

Figure S1 Morphology and growth of BDOs from non-cancer patients.
(a, b) Microscopic images of the two lines of BDOs from non-cancer patients. Both of the BDOs showed a regular cystic shape with a thin cyst wall. Bars in (a) and (b) are 100 μ m.

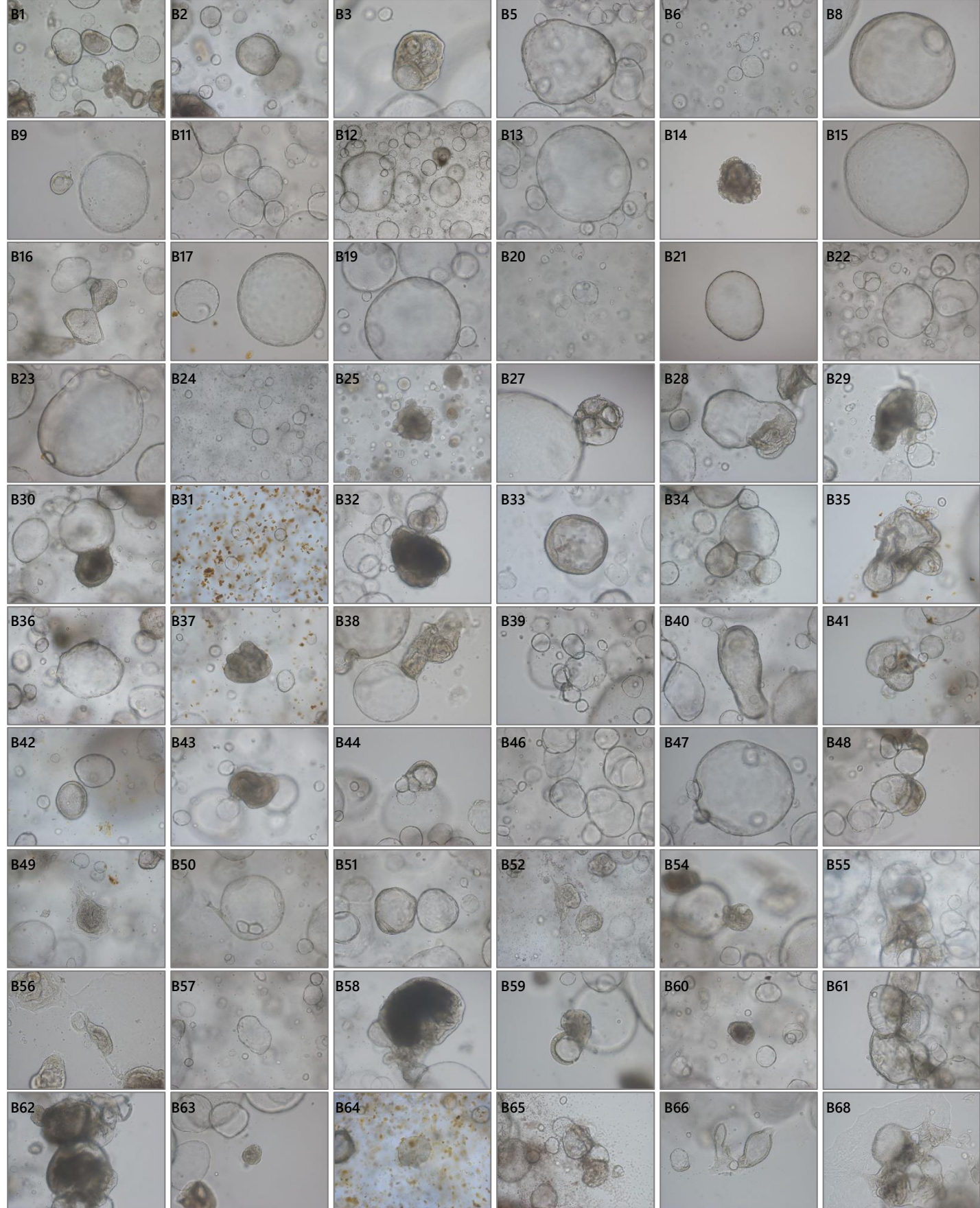


Figure S2 Microscopic images of all BDOs established in this study.

