Supplement 1 ***MDM2 interaction with p53 and p53-ubiquitin was detected in the cells cotransfected with MICAL2 and p53***. 10×10^6 of HEK293T cells were contransfected with 2μg v5-MICAL2 and 2μg 3Flag-MDM2. The transfected cells were lysed in 100 μL mammalian cell lysis buffer (MCLB) (50 mM Tris-HCl pH 8.0, 2 Mm DTT, 5 mM EDTA, 0.5% Nonidet P-40, 100 mM NaCl, 1 mM microcystin, 1 mM sodium orthovanadate,2 mM PMSF, protease inhibitor cocktail (Calbiochem) and phosphatase inhibitor cocktail (Calbiochem), and the cell lysates were centrifuged. Protein concentration of the clarified lysates was measured. 100 μg protein was first incubated with anti-FLAG-agarose (Sigma Chemical Co.) or anti-HA-agarose (Sigma Chemical Co.) for 2 h at 4℃, and the precipitates were washed five times with MCLB. The precipitates were analyzed by Western-blotting with anti-FLAG- or anti-HA-body. And 40 μg of the cell lysates were also detected Flag, HA, v5 and GAPDH expressions with Western-blotting. HEK293 cells were cotransfected with V5-MICAL2, HA-p53 and HA-ubiquitin, and then were treated with 20 nM nutlin. p53-ubiquitin in the treated cells was detected using Immunoprecipitation and Western-blotting.

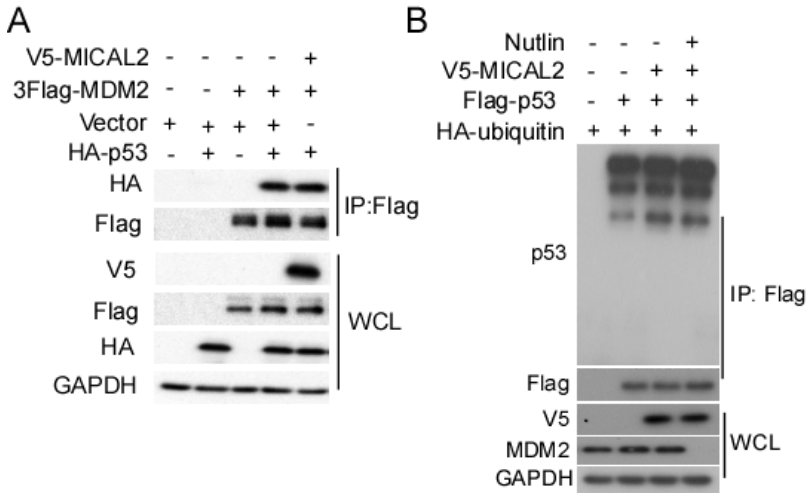

Figure S1. **MDM2 expression in the cells cotransfected with MICAL2 and p53**. A, HEK293T cells were respectively co-transfected with v5-MICAL2, 3Flag-MDM2, and HA-P53. Flag was immunoprecipitated using anti-Flag antibody, and MDM2 in the immunocomplexes was detected using Western-blotting. B, HEK293 cells were cotransfected with V5-MICAL2, HA-p53 and HA-ubiquitin, and then were treated with nutlin compound RG7388 at 20 nM. p53-ubiquitin in the treated cells was detected using Immunoprecipitation and Western-blotting. Vector served as a blank control. GAPDH served as a loading control.

Supplement 2 ***p53 expressions were detected in the cells transfected with MICAL2 and p53 methionine site mutations*** p53 mutations, HA-p53 mutated at methionine (Met) 40, 44, 66, 133, 160, 169, 237, 243, 246, 340 or 384 were constructed using Quik-Change Site-Directed Mutagenesis Kit according to the manufacturer's recommendations (Stratagene, California) , and all the mutations were verified by performing sequencing.. p53 mutation plasmids, HA-p53-M40, HA-p53-M44, HA-p53-M 66, HA-p53-M133, HA-p53-M160, HA-p53-M169, HA-p53-M237, HA-p53-M243, HA-p53-M246, HA-p53-M340 and HA-p53-M384 were obtained. 10×10^4 of HEK293T cells were cotransfected with 1μg of 3Flag-MICAL2 and 1μg of HA-p53-M40, HA-p53-M44, HA-p53-M 66, HA-p53-M133, HA-p53-M160, HA-p53-M169, HA-p53-M237, HA-p53-M243, HA-p53-M246, HA-p53-M340 or HA-p53-M384, respectively. The transfected cells were lysed with MCLB, and the protein samples were extracted. 40μg of the protein samples were subjected to Western-blotting with anit-Flag or anti-HA antibody.MICAL2 and p53 were detected in the transfected cells.

