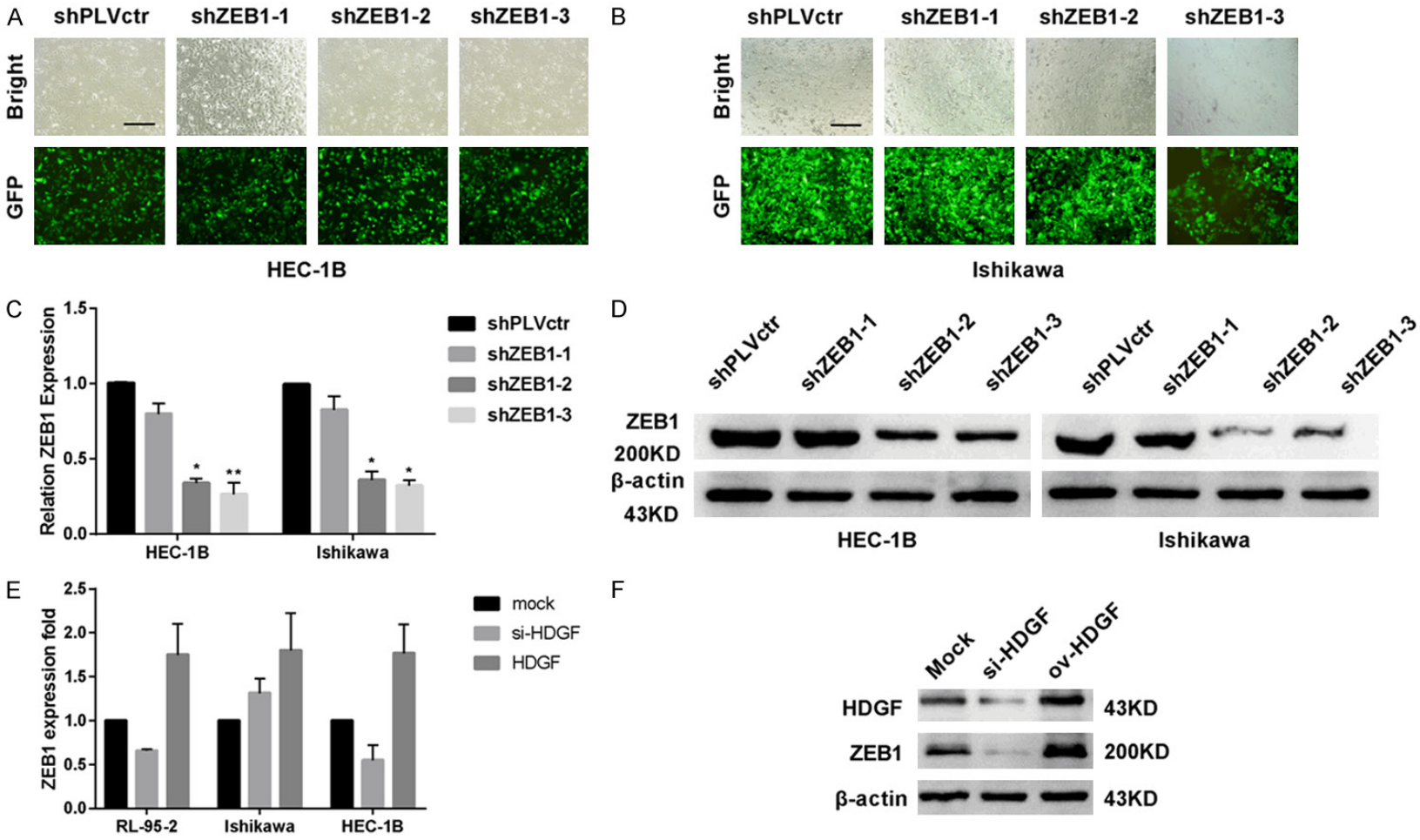
Name			Sequence
si-ZEB1	1	Sence	5'GGCAAGUGUUGGAGAAUAA dTdT 3'
		Antisence	3'dTdT CCGUUCACAACCUCUUAUU5'
	2	Sence	5'CCAGAAAUACACAGGGUUA dTdT 3'
		Antisence	3'dTdT GGUCUUUAUGUGUCCCAAU 5'
	3	Sence	5'GGACAGCACAGUAAAUCUA dTdT 3'
		Antisence	3'dTdT CCUGUCGUGUCAUUUAGAU5'
si-HDGF	1	Sence	5'GAAACGAGAUCGAAUGCAC dTdT 3'
		Antisence	3'dTdT CUUUGCUCUAGCUUACGUG 5'
	2	Sence	5'CUCAAGCGUUUCCUCCUUA dTdT 3'
		Antisence	3'dTdT GAGUUCGCAAAGGAGGAAU 5'
	3	Sence	5'CCAUACGAUUGACGAGAUG dTdT 3'
		Antisence	3'dTdT GGUAUGCUAACUGCUCUAC 5'

