Electronic Supplementary Material (ESI) for Nanoscale Advances.


**Supporting Information:**

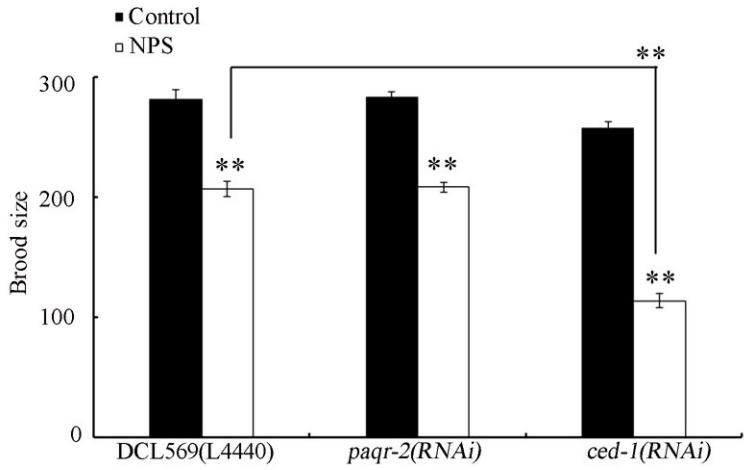


**Figure S1.** Effect of germline RNAi knockdown of *paqr-2* or *ced-1* on toxicity of NPS in reducing brood size. The NPS exposure concentration was 1 μg/L. Bars represent means ± SD. $^{**}P < 0.01$ *vs* Control (if not specially indicated). If not specially indicated, the statistical significance of differences between treatments was examined using one-way ANOVA.

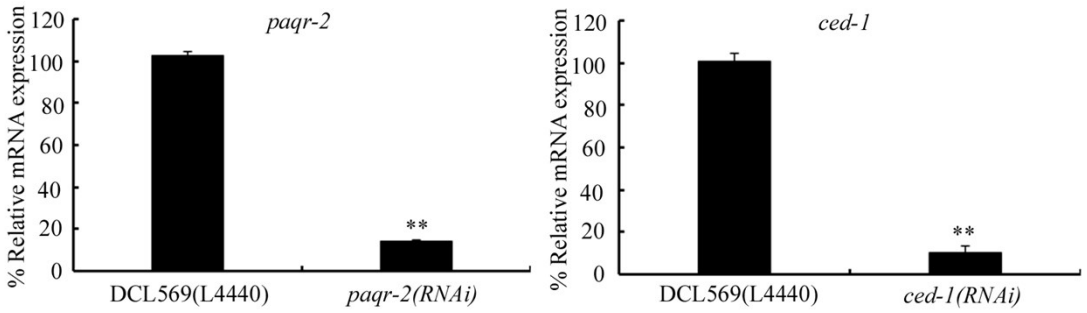


**Figure S2.** qRT-PCR analysis of the efficiency of germline RNAi knockdown of *paqr-2* or *ced-1* gene. L4440, empty vector. Bars represent means ± SD. $^{**}P < 0.01$ *vs* DCL569.

