SUPPLEMENTAL FIGURES

Figure S1. Cuticle furrow loss activates *nlp-29p::GFP*. (A) The ratio of *nlp-29p::GFP* to time of flight (TOF) was measured in a BIOSORT and normalized to the negative control *sta-1(RNAi)*. *n* = 78-199 worms in a trial independent of Fig. 1B. Boxes are 25% percentiles above and below the median and whiskers are minimum and maximum. ****P < 0.001* versus control *sta-1(RNAi)*. Percent acute osmotic stress resistance (OSR) was also measured. (B) Whole worm glycerol levels in N2 and *gpdh-1;gpdh-2* worms with *dpy-7(RNAi)*. *n* = 3-4 replicates for N2 and *gpdh-1;gpdh-2* worms with *dpy-7(RNAi)*. Note that N2 without *dpy-7(RNAi)* are from *n* = 4 replicates combined from two trials conducted independently and are shown for reference only. (C) Gene mRNA levels in N2 and *gpdh-1;gpdh-2* mutant worms treated with *dpy-7(RNAi)*. *n* = 4 replicates from one trial. ****P < 0.001* relative to control RNAi.

Figure S2. Heat map of RNAseq data for stress response gene expression. Conditions for comparisons are the same as in Figure 4. Sleuth analysis estimates of effect size for each comparison ('b') are provided on a $\log_2$ scale from decreased (blue) to increased (yellow) and FDR q-values are shown on a scale from high (black) to low (white). Genes are grouped by stress responses: osmolyte synthesis response (OSR), antimicrobial peptide (AMP), detoxification (DETOX), heat shock response (HSR), mitochondrial unfolded protein response (UPR^{MT}), endoplasmic reticulum unfolded protein response (UPR^{ER}), and heavy metal response (METAL).

Figure S3. Acrylamide activates *gst-4p::GFP* in *dpy-7* mutants. (A) Intestinal *gst-4p::GFP* scores for *dpy-7(e88)* worms with or without 2 mM acrylamide. Low means no visible GFP in the intestine, medium means visible GFP only in anterior or posterior intestine, and high means visible GFP throughout the intestine. (B) Images of the worms scored in A. The two images on the left were taken with the same exposure settings; the two on the right were taken with different exposures to allow visualization under both conditions. Scale bars are 100 □m.

Figure S4. Transcription factor and *gpdh* gene requirements. (A) *gst-4* mRNA levels in *skn-1a(mg570)* and N2 worms. *n* = 4 replicates from one trial. **P < 0.05* and ***P < 0.01* relative to control RNAi. (B) Survival in juglone. *P < 0.001* for *skn-1(RNAi)* in all strains. *n > 150* worms from two trials combined. (C) Elevated expression of AMP-encoding gene *nlp-29* in *dpy-10*, *dpy-7,* and *dpy-3* mutants depends on *sta-2* and *elt-3*. Ratio of *nlp-29p::GFP* to time of flight (TOF). *n* > 100 worms.

