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Supplemental Information

Inflammatory-Related P62 Triggers Malignant Transformation of Mesenchymal Stem Cells through the Cascade of CUDR-CTCF-IGFII-RAS Signaling

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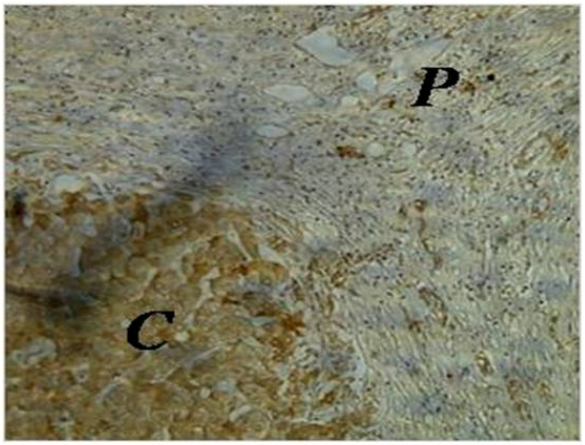
FigureS1

A



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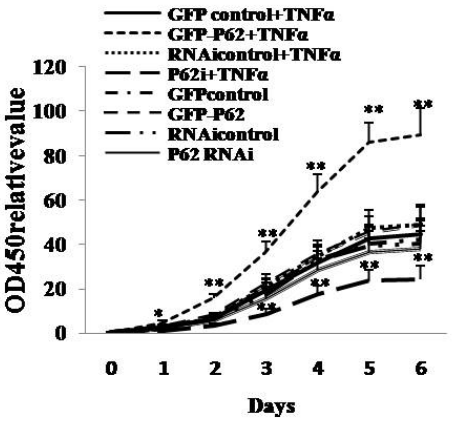

