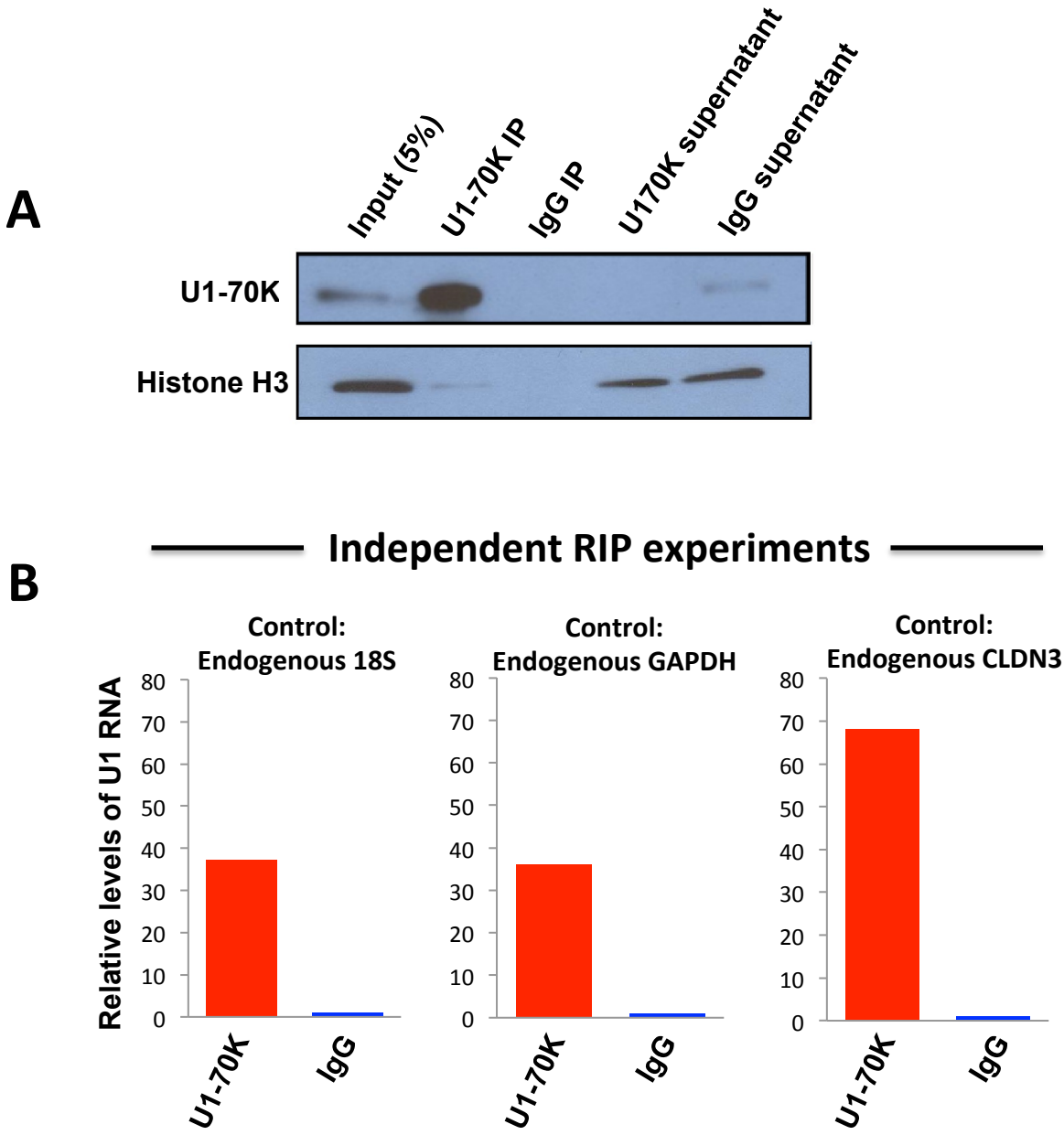
Supplemental Figure 1

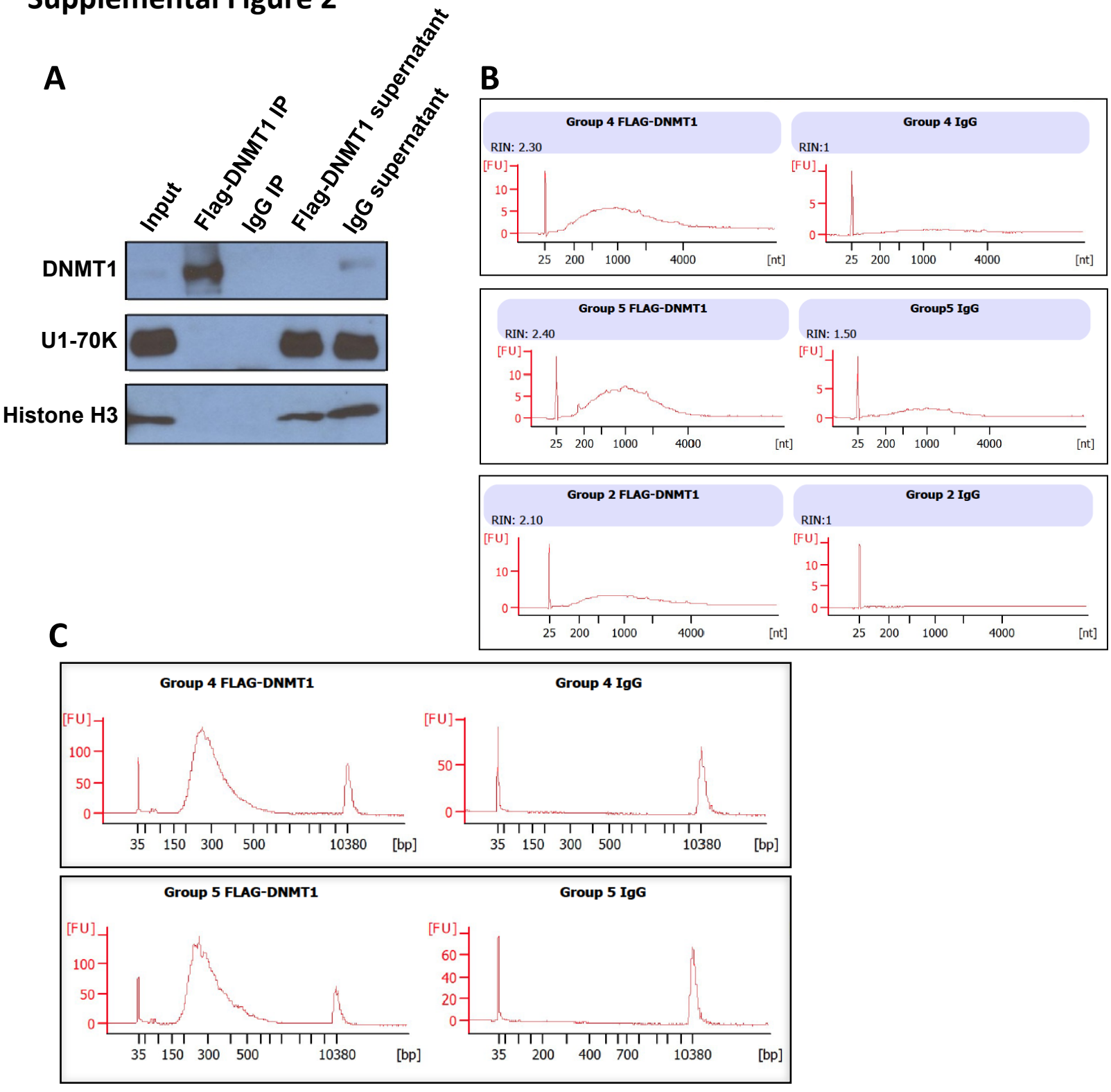


Supplemental Figure 1. Optimization of RNA co-immunoprecipitation (RIP) conditions in HCT116 cells using the conserved interaction between U1-70K and U1 RNA.

A. We carried out immunoprecipitation (IP) experiments using an antibody against U1-70K and confirmed that we are specifically IP U1-70K by western blot analysis. An antibody against IgG was used as a negative control.

