Group	Number of cases per group	Minimum # cells	Maximum # cells	Median
NPM1-mutated	33	1869	31151	10528
TP53-mutated	5	3379	23273	8598
NPM1/TP53 WT	7	2747	22935	8703
All cases	45	1869	31151	8957

Supplemental Figure 1. Total nucleated cells analyzed by MxIF across all cases/groups.
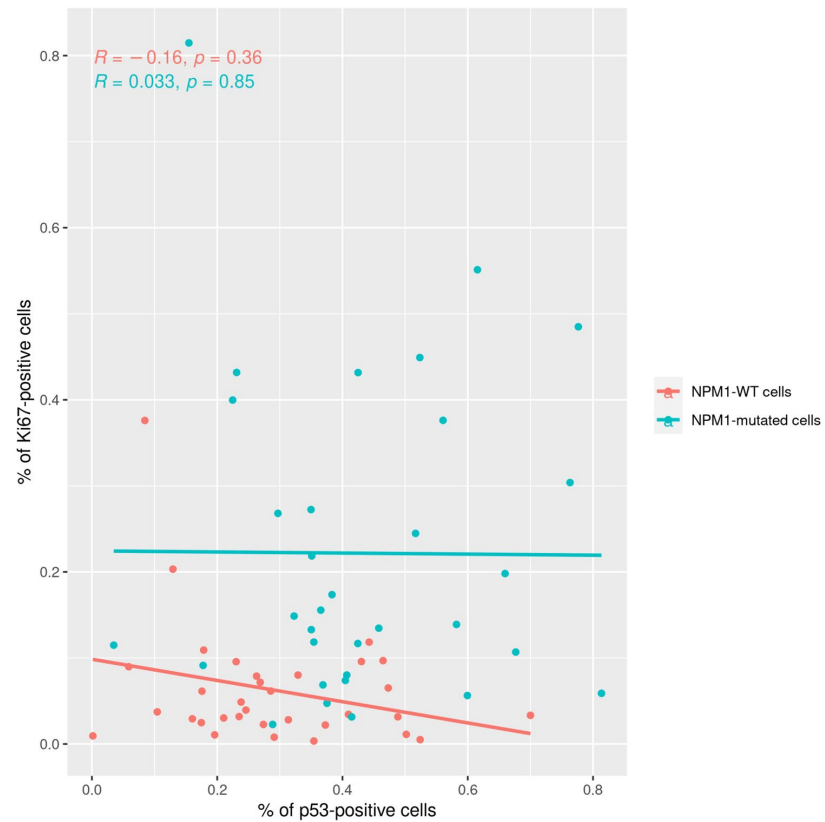
Supplemental Figure 2. No correlation between frequency of p53-positive and Ki67-positive cells in cases *NPM1*-AML.
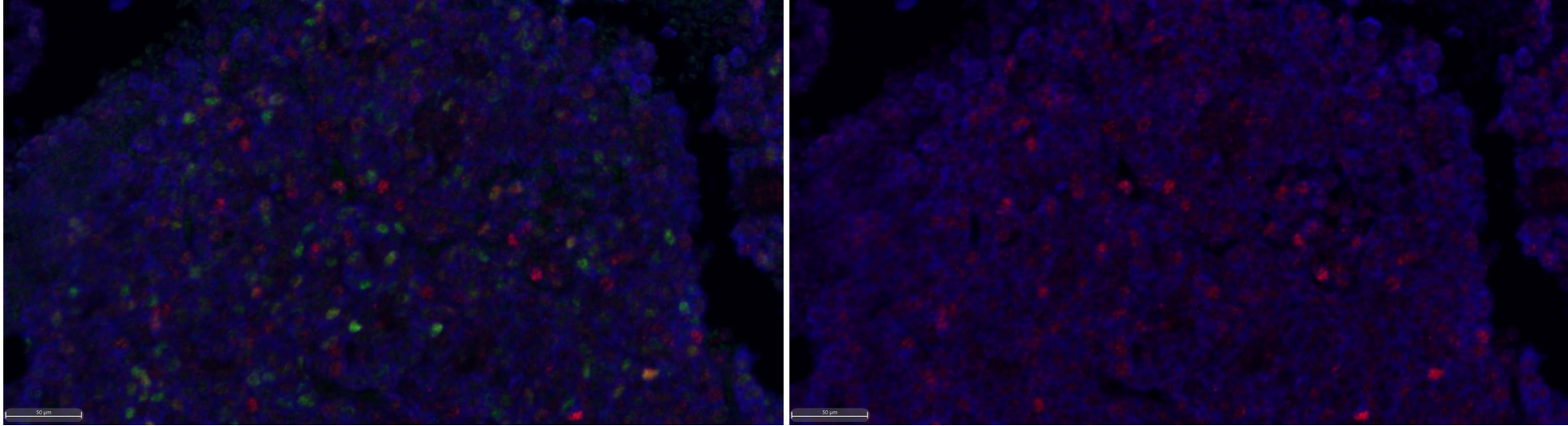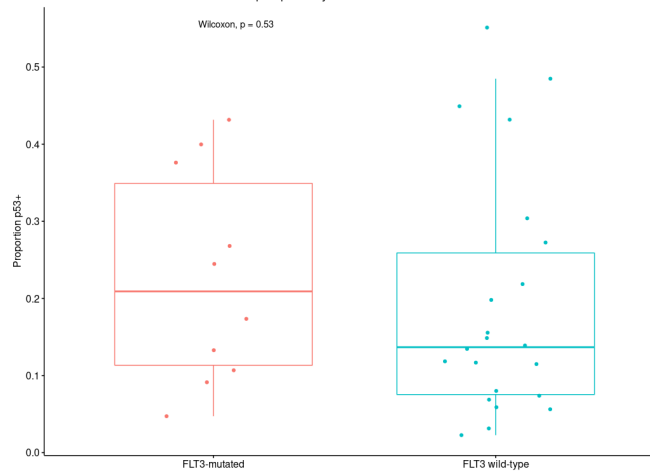
Mutant NPM1 p53 MDM2

