

## SUPPLEMENTARY TABLE WITH REFERENCES

**Supplementary Table 1. The basic information of included papers.**

Reference	Treatment	Dose	Indicator	Source	Note
Akhoon et al., 2016 [1]	WA	5 $\mu$ M	ML	Table 1	
			Lipofuscin	Fig. 1B	
			Bend	Fig. 2A	Day 1 adulthood
			Bend	Fig. 2A	Day 3 adulthood
			Bend	Fig. 2A	Day 5 adulthood
			<i>daf-16</i>	Fig. 9	
			<i>sod-3</i>	Fig. 9	
Chou et al., 2019 [2]	STS	2-day	ML	Fig. S1B	Young-age
			ML	Fig. S1B	Mid-age
			ML	Fig. S1B	Repetitive fasting
			CML	Fig. S1B	Young-age
			CML	Fig. S1B	Mid-age
			CML	Fig. S1B	Repetitive fasting
			<i>sod-3</i>	Fig. 1e	Young-age
			<i>sod-3</i>	Fig. 1e	Mid-age
			<i>sod-3</i>	Fig. 1e	Repetitive fasting
			Kim et al., 2010 [3]	[TAT-PtBP-Pt]	5 $\mu$ M
ML	Table 2				
OML	Table 2				
Kishimoto et al., 2017 [4]	As	1 mM	OML	Table S1	P0
			Bend	Fig. 2a	P0, day 4 adulthood
			Bend	Fig. 2a	P0, day 6 adulthood
	NaCl	150 mM	OML	Table S1	P0
			Bend	Fig. 2a	P0, day 4 adulthood
			Bend	Fig. 2a	P0, day 6 adulthood
	Fasting	1 day	OML	Table S1	P0

			Bend	Fig. 2a	P0, day 4 adulthood
			Bend	Fig. 2a	P0, day 6 adulthood
Kogure et al., 2017 [5]	IF	2-3 days	ML	Table 1	
			<i>sod-3</i>	Fig. 5	
Kronberg et al., 2018 [6]	Glyphosate F	4.8 mM	<i>sod-3</i>	Fig. 2	
			<i>ctl-1</i>	Fig. 2	
			<i>ctl-1</i>	Fig. 3A	
Olsen et al., 2006 [7]	RHS	33°C for 4 h	ML	Table 1	Treatment on the 4th and 8th day
			ML	Table 1	Treatment on the 4th, 8th and 12th day
			ML	Table 1	Treatment on the 4th, 8th, 12th and 16th day
			ML	Table 1	Treatment on the 8th and 12th day
			ML	Table 1	Treatment on the 8th, 12th and 16th day
			ML	Table 1	Treatment on the 4th and 12th day
			ML	Table 1	Treatment on the 4th and 16th day
			ML	Table 1	Treatment on the 12th and 16th day
Pandey et al., 2018 [8]	JBEO	10 ppm	ML	Table 2	
			Pumpin g	Fig. 4	Day 2 adulthood
			Pumpin g	Fig. 4	Day 5 adulthood
			Pumpin g	Fig. 4	Day 10 adulthood
			Lipofus cin	Fig. 7C	
Pietsch et al., 2011 [9]	Q	200 μM	ML	Table S1	
			Pumpin g	Fig. 3a	Day 3 adulthood
			Pumpin g	Fig. 3a	Day 6 adulthood
			Pumpin g	Fig. 3a	Day 10 adulthood
			Lipofus cin	Fig. 5h	
	CA	300 μM	ML	Table S2	
			Pumpin g	Fig. 3a	Day 3 adulthood
			Pumpin g	Fig. 3a	Day 6 adulthood
			Pumpin g	Fig. 3a	Day 10 adulthood
			Lipofus cin	Fig. 5h	

	RA	200 $\mu$ M	ML	Table S3	
			Pumpin g	Fig. 3a	Day 3 adulthood
			Pumpin g	Fig. 3a	Day 6 adulthood
			Pumpin g	Fig. 3a	Day 10 adulthood
			Lipofus cin	Fig. 5h	
Rathor et al., 2015 [10]	FA	25 $\mu$ M	ML	Table 1	
			Pumpin g	Fig. 2b	2-day-old
			Pumpin g	Fig. 2b	5-day-old
			Pumpin g	Fig. 2b	10-day-old
			Lipofus cin	Fig. 5	
			<i>daf-16</i>	Fig. 9	
			<i>sod-3</i>	Fig. 9	
Rathor and Pandey, 2018 [11]	BOB	25 $\mu$ M	ML	Table 1	
			Pumpin g	Fig. 3A	Day 5 adulthood
			Pumpin g	Fig. 3A	Day 10 adulthood
			Bend	Fig. 3C	Day 5 adulthood
			Bend	Fig. 3C	Day 10 adulthood
			Lipofus cin	Fig. 7C	
			<i>daf-16</i>	Fig. 11	
			<i>sod-3</i>	Fig. 11	
			<i>hsp-16.2</i>	Fig. 11	
			<i>ctl-1</i>	Fig. 11	
Schmeisser et al., 2013 [12]	AsO <sub>2</sub>	0.1 $\mu$ M	ML	Table 1	
Shanmugam et al., 2018 [13]	Phytochemicals	300 $\mu$ g/mL	ML	Table 1	
Shukla et al., 2012 [14]	4-HEG	20 $\mu$ M	ML	Table 2	
			Pumpin g	Fig. 5A	Young
			Pumpin g	Fig. 5A	Day 5 adulthood
			<i>hsp-16.2</i>	Fig. 7	
			<i>sod-3</i>	Fig. 7	
Urban et al., 2017 [15]	DEM	100 $\mu$ M	ML	Table 2	