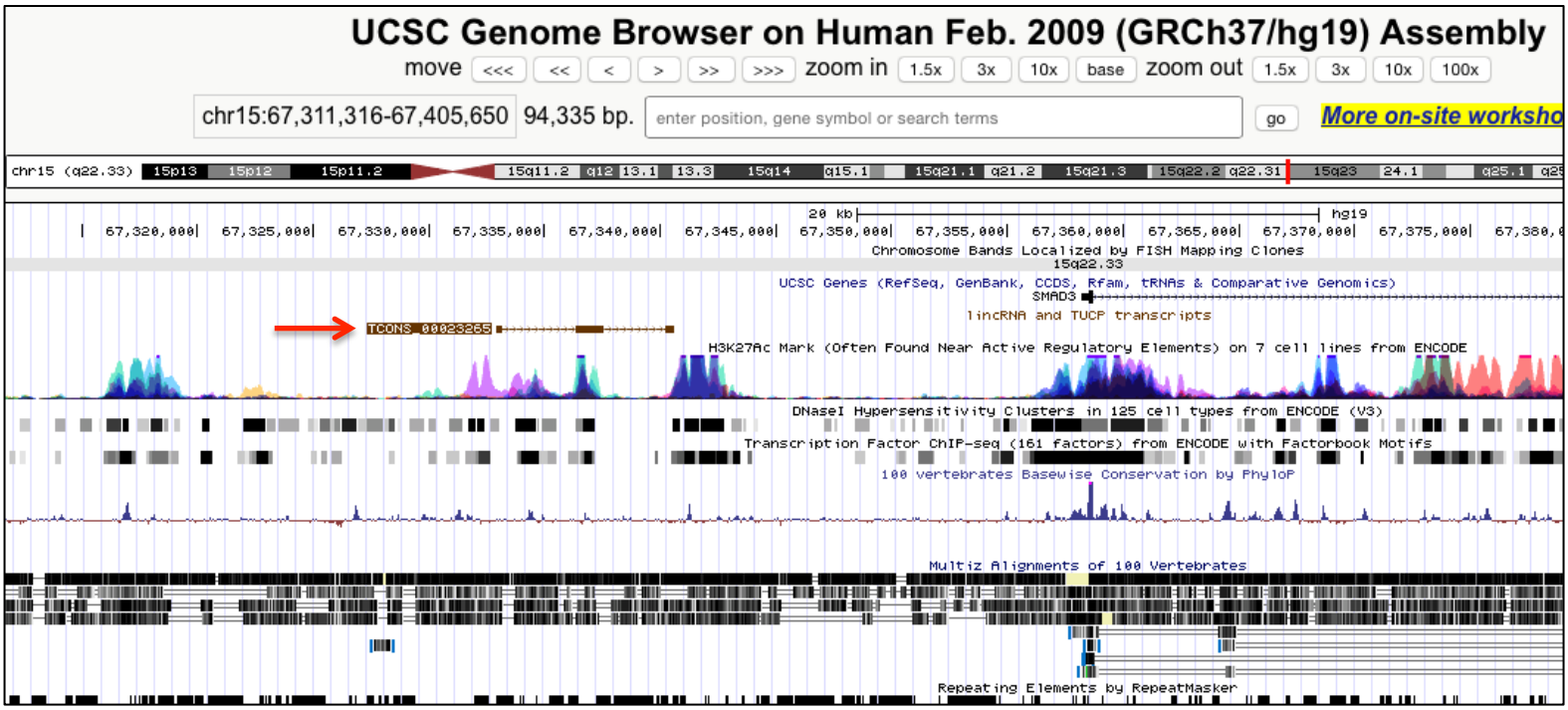
B. We examined the RNA levels of U1 RNA in three independent biological replicates of U1-70K RIPs and found specific and strong enrichment in comparison to RIPs with a non-specific antibody (IgG) using three distinct endogenous controls. These results demonstrate that our RIP experimental conditions are optimized to detect specific protein-RNAs interactions in HCT116 cells .

