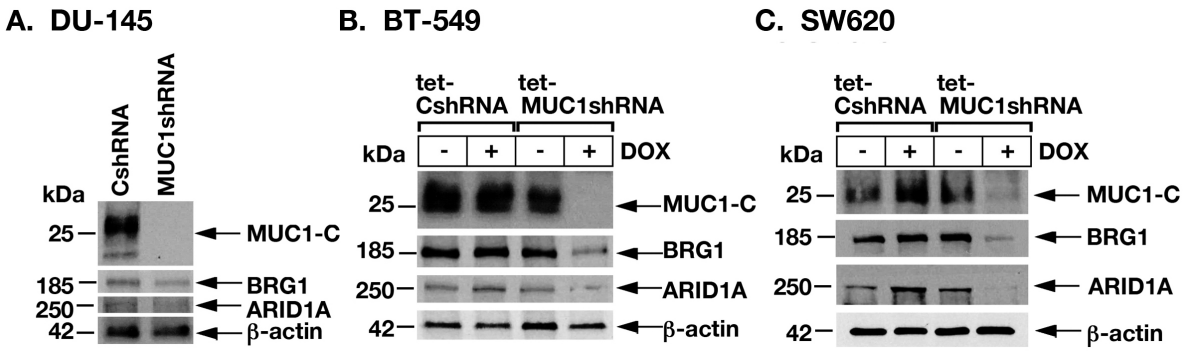

Figure S1. Targeting MUC1-C downregulates BRG1 and ARID1A expression in different types of carcinoma cells. A. Lysates from DU-145 cells stably expressing a CshRNA or MUC1shRNA were immunoblotted with antibodies against the indicated proteins. B and C. BT-549 TNBC (B) and SW620 colon cancer (C) cells expressing a control tet-CshRNA or tet-MUC1shRNA were treated with vehicle or DOX for 7 days. Lysates were immunoblotted with antibodies against the indicated proteins.