All of the 60 successfully established BDOs exhibited a diverse range of morphology, such as a regular cystic shape, a solid mass, a multi-cystic form and an irregular cyst with a markedly thick cyst wall, compared with BDOs from non-cancer patients. Bar is 100 μ m.

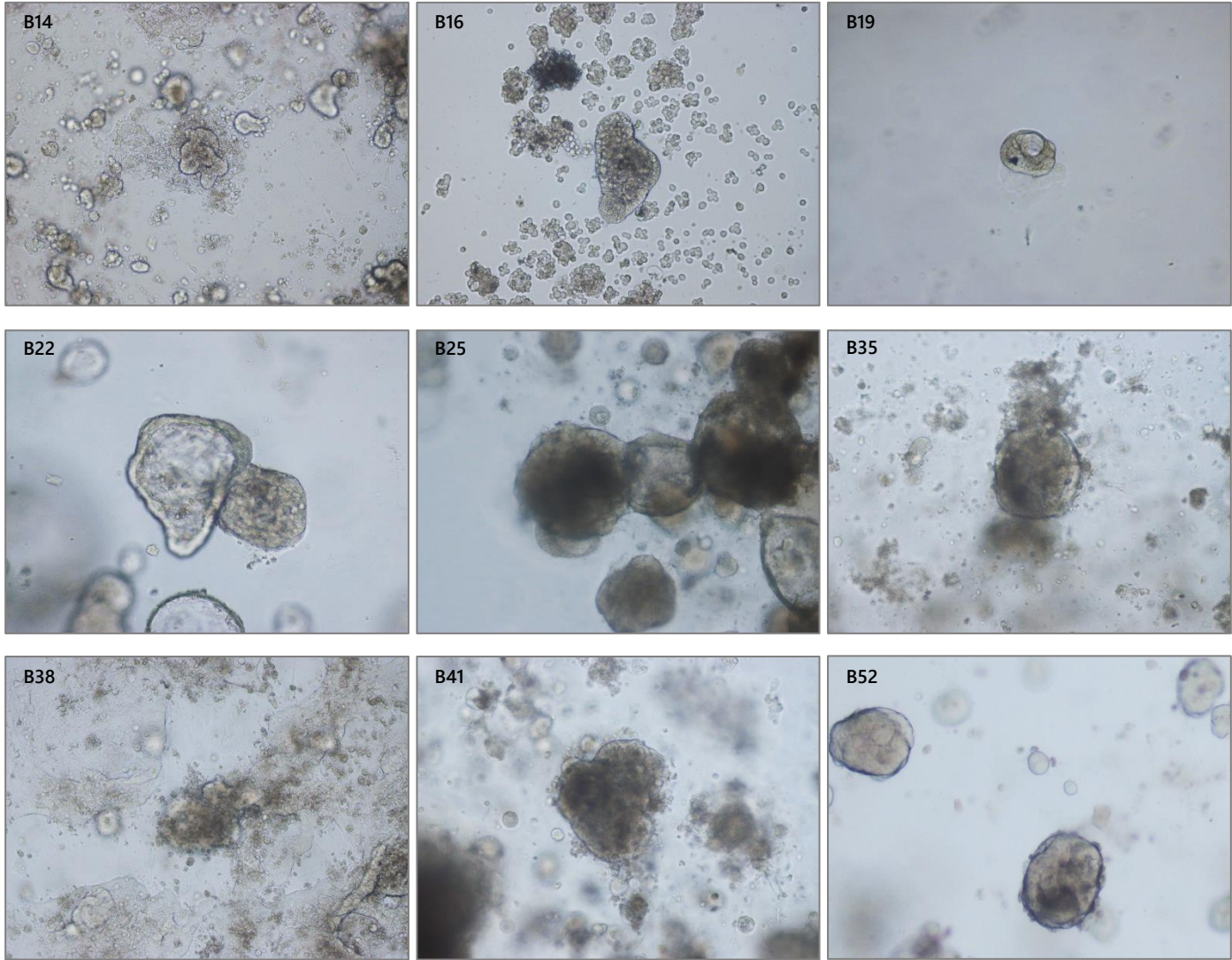


Figure S3 Microscopic images of XDOs.

XDOs showed a more solid and compact morphology than the corresponding pre-transplant BDOs in Figure S2. Bar is 100 μm .