Supplemental Figure 2



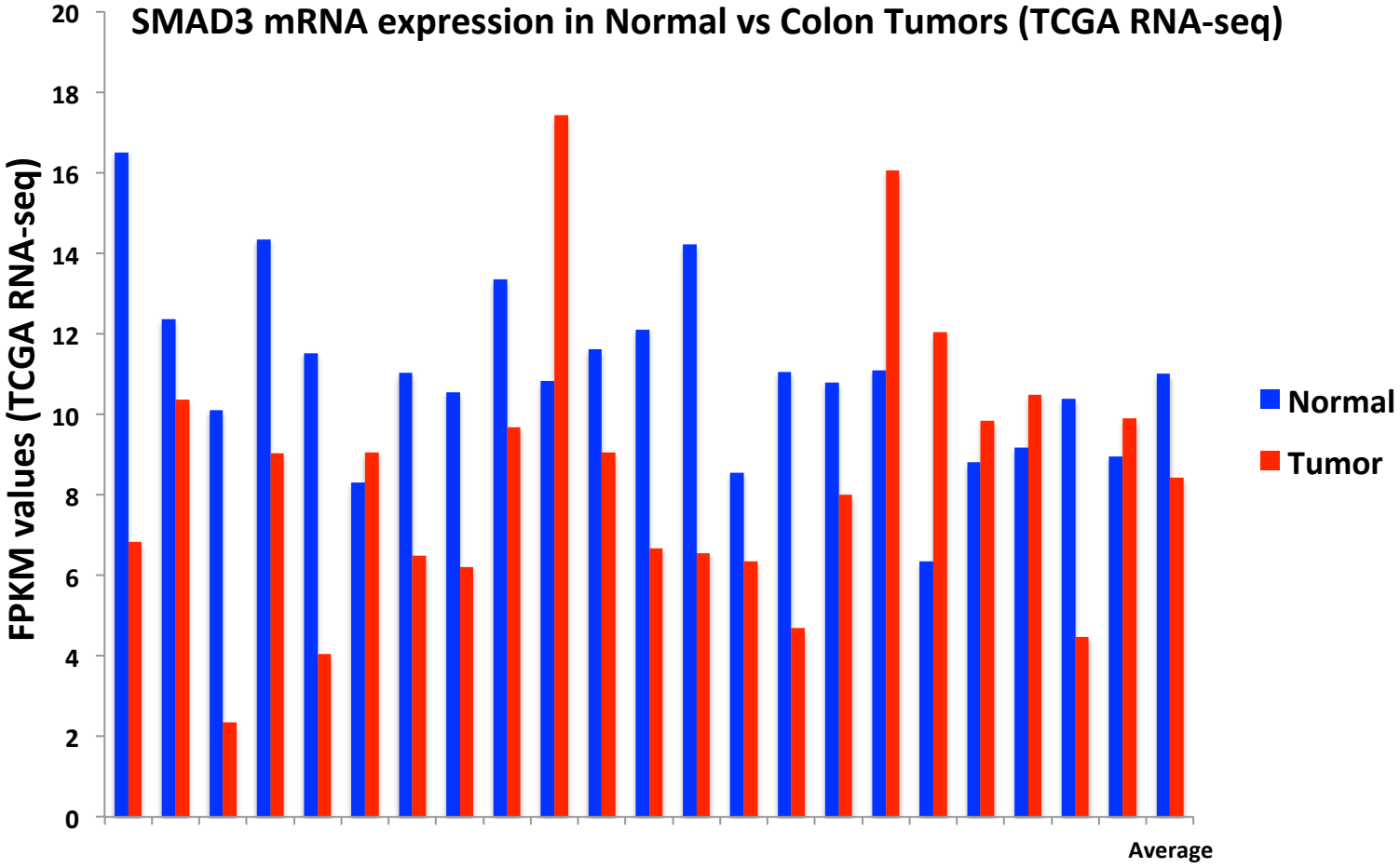
Supplemental Figure 2. **A.** Western blot analysis with an antibody against DNMT1 demonstrates that we are specifically immunoprecipitating DNMT1 but not the highly abundant nuclear proteins U1-70K and histone H3, in HCT116_3Xflag-DNMT1 cell line.
B. Bioanalyzer analysis of RNAs that co-IP with flag-DNMT1 or IgG antibodies.
C. Bioanalyzer of constructed RNA-seq libraries from RIP samples (flag-DNMT1 vs IgG).

Supplemental Figure 3



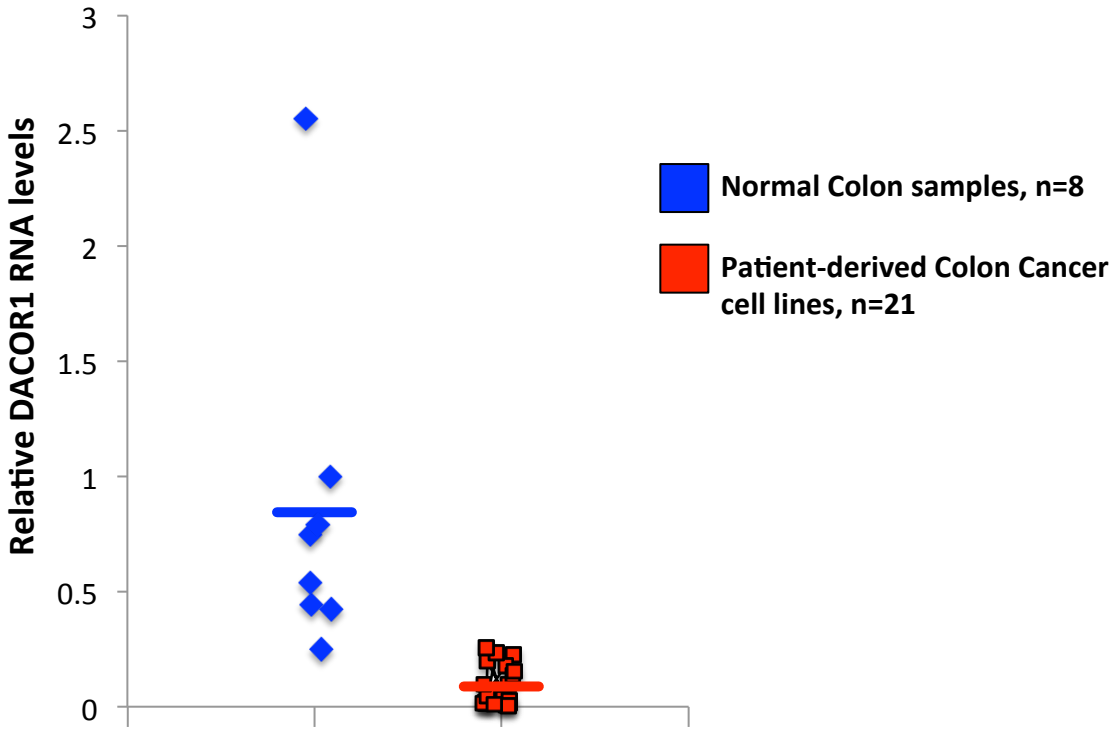
Supplemental Figure 3. DACOR1 (TCONS_00023265) genomic locus on human chromosome 15. Snapshot of the UCSC genome browser showing the genomic region that encodes DACOR1 (Red arrow) on chromosome 15. DACOR1 has three exons. The nearest annotated protein-coding gene to DACOR1 is SMAD3.