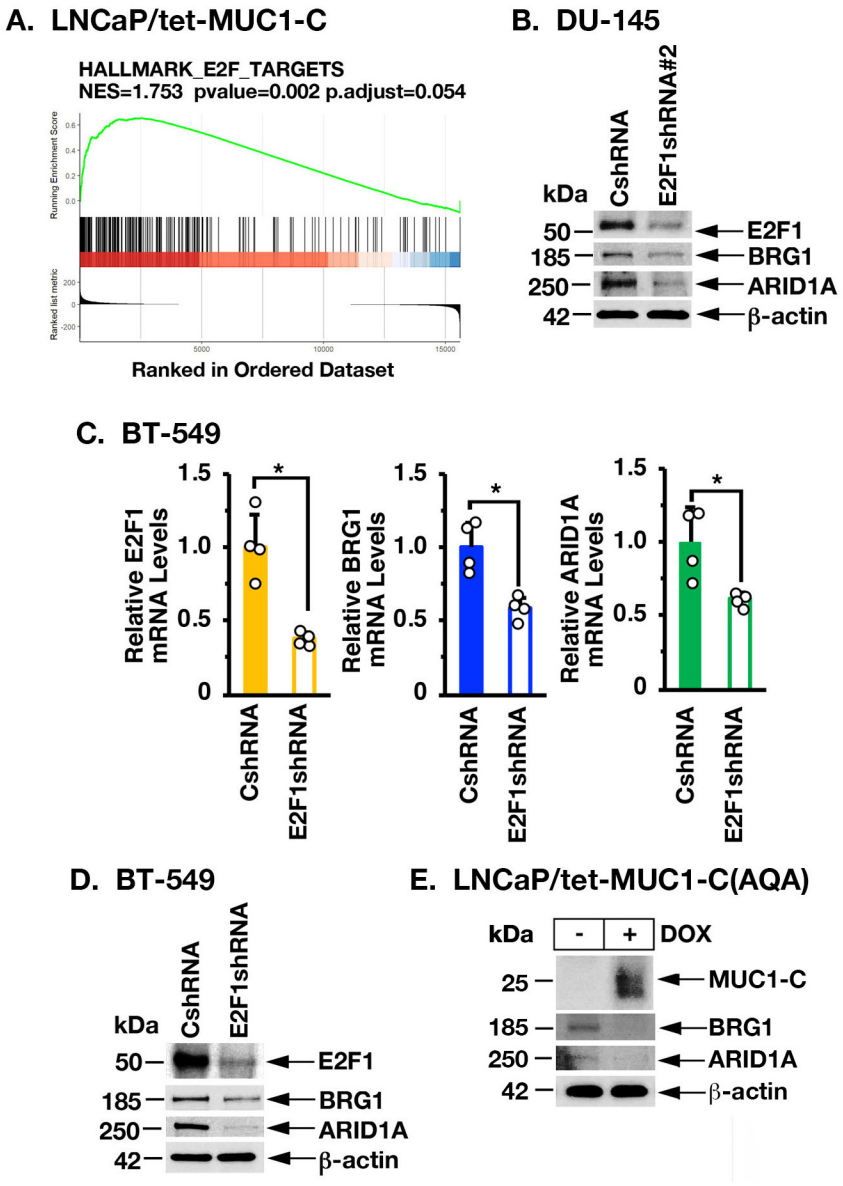

Figure S2. E2F1 regulates BRG1 and ARID1A expression. A. RNA-seq was performed in triplicate on LNCaP/tet-MUC1-C cells treated with vehicle or DOX for 7 days. The datasets were analyzed with GSEA using the Hallmark gene signature collection for E2F Targets. B. Lysates from DU-145 cells expressing a second E2F1shRNA#2 were immunoblotted with antibodies against the indicated proteins. C. BT-549/CshRNA and BT-549/E2F1shRNA cells were analyzed for the indicated mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1). D. Lysates from BT-549/CshRNA and BT-549/E2F1shRNA cells were immunoblotted with antibodies against the indicated proteins. E. Lysates from LNCaP/tet-MUC1-C(AQA) cells treated with vehicle or DOX for 7 days were immunoblotted with antibodies against the indicated proteins.

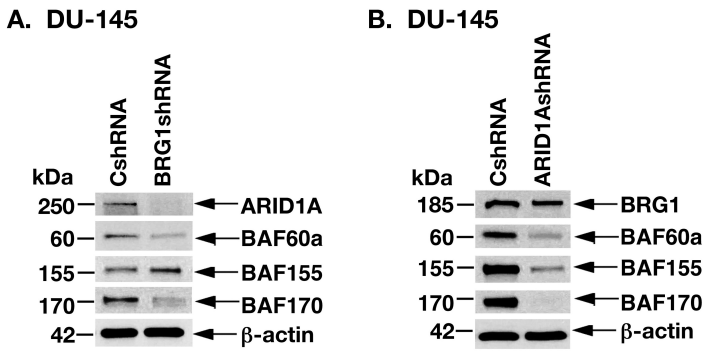

Figure S3. Effects of silencing BRG1 and ARID1A on expression of other BAF subunits. A and B. Lysates from DU-145 cells expressing a CshRNA and BRG1shRNA (A) or ARID1AshRNA (B) were immunoblotted with antibodies against the indicated proteins.