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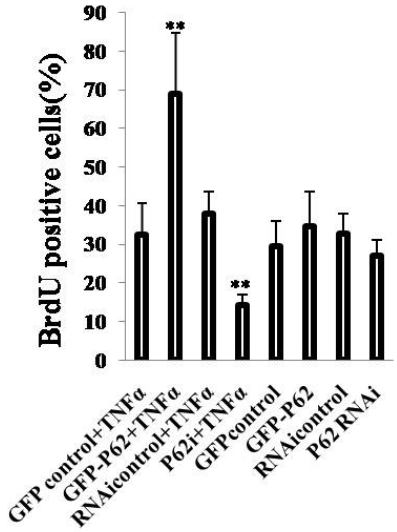
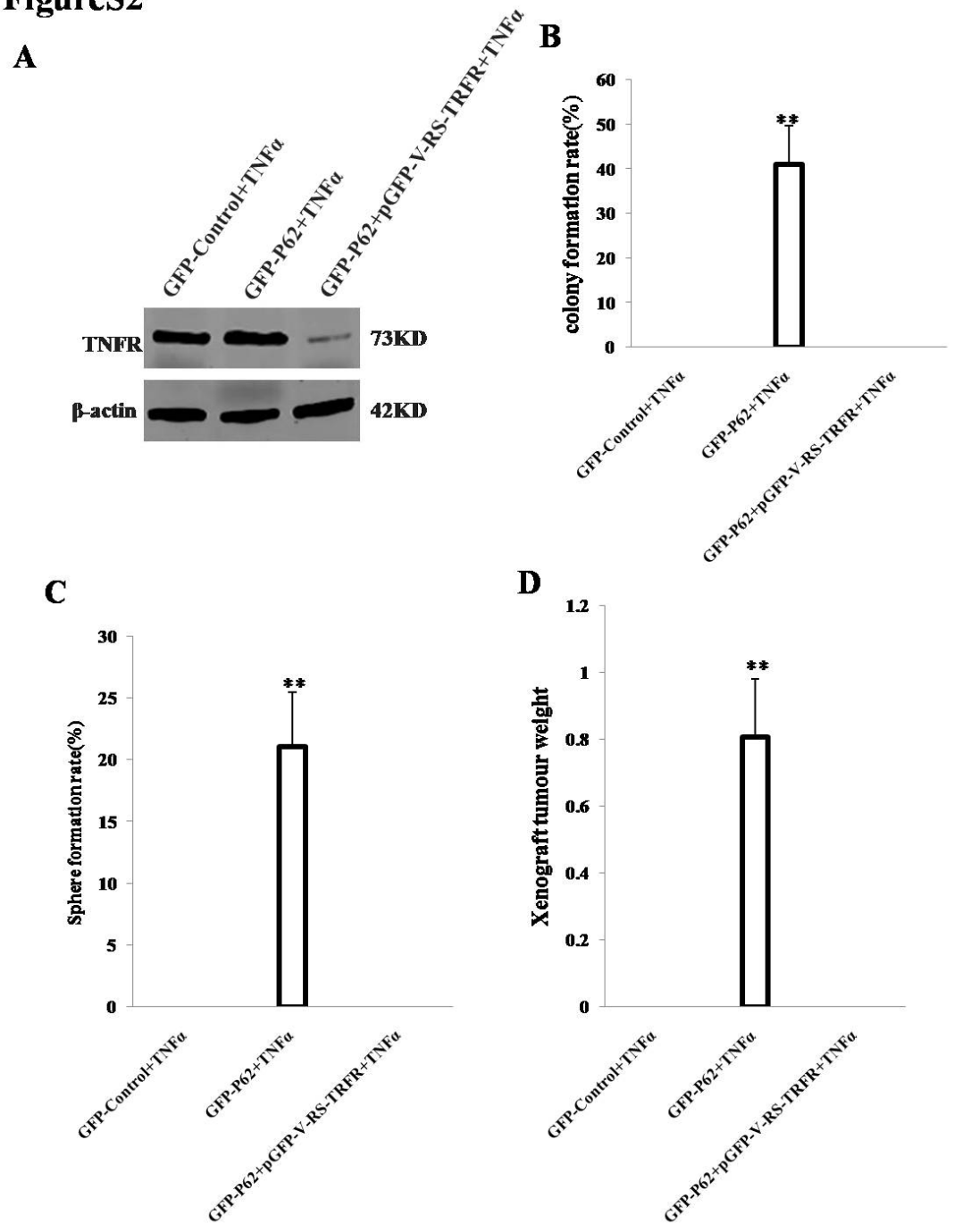
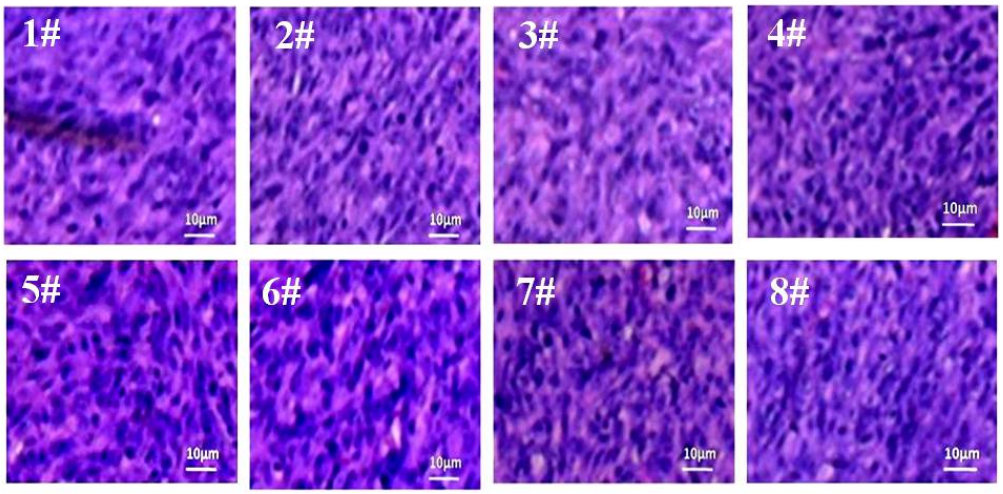