Supplemental Figure 4



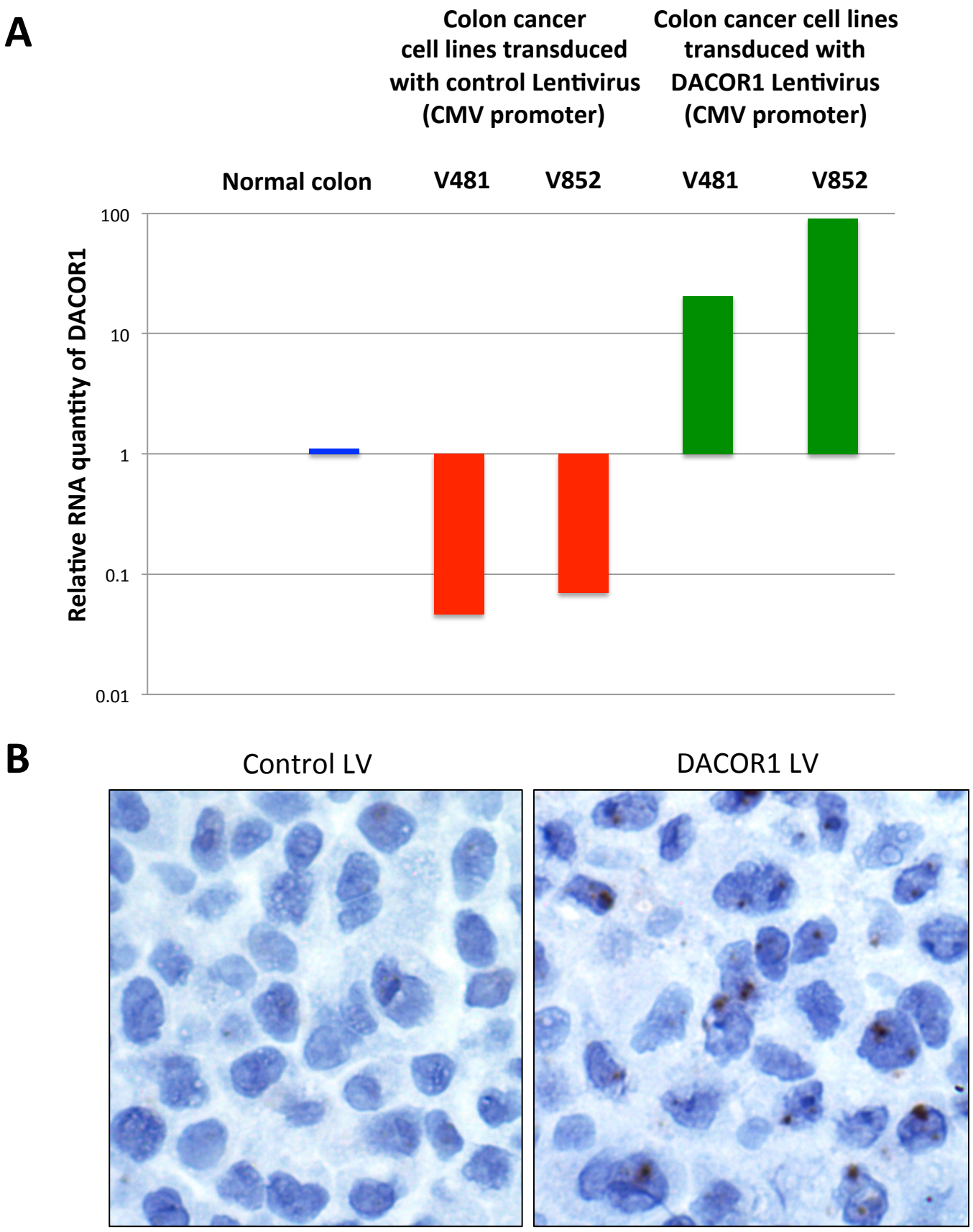
Supplemental Figure 4. SMAD3 mRNA expression in colon tumors vs matched normal tissues. SMAD3 mRNA shows variable expression between colon tumors and matched normal tissues with no clear trend. On average, SMAD3 is slightly higher in normal tissues.

Supplemental Figure 5



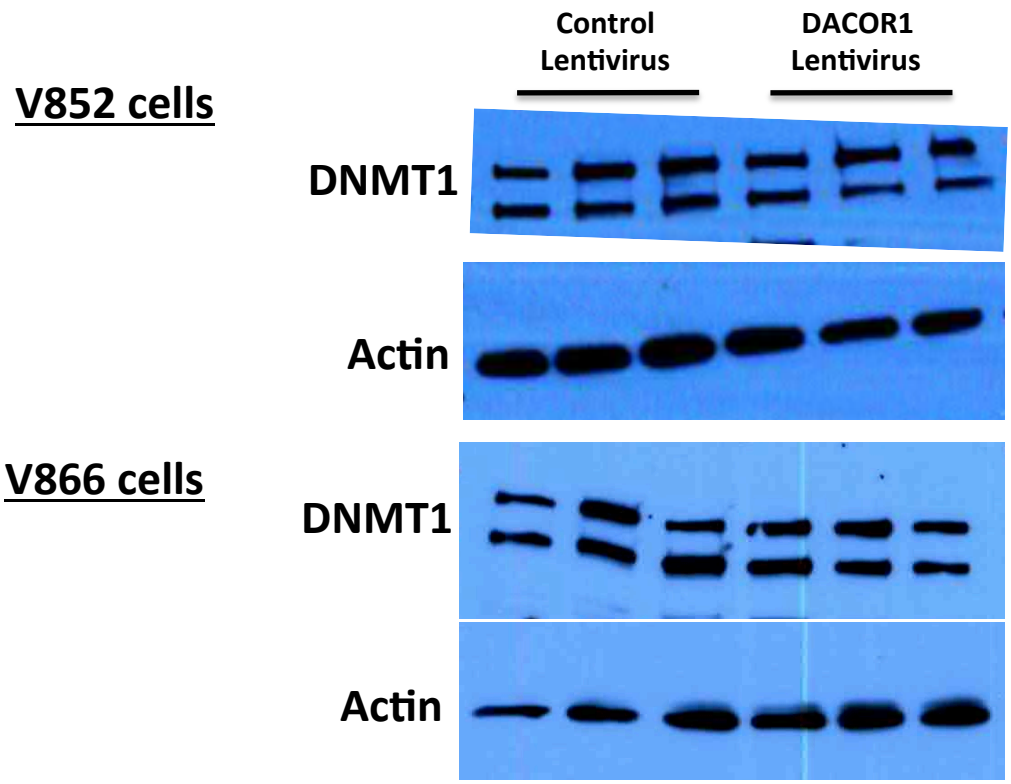
Supplemental Figure 5. Expression analysis of DACOR1 by qRT-PCR in normal colon vs patient-derived colon cancer cell lines represented as a cluster graph (same data from Figure 2D).