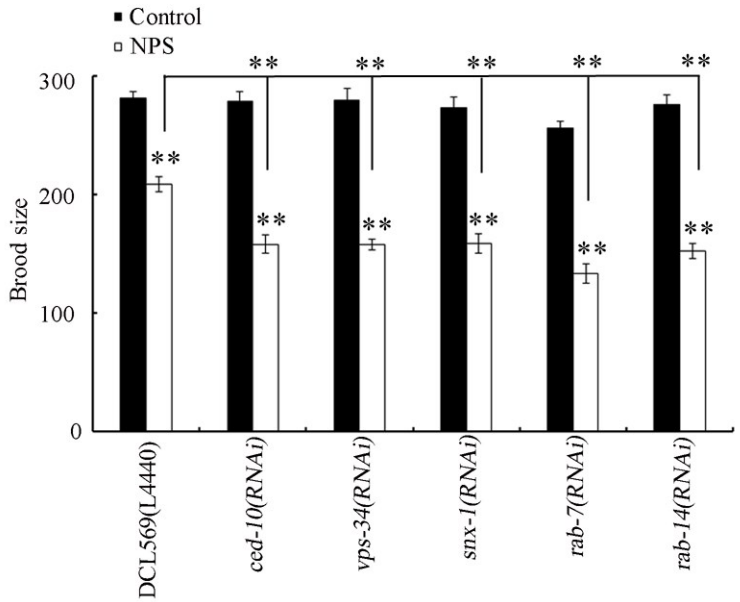


**Figure S3.** Effect of germline RNAi knockdown of *ced-10*, *vps-34*, *snx-1*, *rab-7*, or *rab-14* on NPS toxicity in reducing brood size. L4440, empty vector. Bars represent means ± SD. $^{**}P < 0.01$ *vs* Control (if not specially indicated). If not specially indicated, the statistical significance of differences between treatments was examined using one-way ANOVA. The NPS exposure concentration was 1 μg/L.

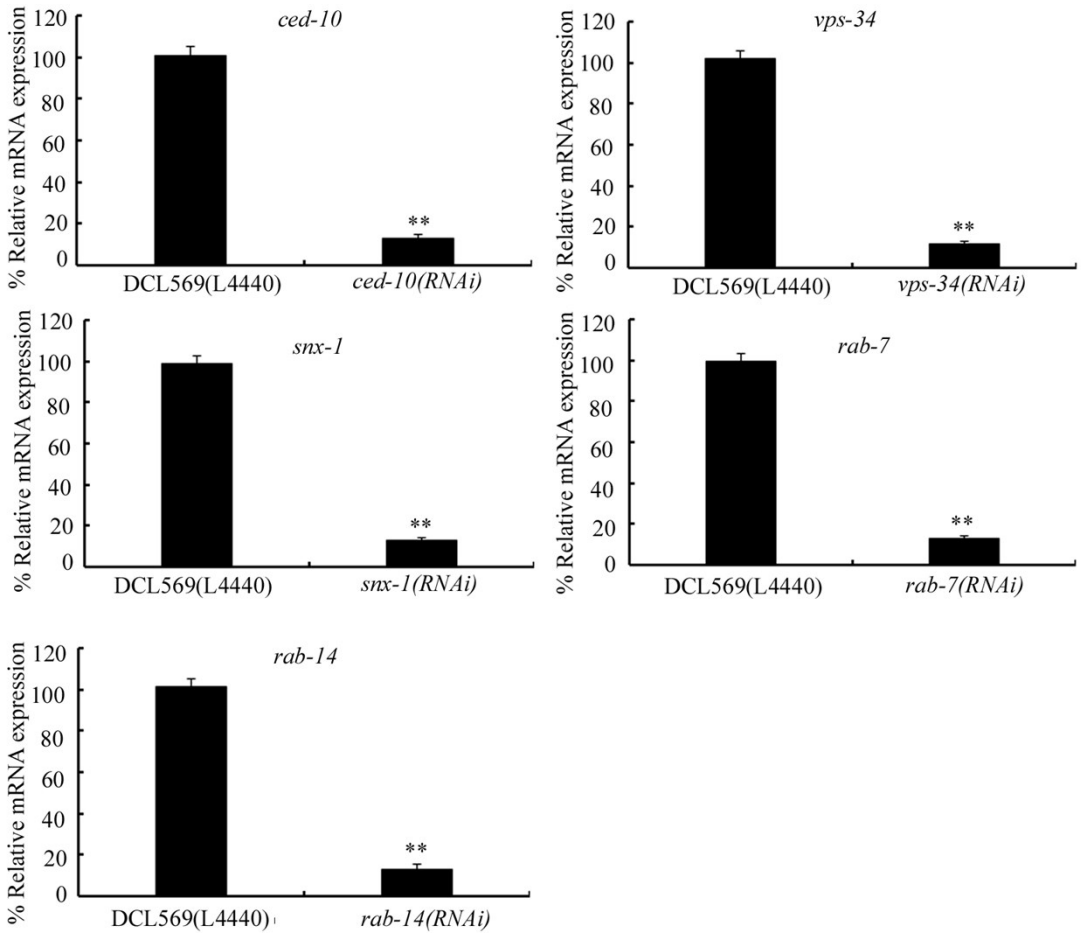


**Figure S4.** qRT-PCR analysis of the efficiency of germline RNAi knockdown of *ced-10*, *vps-34*, *snx-1*, *rab-7*, or *rab-14*. L4440, empty vector. Bars represent means ± SD. $^{**}P < 0.01$ *vs* DCL569.

