

1 **Supplementary Figure 1** (a) Flow cytometry to NP cell apoptosis (n = 3).

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3 **Supplementary Figure 2** (a) ROS assay kit was used to detect ROS production in NP
4 cells. (b) JC-1 assay kit were used to detect mitochondrial membrane potential in NP
5 cells. NP cells were transfected with si-NC or si-Sesn2, treated with 0 ng/ml and 20
6 ng/ml IL-1 β for 48h and then treated with 0 and 1 mM NR for 6h. Statistical
7 significance was analyzed by one-way ANOVA followed by a post hoc Tukey's test.
8 All data were presented as mean \pm SEM (error bars). *p < 0.05; **p < 0.01; ***p < 0.001.

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10 **Supplementary Figure 3** (a) Flow cytometry to NP cell apoptosis (n = 3).

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12 **Supplementary Figure 4** (a) Western blot to Sesn2 and β -actin in WT, Sesn2 $^{+/-}$ and
13 Sesn2 $^{-/-}$ mice (n = 3). (b) The quantitative analysis of Sesn2 protein expression was
14 showed. (c) Mitophagy markers including Pink1, Parkin, Sqstm1, LC3 and β -actin (n
15 = 3) protein expression were confirmed by Western blot. (d) The quantitative analysis
16 of Pink1, Parkin, Sqstm1 and LC3-II protein expression was showed. (e) Western blot
17 to Cleaved-caspase 3, Cleaved-caspase 9, Pink1, Parkin, Sqstm1 and β -actin.
18 Littermates was divided into six WT and twelve Sesn2 $^{-/-}$ mice as indicated. Twelve
19 Sesn2 $^{-/-}$ mice was divided randomly into six Sesn2 $^{-/-}$ and four Sesn2 $^{-/-}$ + Lenti-Sesn2
20 group as indicated. (f) The quantitative analysis of Cleaved-caspase 3, Cleaved-caspase
21 9, Pink1, Parkin and Sqstm1 protein expression was showed. Statistical significance
22 was analyzed by one-way ANOVA followed by a post hoc Tukey's test. All data were
23 presented as mean \pm SEM (error bars). *p < 0.05; **p < 0.01; ***p < 0.001.

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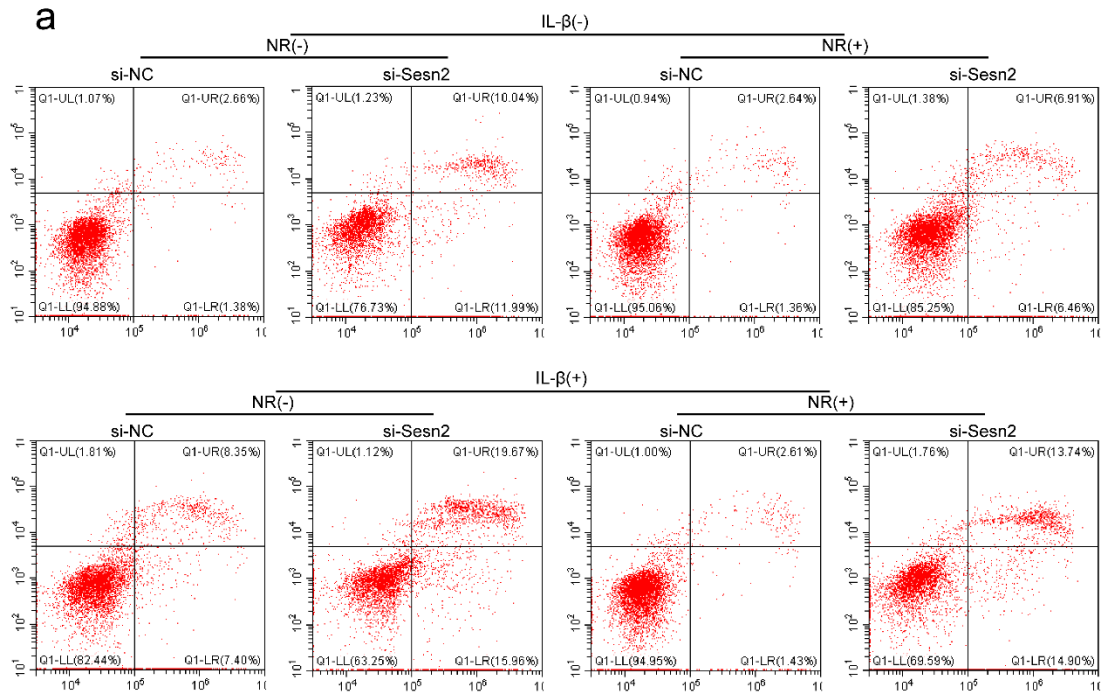
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35 Figure S1