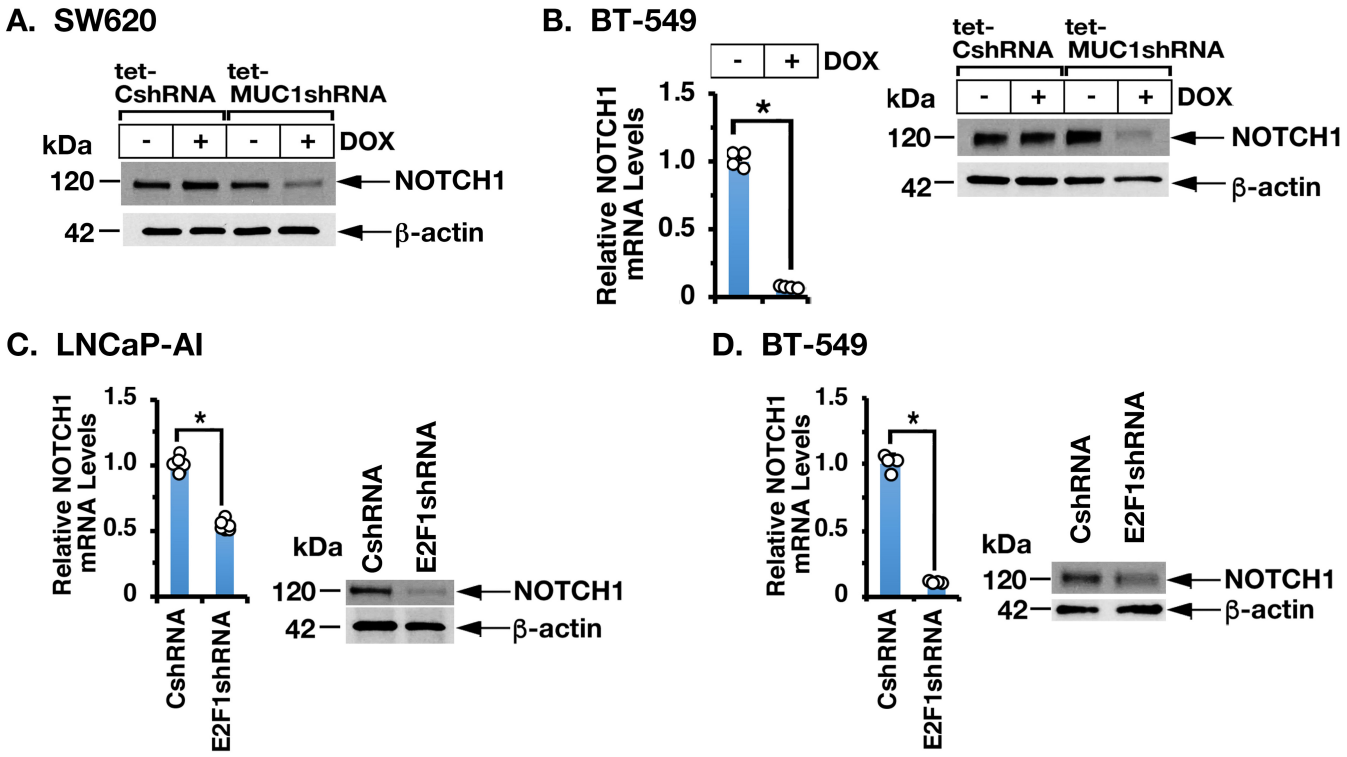

Figure S4. Silencing MUC1-C and E2F1 downregulates NOTCH1 in carcinoma cells. A. SW620/tet-CshRNA and SW620/tet-MUC1shRNA cell were treated with vehicle or DOX for 7 days. Lysates were immunoblotted with antibodies against the indicated proteins. B. BT-549/tet-MUC1shRNA cells treated with vehicle or DOX for 7 days were analyzed for NOTCH1 mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1) (left). Lysates from BT-549/tet-CshRNA and BT-549/tet-MUC1shRNA cells treated with vehicle or DOX for 7 days were immunoblotted with antibodies against the indicated proteins (right). C and D. LNCaP-AI (C) and BT-549 (D) cells expressing a CshRNA or E2F1shRNA were analyzed for NOTCH1 mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1) (left). Lysates were immunoblotted with antibodies against the indicated proteins (right).

