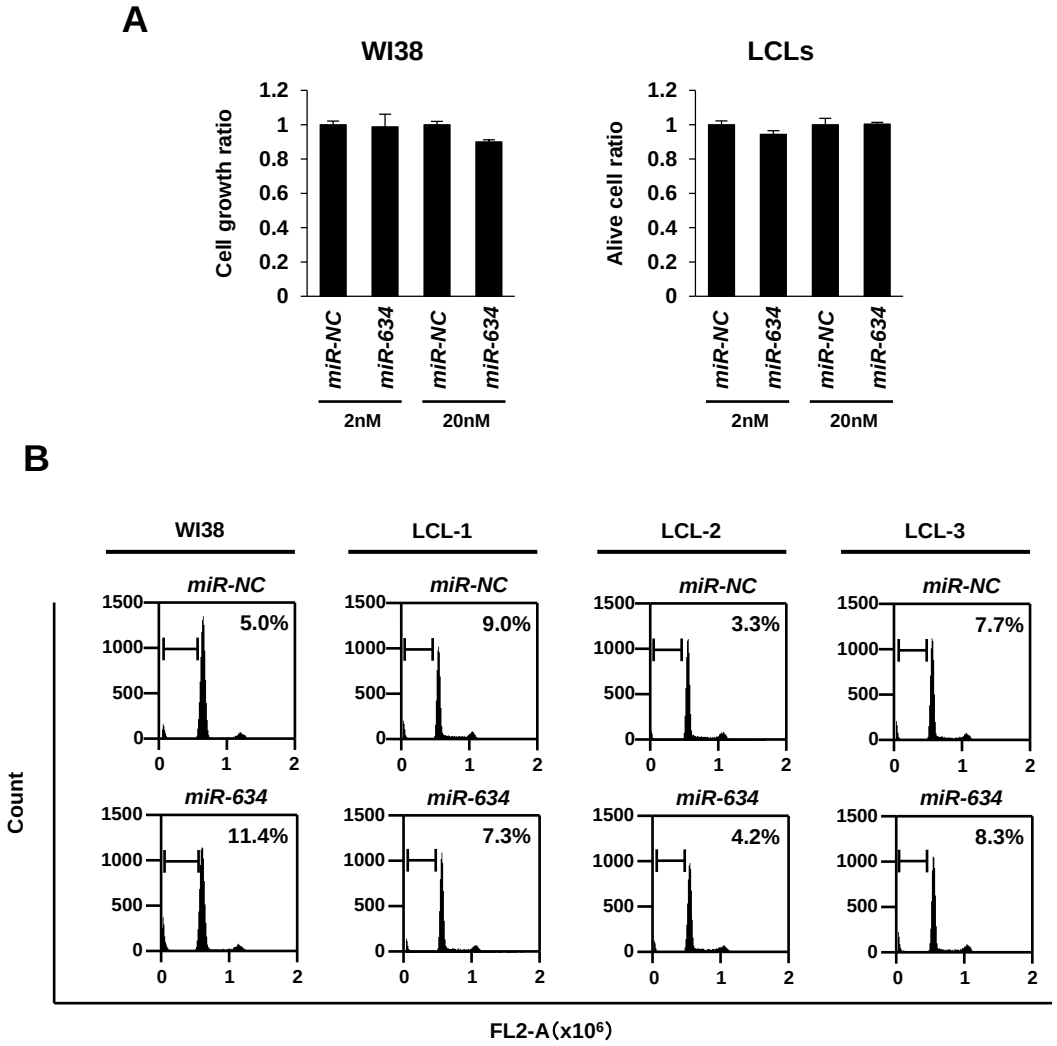
Supplementary Figure S1



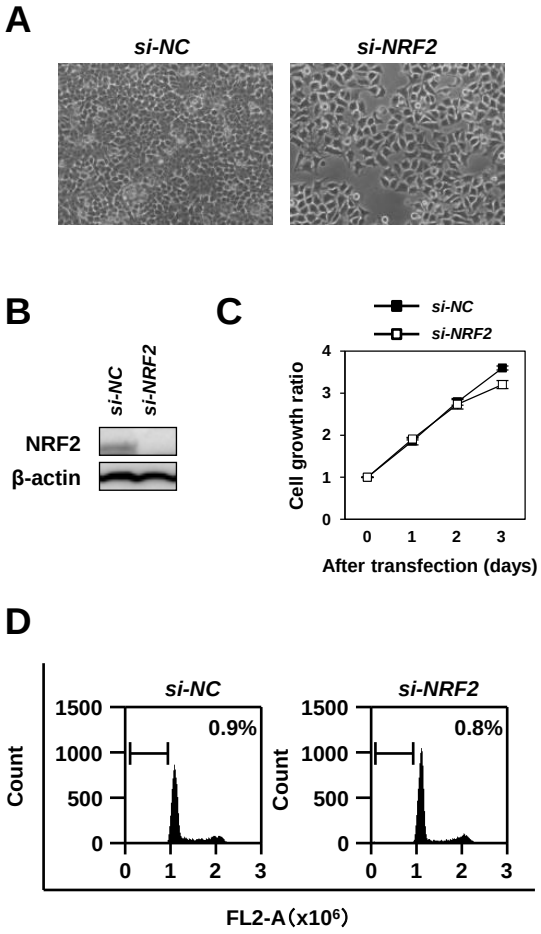
Supplementary Figure S1

Effect of *miR-634* overexpression in normal fibroblasts and LCLs.