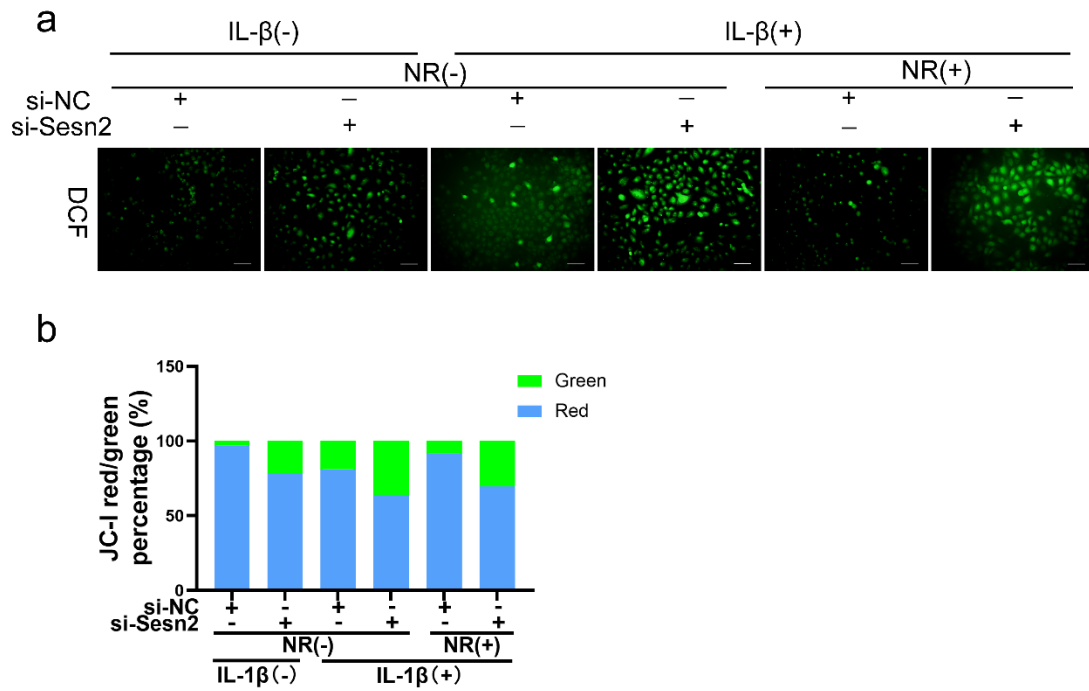
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38 Figure S2

