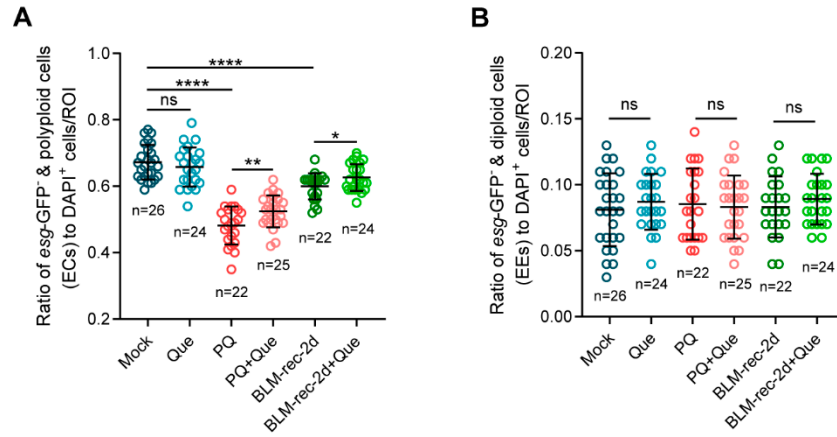
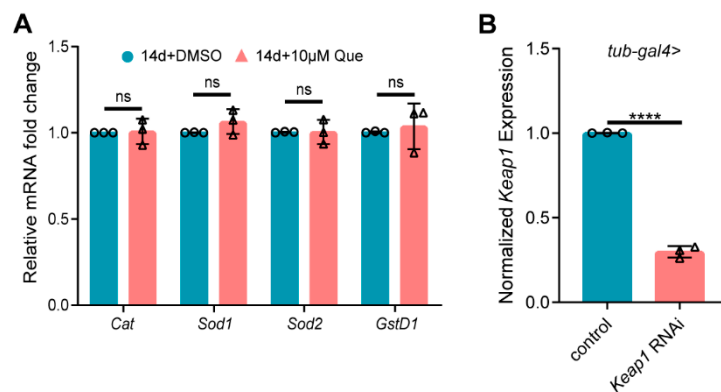


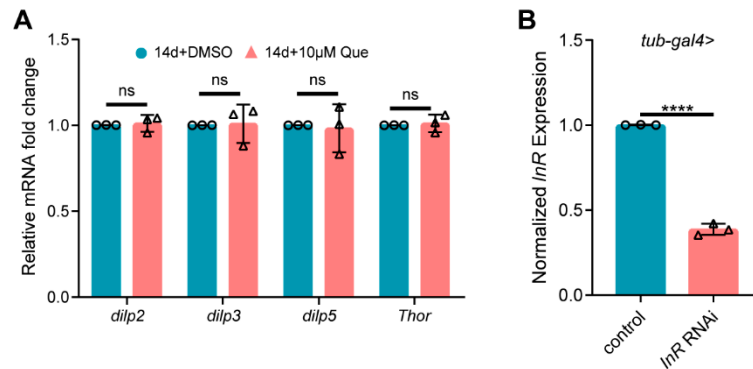
**Figure S1: Que supplementation did not cause ISC apoptosis.** (A, B) Representative immunofluorescence images of 40-day-old (A) posterior midguts without Que supplementation and 40-day-old posterior midguts with 10  $\mu$ M Que supplementation (B) stained with DAPI (blue; nuclei), GFP (green; ISCs and progenitor cells marker), and TUNEL (red; apoptosis marker). The top panels represent the merged images and the bottom panels represent TUNEL. Scale bars represent 25  $\mu$ m. (C) The number of *esg-GFP*<sup>+</sup> & TUNEL<sup>+</sup> cells per ROI in the posterior midguts of flies in experiments A, B. n: number of ROI counted. (D, E) The ratio of *esg-GFP* negative & polyploid cells (ECs) and *esg-GFP* negative & diploid cells (EEs) to DAPI<sup>+</sup> cells per ROI in the posterior midguts of 14-day-old, 40-day-old flies without Que supplementation and 40-day-old flies with 10  $\mu$ M Que supplementation. n: number of ROI counted.



**Figure S2: The effect of Que on the number of ECs or EEs in stress stimulated flies. (A, B)** The ratio of *esg*-GFP negative & polyploid cells (ECs) and *esg*-GFP negative & diploid cells (EEs) to DAPI<sup>+</sup> cells per ROI in the posterior midguts of Mock (DMSO), Que, PQ + DMSO, PQ + Que, BLM-rec-2d + DMSO, and BLM-rec-2d + Que flies related to Figure 2A-F. n: number of ROI counted.