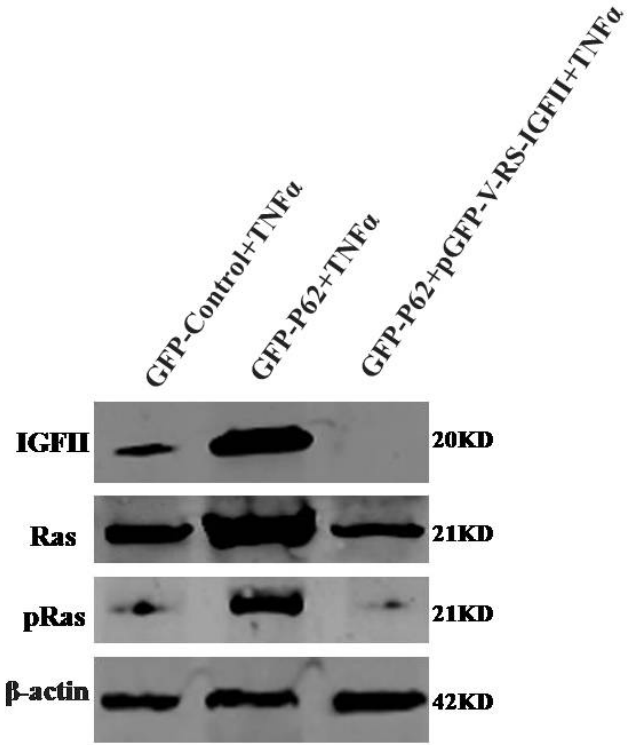
FigureS2


A
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-TRFR+TNFα
TNFR
73KD
β-actin
42KD
B
colony formation rate(%)
60
50
40
30
20
10
0
**
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-TRFR+TNFα
C
Sphere formation rate(%)
30
25
20
15
10
5
0
**
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-TRFR+TNFα
D
Xenograft tumour weight
1.2
1
0.8
0.6
0.4
0.2
0
**
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-TRFR+TNFα