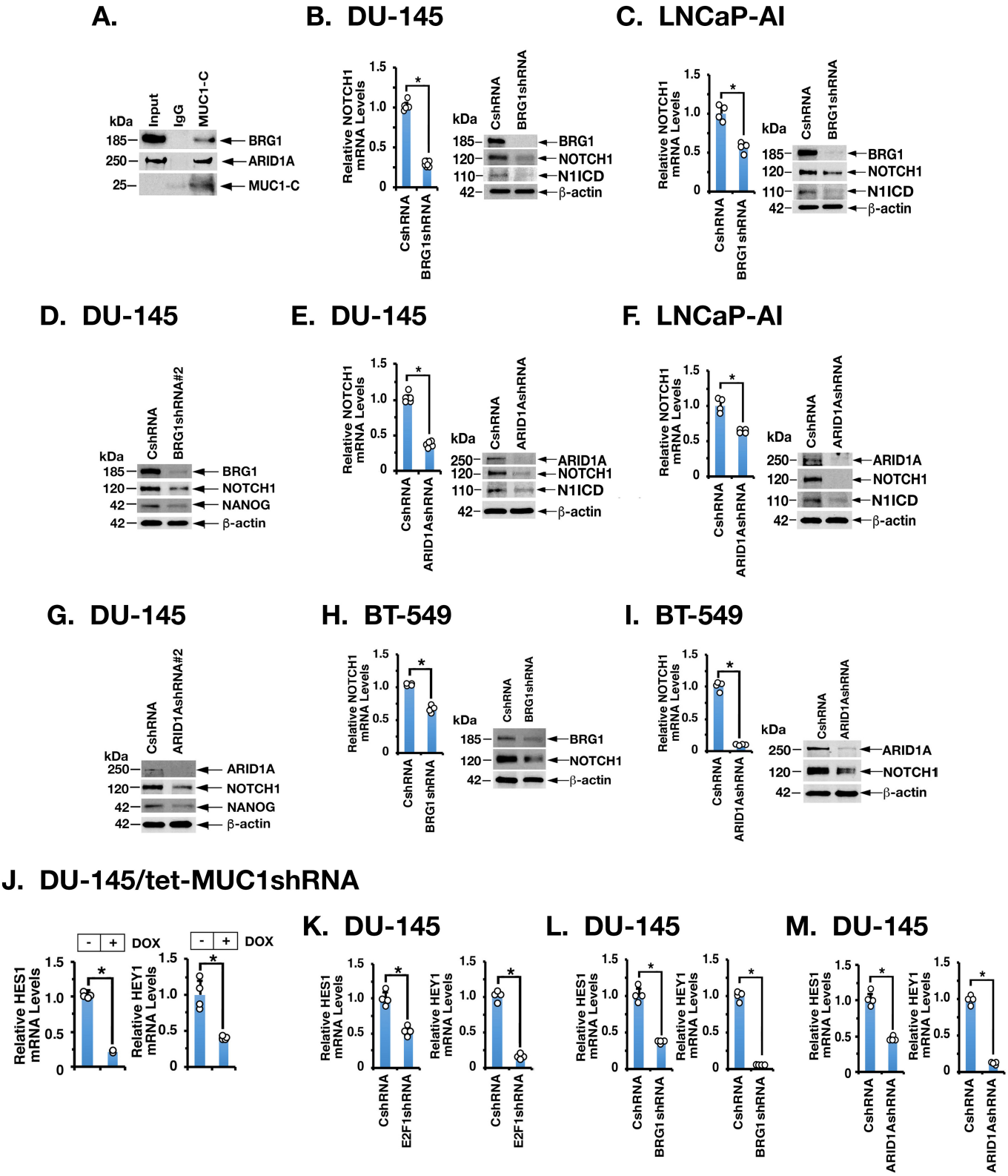

Figure S5. Effects of targeting the MUC1-C→E2F1→BAF pathway on NOTCH1, HES1 and HEY1 expression. A. Nuclear lysates from DU-145 cells were incubated with a control IgG and anti-MUC1-C. The input lysate and precipitates were immunoblotted with antibodies against the indicated proteins. B and C. DU-145 (B) and LNCaP-AI (C) cells expressing a CshRNA or BRG1shRNA were analyzed for NOTCH1 mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are

expressed as relative mRNA levels compared to that in control cells (assigned a value of 1) (left). Lysates were immunoblotted with antibodies against the indicated proteins (right). D. Lysates from DU-145 cells expressing a CshRNA and a second BRG1shRNA#2 were immunoblotted with antibodies against the indicated proteins. E and F. DU-145 (E) and LNCaP-AI (F) cells expressing a CshRNA or ARID1AshRNA were analyzed for NOTCH1 mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1) (left). Lysates were immunoblotted with antibodies against the indicated proteins (right). G. Lysates from DU-145 cells expressing a CshRNA and a second ARID1AshRNA#2 were immunoblotted with antibodies against the indicated proteins. H and I. BT-549/CshRNA, BT-549/BRG1shRNA (H) and BT-549/ARID1AshRNA (I) cells were analyzed for NOTCH1 mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1) (left). Lysates were immunoblotted with antibodies against the indicated proteins (right). J. DU-145/tet-MUC1shRNA cells treated with vehicle or DOX for 7 days were analyzed for the indicated mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1). K. DU-145/CshRNA and DU-145/E2F1shRNA cells were analyzed for the indicated mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1). L and M. DU-145/CshRNA, DU-145/BRG1shRNA (L) and DU-145/ARID1AshRNA (M) cells were analyzed for the indicated mRNA levels by qRT-PCR. The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1).