Figure S1

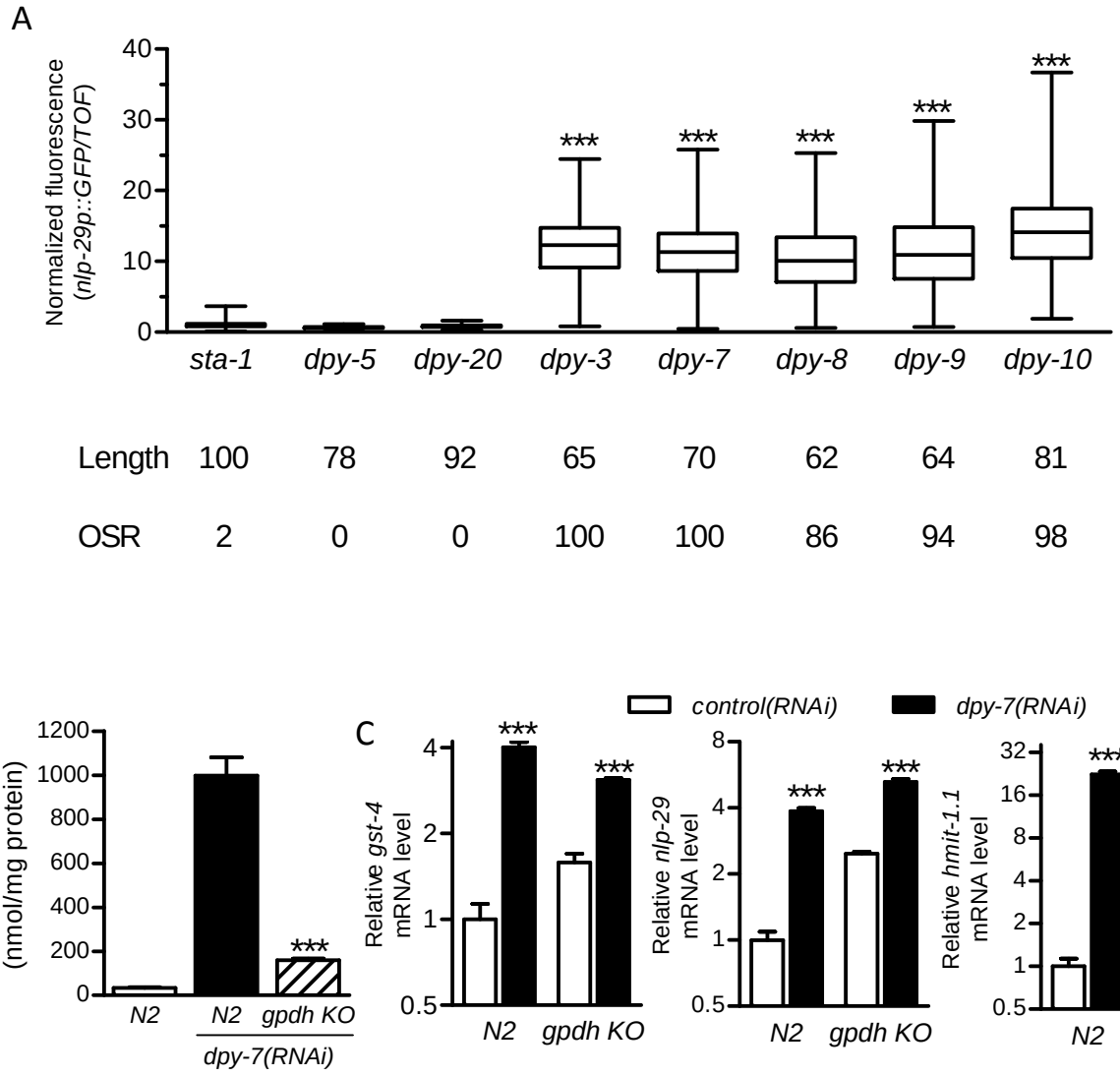
