Supplementary Materials and Methods

**RNA interference.** For small interfering RNA (siRNA)-mediated knockdown of HDAC6 or EB1, cells were transfected with 100 nM of either the targeting or control siRNA (Sigma-Aldrich) using Lipofectamine 2000 (Invitrogen) for 72 or 96 hours. The functional assays were subsequently done after validation of HDAC6 or EB1 knockdown without affecting the cell viability. Several independent duplexes of siRNAs (synthesized by Sigma-Aldrich) and the siRNA pools of three duplexes (Santa Cruz Biotechnology) were used to target each gene. The sequences of siRNA targeting human HDAC6 are as follows: (i) sense: 5’-CAUCCAAGUCCAUCGCAGAtt-3’; antisense: 5’-UCUGCGAUGGACUUGGAGtt-3’; (ii) sense: 5’-GCAGUUAAAUGAAUUCCAUtt-3’; antisense: 5’-AUGGAAUUAUACUAUUAACUGCtc-3’. The sequences of siRNA targeting human EB1 are as follows: (i) sense: 5’-UUGCCUUGAAGAAAGUGAAtt-3’; antisense: 5’-UUCACUUUCUUCA AGGCAAtt-3’; (ii) the EB1 siRNA pool of three duplexes: (1) sense: 5’-CCACUACUGAGAUUGUUCAtt-3’; antisense: 5’-UUCACUUUCUUCA AGGCAAtt-3’; (2) sense: 5’-CCAGAUUCAGUUUAACAtt-3’; antisense: 5’-UGUUAACUACAGUUGGtt-3’; (3) sense: 5’-CUAGCCAUGGUUCAAUGGAtt-3’; antisense: 5’-UCAUUUGAACAUGGCUAGtt-3’.

**Primary antibodies and reagents.** Antibodies against STIM1 (Clone 44) and STIM1 (Clone CDN3H4) was from BD Biosciences and Thermo Scientific, respectively. Antibody against
Orai1 (catalog number 4041) and Orai1 peptide (catalog number 4041P) was from ProSci Incorporated. Antibodies against β-actin (clone AC-15), acetyl-α-tubulin (clone 6-11B-1) were from Sigma-Aldrich. Antibodies against HDAC6 [clone EPR1698(2)], STIM1 [clone EPR3414] and α-tubulin (clone EP1332Y) were from Epitomics. Antibodies against α-tubulin (clone B-7) and EB1 (clone 1A11/4 and H-70) were from Santa Cruz Biotechnology. Antibody against NKCC1 (clone D13A9) was from Cell Signaling. EGF, thapsigargin and cytochalasin D were from Sigma-Aldrich. SKF96365 and entinostat (MS275) were from Cayman Chemical. Colcemid and sodium butyrate (NaB) were from Merck. Fluo-4/AM and Fura-2/AM were from Invitrogen. Tubastatin-A was from BioVision.

**Total internal reflection fluorescence (TIRF) microscopy.** Cervical cancer SiHa cells overexpressing mOrange-STIM1 were plated onto 35 mm glass-bottom dish (MatTek, catalog number P35G-1.5-20-C) overnight. For Ca\(^{2+}\) imaging, cells were loaded with 2 μM Fluo-4/AM (Invitrogen) for 30 minutes. Living cell images were acquired using an Olympus Xcellence imaging system comprising IX81 microscope, 60X 1.49 NA apochromat TIRF objective, MT-20 illumination unit, 488 nm/20 mW and 561 nm/25 mW lasers and Ando DU897E EMCCD. Image was collected at 2-second interval for 15 minutes. Avizo 3D imaging and analysis software (Mercury computer systems) were used for image analyses.
**Proliferation and migration assay.** For cell proliferation assay, cells were adhered in 96-well plate for overnight and proliferated for another 72 hours. The proliferation activity was determined by the Alamar Blue® assay (Invitrogen), according to the manufacturer’s instructions. For cell migration assay, cells were allowed to migrate across the Transwell (with 8 μm pore membranes; Corning Incorporated) towards the complete growth medium for 12 hours at 37°C. Cells that migrated through the membrane were then fixed with methanol, stained with GIEMSA stain, and counted immediately.