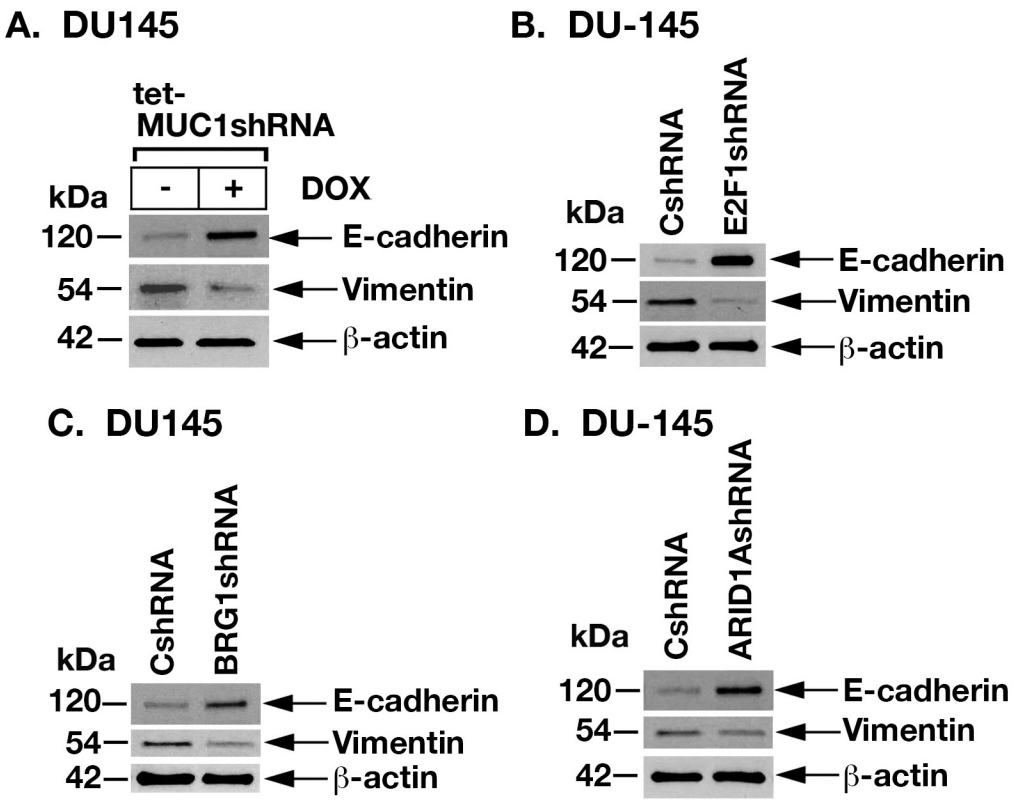

Figure S6. Targeting the MUC1-C→E2F1→BAF pathway induces E-cadherin and suppresses vimentin expression. A. Lysates from DU-145/tet-MUC1shRNA cells treated with vehicle or DOX for 7 days were immunoblotted with antibodies against the indicated proteins. B-D. Lysates from DU-145/CshRNA, DU-145/E2F1shRNA (B), DU-145/BRG1shRNA (C) and DU-145/ARID1A1shRNA (D) cells were immunoblotted with antibodies against the indicated proteins.

