

**Supplementary Table 1. Clinical characteristics of the nine samples**

|     | Sample   | Age | Sex    | Grading      | Pathological features   | Molecular/genetic signatures  |
|-----|----------|-----|--------|--------------|---|---|
| NBT | Sample 1 | 80  | male   | n/a          | n/a   | n/a   |
|     | Sample 2 | 73  | female | n/a          | n/a   | n/a   |
|     | Sample 3 | 58  | male   | n/a          | n/a   | n/a   |
| LGG | Sample 4 | 27  | male   | WHO grade II | The tumor cells were round, denser, with no obvious necrosis, and insignificant vascular proliferation.   | GFAP (+); Olig-2 (+); CD34 (vascular +); Syn (+); IDH-1 (+); P53 (~30% +); Vimentin (residual neurons +); NeuN (-); H3K27M (-); H3K27me3 (+); Ki-67 (~5% +).  |
|     | Sample 5 | 47  | male   | WHO grade II | Tumor cells were seen as small round shapes with diffuse sheet-like dense arrangements and scattered small foci of calcification.                       | GFAP(+); Olig-2(+); Vimentin(-); Syn(+); NeuN(-); EMA(small amount of paranuclear dotted+); IDH-1(-); H3K27me3(-); P53(approximately 5%+, no abnormal expression); Ki-67(approximately 5%+); H3K27M(-); CD34(+).      |
|     | Sample 6 | 55  | female | WHO grade II | Glial cells were proliferating, densely arranged, and with a translucent cytoplasm.   | H3K27me3(+); Olig-2(+); Vimentin(-); CD56(+); CK(-); CD34(-); EMA(-); H3K27M(-); GFAP(-); IDH-1(+); Ki-67(10%+); P53(5%+); NeuN(-); Syn(+).   |
| HGG | Sample 7 | 50  | female | WHO grade IV | The tumor cells were densely arranged, with marked vascular proliferation and some tissue necrosis and calcification.                                   | EMA (+); Vimentin (partial +); GFAP (+); Olig-2 (partial +); IDH-1 (-); S-100 (focal +); Ki-67 (approximately 15% +); CD34 (vascular +); BRAF (-); Inhibin (-); NSE (focal +); NeuN (-); H3K27M(-); H3K27me3(+).      |
|     | Sample 8 | 67  | male   | WHO grade IV | Cells were shuttle-shaped or short shuttle-shaped, arranged in sheets, with the proliferation of small vessels, and presenting as hemorrhagic necrosis. | GFAP (+); Vimentin (+); PR (-); EMA (focal weak +); Syn (weak +); CD34 (vascular +); S-100 (partial +); Olig-2 (+); NeuN (-); Stat6 (-); IDH-1 (focal +); H3K27M (-); H3K27me3 (+); P53 (~30%+); Ki-67 (focal ~10%+). |
|     | Sample 9 | 56  | female | WHO grade IV | Tumor cells were of variable sizes and arranged in sheets; tumor giant cells were observed, and necrosis was visible.                                   | GFAP (+); Vimentin (partial +); CD34 (+); EMA (partial +); Olig-2 (partial +); Syn (partial +); NeuN (focal +); H3K27M (-); H3K27me3 (focal +); P53 (approximately 80% +); Ki-67 (30–40% +); IDH-1 (-).               |

**Supplementary Table 2.** Primers used for qRT-PCR

| Gene    | Sequence (5'→3') or Assay ID                           |
|---------|--|
| miR-606 | F: AGCCAGCGAAACTACTGAAAATCAA                           |
| FDX1    | F: TTCAACCTGTCACCTCATCTTTG<br>R: TGCCAGATCGAGCATGTCATT |
| β-actin | F: ATTCCTATGTGGGCGACGAG<br>R: GCCACACGCAGCTCATTGTA     |

