

Supplementary Figure legends

Supplementary Figure 1. Magnetic resonance imaging (MRI) and 3D model reconstruction-guided tumor localization and surgical sampling.

Supplementary Figure 2. Knockdown of CHI3L1 in U87MG and A172 cell lines.

Transfection and knockdown efficiencies were validated by fluorescence microscopy (A) and western blot (B), respectively; Scale bars represent 100 μm .

Supplementary Figure 3. Myeloid landscape delineation in human glioma. (A)

UMAP plot of monocyte, microglia and macrophage populations, with each cell color coded for cell type. **(B-C)** The distribution of enrichment score of EMT **(B)** and angiogenesis **(C)** pathway in UMAP plot. **(D)** Pseudotime trajectory of monocyte, microglia, and macrophage state transition inferred by Monocle 2 and characterized by cell type. **(E)** UMAP dot plot of neutrophil from 13 patients, with each cell color coded for cell type. **(F-G)** UMAP plot showed the evolutionary trajectory of neutrophils by cluster **(F)** and pseudotime **(G)**.

Supplementary Figure 4. Overexpression of CHI3L1 or ACTN4 promotes glioma cells

proliferation and migration. A, Proliferation of U251 cells evaluated by CCK-8 assay. B. Migration of U251 and U118 cells evaluated by wound healing assay; Student's t test, * $p < 0.05$, compared with the control group; # $p < 0.05$, compared with the CHI3L1 group; & $p < 0.05$, compared with the ACTN4 group.