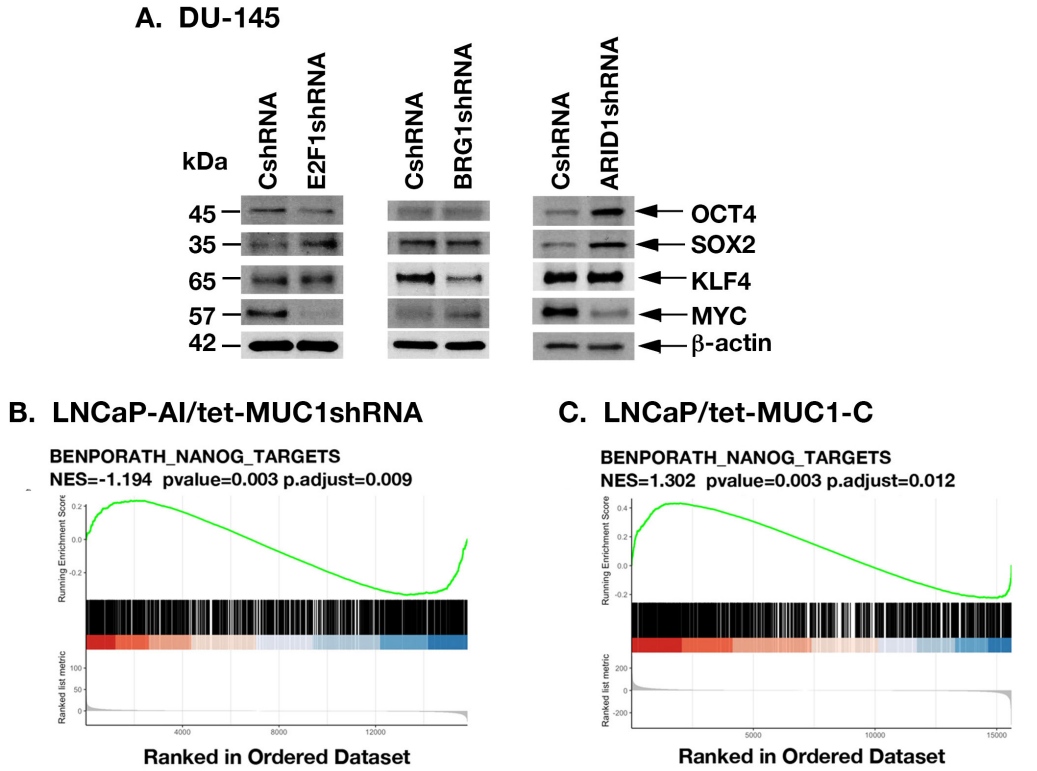

Figure S7. Effects of the MUC1-C→E2F1®→BAF pathway on OSKM expression and the NANOG TARGETS gene signature. A. Lysates from DU-145 cells expressing a CshRNA, E2F1shRNA (left), BRG1shRNA (middle) or ARID1AshRNA (right) were immunoblotted with antibodies against the indicated proteins. B and C. RNA-seq was performed in triplicate on LNCaP-AI/tet-MUC1shRNA (B) and LNCaP-AI/tet-MUC1-C (C) cells treated with vehicle or DOX for 7 days. The datasets were analyzed with GSEA using the BENPORATH_NANOG_TARGETS gene signature.

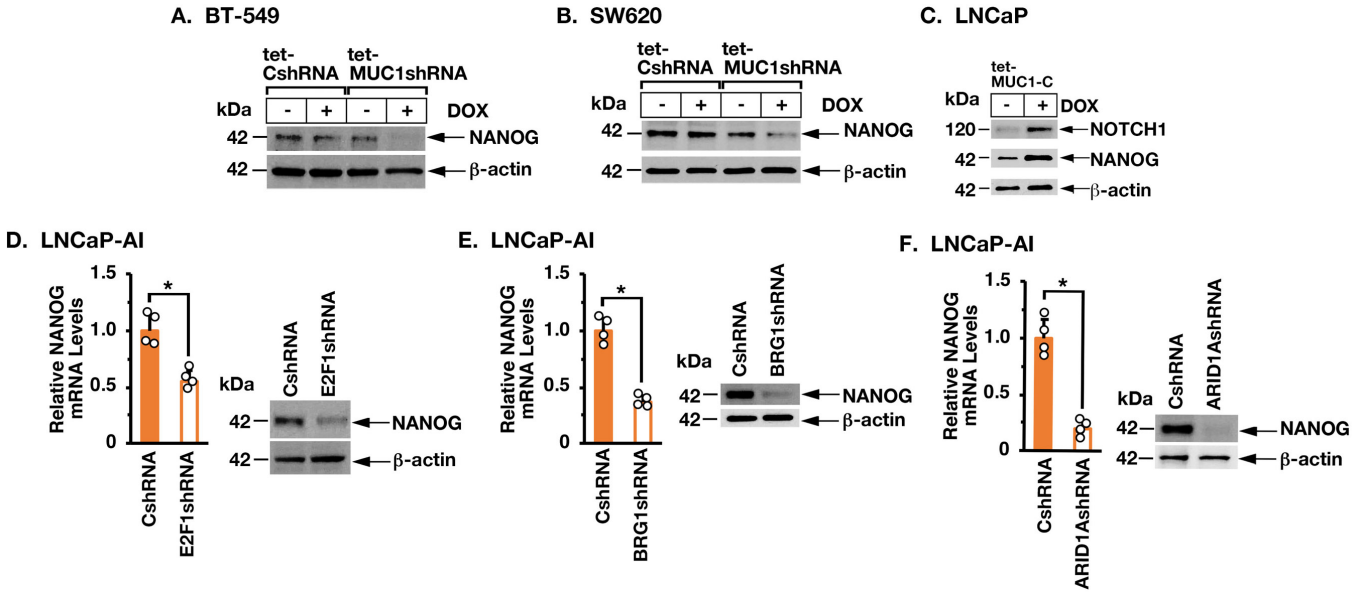

Figure S8. Silencing MUC1-C downregulates NANOG in carcinoma cells. A and B. BT-549 (A) and SW620 (B) cells expressing tet-CshRNA or tet-MUC1shRNA were treated with vehicle or DOX for 7 days. Lysates were immunoblotted with antibodies against the indicated proteins. C. LNCaP/tet-MUC1-C cells were treated with vehicle or DOX for 7 days. Lysates were immunoblotted with antibodies against the indicated proteins. D-F. LNCaP-AI/CshRNA, LNCaP-AI/E2F1shRNA (D), LNCaP-AI/BRG1shRNA (E) and LNCaP-AI/ARID1AshRNA (F) cells were analyzed for NANOG mRNA levels by qRT-PCR (left). The results (mean±SD of 4 determinations) are expressed as relative mRNA levels compared to that in control cells (assigned a value of 1). Lysates were immunoblotted with antibodies against the indicated proteins (right).