Supplementary Table 3. The primers and probes used in this study

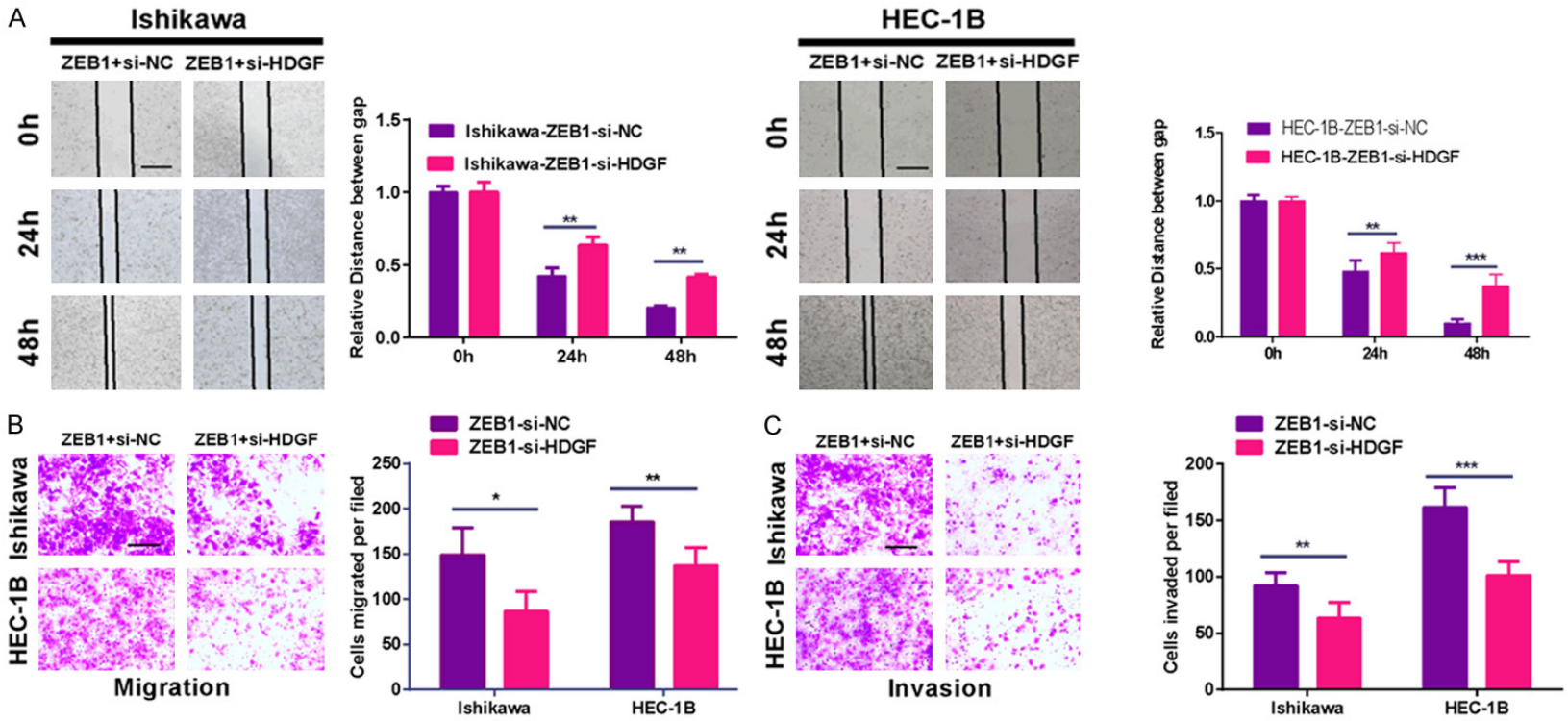
Primers name		Sequence
ZEB1	Forward	AGCAGTGAAAGAGAAGGGAATGC
	Reverse	GGTCCTCCTCAGGTGCCTCAG
HDGF	Forward	CGTGTACAGACGTCCACACT
	Reverse	CTCCTTGGCTGGCTCATCAA
ARF	Forward	ATCTGTTTCACAGTCTGGGACG
	Reverse	CCTGCTTGTTGGCAAATACC
CHIP-ZEB1-Site1	Forward	CTGTAATCCCAGCTACTCAGG
	Reverse	AGAATCTCGCTCTGTTGCC
CHIP-ZEB1-Site2	Forward	GGACTATTACACTGACTGCAT
	Reverse	GCAAGAAAACAGCCAAGCA
CHIP-ZEB1-Site3	Forward	TGCCCAGTTCAGTCATCACC
	Reverse	GAATGCCAATAAACCCAACCC
EMSA-ZEB1-WT probe	TGGCACACACCTGTAAAGAATGCCCCCCTGTGCCACCCCACCTCCGAAAAGAGGTAGCACCTGG	
EMSA-ZEB1-WT competition	TGGCACACACCTGTAAAGAATGCCCCCCTGTGCCACCCCACCTCCGAAAAGAGGTAGCACCTGG	
EMSA-ZEB1-mut- site1 probe	TGGTCTCTCTACTTAAAGAATGCCCCCCTGTGCCACCCCACCTCCGAAAAGAGGTAGCACCTGG	
EMSA-ZEB1-mut-site2 probe	TGGCACACACCTGTAAAGAATTAATTATCTTGCCACCCCACCTCCGAAAAGAGGTAGCACCTGG	
EMSA-ZEB1-mut-site3 probe	TGGCACACACCTGTAAAGAATGCCCCCCTGTGCCAATATCTACTATCGGCTATTCGTTGATCTA	
EMSA-ZEB1-mut-3-site competition	TGGTCTCTCTACTTAAAGAATTAATTATCTTGCCAATATCTACTATCGGCTATTCGTTGATCTA	