Supplemental Figure 6



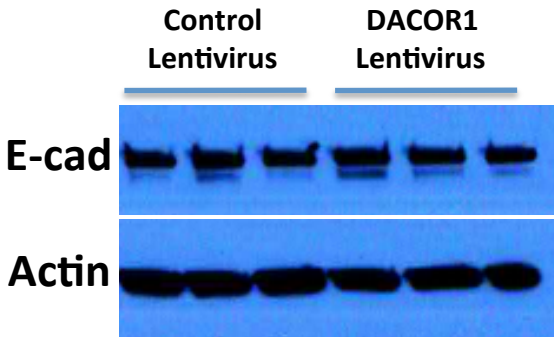
Supplemental Figure 6. A. Expression analysis by qRT-PCR of DACOR1 in normal colon, two colon cancer cell lines transduced with a control lentivirus, and same two cell lines transduced with a DACOR1 lentivirus. **B.** RNA *in situ* demonstrates lack of DACOR1 expression in colon cancer cells (left panel), and the appropriate induction and nuclear localization of DACOR1 using a lentivirus (right panel)

Supplemental Figure 7



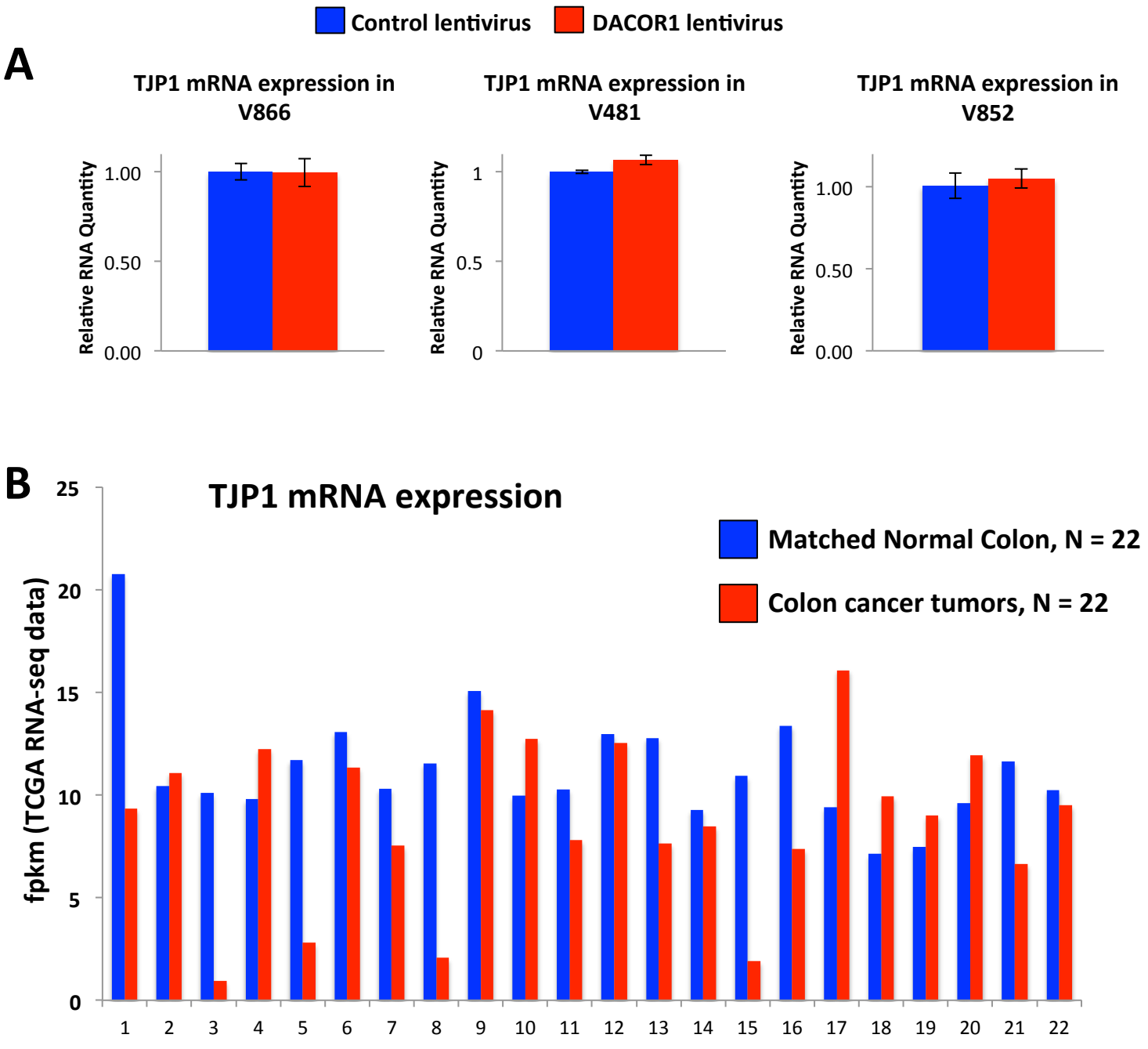
Supplemental Figure 7. Western blot analysis of DNMT1 in V852 and V866 cells, which were transduced with either a control or DACOR1 lentivirus. No differences in DNMT1 protein levels are observed, suggesting that DACOR1 affects DNMT1-mediated DNA methylation by other mechanism(s).