A. Cell growth assays of normal fibroblasts, WI38, and 3 LCLs. Cells were transfected with 2 or 20 nM of *miR-NC* or *miR-634,* respectively. Cell growth rate in WI38 cells was assessed with the crystal violet staining assay as a relative ratio compared to that of *miR-NC*-transfected cells (left panel). Bar; standard deviation (SD) for triplicate experiments. Live cell counts in LCLs were performed by trypan blue staining. Relative ratios compared to *miR-NC*-transfected cells are shown (right panel). Bar; standard deviation (SD) for three different cell lines.

B. FACS analysis for sub-G1 cell population. The cells were collected, fixed, and stained with propidium iodide (PI), and cell population analysis was performed using an Accuri® Flow Cytometer. The percentage of gated sub-G1 cells is indicated within each histogram.

Supplementary Figure S2



Supplementary Figure S2
Effect of NRF2 inhibition by specific siRNA transfection.

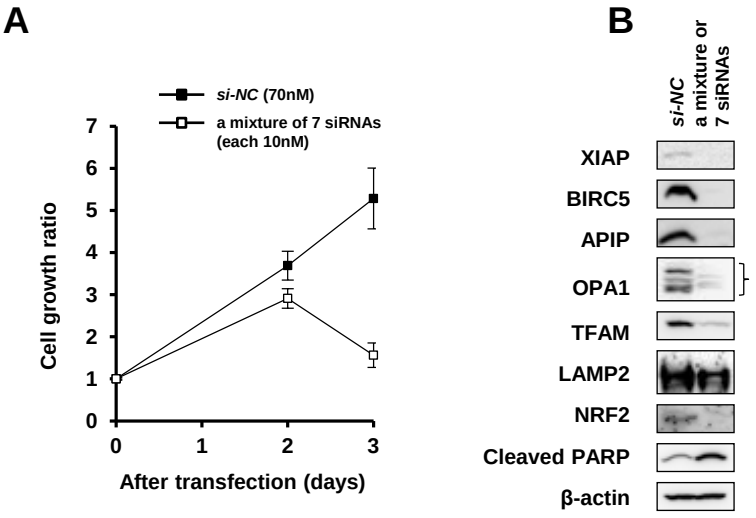
A. Phase contrast images of HeLa cells. Cells were transfected with 20 nM of negative control-siRNA (*si-NC)* or *NRF2*-siRNA and images were obtained at 2 days after transfection.

B. Western blotting of NRF2 in HeLa cells. Cell lysates were subjected to SDS-PAGE and immunoreacted with the indicated antibodies.

C. Cell growth assay of HeLa cells. Cell growth rate was assessed with the crystal violet staining assay as a relative ratio compared to that of day 0. Bar; standard deviation (SD) for triplicate experiments.

D. FACS analysis for sub-G1 cell population. The cells were collected, fixed, and stained with propidium iodide (PI), and cell population analysis was performed using an Accuri® Flow Cytometer. The percentage of gated sub-G1 cells is indicated within each histogram.

