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Supplemental Information

Blocking lncRNA *MALAT1*/miR-199a/ZHX1

Axis Inhibits Glioblastoma

Proliferation and Progression

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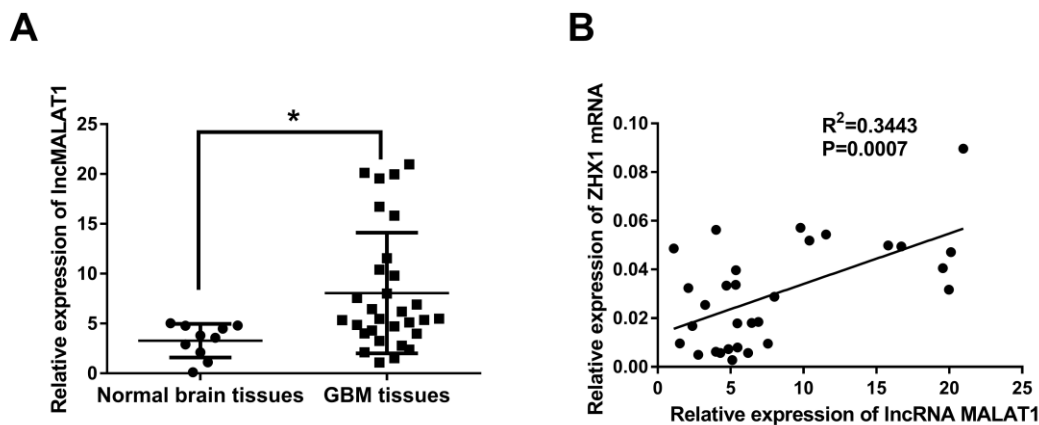
1 **Supplementary Methods**

2 **Northern Blotting**

3 Approximately 30 μg of total RNAs were run on 10% polyacrylamide gel and
4 transferred to a Hybond-N+ membrane (GE Healthcare, UK). The same membrane was
5 hybridized with probes, stripped and reprobred with 5'-end, ^{32}P -labeled
6 oligonucleotides complementary to targeted sequences. The oligonucleotide sequences
7 are as follows: for miR-199a detection, 5'-GAACAGGTAGTCTGAACACTGGG-3';
8 U6: 5'-ACGAATTTGCGTGTCATCCTTGCG-3'. Results were visualized through
9 phosphorimaging (Typhoon).

10

11 **Supplementary figures and figure legends**

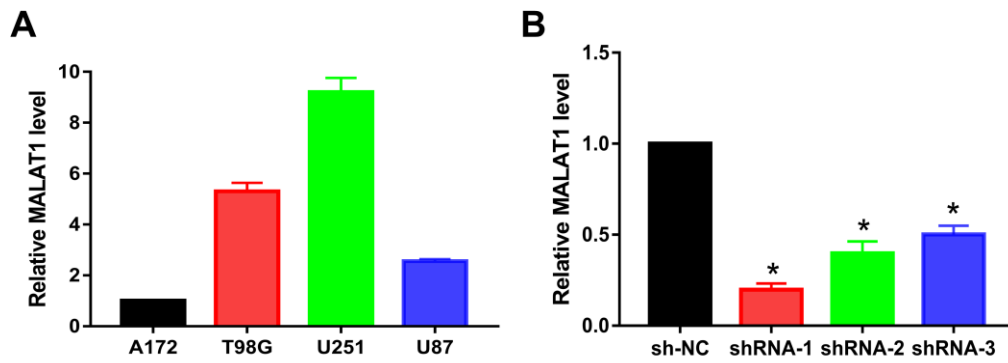


12

13 **Figure S1. ZHX1 mRNA level was positively correlated with MALAT1 level**

14 (A) The relative expression level of *MALAT1* was analyzed by RT-qPCR in GBM tissue
15 and normal control. (B) A correlation analysis demonstrated that ZHX1 mRNA level
16 was positively correlated with *MALAT1* level ($R^2=0.3443$, $p<0.05$).