Supplemental Figure 8



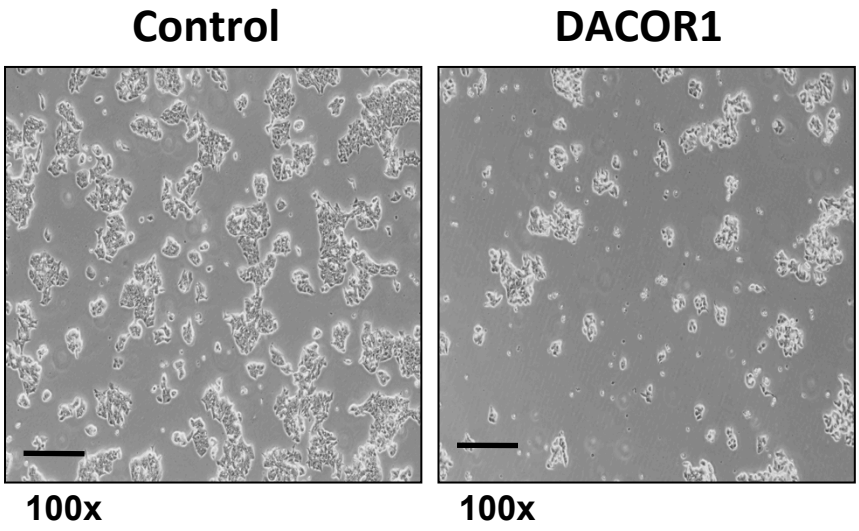
Supplemental Figure 8. DACOR1 expression has no effect on E-Cadherin protein levels in colon cancer cells.

Supplemental Figure 9



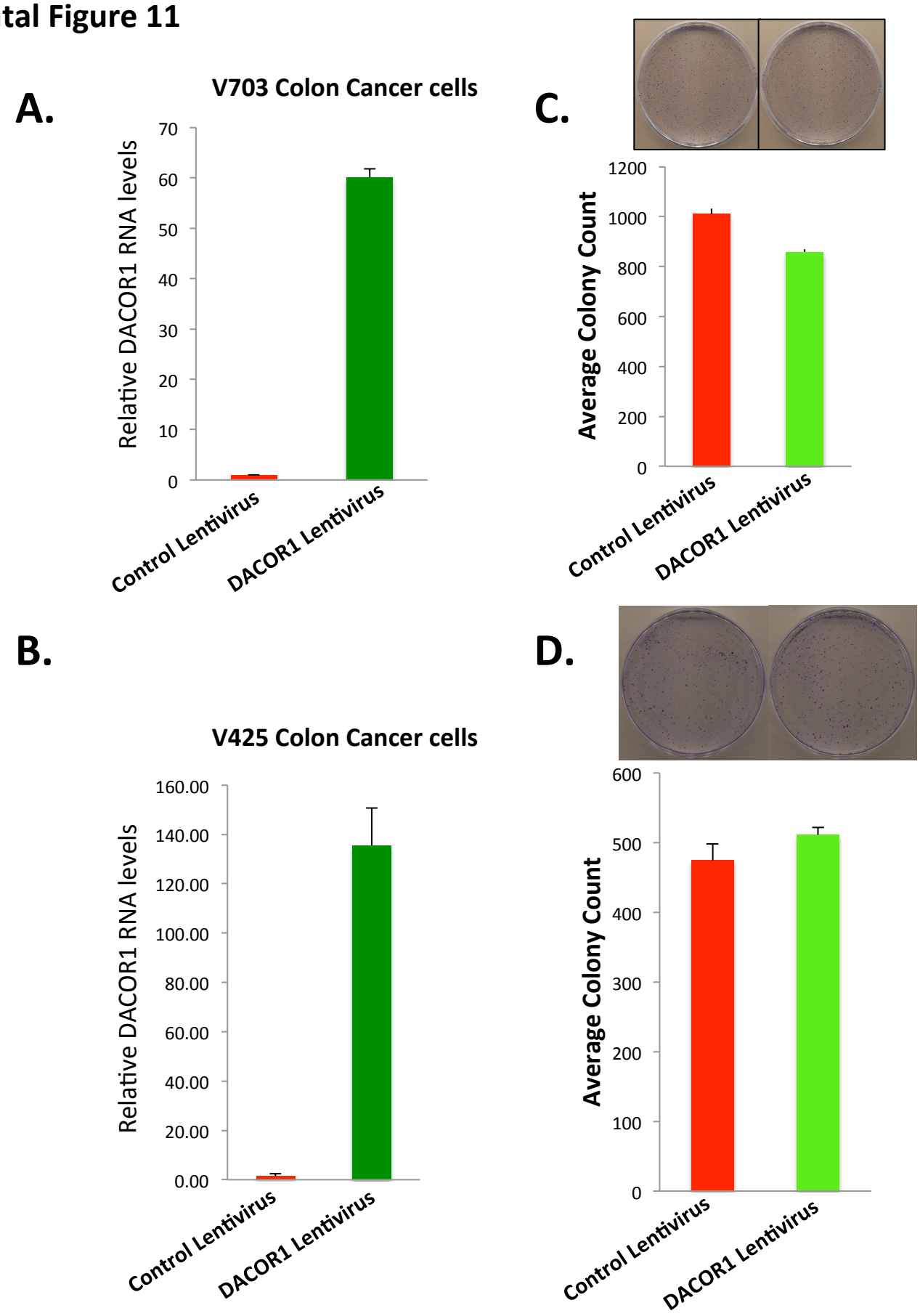
Supplemental Figure 9. A. TJP1 mRNA levels do not change in response to DACOR1 induction in colon cancer cell lines, despite an observed increase in TJP1 protein levels suggesting a post-transcriptional regulation of TJP1 by DACOR1; **B.** TJP1 mRNA levels are not significantly affected in majority of colon tumors vs matched normal tissue (unchanged in 17/22 samples) supporting our observations in cell culture.