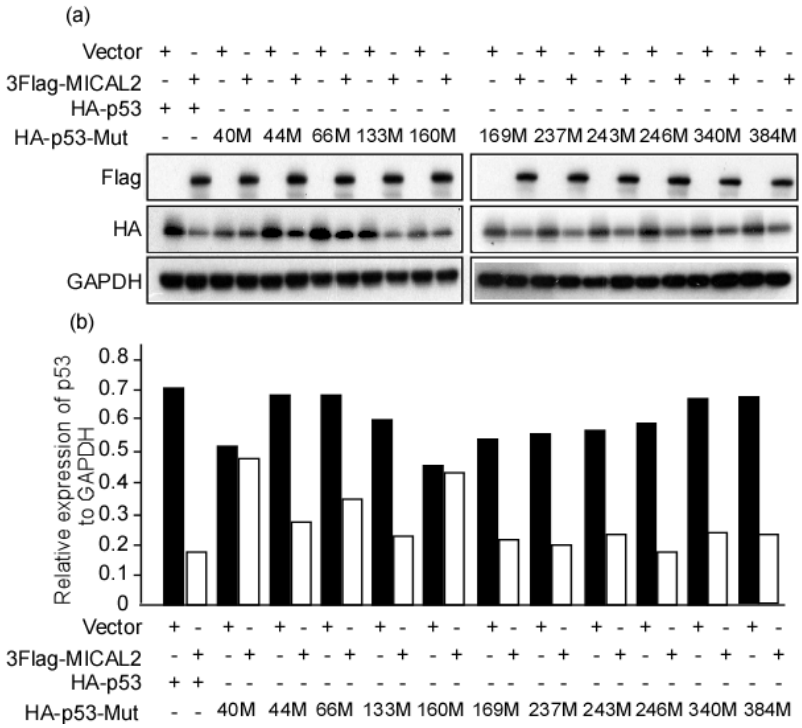

Figure S2. MICAL2 decreases p53 expression through Met 40 and 160. A, p53 Met residues were mutated to Leu. p53 mutants and MICAL2 were cotransfected into HEK239T cells, and p53 expressions were detected using Western-blotting (a), quantitative analysis was conducted on p53 level in Western-blotting (b). M, mutant.

Table S1

MICAL2 shRNA sequence

shRNA#1	TCACTTCATTCACTGTAAA
shRNA#2	CGGAGAACATCAACAAGAA

Table S2

PCR primers of MICAL2 mutations

Mutations	Forward primer	Reserve primer
1-499	CGGGCTGCAGGAATTCATGGGGGA AAACGAGGATGA	CCCCCTCGAGGTCGACTTACTCGAG AG GGTAGTGCTCCA
1-630	CGGGCTGCAGGAATTCATGGGGGA AAACGAGGATGA	CCCCCTCGAGGTCGACTTAAGAATC CACG GGCCTCAGTG
1-775	CGGGCTGCAGGAATTCATGGGGGA AAACGAGGATGA	CCCCCTCGAGGTCGACTTACGTGTC GCTGC CTCCCAGGT
500-997	CGGGCTGCAGGAATTCATGAGAC TGGGCTCGGTGAG	CCCCCTCGAGGTCGACTCAGCGGA GCTT GACTGGGAAGCA
631-997	CGGGCTGCAGGAATTCATGTGGCG CAAAAACTATGGA	CCCCCTCGAGGTCGACTCAGCGGA GCTT GACTGGGAAGCA
776-997	CGGGCTGCAGGAATTCATGTGTTA CTTCTGTAAGAAACG	CCCCCTCGAGGTCGACTCAGCGGA GCTT GACTGGGAAGCA

Table S3

Primers of Real-time PCR

GENE	Forward primer	Reserve primer
MICAL2	CTCACACGACACCTGGACCTA	CCACGCTTATCCAATTTGTACCA
p53	CAGCACATGACGGAGGTTGT	TCATCCAAATACTCCACACGC
CDKN1A	TGTCCGTCAGAACCCATGC	AAAGTCGAAGTTCCATCGCTC
SERPINB5	AATTCGGCTTTTGCCGTTGAT	TGTCACCTTTAGCACCCACTT
SESN1	TGCTTTGGGCCGTTTGGATAA	TGTAGTGACGATAATGTAGGGGT
IGFBP3	AGAGCACAGATACCCAGAACT	GGTGATTCAGTGTGTCTTCCATT
FAS	TGCCCAAGTGACTGACATCA	CATCCCCATTGACTGTGCAG