Supplementary Table 4. A list of antibodies used for Western blot, IHC staining, IF, Co-IP, CHIP

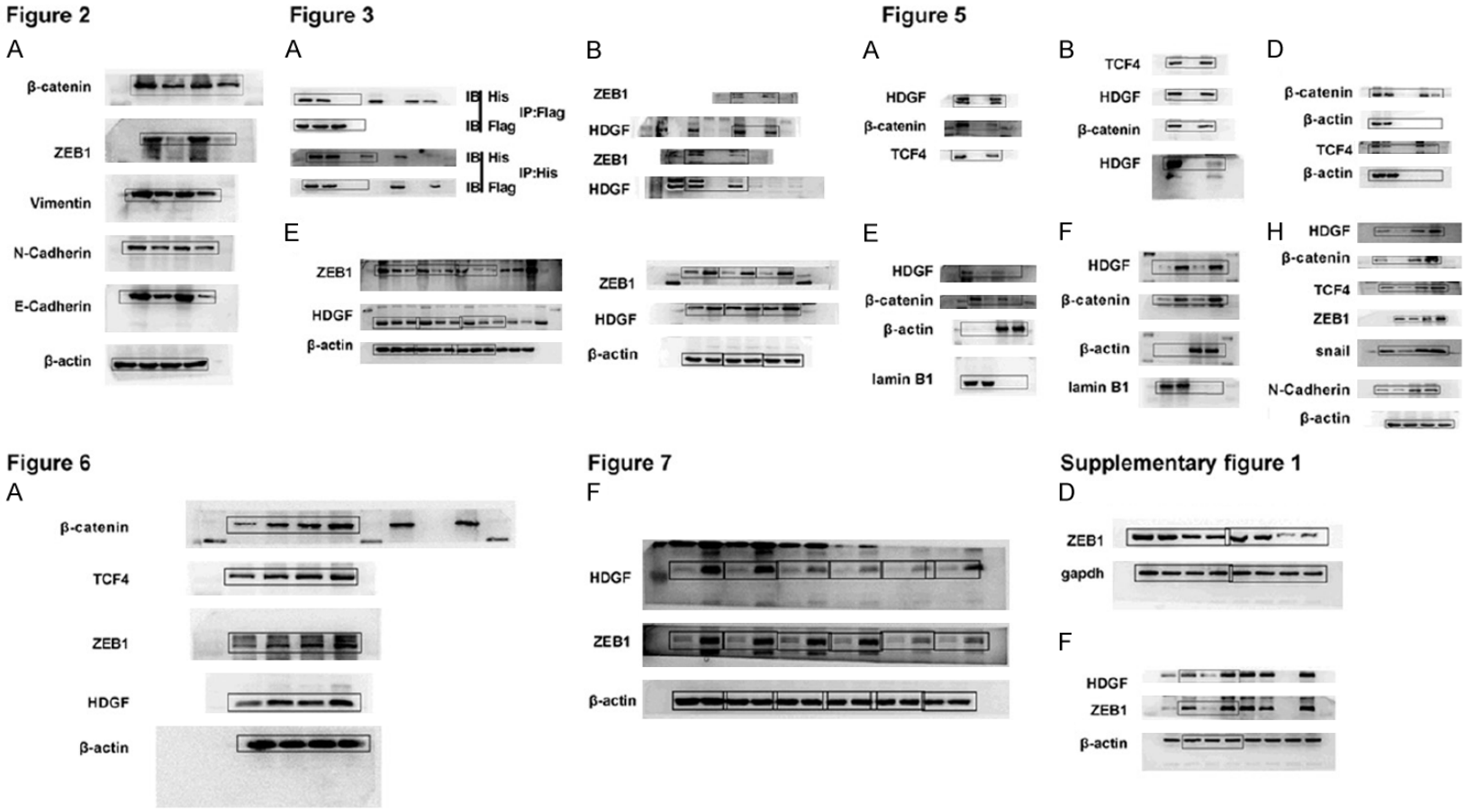
Name of antibody	Cat. No	Company	Mol weight	Dilution (WB/IHC/CHIP/EMSA)
ZEB1	3396S	CST	200 kDa	1:1000 (WB); 1:200 (IP); 1:50 (EMSA)
ZEB1	Ab203829	abcam	200 kDa	1:250 (IHC); 1:100 (IF)
E-cadherin	3195S	CST	135 kDa	1:1000 (WB); 1:200 (IF)
N-cadherin	13116S	CST	140 kDa	1:1000 (WB)
β-catenin	8480S	CST	92 kDa	1:1000 (WB); 1:50 (IP)
Snail	3879S	CST	29 kDa	1:1000 (WB)
lamin B1	13435S	CST	68.45 kDa	1:1000 (WB)
Vimentin	5741S	CST	57 kDa	1:1000 (WB); 1:100 (IF)
HDGF	60064-1-Ig	Proteintech	40 kDa	1:1000 (WB); 1:50 (IHC); 1:100 (IF)
HDGF	11344-1-AP	Proteintech	40 kDa	1:200 (IP)
Flag-Tag	F1804	Sigma	-	1:100 (Co-IP); 1:1000 (WB)
His-Tag	12698s	CST	-	1:100 (Co-IP); 1:3000 (Pull down); 1:1000 (WB)
β-actin	sc-1616	Santa	43 kDa	1:1000 (WB)
PCNA	10205-2-AP	Proteintech	36-38 kDa	1:30 (IHC)
Ki67	Ab16667	abcam	-	1:100 (IHC)
TCF4	22337-1-AP	Proteintech	72 kDa	1:1000 (WB); 0.5-4.0 ug (Co-IP)
Normal IgG	2729	CST	-	1:10 (IP)



Supplementary Figure 1. A and B. HEC-1B and Ishikawa cells were transfected by lentiviruses containing shPLVctr or shZEB1. Scale bar: 25 μm. C. ZEB1 expression was detected after transfection with lentiviruses. D. ShRNA against ZEB1 as indicated in EC cells by Western blot. E. ZEB1 expression was detected after transfection with si-RNA (HDGF) or HDGF plasmid. F. ZEB1 expression was detected by Western blot. ARF served as a loading control in QPCR assay. β-actin was used as a loading control in Western blot assay. Data were shown as the mean ± SD, *P < 0.05; **P < 0.01.



Supplementary Figure 2. HDGF mediates ZEB1 to promote EC migration and invasion by modulating β-catenin-induced EMT signal. A. Scratch migration assay indicated that suppression of HDGF in ZEB1-overexpressed EC cells reversed the ability of migration. Scale bar: 200 μm. B and C. Cell migration and invasion were assessed via transwell and boyden assays. Scale bar: 25 μm. Data were shown as the mean ± SD, $*P < 0.05$; $**P < 0.01$; $***P < 0.001$.



Supplementary Figure 3. The uncropped gels/blots.