17

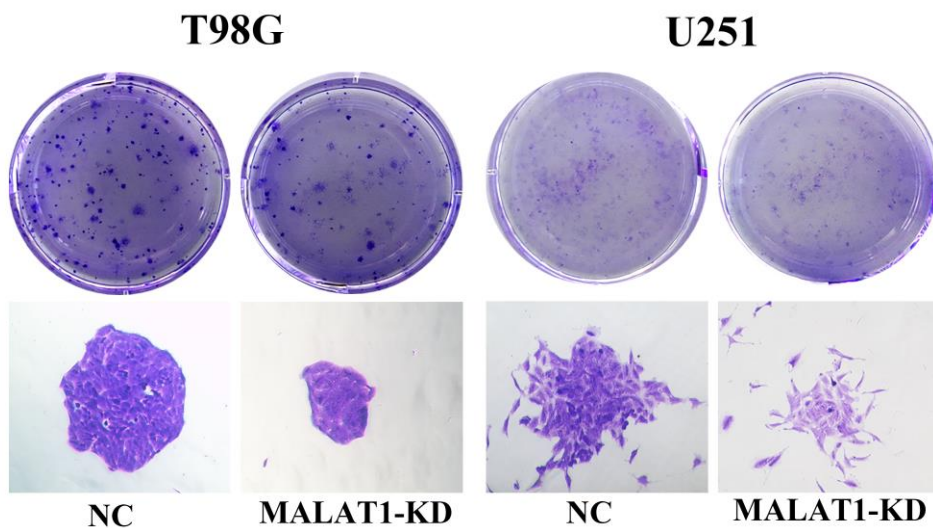


1

2 **Figure S2. *MALAT1* expression levels in glioma cell lines and knockdown**
 3 **efficiency of *MALAT1* shRNAs**

4 (A) *MALAT1* expression level was measured by RT-qPCR in 4 glioma cell lines (A172,
 5 T98G, U251, and U87). (B) shRNAs against *MALAT1* were designed and assessed by
 6 RT-qPCR for knockdown efficacy.

7



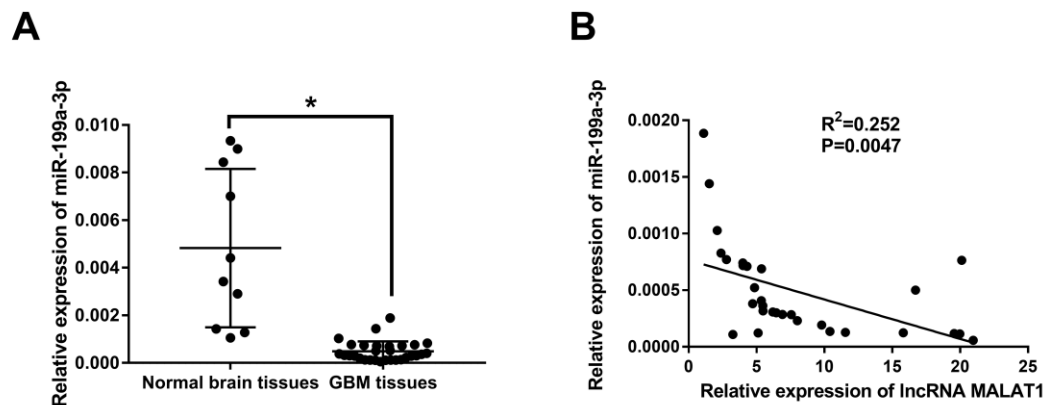
8

9 **Figure S3. Knockdown of *MALAT1* in GBM cells reduced the number of GBM**
 10 **colonies and colony sizes**

11 Knockdown of *MALAT1* in GBM cells (T98G and U251) reduced the number of GBM

1 colonies and colony sizes in the colony formation assay.

2

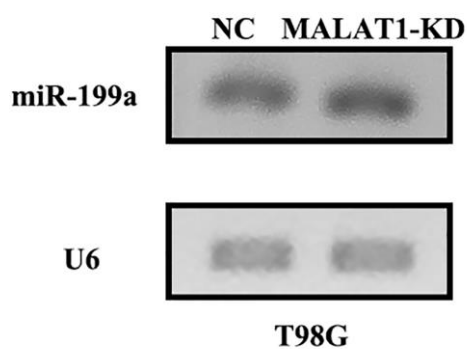


3

4 **Figure S4. miR-199a level was negatively correlated with *MALAT1* level in GBM**
5 **tissues**

6 (A) The relative expression level of miR-199a was analyzed by RT-qPCR in GBM
7 tissue and normal control. (B) Correlation analysis demonstrated that miR-199a level
8 was negatively correlated with *MALAT1* level ($R^2=0.252$, $p<0.01$).

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10

11 **Figure S5. Northern blot analysis of miR-199a**

12 Northern blot analysis of miR-199a in glioma cells with or without *MALAT1*-KD. U6
13 was used as a loading control.