Supplemental Figure 3. Representative example of an *NPM1*-AML case stained with antibodies to mutant NPM1 (blue), p53 (green), and MDM2 (red). The MDM2 signal is predominantly nuclear; evidence of cytoplasmic (i.e. blue/green overlap) dislocation of MDM2 is inconspicuous.
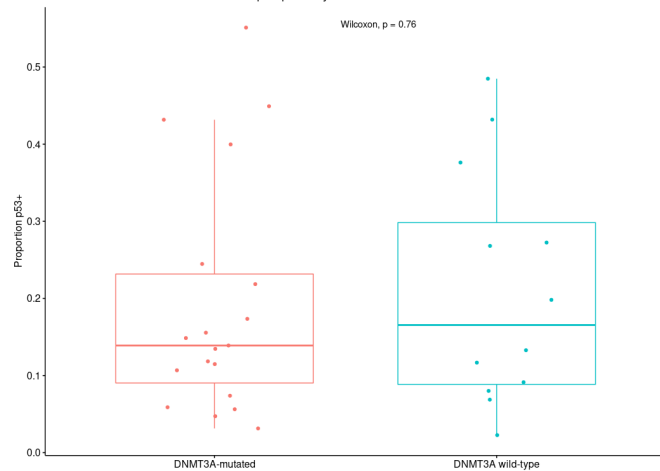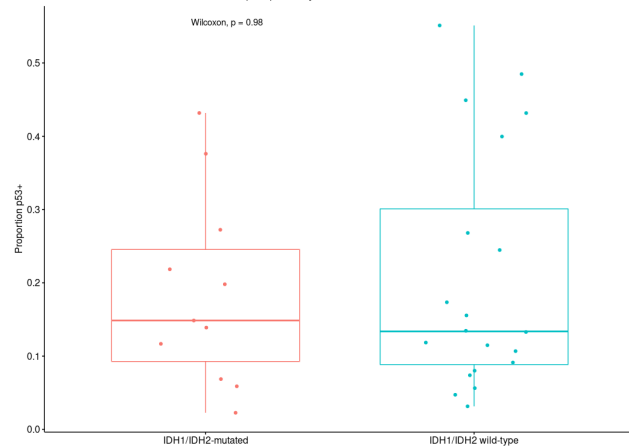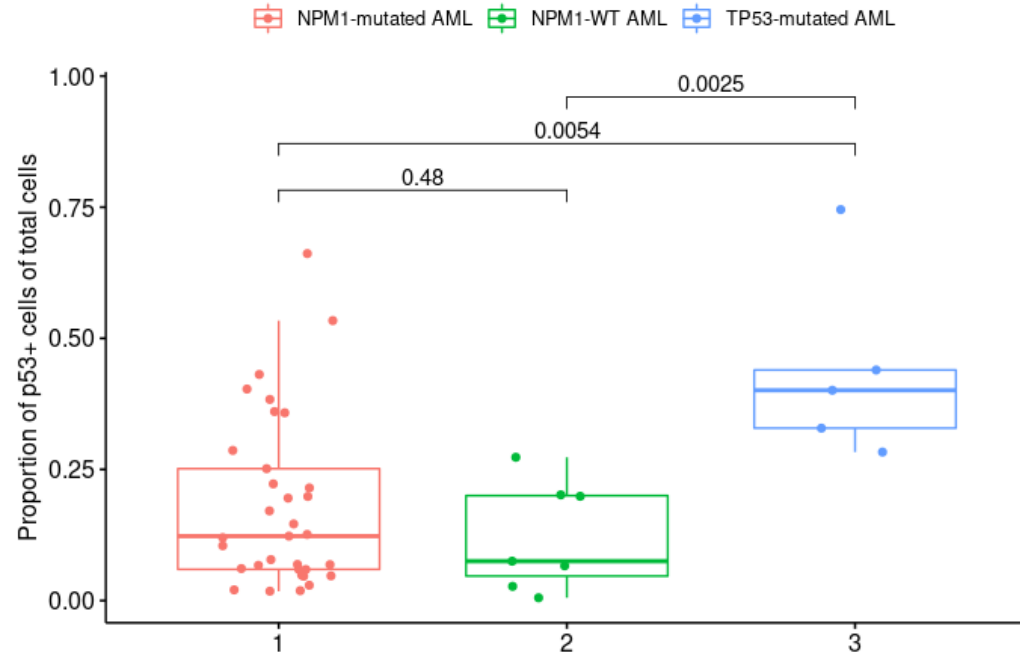
Supplemental Figure 4. Frequency of p53 expression among *NPM1*-mutated cells does not differ based on presence or absence of co-mutation in *DNMT3A* (top left), *FLT3*-ITD (top right), or *IDH1/2* (bottom left).