B35 Organoid

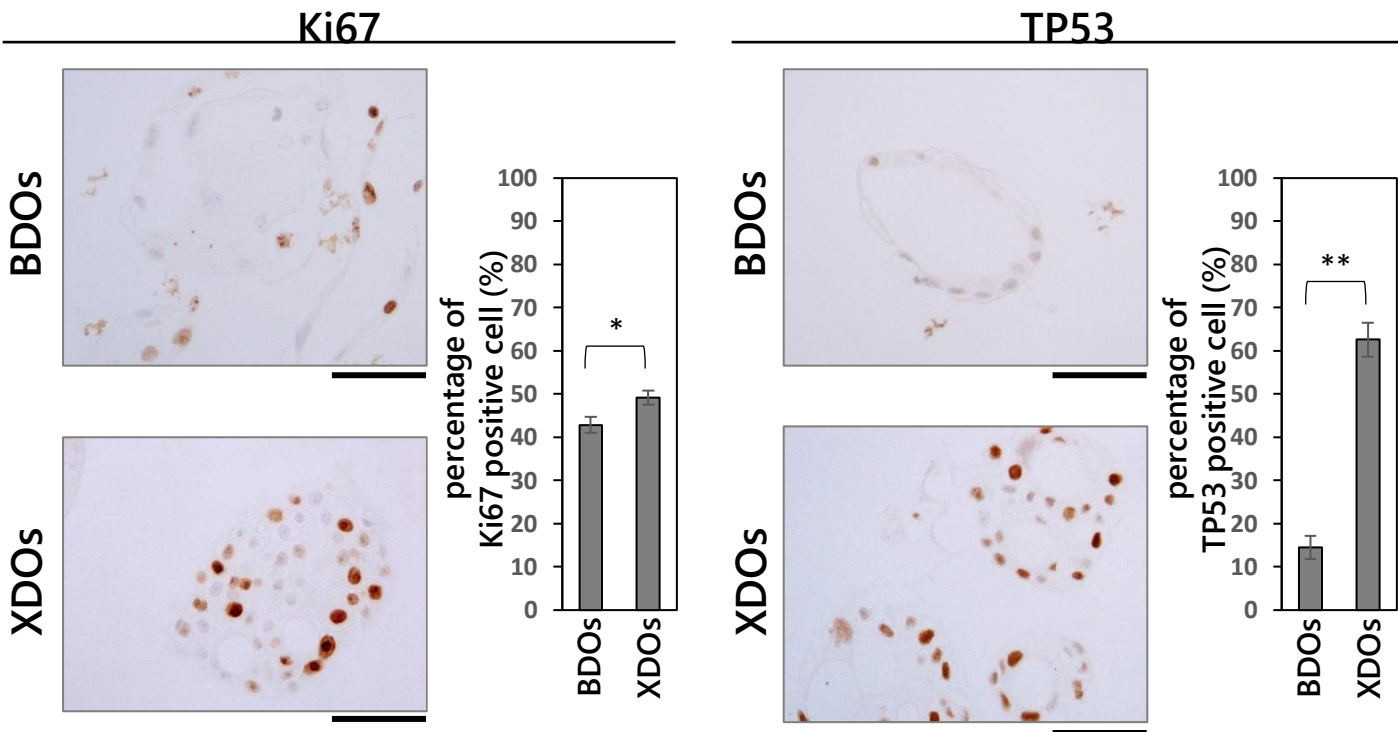


Figure S4 Increased Ki67- and p53-positive cells in XDOs for B35.

Related to Figure 4(b, c). Immunohistochemistry of XDOs in B35 showed increased Ki67-positive (left panel) and TP53-positive cells (right panel) compared with those of the pre-transplant BDOs. The percentages of Ki67- and TP53-positive cells are shown as mean values \pm SD of triplicates. The differences were analyzed statistically using Student's t test ($n = 3$). * $p < 0.01$, ** $p < 0.001$. Bars are 50 μm .