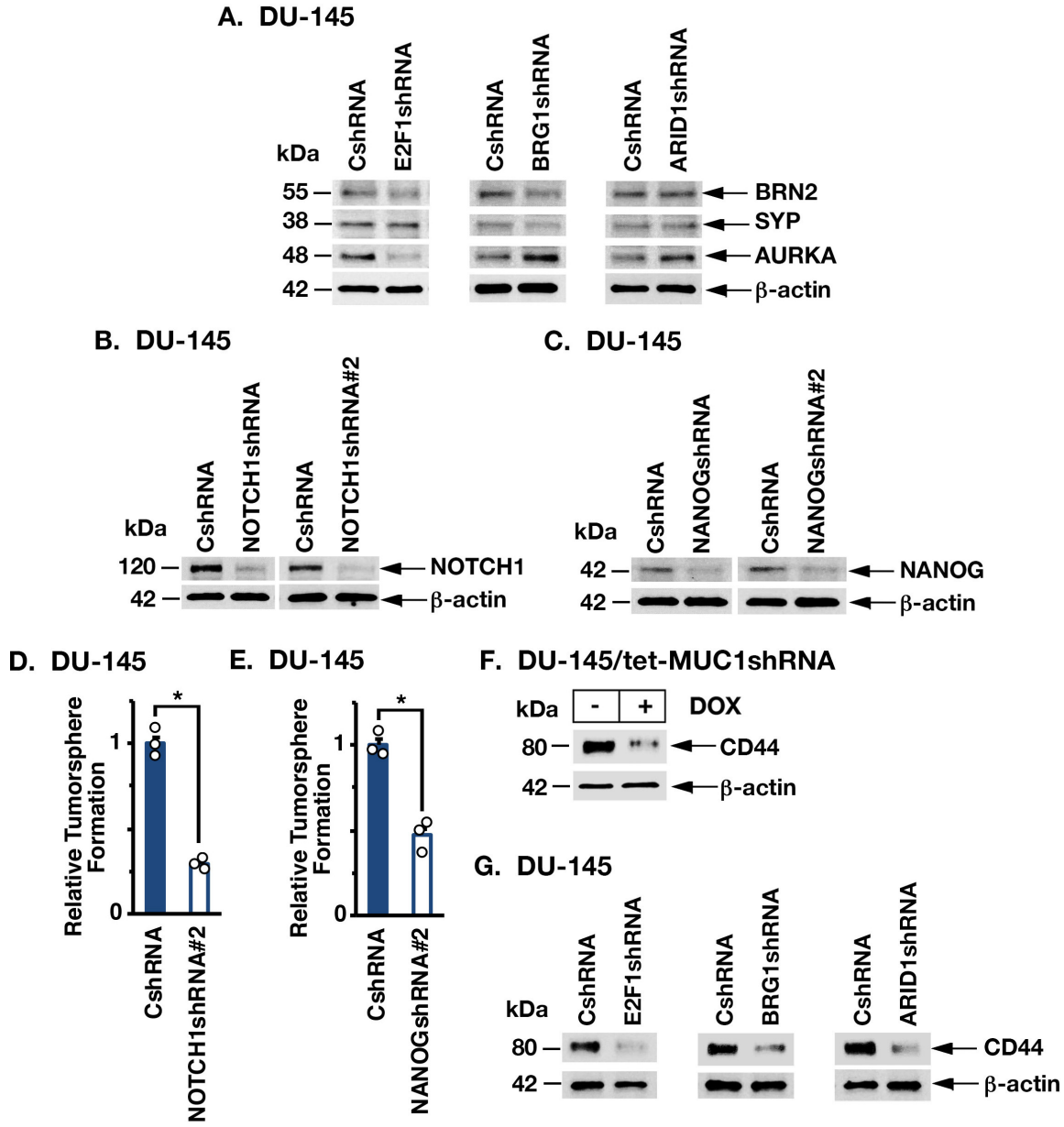

Figure S9. Silencing the MUC1-C→E2F1→BAF→NOTCH1®NANOG pathway has little effect on NE differentiation markers and suppresses CD44 expression. A. Lysates from DU-145/CshRNA, DU-145/E2F1shRNA (left), DU-145/BRG1shRNA (middle) and DU-145/ARID1A1shRNA (right) cells were immunoblotted with antibodies against the indicated proteins. B. Lysates from DU-145/CshRNA, DU-145/NOTCH1shRNA (left) and DU-145/NOTCH1shRNA#2shRNA (right) cells were immunoblotted with antibodies against the indicated proteins. C. Lysates from DU-145/CshRNA, DU-145/NANOGshRNA (left) and DU-145/NANOGshRNA#2shRNA (right) cells were immunoblotted with antibodies against the indicated proteins. D and E. DU-145 cells expressing a CshRNA, NOTCH1shRNA#2 (D) or NANOGshRNA#2 (E) were assayed for tumorsphere formation. The results (mean±SD of 3 biologic replicates) are expressed as relative tumorsphere number per field compared to the CshRNA control. F. Lysates from DU-145/tet-MUC1shRNA cells treated with vehicle or DOX for 7 days were immunoblotted with antibodies against the indicated proteins. G. Lysates from DU-145/CshRNA, DU-145/E2F1shRNA (left), DU-145/BRG1shRNA (middle) and DU-145/ARID1A1shRNA (right) cells were immunoblotted with antibodies against the indicated proteins.

Supplemental Tables

Table S1. Primers used for qRT-PCR.

MUC1-C	**FWD**	TACCGATCGTAGCCCCTATG
	REV	CTCACCAGCCCAAACAGG
BRG1	**FWD**	CCAAGACCCTGATGAACACC