Supplementary Figure S3

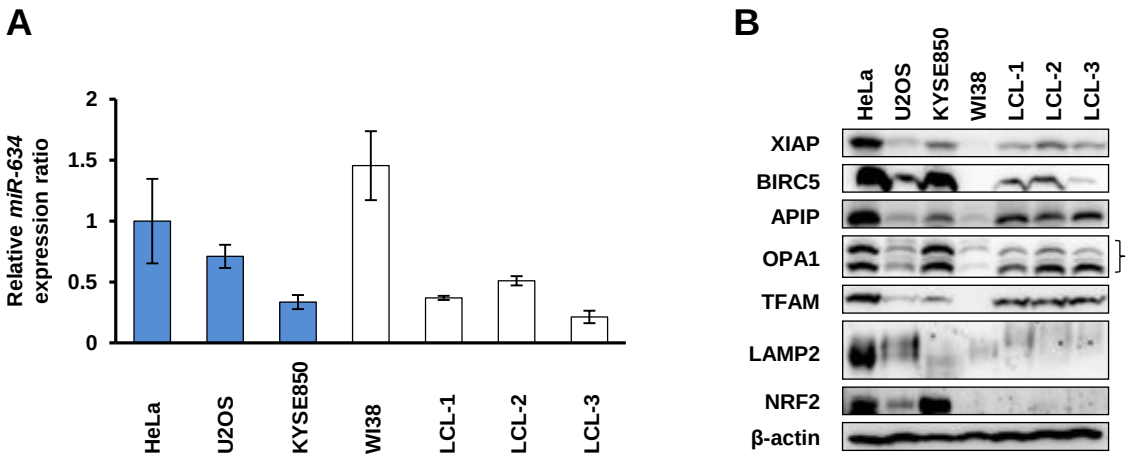


Supplementary Figure S3
Simultaneous down-regulation of target genes by 7 siRNAs.

A. Cell growth assay of U2OS cells. U2OS cells were transfected with siRNAs (*si-NC*; 70nM, 7 siRNAs; each 10nM) in day 0. Cell growth rate was assessed with the crystal violet staining assay as a relative ratio compared to that of day 0. Cell growth ratio of cells treated with 7 siRNAs is decreased in day 2 and day 3 compared to cells treated with *si-NC*. Bar; standard deviation (SD) for triplicate experiments.

B. Western blotting analysis of 7 target genes and cleaved PARP. Cell lysates were subjected to SDS-PAGE and immunoreacted with the indicated antibodies. The results show down-regulation of 7 targeted genes in the protein level and elevation of cleaved PARP in cells treated with 7 siRNAs.

Supplementary Figure S4

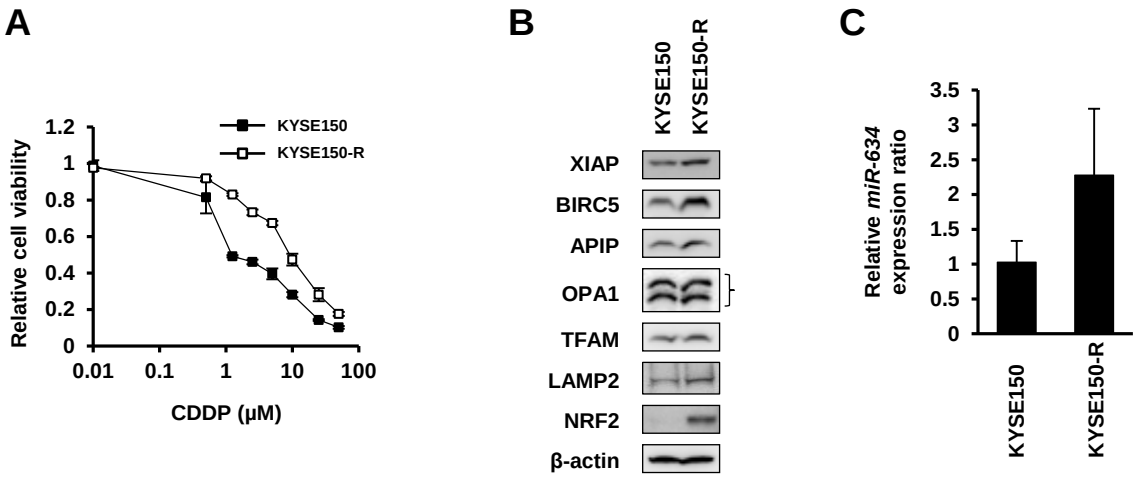


Supplementary Figure S4
Expression analysis of *miR-634* and target proteins in normal fibroblasts and LCLs.

A. Expression of *miR-634* measured by qRT-PCR. Expression of *RNU6B* was used as an internal control, and relative expression ratio compared to HeLa is indicated on the vertical axis. Each experiment was performed in triplicate. Blue bars indicate cancer cell lines, and white bars indicate non-cancerous cell lines. Bar; standard deviation (SD).

B. Western blotting analysis of 6 candidate target genes and NRF2. Cell lysates were subjected to SDS-PAGE and immunoreacted with the indicated antibodies.

Supplementary Figure S5



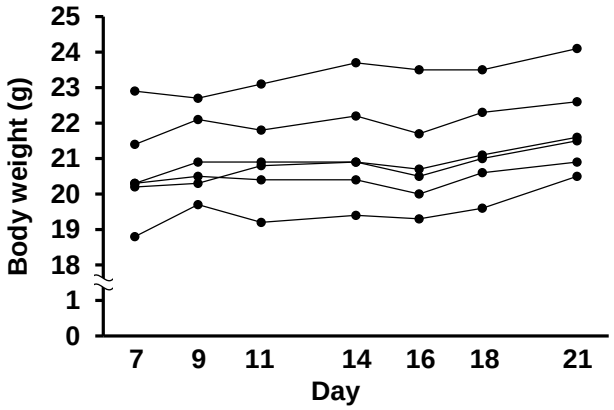
Supplementary Figure S5
Establishment of CDDP-resistant ESCC cell line and expression analysis of *miR-634* and target proteins.