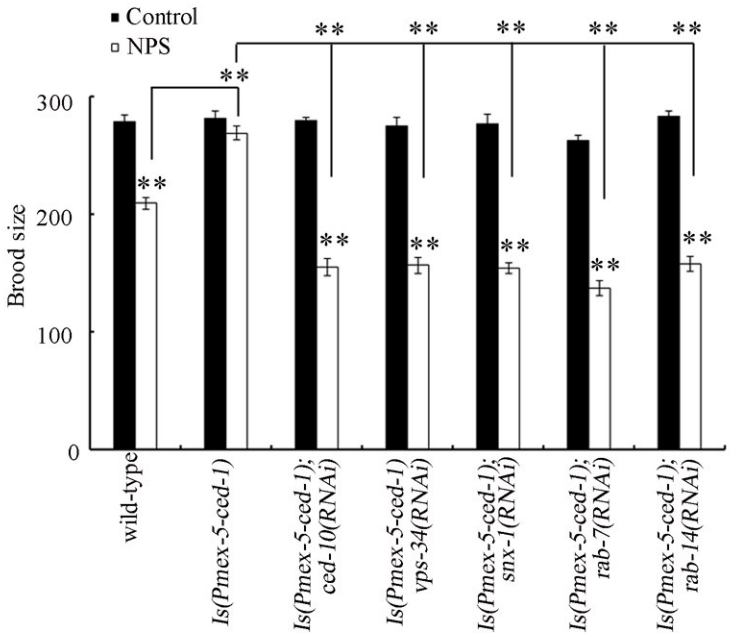


**Figure S5.** Genetic interaction between CED-1 and CED-10, VPS-34, SNX-1, RAB-7, or RAB-14 in the germline to regulate the NPS toxicity in reducing brood size. Exposure concentration of NPS was 1 μg/L. Bars represent means ± SD. $^{**}P < 0.01$ *vs* Control (if not specially indicated). If not specially indicated, the statistical significance of differences between treatments was examined using one-way ANOVA.

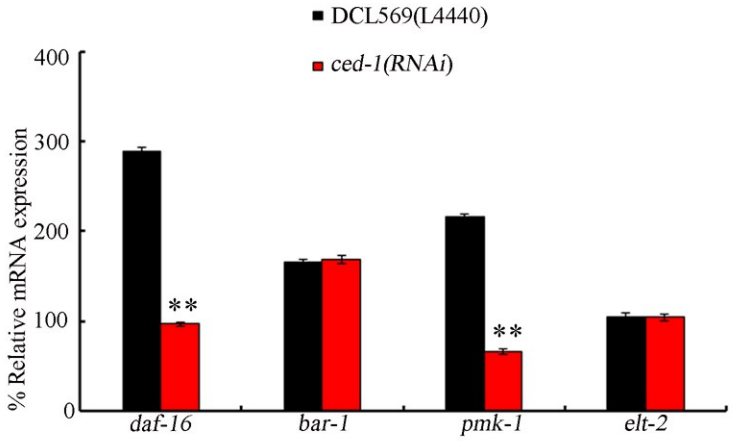


**Figure S6.** Effect of *ced-1* on expressions of *daf-16*, *pmk-1*, *bar-1*, and *elt-2* in NPS exposed DCL569 nematodes. L4440, empty vector. The NPS exposure concentration was 1 μg/L. Bars represent means ± SD. $^{**}P < 0.01$ *vs* DCL569. Statistical significance of differences between treatments was examined using one-way ANOVA.