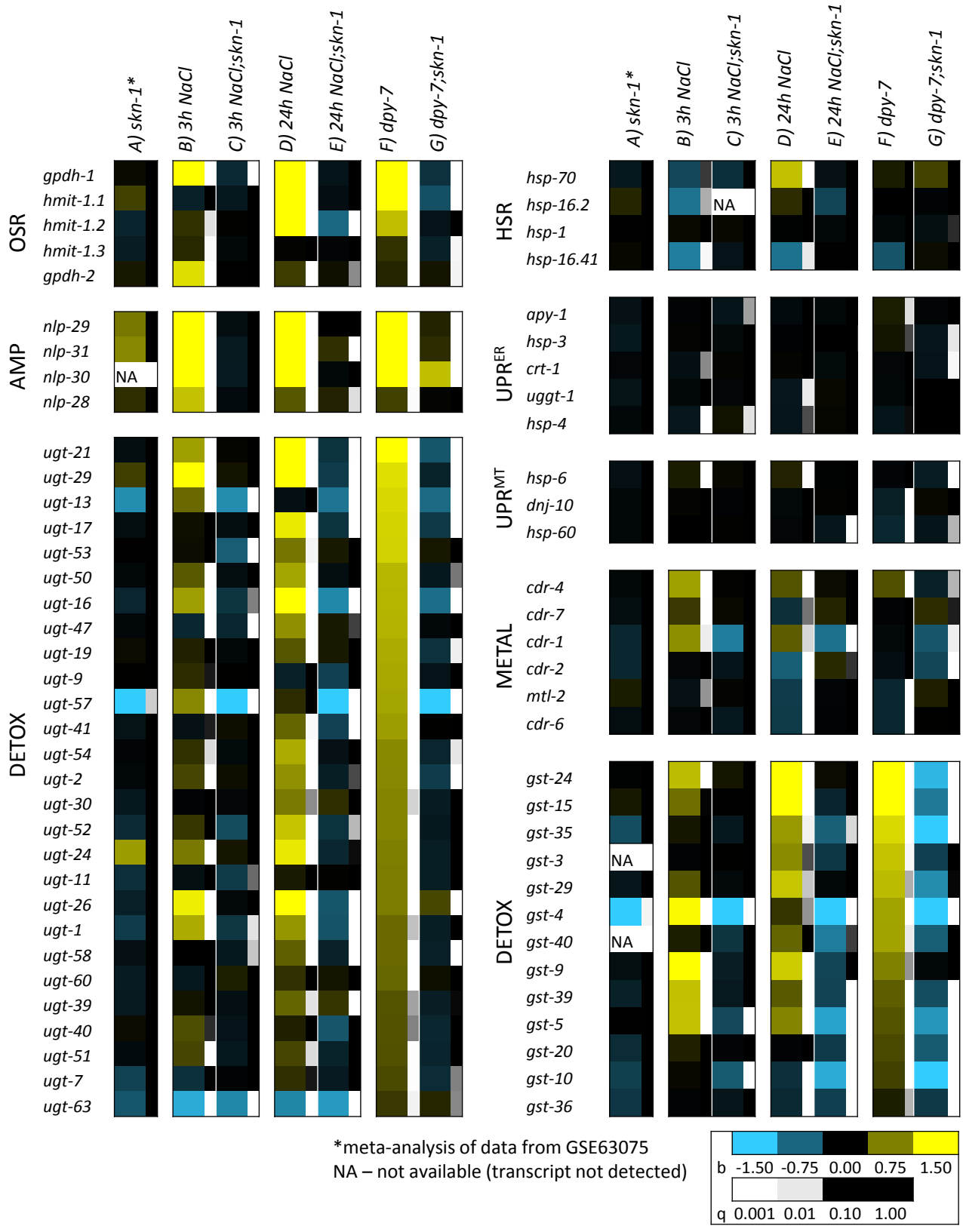
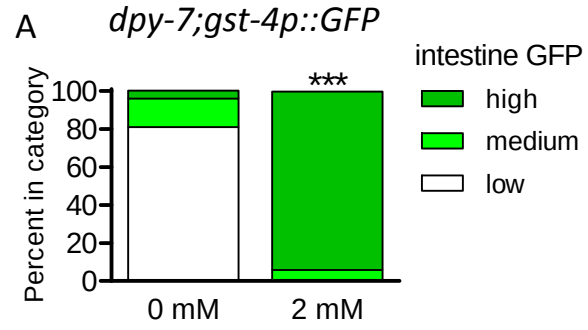

