Figure S1. Continued.

А

Lownload - GenBank Graphics					
Homo sapiens tumor protein p53 (TP53), RefSeqGene (LRG_321) on chromosome 17					
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Range 1: 15957 to 15987 GenBank Graphics	Fwd primer (FP53B)				
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Homo sapiens tumor protein p53 (TP53), RefSeqGene (LRG_321) on chromosome 17					
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>NM_000546.6 Homo sapiens tumor protein p53 (TP53), transcript variant 1, mRNA

product length : Forward primer Template	= 1182 1 143	ATGGAGGAGCCGCAGTCAGATCCTAGCGTCG	31 173	
Reverse primer Template	1 1324	TCAGTCTGAGTCAGGCCCTTCTGTCTTGAACA	TGAG	36 1289

>NM_000546.6 Homo sapiens tumor protein p53 (TP53), transcript variant 1, mRNA

product length = Forward primer Template	= 610 1 715	TCAGCATCTTATCCGAGTGG	20 734	
Reverse primer Template	1 1324	TCAGTCTGAGTCAGGCCCTT	CTGTCTTGAACATGAG	36 1289

Figure S1. Evaluation of native and truncated transcripts of TP53 in HCT-116 (+/+p53) and HCT-116 (-/-p53) cDNA. (A) BLAST analysis of the utilized oligos. (B) DNA agarose electrophoresis analysis of the products resulting from amplification of TP53 gene sequences with the following primer pairs: a) FP53B/BP53B primers, for amplification of a 1,182 bp sequence and b) p53-F1/BP53B primers, for amplification of a 610 bp sequence. (C) Detection of p53 in total cytoplasmic extract samples of HCT-116 (+/+p53) and HCT-116 (-/-p53) cells by western blotting with an anti-p53 antibody. The polyclonal antibody for the detection of p53 protein was produced against the full-length protein, thus its use enables the detection of both full-length protein (53 kDa) and the various isoforms of p53 protein expressed by the cell, as the specific case of truncated p53 protein (47 kDa) caused by the absence of exon 2. The amount of protein loaded from each sample is equivalent to 40 μ g, while an anti- β -actin antibody (43 kDa) was used as a positive control. A Nippon Genetics protein control molecular weight marker was also used.



Figure S2. Growth kinetics of the (A) HCT-116 (+/+p53) and (B) HCT-116 (-/-p53) cells. Cells were seeded in a concentration of 1.5x10⁵ cells/ml and incubated for up to 96 h. Measurements were carried out at the 24, 48, 72 and 96 h timepoints. Standard deviations for all measurements were calculated from 3 biological replicates.





Figure S3. Continued.

ii. K-562 and DCA







iii. K-562R and IM



Figure S3. Dose-dependent effects of IM and DCA on the cell growth of K-562 and K-562R cells for up to 72 h. i) (A-C) Dose-dependent effect of IM on the cell growth of K-562 (0, 0.01, 0.1, 0.5 and 1 μ M) for 24, 48 and 72 h. The cells were seeded at 1x10⁵ cells/ml. ii) (D-F) Dose-dependent effect of DCA on the cell growth of K-562 (0, 0.1, 0.25, 0.5, 1, 2.5 and 5 mM) for 24, 48 and 72 h. The cells were seeded at 1x10⁵ cells/ml. iii) (G-I) Dose-dependent effect of IM on the cell growth of K-562R (0, 1, 2, 4, 6 and 8 μ M) for 24, 48 and 72 h. The cells were seeded at 2x10⁵ cells/ml. iv) (J-L) Dose-dependent effect of DCA on the cell growth of K-562R (0, 2, 4, 6 and 8 mM) for 24, 48 and 72 h. The cells were seeded at 2x10⁵ cells/ml. iv) (J-L) Dose-dependent effect of DCA on the cell growth of K-562R (0, 2, 4, 6 and 8 mM) for 24, 48 and 72 h. The cells were seeded at 2x10⁵ cells/ml. iv) (J-L) Dose-dependent effect of DCA on the cell growth of K-562R (0, 2, 4, 6 and 8 mM) for 24, 48 and 72 h. The cells were seeded at 2x10⁵ cells/ml. iv) (J-L) Dose-dependent effect of DCA on the cell growth of K-562R (0, 2, 4, 6 and 8 mM) for 24, 48 and 72 h. The cells were seeded at 2x10⁵ cells/ml. IM, imatinib; DCA, dichloroacetate.



Figure S4.Continued.







Concentration IM

Figure S4. Continued.

ii. HCT-116+/+ p53 and DCA





5 mM

Figure S4.Continued.

iii. HCT-116-/- p53 and IM



Concentration IM

Figure S4. Dose-dependent effects of IM and DCA on the cell growth of HCT-116 (+/+p53) and HCT-116 (-/-p53) cells for up to 72 h. i) (A-C) Dose-dependent effect of IM on the cell proliferation of HCT-116 (+/+p53) cells (0, 1, 5, 10, 30, 50 and 100 μ M) for 24, 48 and 72 h. Cells were seeded in an initial cell concentration of 0.25x10⁵ cells/ml. ii) (D-F) Dose-dependent effect of DCA on the cell proliferation of HCT-116 (+/+p53) cells (0, 0.1, 0.25, 0.5, 1, 2.5 and 5 mM) for 24, 48 and 72 h. Cells were seeded in an initial cell concentration of 0.25x10⁵ cells/ml. iii) (D-F) Dose-dependent effect of DCA on the cell proliferation of 0.25x10⁵ cells/ml. iii) (G-I) Dose-dependent effect of IM on the cell proliferation of HCT-116 (-/-p53) cells (0, 1, 5, 10, 30, 50 and 100 μ M) for 24, 48 and 72 h. Cells were seeded in an initial cell concentration of 0.25x10⁵ cells/ml. iii) (G-I) Dose-dependent effect of IM on the cell proliferation of 0.25x10⁵ cells/ml. iii) (G-I) Dose-dependent effect of IM on the cell proliferation of 0.25x10⁵ cells/ml. iii) (J-L) Dose-dependent effect of DCA on the cell proliferation of HCT-116 (-/-p53) cells (0, 0.1, 0.25, 0.5, 1, 2.5 and 5 mM) for 24, 48 and 72 h. Cells were seeded in an initial cell concentration of 0.25x10⁵ cells/ml. iv) (J-L) Dose-dependent effect of DCA on the cell proliferation of HCT-116 (-/-p53) cells (0, 0.1, 0.25, 0.5, 1, 2.5 and 5 mM) for 24, 48 and 72 h. Cells were seeded in an initial cell concentration of 0.25x10⁵ cells/ml. IM, imatinib; DCA, dichloroacetate.



Figure S5. Network biology models reveal intricate connections of the 10 proteins screened by western blotting associated with oxidative phosphorylation, glycolysis, hypoxia and oxidative stress. (A) Multipartite Enrichr knowledge graph depicting the 10 selected proteins with biostatistical significant biological pathways deriving from 5 distinct databases. The nodes are color-coded based on the enclosed legend. (B) STRING protein-protein interaction network revealing connections among the 10 proteins under investigation.



Figure S6. Flow cytometric analysis images showing the accumulation of 2',7'-dichlorofluorescein diacetate-stained reactive oxygen species in populations of (A) K-562 and (B) K-562R cells. IM, imatinib; DCA, dichloroacetate.

