**Supplementary Figure 1. Validation of the screening candidate genes**

1. Auxin treatment does not induce the P*atf-4*(uORF)::gfp expression.
2. RNAi knockdown of candidate genes on the P*atf-4*(uORF)::gfp reporter strain.
3. The candidate suppressors *ire-1* and *let-607* RNAi continued to be suppressed even after using a ten-fold higher auxin dose.

d-g) Representative images of LBS suppressors. Eggs of LSD2096 mdt-15::degron; TIR1; P*atf-4*(uORF)::gfp were fed with RNAi bacteria and then L3 were treated with 1 mM auxin for overnight. Shown are L4 animals with GFP intensity categories annotated (none/very low, low, medium, high).

For a-c) N > 60. See Data Source File 1.

**Supplementary Figure 2. Validation of the screening candidate genes by double RNAi**

1. Double RNAi using *fat-6/7* to induce LBS as read-out by P*atf-4*(uORF)::gfp expression reporter transgenic animals in combination with the nine suppressor candidate genes knocked down.
2. Double RNAi using *sams-1* to induce LBS as read-out by P*atf-4*(uORF)::gfp expression reporter transgenic animals in combination with the nine suppressor candidate genes knocked down.

For a-b) N > 60. For details and additional trials, see Data Source File 1.