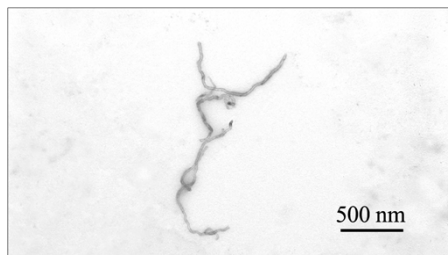


Supporting Information:

a**b**

	MWCNTs
Purity (%)	98.94
Impurity (wt%)	0.017 Fe, 0.077 Ni
Length (μm)	5-15
Diameter (nm)	10-20
Zeta potential in K-medium (mV)	-33.2 ± 2.4
Zeta potential in paconol(500 mg/L) (mV)	-31.9 ± 2.8

Fig. S1 Characterizations of MWCNTs. (a) TEM images of MWCNTs in K-medium. (b)

Summary of physiochemical characterizations of MWCNTs.

Table S1. Effects of paeonol treatment on lifespan of nematodes.

Treatment	Mean lifespan (day)	Significance (compared with control)
Control	14.2 ± 0.9	
100 mg/L paeonol	16.6 ± 0.8	<i>P</i> < 0.01
300 mg/L paeonol	16.9 ± 0.9	<i>P</i> < 0.01
500 mg/L paeonol	17.6 ± 1.1	<i>P</i> < 0.01

Table S2. Effects of MWCNTs exposure on lifespan of nematodes.

Treatment	Mean lifespan (day)	Significance (compared with control)
Control	14.5 ± 1.3	
0.1 mg/L MWCNTs	13.8 ± 1.2	NS
1 mg/L MWCNTs	11.3 ± 1.1	<i>P</i> < 0.01
10 mg/L MWCNTs	10.6 ± 1.5	<i>P</i> < 0.01
100 mg/L MWCNTs	9.7 ± 2.1	<i>P</i> < 0.01

NS, no significance.

Table S3. Effects of pre-treatment with paeonol on lifespan in MWCNTs exposed nematodes.

Treatment	Mean lifespan (day)	Significance (compared with control)
Control	15.3 ± 1.1	
100 mg/L MWCNTs	10.4 ± 1.9	<i>P</i> < 0.01
100 mg/L paeonol+	13.1 ± 0.9	<i>P</i> < 0.01
100 mg/L MWCNTs		
300 mg/L paeonol+	14.1 ± 1.2	NS
100 mg/L MWCNTs		
500 mg/L paeonol+	14.9 ± 1.3	NS
100 mg/L MWCNTs		

NS, no significance.

Table S4. Primers used for quantitative real-time polymerase chain reaction (PCR).

Gene	Forward primer	Reverse primer
<i>tba-1</i>	TCAACACTGCCATCGCCGCC	TCCAAGCGAGACCAGGCTTCAG
<i>gem-4</i>	CACGGTGGTCAACAGTAT	TTGTATTTGGCACCTTTC
<i>mtm-6</i>	AAAAGGGACGCTAACAGC	ATTCTCAAACGCAAGCAG
<i>nhx-2</i>	GGAGCAGAATGTGAAGAA	GTGGCGGAAGTAGATAAA
<i>opt-1</i>	TGATGTCCGTTCCCTACT	ATGACCTGAAAGAGTGGG
<i>pho-1</i>	ACGGACATGATGTAGGAG	ATTAGAAGTGCGGAGAAG
<i>pkc-3</i>	CGTCTCCGACATCATTAG	CAACTCGGCTTCTTGACT
<i>par-3</i>	AAGCGTAACTGTCAACCA	CCGTCTATAACATCCTCC
<i>par-6</i>	ATTCTGCGTCTGGTGTCT	TCCCTTCCATCGTTTAT
<i>pgp-1</i>	AATGTCCGATTCGCTTAC	CTCAGGGTTCAACGTCTT
<i>pgp-3</i>	GGACTTCCTGACGGTTAC	TTTGATGGGTTCCCTTCTT
<i>vha-6</i>	ATGGAGGCAAACCTTAGAG	TTCCGAGATTGACATAGC
<i>gtl-1</i>	CTGCTCACCACGCACAAT	AACTCCTTCATCCAACCC
<i>erm-1</i>	TCCACGACTCCGTATCAA	TCCTGCTCGGCAATCTTA
<i>eps-8</i>	ACGCAGTGACGGTAGAAG	AGCGGATACACGGATACA
<i>act-5</i>	GGGAGTGATGGTCGGTAT	CGGTAAGGAGAACTGGGT
<i>ifb-2</i>	TCAAGGCTGAATACGACA	TCCAAAGCAGAGTTACGG
<i>dlg-1</i>	TTGAAACGGCGTAAAGAT	CGTGATGAACTGGTGGTG
<i>ajm-1</i>	GTCAATCAGTTCGTCCCG	ACTCGTCCGATGGTGTCT
<i>egl-8</i>	GCTCGATGGCTTCAAGTA	TGAATGCTATCCCTCTGC
<i>let-413</i>	TTGCGTCCAACAAGTTAC	CACCAAGAAATGCTCCTC
<i>nfm-1</i>	ATTACGGAGGATCTGGTA	TCATCGTCGTGAACTTAT
<i>inx-3</i>	CAGTGGGTGCCTATTGTG	GACCGTATTCGTTCTTGG
<i>nhx-4</i>	GAAGATTGCTACCTGGAC	TCATAAGTGGGTGTTCTT
<i>abts-4</i>	CTCAGACTACAGGGATGG	GTGCCTGACTACAAGAC

Table S5. Information on genes required for intestinal development in *C. elegans*.

Gene	Products of the genes
<i>gem-4</i>	Ca ²⁺ -dependent phosphatidylserine binding protein
<i>mtm-6</i>	myotubularin lipid phosphatase orthologous
<i>nhx-2</i>	sodium/proton exchanger
<i>opt-1</i>	high-affinity, proton-coupled oligopeptide transporter
<i>pkc-3</i>	atypical protein kinase
<i>par-3</i>	PDZ domain-containing protein orthologous
<i>par-6</i>	PDZ-domain-containing protein
<i>pgp-1</i>	transmembrane protein
<i>pgp-3</i>	transmembrane protein
<i>vha-6</i>	membrane-bound (V0) domain of vacuolar proton-translocating ATPase (V-ATPase);
<i>gtl-1</i>	TRPM subfamily member of the TRP channel family
<i>erm-1</i>	ortholog of the ERM family of cytoskeletal linkers
<i>eps-8</i>	homolog of mouse epidermal growth factor receptor kinase substrate
<i>act-5</i>	ortholog of human cytoplasmic actin
<i>ifb-2</i>	nonessential intermediate filament protein
<i>dlg-1</i>	MAGUK protein
<i>ajm-1</i>	member of the apical junction molecule class
<i>egl-8</i>	phospholipase C beta homolog
<i>let-413</i>	protein with strong similarity to human ERBIN, rat DENSIN, Drosophila SCRIB and its human ortholog hSCRIB
<i>nfm-1</i>	homolog of human merlin/schwannomin (NF2)
<i>inx-3</i>	gap protein
<i>nhx-4</i>	sodium/proton exchanger
<i>abts-4</i>	anion transporter