**Table S1.** Information for *C. elegans* strains

| Strains | Genotype | Description |
|---|---|---|
| N2 | | Wild-type |
| DCL569 | *mkcSi13*[*sun-1p::rde-1::sun-1 3'UTR + unc-119*(+)]*;rde-1*(*mkc36*) | Germline RNAi knockdown tool |
| | *Is(*P*mex-5-ced-1)* | Transgenic strain overexpressing CED-1 in the germline |

**Table S2.** Primer information for qRT-PCR

| Gene | Forward primer (5'-3') | Reverse primer (5'-3') |
|---|---|---|
| *paqr-2* | TGTCGAGGACAGCACAACTG | GCCCTCCCTTTTTACGACGA |
| *glc-1* | AGTCACCACGCTGCTTACAA | GTTCTGCTGGCCAAAACGAG |
| *ser-7* | GCGGGCCAATTCAACAAACT | AGCTGGAAGATTGGGTTCGG |
| *ced-1* | GCTGGACGGGGAAATAACGA | GTCGTTACTGCATGTGCTGG |
| *glp-1* | GAAGTGCCCTTCATGAGGCT | TCGGTGTTCTTCCGTCTTCG |
| *daf-16* | AGGTGTTACACGTGGCCAAT | TGGCTTCTTACGACAACGCT |
| *bar-1* | CCTAATTTGCACGCTACGGC | TATGACCATCGCCCATTCGG |
| *pmk-1* | CGACTCCACGAGAAGGAT | ATATGTACGACGGGCATG |
| *elt-2* | GGAAGTGCAAAAGCAGACCG | TCATCAACCCAGCTGTAGCG |
| *ced-6* | GAAACCCCGTTGTTTCACCG | AATGCCACTGAGGAAGTCCG |
| *ced-10* | TACGATCGGCTCCGCGA | GAGCACCGTACACTTGCTCT |
| *dyn-1* | CCACACCCATCTGGACCTTC | TCTAGGCGGTGCCATGTTG |
| *vps-11* | TTGCCGGAAGTACCATGCTT | CGTTTTGCATCGTGAAGGCA |
| *vps-34* | TCCCTTTGCATCACGACGTA | CGTTGACTGACGTGGAGACT |
| *lst-4* | CGAGAGAACATCGACGGAGG | GGACGGACAGAAACTGGACA |
| *snx-1* | CTCGCAAACGCGATCAGAAG | GGCTCGAACTTCTCCCACAA |
| *snx-6* | CGGTGAGGAAGTCTTCGCAA | TGAAGACGTGTACGGGTGTG |
| *rab-2* | ATGCCAGGCAGCACAGTAAT | ATGAACGCCTCTTCCACGTT |
| *rab-5* | TTGCGATTCGTCAAGGGACA | CCGCTTGAGCTCCTCGATAG |
| *rab-7* | TCGGGAACCAGAAAGAAGGC | TTTACGTCGCGTGTGAGGAA |
| *rab-14* | CGACGCAAAAAGCTTGACCA | CTCCAAGAAAGTGAGCCCGT |
| *epn-1* | TTTCGACGATTCGCCGGC | CACCAGACTTTTGTACAC |
| *chc-1* | CGCTGCAGAATCGAGAAACG | GTCCAGGTTGACCGTAAGCA |
| *uig-1* | ACGTGGGGCGAACTATGTTT | TGCTCCATTGAAGACGCCAT |
| *cdc-42* | TCGACAATTACGCCGTCACA | CCGTTGACACTGGTTTCTGC |
| *tba-1* | TCAACACTGCCATCGCCGCC | TCCAAGCGAGACCAGGCTTCAG |

**Table S3.** Primer information for DNA constructs

| | Forward primer (5'-3') | Reverse primer (5'-3') |
|---|---|---|
| *Pmex-5* | ATACTGCAGATATCAGTTTTTAAAAAA | ATATCTAGATCTCTGTCTGAAACATTC |
| *ced-1/Y47H9C.4a.1* | ATACTGCAGATGCGTCTCATTCTCCTT | GGCTCTAGATTAGGTGTACAAATTGTC |