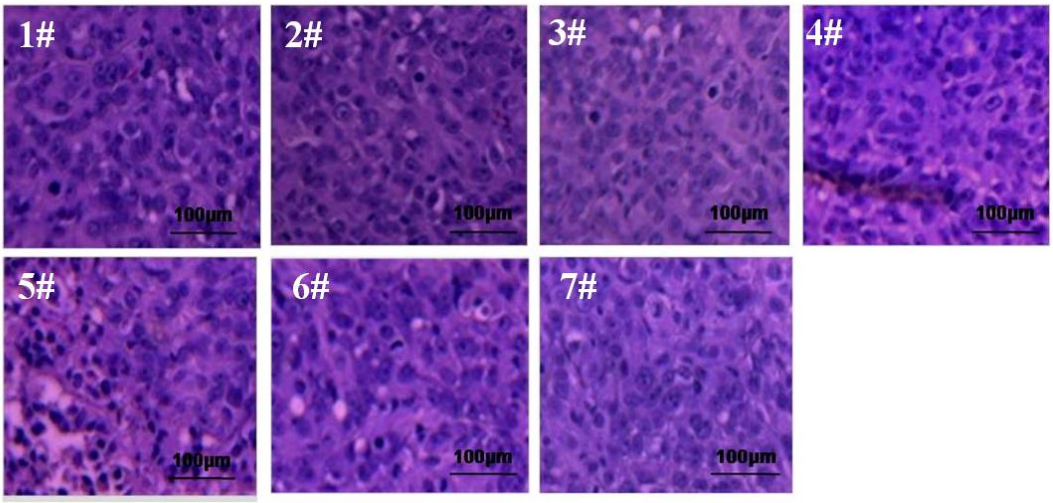
FigureS3



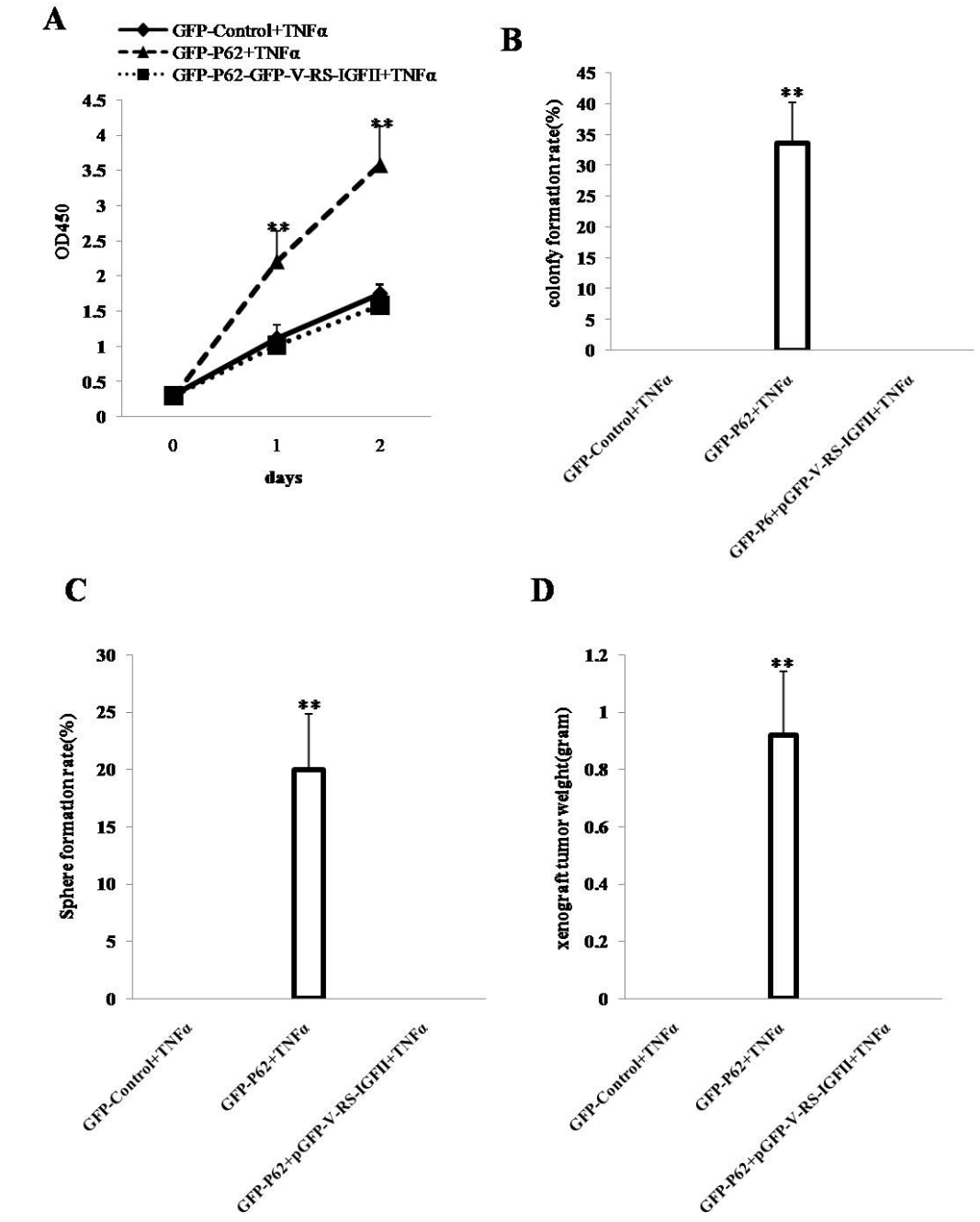
FigureS4


GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-IGFII+TNFα
IGFII
20KD
Ras
21KD
pRas
21KD
β-actin
42KD

FigureS5

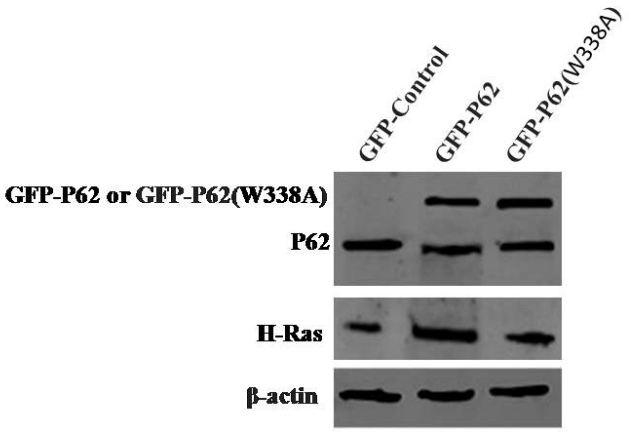


FigureS6

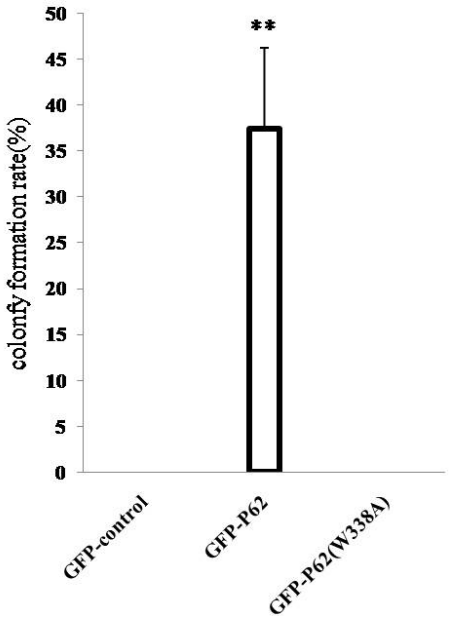

A
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62-GFP-V-RS-IGFII+TNFα
OD450
days
B
colonify formation rate(%)
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P6+pGFP-V-RS-IGFII+TNFα
C
Sphere formation rate(%)
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-IGFII+TNFα
D
xenograft tumor weight(gram)
GFP-Control+TNFα
GFP-P62+TNFα
GFP-P62+pGFP-V-RS-IGFII+TNFα