A
Normalized fluorescence (nlp-29p::GFP/TOF)
40
30
20
10
0
***
sta-1
dpy-5
dpy-20
dpy-3
dpy-7
dpy-8
dpy-9
dpy-10
Length 100 78 92 65 70 62 64 81
OSR 2 0 0 100 100 86 94 98
B
glycerol (nmol/mg protein)
1200
1000
800
600
400
200
0
N2
N2
gpdh KO
dpy-7(RNAi)
C
control(RNAi)
dpy-7(RNAi)
Relative gst-4 mRNA level
Relative nlp-29 mRNA level
Relative hmit-1.1 mRNA level
N2
gpdh KO

Figure S2



*meta-analysis of data from GSE63075
NA – not available (transcript not detected)

Figure S3


A
dpy-7;gst-4p::GFP
Percent in category
100
80
60
40
20
0
***
0 mM
2 mM
intestine GFP
high
medium
low

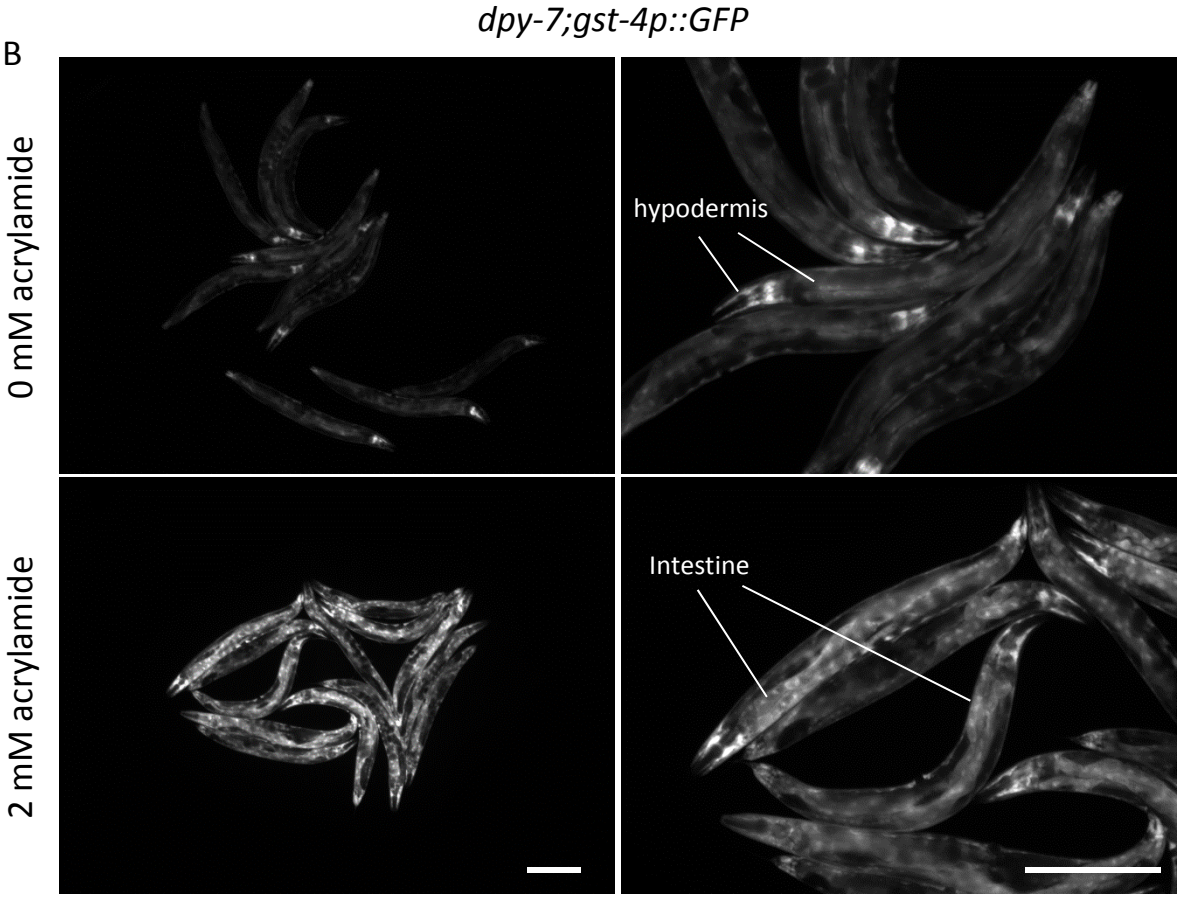