Supplemental Figure 10



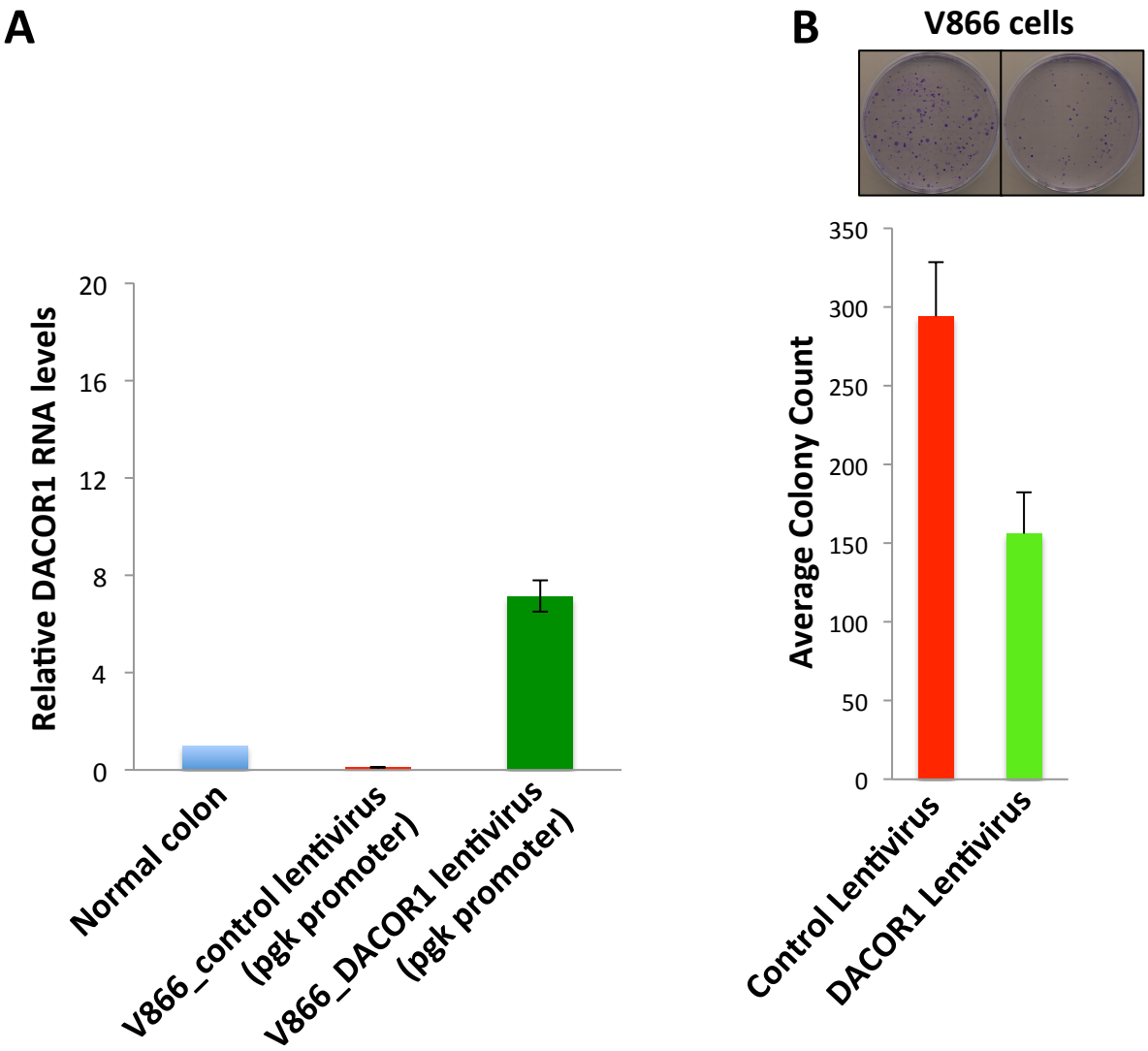
Supplemental Figure 10. DACOR1 induction results in decreased growth of colon cancer cells. A field view of colon cancer cells that were transduced with either a control or DACOR1 lentivirus. We quantified the effect of DACOR1 on the growth of colon cancer cells using colony formation assays (see figure 3E).

Supplemental Figure 11



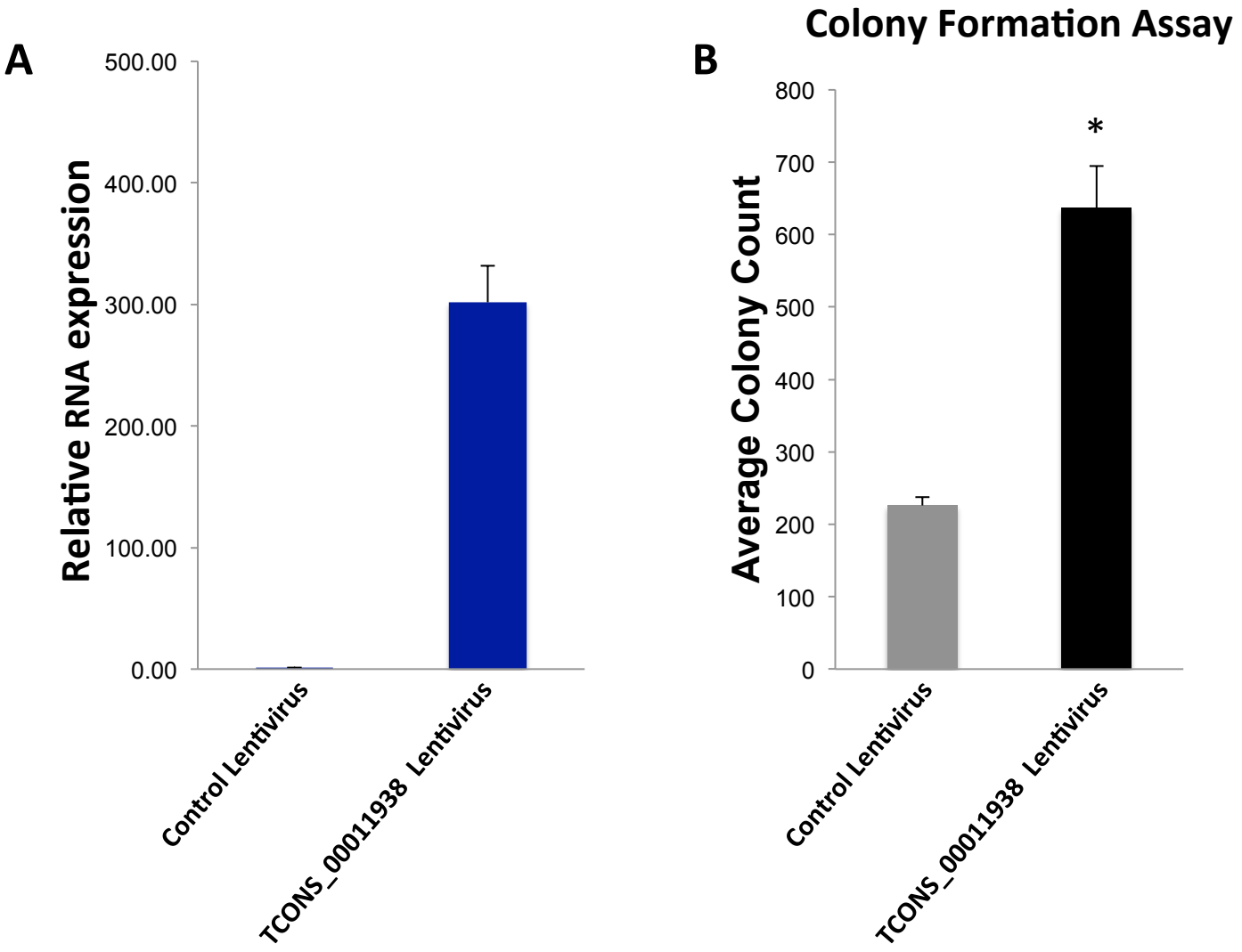
Supplemental Figure 11. A-B. qRT-PCR expression analysis of DACOR1 in the colon cancer cell lines V703 and V425 post transduction with either a control or DACOR1 lentivirus (CMV promoter); **C-D.** DACOR1 has minor effects on colony formation in V703 and V425 cells. These are colon cancer cell lines that maintain some endogenous levels of DACOR1 expression (see figure 2D).