**Figure S3: RT-qPCR analysis of the antioxidant-related genes in the midgut of 14-day-old flies.** (A) RT-qPCR analysis of the antioxidant-related genes (*Cat*, *Sod1*, *Sod2*, and *GstD1*) in the midguts of 14-day-old flies fed with or without Que. Three independent experiments were conducted. (B) RT-qPCR analysis to show the RNAi-mediated knockdown efficiency for *Keap1 RNAi* line. Three independent experiments were conducted.



**Figure S4: RT-qPCR analysis of the insulin signaling-related genes in the midgut of 14-day-old flies.** (A) RT-qPCR analysis of insulin signaling pathway-related genes (*dilp2*, *dilp3*, *dilp5*, and *Thor*) in the *esg-GFP<sup>+</sup>* cells of 14-day-old flies fed with or without Que. Three independent experiments were conducted. (B) RT-qPCR analysis to show the RNAi-mediated knockdown efficiency for *InR RNAi* line. Three independent experiments were conducted.

Table S1. The list of the <i>Drosophila</i> genotypes	
<b>Figure 1</b>	
<b>D-G</b>	<i>w<sup>-</sup>; esg-GFP/CyO; +/+</i>
<b>Figure 2</b>	
<b>A-F</b>	<i>w<sup>-</sup>; esg-GFP/CyO; +/+</i>
<b>J, K</b>	<i>w<sup>-</sup>; + /+; +/+</i>
<b>Figure 3</b>	
<b>A, D, F, H, I</b>	<i>w<sup>-</sup>; + /+; +/+</i>
<b>Figure 4</b>	
<b>A</b>	<i>w<sup>-</sup>; + /+; +/+</i>
<b>B-D</b>	<i>w<sup>-</sup>; esg-GFP/CyO; +/+</i>
<b>F</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/ UAS-lacZ; +/+</i>
<b>G, H</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/UAS-Cat; +/+</i>
<b>I, J</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/UAS-Keap1 RNAi; +/+</i>
<b>Figure 5</b>	
<b>A, B</b>	<i>w<sup>-</sup>; + /+; +/+</i>
<b>C -F</b>	<i>w<sup>-</sup>; esg-GFP/CyO; +/+</i>
<b>H</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/ UAS-lacZ; +/+</i>
<b>I, J</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/ +; UAS-InR-DN/+</i>
<b>K, L</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/ UAS-InR RNAi; +/+</i>
<b>Figure 6</b>	
<b>A</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/ UAS-lacZ; +/+</i>
<b>B, C</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/UAS-Cat; UAS-InR-DN /+</i>
<b>D, E</b>	<i>w<sup>-</sup>; esg-Gal4, UAS-GFP, tub-Gal80<sup>ts</sup>/ UAS-Keap1 RNAi; UAS-InR-DN /+</i>

<b>Table S2 (Reagent Table). The list of the primary antibodies</b>		
<b>Reagent</b>	<b>Source</b>	<b>Dilution</b>
Chicken polyclonal anti-GFP	Abcam Cat# ab13970 RRID:AB_300798	1: 1000
Mouse anti-Delta	DSHB Cat# C594.9B RRID:AB_528194	1: 50
Rabbit anti-Phospho-Akt (Ser473)	Cell Signaling Cat# 4060S RRID:AB_2315049	1: 200
Rabbit anti-phosphoHistone H3 (Ser10)	Millipore Cat# 06-570 RRID:AB_310177	1: 1000

Table S3. The list of the primers	
Target	Sequence
<i>Cat</i>	F: 5'-TTCCTGTGGGCAAAATGGTG-3' R: 5'-ATCTTCACCTTGTACGGGCA-3'
<i>Sod1</i>	F: 5'- CTGCTCTGCTACGGTCACAC-3' R: 5'- ACAGCTTTAACCACCATTTCG-3'
<i>Sod2</i>	F: 5'- ATAAGCATCTGCGGATCGGA-3' R: 5'- ACGCCTTTGTGAAGCGTTATC-3'
<i>GstD1</i>	F: 5'- CATCGCGAGTTTCACAACAG-3' R: 5'- GTTGAGCAGCTTCTTGTTTCAG-3'
<i>dilp2</i>	F: 5'- GGCCAGCTCCACAGTGAAGT-3' R: 5'- TCGCTGTCTGGCACCGGGCAT-3'
<i>dilp3</i>	F: 5'- AAGCTCTGTGTGTATGGCTT-3' R: 5'- AGCACAATATCTCAGCACCT-3'
<i>dilp5</i>	F: 5'- TGTTCGCCAAACGAGGCACCTTGG-3' R: 5'- CACGATTTGCGGCAACAGGAGTCG-3'
<i>4EBP</i>	F: 5'- CACTCCTGGAGGCACCA-3' R: 5'- GAGTTCCCCTCAGCAAGCAA-3'
<i>Rp49</i>	F: 5'- ATCGGTTACGGATCGAACAAGC -3' R: 5'- GTAAACGCGGTTCTGCATGAGC -3'