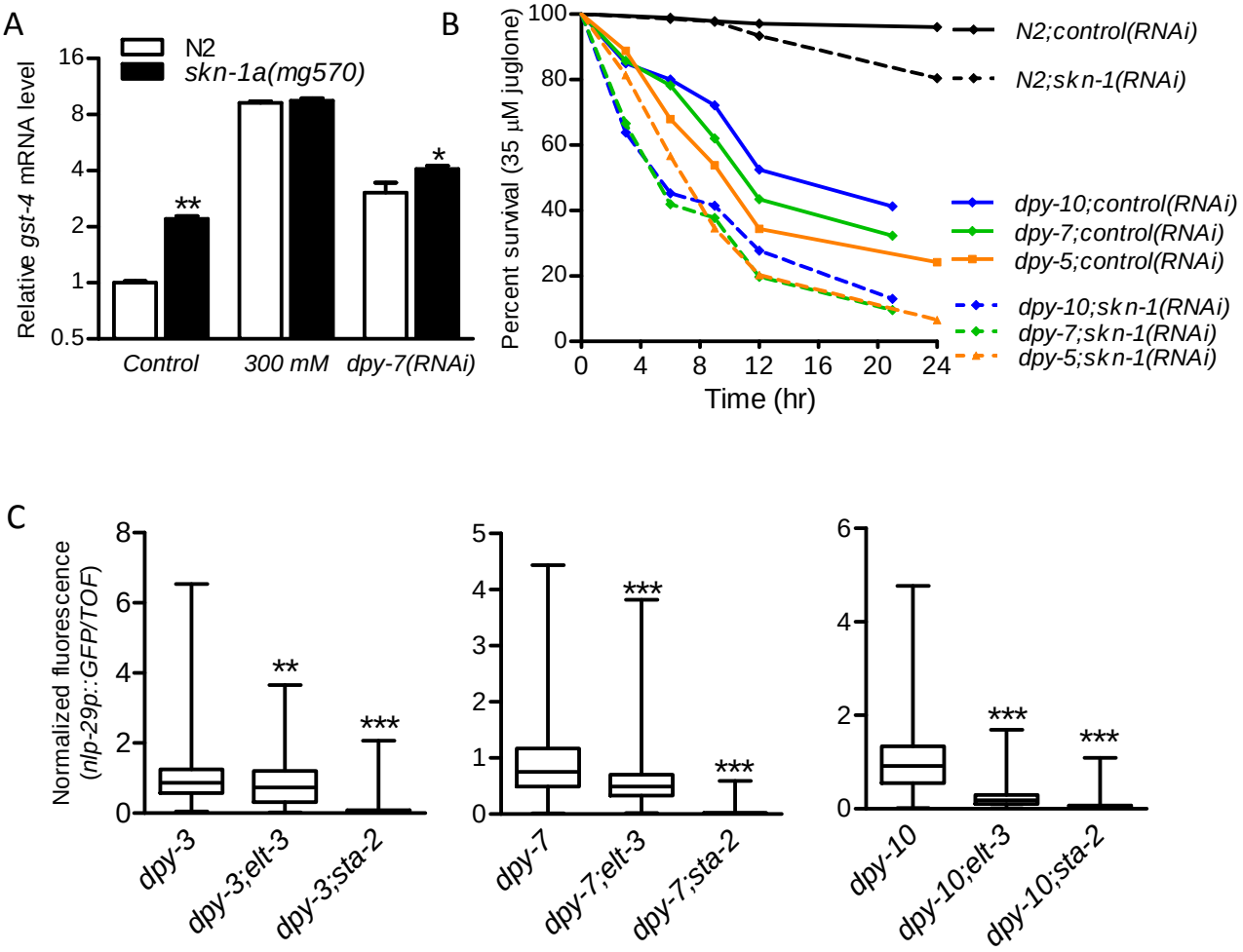

dpy-7;gst-4p::GFP
B
0 mM acrylamide
2 mM acrylamide
hypodermis
Intestine

Figure S4


A
N2
skn-1a(mg570)
Relative gst-4 mRNA level
16
8
4
2
1
0.5
**
*
Control
300 mM
dpy-7(RNAi)
B
Percent survival (35 μM juglone)
100
80
60
40
20
0
0
4
8
12
16
20
24
Time (hr)
N2;control(RNAi)
N2;skn-1(RNAi)
dpy-10;control(RNAi)
dpy-7;control(RNAi)
dpy-5;control(RNAi)
dpy-10;skn-1(RNAi)
dpy-7;skn-1(RNAi)
dpy-5;skn-1(RNAi)
C
Normalized fluorescence
(nlp-29p::GFP/TOF)
8
6
4
2
0
**
***
dpy-3
dpy-3;elt-3
dpy-3;sta-2
5
4
3
2
1
0
***
***
dpy-7
dpy-7;elt-3
dpy-7;sta-2
6
4
2
0
***
***
dpy-10
dpy-10;elt-3
dpy-10;sta-2