B35 Organoid

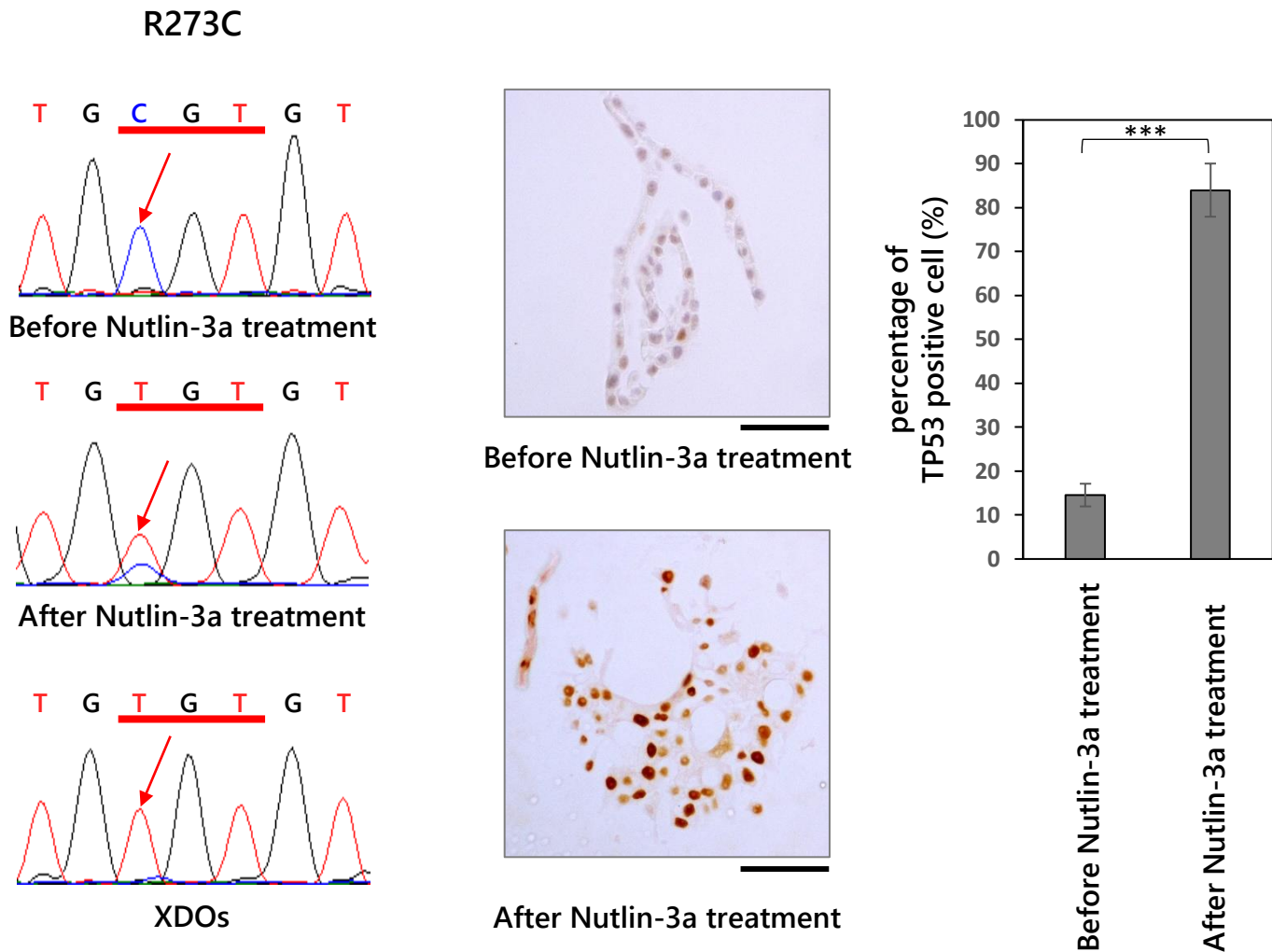


Figure S5 Enrichment of TP53-mutated cancer cells in B35 BDOs by Nutlin-3a treatment.

Related to Figure 5(b-d). In another BDO, B35, including a minor population of cancer cells with TP53 mutation (R273C), the effectiveness of Nutlin-3a treatment for enriching the TP53-mutated cancer cells in organoids was confirmed by sequencing analysis and immunohistochemistry. The percentages of TP53-positive cells demonstrated by immunohistochemistry are shown as mean values \pm SD of triplicates. The differences were analyzed statistically using Student's t test ($n = 3$). Red arrows and red underbars indicate the mutation sites and the associated changes in codons, respectively. *** $p < 0.0001$. Bars are 50 μ m.