Supplemental Figure 12



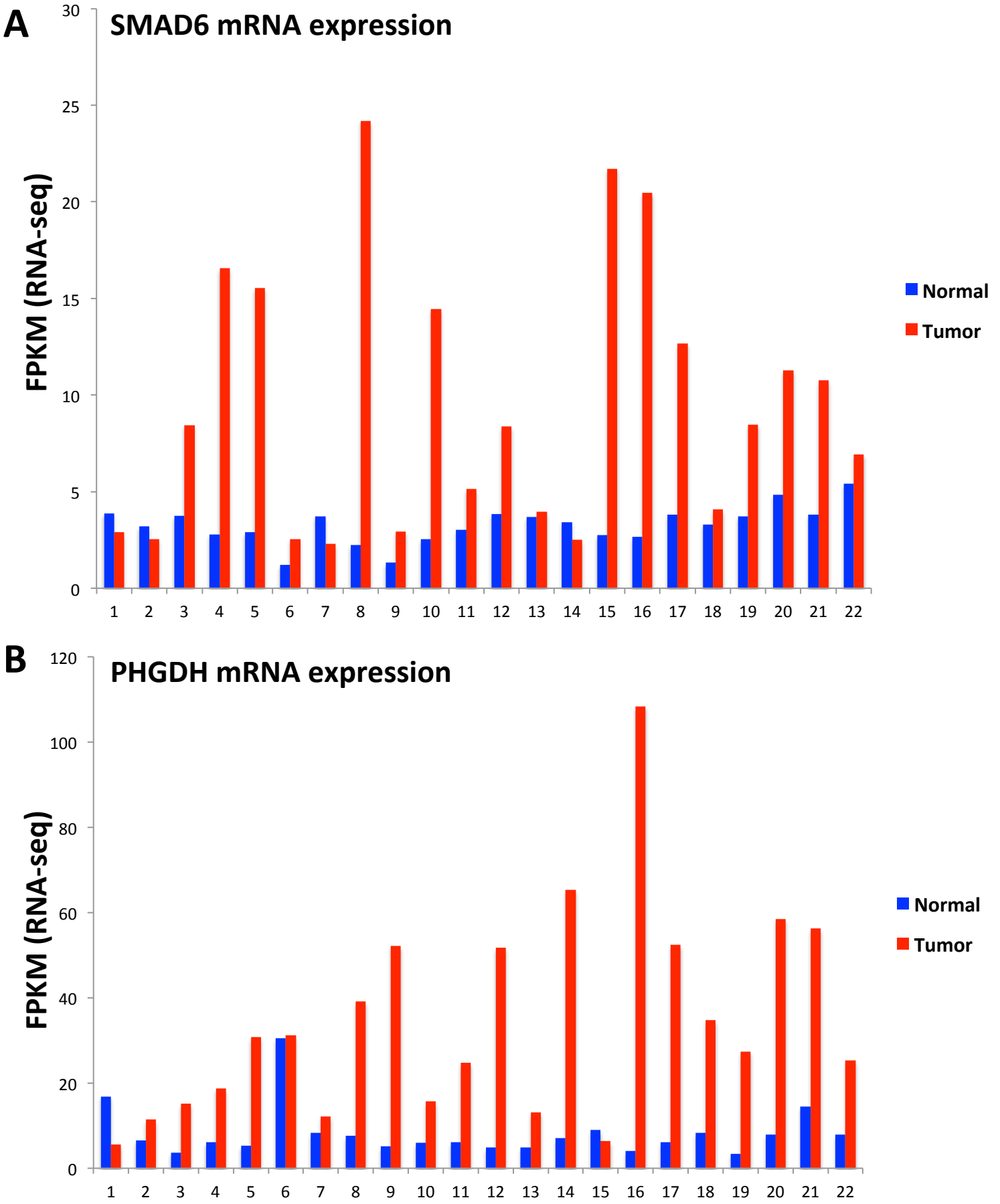
Supplemental Figure 12. A. qRT-PCR expression analysis of DACOR1 in normal colon, the colon cancer cell lines V866 with either a control or DACOR1 lentivirus (Pgk promoter); **B.** DACOR1 induction using a weak Pgk promoter is sufficient to reduce colony formation in the colon cell line V866.

Supplemental Figure 13



Supplemental Figure 13. In contract to DACOR1, induction of an oncogenic lncRNA, TCONS_00011938, enhances colony formation even when expressed at high levels.
A. qRT-PCR expression analysis of the lncRNA TCONS_00011938 in the colon cancer cell line V481 with either a control or TCONS_00011938 lentivirus (CMV promoter).
B. TCONS_00011938 induction is sufficient to enhance colony formation in the colon cell line V481. This finding further supports the conclusion that the induction of the lncRNA DACOR1 effect on suppressing colon cancer growth is not simply due to a RNA toxicity effect.

Supplemental Figure 14



Supplemental Figure 14. SMAD6 and PHGDH are up-regulated in colon tumors. The mRNA levels of SMAD6 and PHGDH are highly up-regulated in a cohort of 22 colon tumors in comparison to matched normal tissues (TCGA RNA-seq).