FigureS7

A



B



C

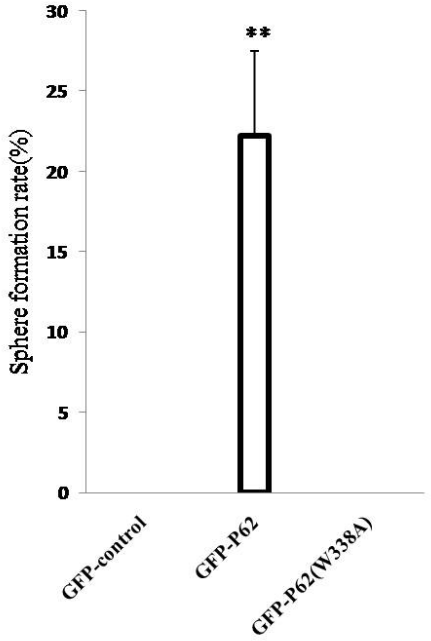


FIGURE LEGENDS

FigureS1: A.Immunohistochemical staining with anti-CEA(human) (DAB stainning, original magnification×100). P, paracancerous liver tissue; C, cancer tissue. **B.** cells growth assay using CCK8. Each value was presented as mean±standard error of the mean (SEM) (Student's t-test.C. S phase cells assay using BrdU. Each value was presented as mean±standard error of the mean (SEM) (Student's t-test).

FigureS2: TNFR knockdown abrogated the functions of P62 in human mesenchymal stem cells maligant transformation in *vitro* and in *vivo*. **A.**The Western blotting analysis with anti-TNFR in these human mesenchymal stem cells indicated in *upper* .β-actin as internal control. **B.** cells soft agar colony formation assay in these human mesenchymal stem cells , including GFP-Control+TNFα ,GFP-P62+TNFα , GFP-P62+pGFP-V-RS-TNFR+TNFα. **C**. Cells sphere formation ability. **D.** Tumorigenesis test *in vivo* .The wet weight of each tumor was determined for each mouse. Each value was presented as mean±standard error of the mean (SEM).

FigureS3: A portion of each tumor was fixed in 4% paraformaldehyde and embedded in paraffin for histological hematoxylin-eosin(HE) staining. (original magnification×100).

FigureS4: Western blotting with anti-IGFII ,anti- Ras and anti-pRas in the TNFα treated mesenchymal stem cells,including GFP-Control+TNFα ,GFP-P62+TNFα , GFP-P62 +pGFP-V-RS-IGFIIR+TNFα. β-actin was used as an internal control.

FigureS5: A portion of each tumor was fixed in 4% paraformaldehyde and embedded in paraffin for histological hematoxylin-eosin(HE) staining.

FigureS6: IGFII knockdown abrogated the functions of P62 in human mesenchymal stem cells maligant transformation in *vitro* and in *vivo*. **A.**The cell growth assay in these human mesenchymal stem cells, including GFP-Control+TNFα ,GFP-P62+TNFα , GFP-P62+pGFP-V-RS-IGFII+TNFα. **B.** cells soft agar colony formation assay. **C**. Cells sphere formation ability. **D.**Tumorigenesis test *in vivo* .The wet weight of each tumor was determined for each mouse. Each value was presented as mean±standard error of the mean (SEM).

FigureS7: mutantP62 (W338A) lacks the functions of wild P62 in human mesenchymal stem cells . **A.** cells soft agar colony formation assay in these human mesenchymal stem cells, including pCMV6-AC-GFP plus TNFα , pCMV6-AC-GFP-P62 plus TNFα , pCMV6-AC-GFP- P62(W338A) plus TNFα. **B**. Cells sphere formation ability in these human mesenchymal stem cells, including pCMV6-AC-GFP plus TNFα , pCMV6-AC-GFP-P62 plus TNFα , pCMV6-AC-GFP-P62(W338A) plus TNFα.