Supplemental Figure 5. *TP53*-AML cases (n=5) have the highest proportion of p53-positive cells, among all nucleated cells analyzed. No significant difference in frequency of p53 expression among total cells between *NPM1*-AML (n=33) and *TP53*/*NPM1*-WT AML cases with normal karyotype (n=7).
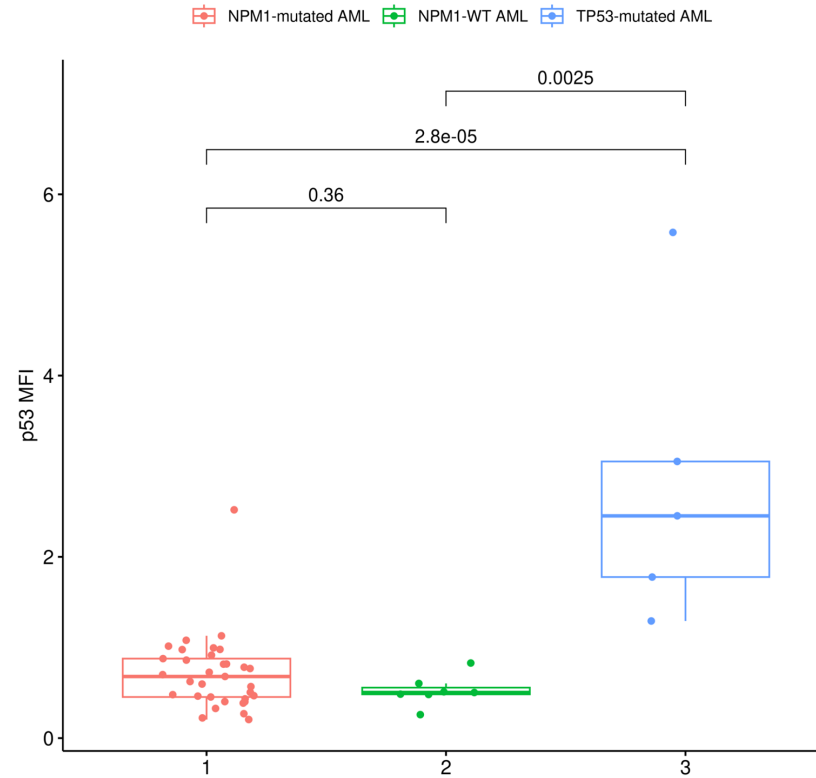
Supplemental Figure 6. The mean fluorescence intensity of p53 is highest in *TP53*-AML cases (n=5) compared to cases of *NPM1*-AML (n=33) and *NPM1*-WT AML with normal karyotype (n=7).