# Full length uncropped original western blots used in the manuscript

Figure 8E

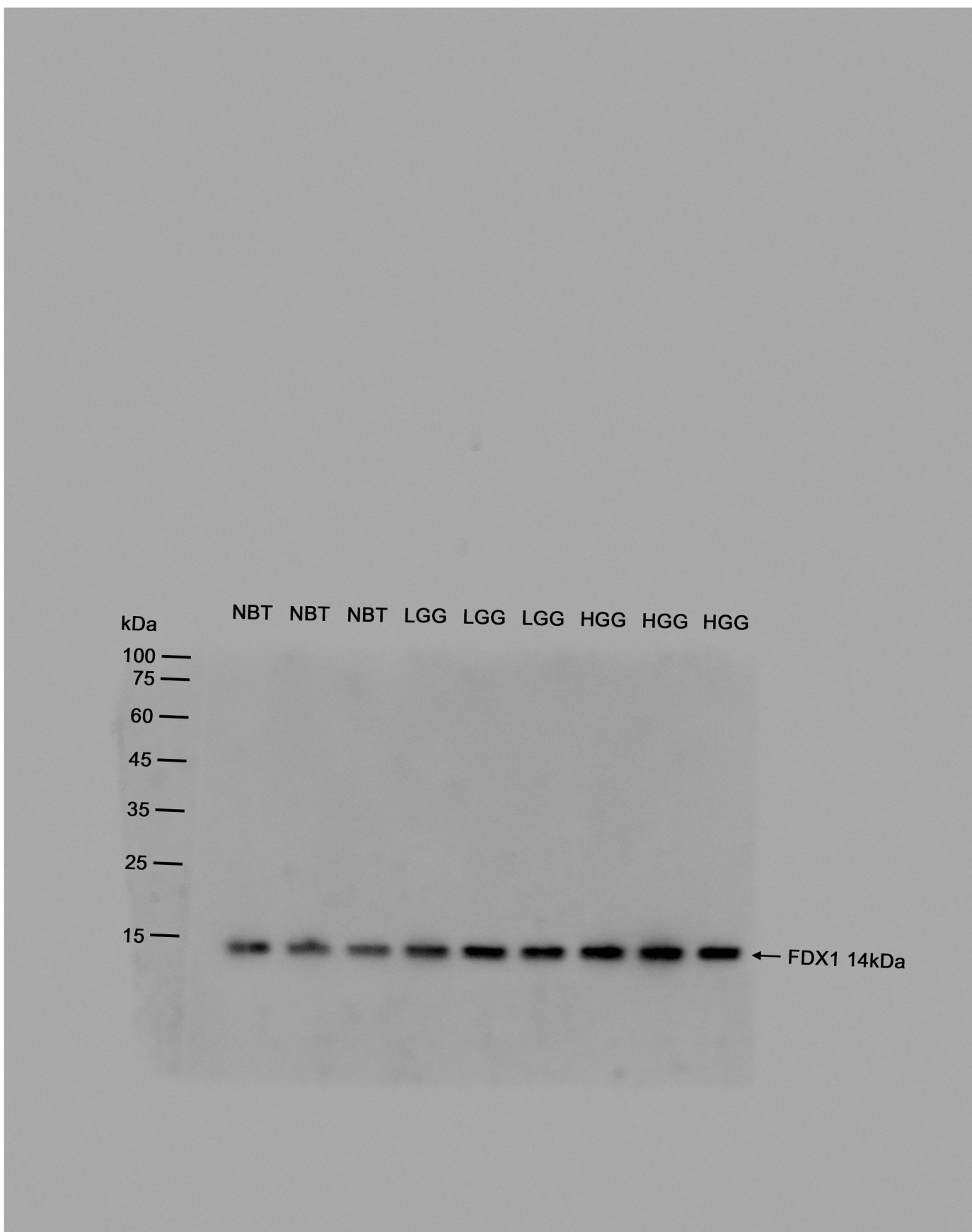


Figure 8E

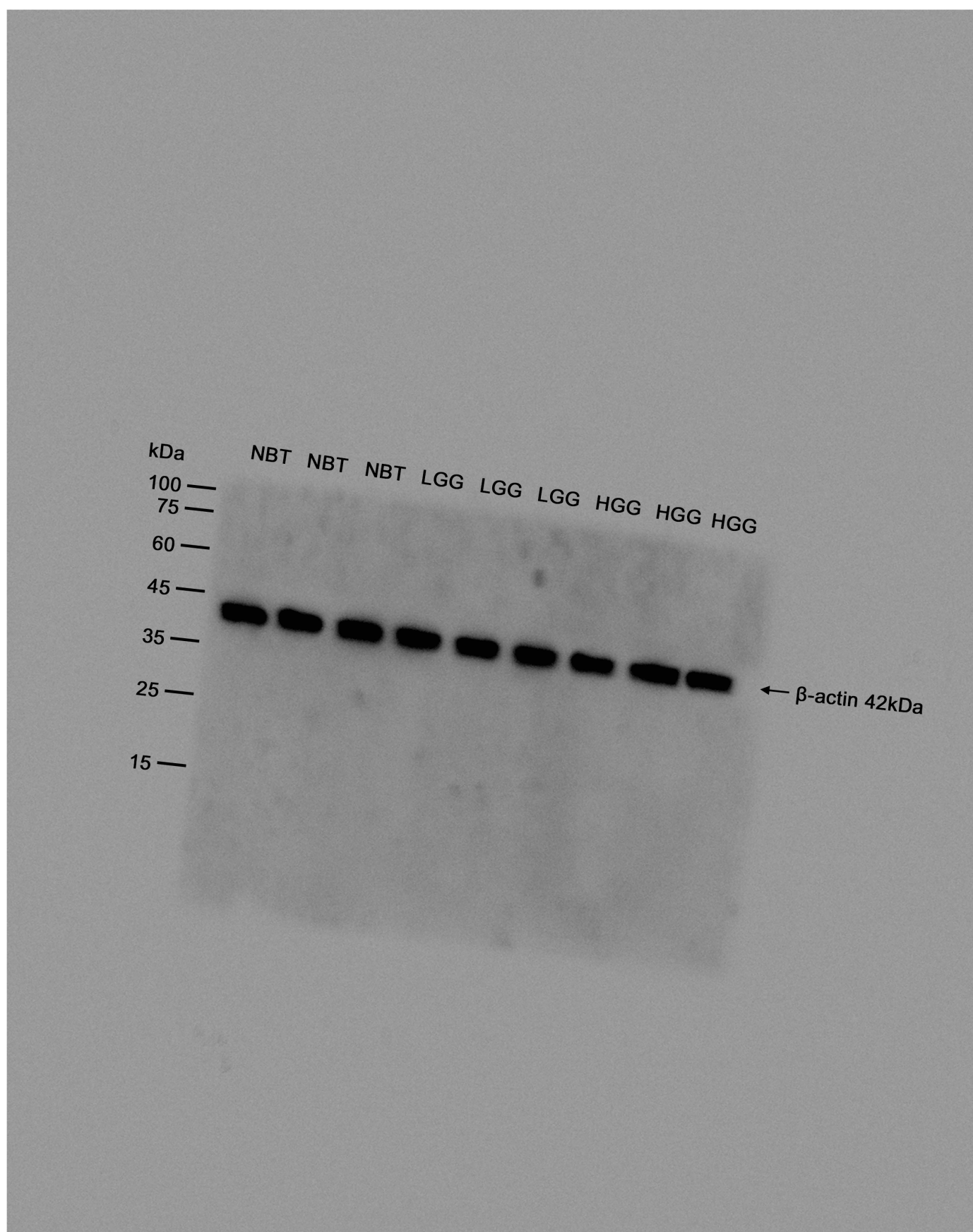




