Supplementary tables

Table S1 Target sequences list

Target genes	Sequences (5′→3′)
shnc	TTCTCCGAACGTGTCACGT
shlis1	GCATGTGGTAGAATGCATT

Table S2 Primary and secondary antibodies

Antibodies	Source	Identifier	Dilution
S100 Beta	Proteintech	15146-1-AP	1:300 (IHC) / 1:200 (IF)
GFAP	Proteintech	60190-1-Ig	1:500 (IHC) / 1:200 (IF)
GDNF	Proteintech	26179-1-AP	1:200 (IHC)
Vimentin	Abcam	EPR20574-4	1:1000 (IHC)
LIS1	Santa	sc-374586	1:200 (IHC) / 1:50 (IF)
MMP2	Abcam	ab86607	1:200(IHC)
PHGDH	Proteintech	14719-1-AP	1:500 (IHC) / 1:200 (IF) / 1:2000 (WB)
NMDAR1/GRIN1	Proteintech	27676-1-AP	1:500 (IHC) / 1:200 (IF)
Phospho-AKT (Ser473)	Proteintech	66444-1-Ig	1:300 (IHC) / 1:2000 (WB)
PSPH	Proteintech	14513-1-AP	1:2000 (WB)
PSAT1	Proteintech	67619-1-Ig	1:2000 (WB)
AKT	Proteintech	10176-2-AP	1:2000 (WB)
GAPDH	HUABIO	R1210-1	1:8000 (WB)
Goat Anti-Mouse IgG H&L (TRITC)	Abcam	ab6786	1:200
Dylight 488, Goat Anti-Rabbit IgG	Abbkine	A23220	1:200
HRP-labeled Goat Anti-Rabbit IgG(H+L)	ZSGB-BIO	ZB-2306	1:8000

IHC: Immunohistochemistry; WB: Western blot; IP: Immunoprecipitation; IF: Immunofluorescence.

Table S3 Primer sequences list of the target genes

Target genes	Sequence (5′→3′)
GDNF	F: GGCAGTGCTTCCTAGAAGAGA
	R: AAGACACAACCCCGGTTTTTG
BDNF	F: GGCTCCGAACTTTCTGGTTGAC
	R: CATTGGGCCGAACTTTCTGGT
NGF	F: TGTGGGTTGGGGATAAGACCA
	R: GCTGTCAACGGGATTTGGGT
MMP2	F: CAGCCAGAAGCGGAAACT
	R: CCAGCAGACACCATCACC
MMP9	F: CTGGGCAGATTCCAAACC
	R: CAAAGGCGTCGTCAATCA
PSAT1	F: TGCCGCACTCAGTGTTGTTAG
	R: GCAATTCCCGCACAAGATTCT
PHGDH	F: CTGCGGAAAGTGCTCATCAGT
	R: TGGCAGAGCGAACAATAAGGC
PSPH	F: GAGGACGCGGTGTCAGAAAT
	R: GGTTGCTCTGCTATGAGTCTCT
GAPDH	F: AGCACCGTCAAGGCTGAGAAC
	R: TGGTGAAGACGCCAGTGGA

Supplementary methods

Cell culture and transfection

Human HNSCC cell lines (SCC25) and human Schwann cells (sNF96.2) were acquired from the American Type Culture Collection (ATCC, Manassas, VA, USA) in 2023. All cell lines were confirmed to be free of mycoplasma contamination using a Mycoplasma PCR Detection Kit (Beyotime, C0301S, Shanghai, China) one week prior to experimentation. All cells were cultured in high-glucose Dulbecco's Modified Eagle Medium (DMEM; Gibco, Thermo Fisher Scientific, MA, USA) supplemented with 10% FBS (Gibco) and 1% penicillin-streptomycin (P/S, Seven, Beijing, China) within a humidified incubator at a constant temperature of 37 ℃ with 5% CO2.

Lentiviruses containing plasmids and short hairpin RNA (shRNA) were obtained from Shanghai GenePharma Co., Ltd.. The human LIS1 full-length cDNA was cloned into pLenti-CMV-EGFR-Puro. And GV248-EGFP-Puro was used to produce LIS1 short hairpin RNA (sh-LIS1). Table S1 lists the target sequences. A lentivirus containing the above-mentioned plasmids was used to transfect SCC25 cells for 24 h. Western blotting was performed to assess the effects of puromycin overexpression or knockdown in stable cell lines.

Colony formation assay

1×102 SCC25 cells were inoculated into a culture dish with the culture medium, which was changed every two days. After 10 days, 4% PFA was used to fix the cell colonies, and Giemsa solution (Solarbio, G1015, Beijing, China) was used for staining at room temperature for 15 min. Excess dye was rinsed with running water, air-dried, and images were captured.

Transwell assay

Migration and invasion experiments were performed in 24-well culture plates (Corning, 3427, NY, USA), with or without a matrix gel (Biocoat, 56234, Horsham,

PA, USA). SCC25 or sNF96.2 cell suspension starved for 12 h in advance were added to the upper chamber to regulate the cell volume to 1×105 cells/mL. Approximately, 500 μl medium with 20% FBS and 1% P/S, or inoculated with 1 × 105 SCCS25 cells were added to the lower chamber. The upper chambers were fixed with 4% PFA after co-culturing for 24 h and stained with a methylrosanilinium chloride solution (Solarbio, C8470). Subsequently, excess color was removed, and images were captured using a microscope.

Wound healing assay

Cells were inoculated until the cell density reached 90% and scratches were made in the 6-well plates. The separated cells and debris were removed with PBS. The cells were then cultured without serum, images of the scratches were captured at 0 h and 12 h using an Olympus light microscope and statistically quantified using the Image-Pro Plus 6.0 software.

CCK-8 assay

Following the manufacturer's instructions (Abbkine, BMU106-CN), the cells were inoculated at a density of 5000 cells per well in 96-well plates. After incubation for 0-72 h, 10 μl of CCK-8 solution was added into each well and it was further incubated for 30 min. Finally, the absorbance was measured at 450 nm using a microplate reader.