	REV	GGCAGAACAGCAGCACTTT
ARID1A	**FWD**	ACCTCTATCGCCTCTATGTGTCTGT
	REV	CTGGCAGCACTGCTTGATGT
NOTCH1	**FWD**	GGGCTAACAAAGATATGCAG
	REV	ACTGAACCTGACCGTACAGTTGGCAAAGTGGTCCAG
HES1	**FWD**	AGATAGCTCGCGGCATTCCA
	REV	CAGCACACTTGGGTCTGTGC
HEY1	**FWD**	CATACGGCAGGAGGGAAAG
	REV	GCATCTAGTCCTTCAATGATGCT
NANOG	**FWD**	AGAGGTGAAGACCTGGTTCC
	REV	GGTAGGTGCTGAGGCCTTCT
GAPDH	**FWD**	CCATGGAGAAGGCTGGGG
	REV	CAAAGTTGTCATGGATGACC

Table S2. Primers used for ChIP-qPCR.

BRG1-Enhancer	**FWD**	TACGGTCCAGGGTTCCTATTT
	REV	GGCAACTGGAGAATGGGAT
ARID1A-Intron 1	**FWD**	ACATGGAAGAGGGAGGAGTAT
	REV	GGGCAAGAGTAACCTTACAGAG
NANOG-Enhancer	**FWD**	CTGGGTTTGTCTTCAGGTTCT
	REV	AATCCCGTCTACCAGTCTCA
GAPDH	**FWD**	TACTAGCGGTTTTACGGGCG
	REV	TCGAACAGGAGGAGCAGAGAGCGA

Table S3. Stem Cell and NOTCH Datasets

Gene Set	DU-145/tet-MUC1shRNA			LNCaP-AI/tet-MUC1shRNA		
	NES	p-val	p.adj	NES	p-val	p.adj
BHATTACHARYA_EMBRYONIC_ STEM_CELL	-1.3155	0.0711	0.3069	-2.0050	0.0021	0.0272
BOQUEST_STEM_CELL_DN	1.6940	0.0016	0.0674	0.9489	0.5664	0.7834
BOQUEST_STEM_CELL_UP	0.9270	0.6420	0.8162	1.3174	0.0454	0.1878
GO_POSITIVE_REGULATION_OF_ STEM_CELL_DIFFERENTIATION	1.0765	0.3957	0.6736	0.8429	0.6900	0.8627
GO_STEM_CELL_DIFFERENTIATION	1.5714	0.0030	0.0747	-0.8251	0.9581	0.9885
PID_NOTCH_PATHWAY	1.1345	0.2602	0.5582	1.7883	0.0121	0.0829
REACTOME_SIGNALING_BY_NOTCH	1.5408	0.0045	0.0925	1.4488	0.0128	0.0844
WONG_EMBRYONIC_STEM_CELL_CORE	-1.7093	0.0033	0.0753	-2.1443	0.0024	0.0285