Figure 8F

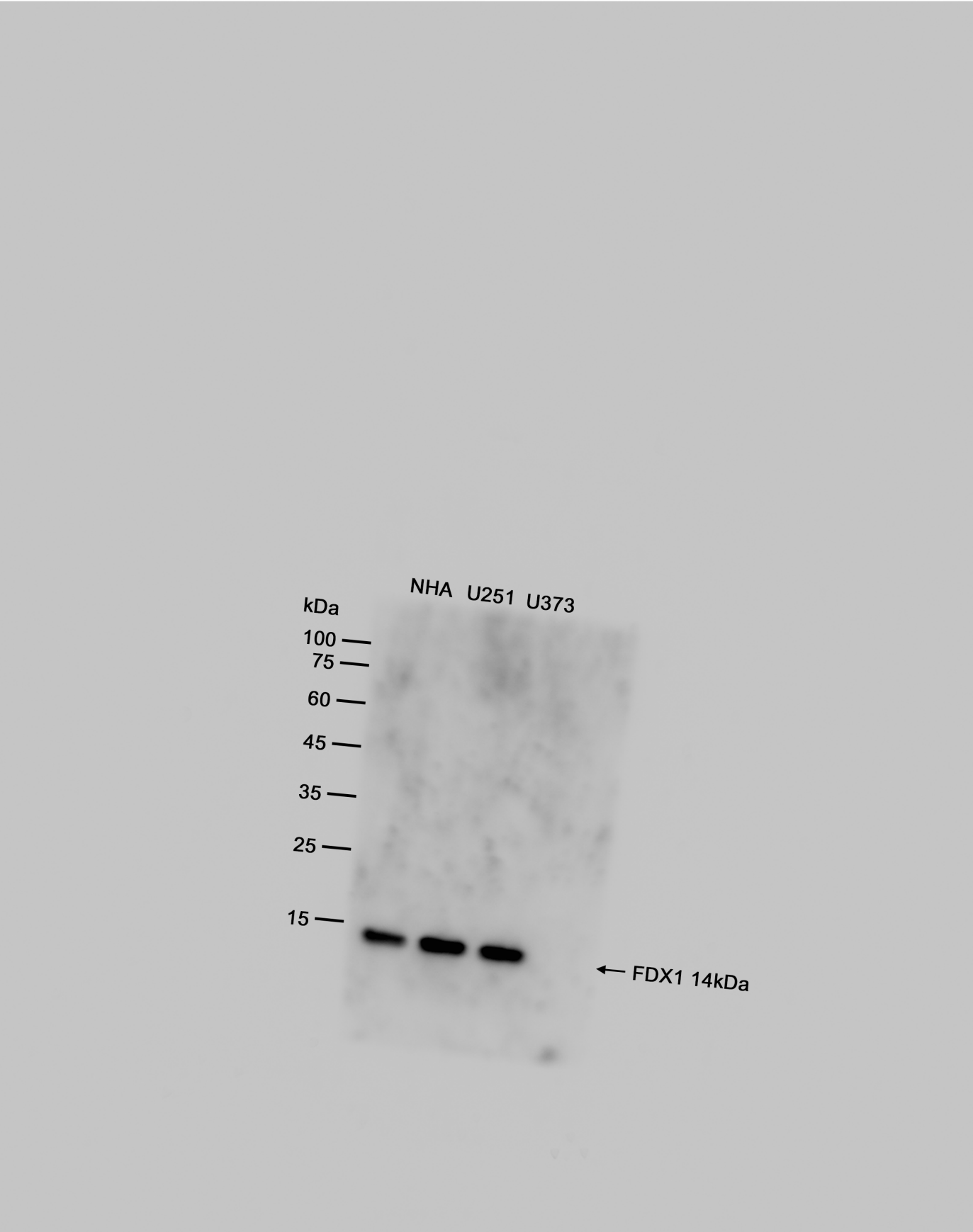


Figure 8F