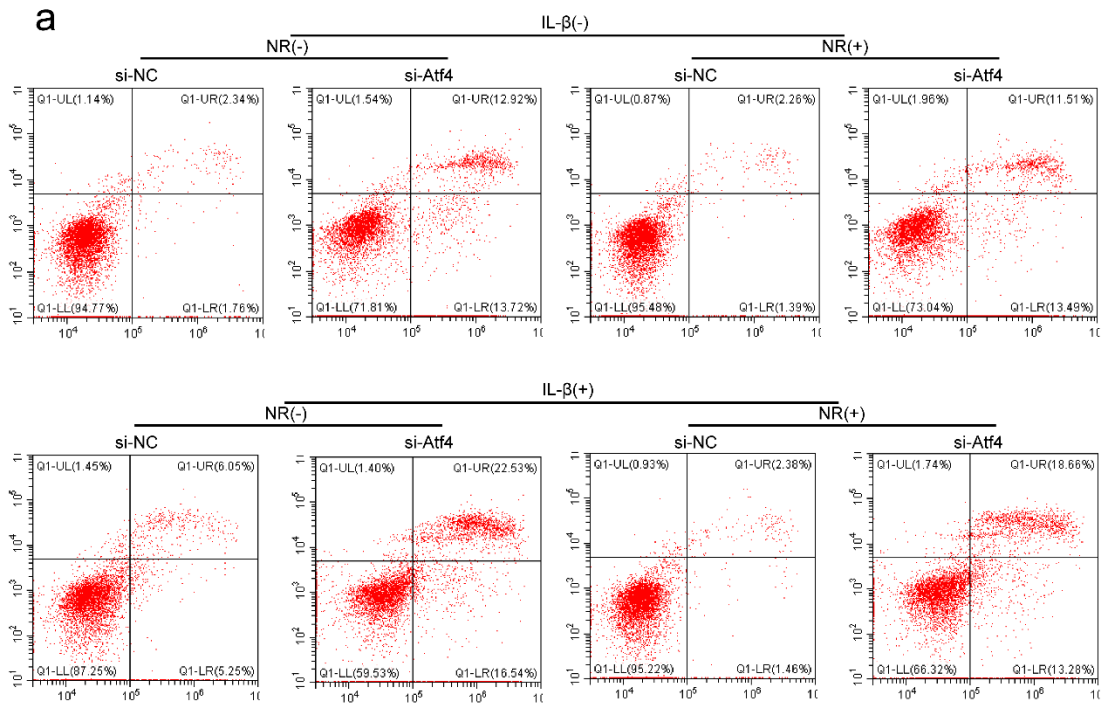
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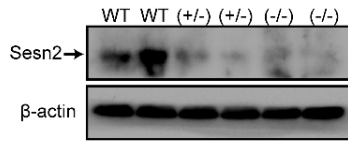
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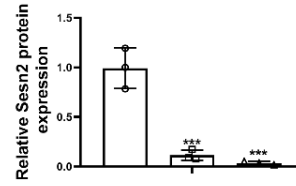
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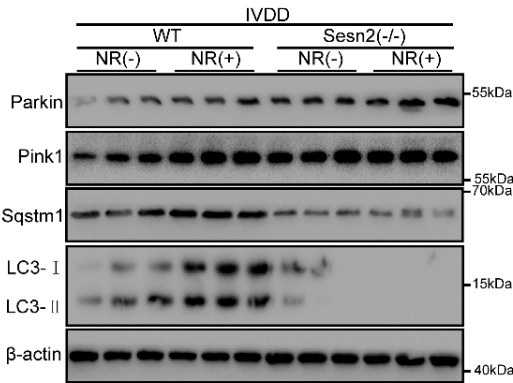
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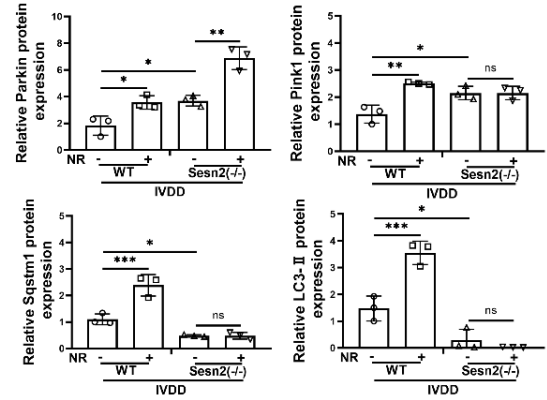
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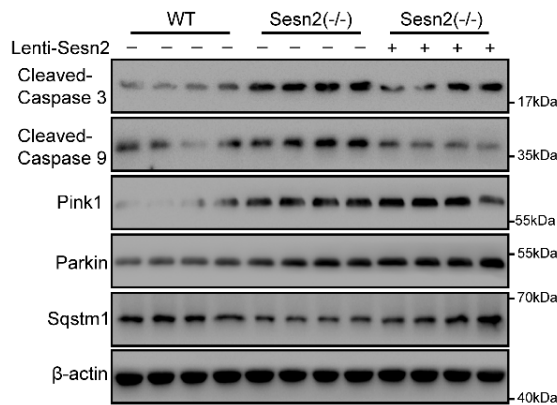
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