

Supplementary Table 1. Lifespan summary statistics. Related to Figure 1.

Strain	Treatment ¹	Mean adult lifespan +/- SD (days) ²	Maximum adult lifespan (days) ³	N ⁴ (n ⁵)
N2	HgCl ₂ 0 μM	22	32	2(144)
N2	HgCl ₂ 10 μM	19	27	2(167)
N2	HgCl ₂ 25 μM	8	12	2(171)
N2	HgCl ₂ 50 μM	3	7	2(168)
N2	silica NPs 0 mg/ml	23 +/-2	37 +/-3	3(406)
N2	silica NPs 0.02 mg/ml	23 +/-2	37 +/-2	3(395)
N2	silica NPs 1.25 mg/ml	15 +/-3	28 +/-3	3(454)
Daf-2	silica NPs 0 mg/ml	31 +/-2	51 +/-4	3(344)
Daf-2	silica NPs 0.02 mg/ml	31 +/-3	50 +/-4	3(344)
Daf-2	silica NPs 1.25 mg/ml	26 +/-2	40 +/-3	3(320)
Daf-16	silica NPs 0 mg/ml	16 +/-4	31 +/-1	3(426)
Daf-16	silica NPs 0.02 mg/ml	12 +/-4	29 +/-2	3(414)
Daf-16	silica NPs 1.25 mg/ml	16 +/-5	21 +/-4	3(416)

Values are mean with standard deviation (SD).

¹treatment:

²mean adult lifespan: average adult lifespan.

³maximum adult lifespan: lifespan of the longest lived worm.

⁴N: Number of independent laboratory experiments or simulations.

⁵n: Number of worms analyzed.

Supplementary Table S2. Silica NPs and iHg induce protein fibrillation.

Experimental system	Phenotype	Silica NPs	iHg
human cells¹	global amyloid fibrillation	ND	yes (Arnhold et al., 2015)
	local amyloid fibrillation	yes, nucleus (Chen et al., 2008)	yes: nucleus, nucleolus (Arnhold et al., 2015)
<i>C. elegans</i>²	global amyloid fibrillation	yes (Scharf et al., 2013, 2016)	yes, this study
	local amyloid fibrillation	yes, intestinal nucleolus (Scharf et al., 2016)	yes, intestinal nucleolus (Arnhold et al., 2015)

¹human cells: human cell culture with HEp-2 or SH-SY5Y

²*C. elegans* wild type N2

ND, not determined