A. Dose-response curve of KYSE150 and its CDDP-resistant subtype (KYSE150-R) to CDDP. Cell survival rate was assessed with the crystal violet staining assay as a relative ratio compared to the cells without CDDP. Bar; standard deviation (SD) for triplicate experiments.

B. Western blotting analysis of 6 candidate target genes and NRF2. Cell lysates were subjected to SDS-PAGE and immunoreacted with the indicated antibodies.

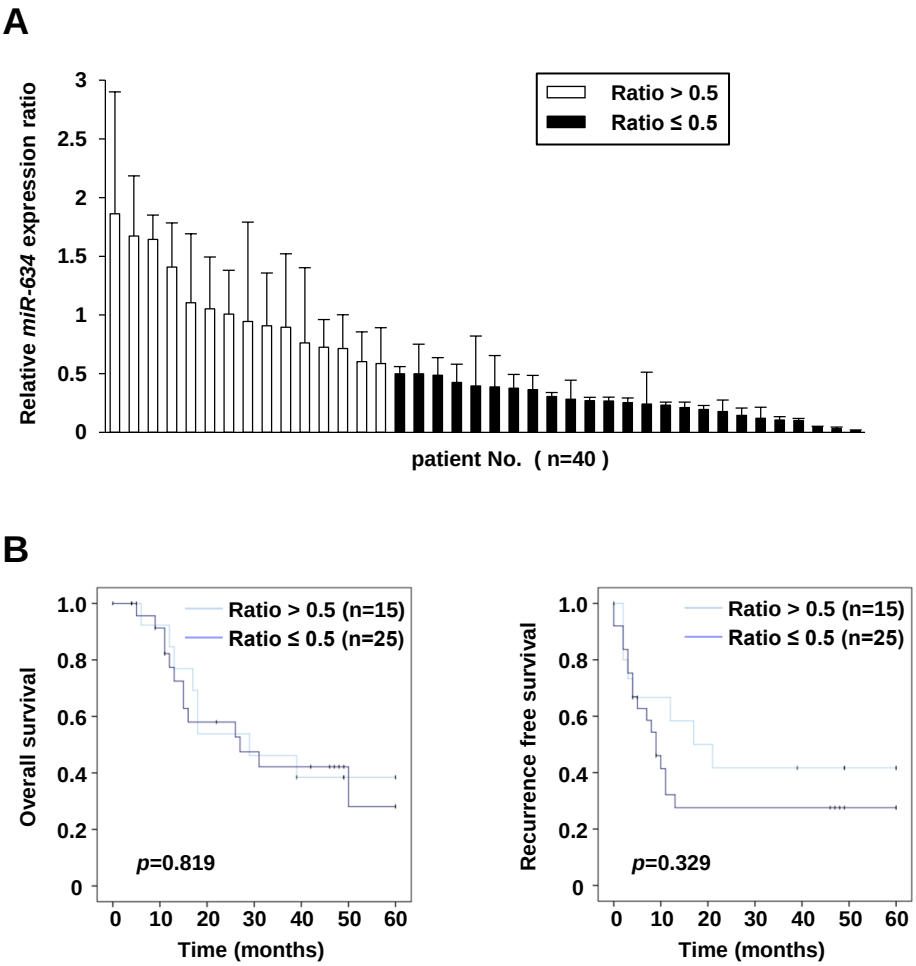
C. Expression of *miR-634* measured by qRT-PCR. Expression of *RNU6B* was used as an internal control, and relative expression ratio compared to KYSE150 parental cells is indicated on the vertical axis. Bar; standard deviation (SD) for triplicate experiments.

Supplementary Figure S6



Supplementary Figure S6
Changes in body weights of 6 mice in PBS group.
Mice were treated with miRNAs from day 7 (as shown in **Figure 5A** and **5B**). Body weights in day 7 (before the treatment) and in subsequent 6 points to sacrifice (day 21) are indicated on the vertical axis.

Supplementary Figure S7



Supplementary Figure S7
Expression analysis of *miR-634* in ESCC samples

A. Expression of *miR-634* measured by qRT-PCR. Expression of *RNU6B* was used as an internal control. Expression in the primary tumor tissue relative to the corresponding non-cancerous tissue is indicated on the vertical axis. Each experiment was performed in triplicate. Black bars indicate cases with more than a 50% reduction in *miR-634* expression. Bar; standard deviation (SD).

B. Kaplan-Meier plots of overall survival (left panel) and recurrence free survival (right panel) after the surgery in 40 ESCC patients. They are divided into two groups according to their *miR-634* expression ratio. P-values were obtained from two-sided log-rank tests.