			OML	Table 3	
			<i>sod-3</i>	Fig. 5A	Treatment for 1 day
			<i>sod-3</i>	Fig. 5A	Treatment for 2 days
			<i>sod-3</i>	Fig. 5A	Treatment for 3 days
			<i>sod-3</i>	Fig. 5A	Treatment for 5 days
			<i>sod-3</i>	Fig. 5A	Treatment for 7 days
			<i>sod-3</i>	Fig. 5A	Treatment for 10 days
			<i>ctl-1</i>	Fig. 5B	Treatment for 1 day
			<i>ctl-1</i>	Fig. 5B	Treatment for 2 days
			<i>ctl-1</i>	Fig. 5B	Treatment for 3 days
			<i>ctl-1</i>	Fig. 5B	Treatment for 5 days
			<i>ctl-1</i>	Fig. 5B	Treatment for 7 days
			<i>ctl-1</i>	Fig. 5B	Treatment for 10 days
Wang et al., 2010a [16]	Pre-treatment with UV irradiation	10J/m <sup>2</sup> /min	Bend	Fig. 3	Post-treatment with 50 μM Hg
			Bend	Fig. 3	Post-treatment with 100 μM Hg
			Bend	Fig. 3	Post-treatment with 200 μM Hg
			Bend	Fig. 3	Post-treatment with 50 μM Pb
			Bend	Fig. 3	Post-treatment with 100 μM Pb
			Bend	Fig. 3	Post-treatment with 200 μM Pb
			Bend	Fig. 3	Post-treatment with 50 μM Cr
			Bend	Fig. 3	Post-treatment with 100 μM Cr
			Bend	Fig. 3	Post-treatment with 200 μM Cr
Wang et al., 2010b [17]	DMSO	0.5%	ML	Table 1	
			HML	Fig. 2B	The first trial
			<i>hsp-16.2</i>	Fig. 2D	
Wang and Xing, 2009 [18]	Pre-treatment with Pb	2.5 μM	Bend	Fig. 3	Post-treatment with 50 μM Pb
			Bend	Fig. 3	Post-treatment with 100 μM Pb
	Pre-treatment with Hg	2.5 μM	Bend	Fig. 3	Post-treatment with 50 μM Hg
			Bend	Fig. 3	Post-treatment with 100 μM Hg
	Pre-treatment with Cu	2.5 μM	Bend	Fig. 3	Post-treatment with 50 μM Cu

			Bend	Fig. 3	Post-treatment with 100 $\mu$ M Cu
	Pre-treatment with Cr	2.5 $\mu$ M	Bend	Fig. 3	Post-treatment with 50 $\mu$ M Cr
			Bend	Fig. 3	Post-treatment with 100 $\mu$ M Cr
Wu et al., 2019 [19]	Ethanol	2%	ML	Table 2	
			Bend	Fig. 2	
			Pumpin g	Fig. 2	
Xu et al., 2017 [20]	Convallatoxin	20 $\mu$ M	Pumpin g	Fig. 2C	4-day-old
			Pumpin g	Fig. 2C	6-day-old
			Pumpin g	Fig. 2C	8-day-old
			Pumpin g	Fig. 2C	10-day-old
			Pumpin g	Fig. 2C	12-day-old
			Lipofus cin	Fig. 2F	
			<i>daf-16</i>	Fig. 7	
			<i>sod-3</i>	Fig. 7	
Yanase and Ishii, 2008 [21]	Hyperoxia	90% oxygen	ML	Table 1	
Yu et al., 2011 [22]	Ethanol	2%	Bend	Fig. 2A	Treatment for 3 days
			Bend	Fig. 2A	Treatment for 5 days
			Bend	Fig. 2A	Treatment for 7 days
			Bend	Fig. 2A	Treatment for 9 days
			Bend	Fig. 2A	Treatment for 11 days
			Bend	Fig. 2A	Treatment for 13 days
			Bend	Fig. 2A	Treatment for 15 days
			Pumpin g	Fig. 2B	Treatment for 4 days
			Pumpin g	Fig. 2B	Treatment for 5 days
			Pumpin g	Fig. 2B	Treatment for 6 days
			Pumpin g	Fig. 2B	Treatment for 7 days
Zhang et al., 2015 [23]	OA	300 $\mu$ M	ML	Table 1	
			OML	Table 2	
			Pumpin g	Fig. 3A	Day 3 adulthood
			Pumpin g	Fig. 3A	Day 6 adulthood

			Pumpin g <i>daf-16</i> <i>sod-3</i> <i>hsp-16.2</i> <i>ctl-1</i>	Fig. 3A Fig. 4C Fig. 4C Fig. 4C Fig. 4C	Day 10 adulthood
Zhao et al., 2017 [24]	Emodin	150 $\mu$ M	ML OML HML <i>sod-3</i> <i>hsp-16.2</i> <i>ctl-1</i>	Table 1 Table 2 Table 2 Fig. 3E Fig. 3E Fig. 3E	
Zhou et al., 2017 [25]	Arbutin	5 mM	ML HML OML UML <i>daf-16</i> <i>sod-3</i> <i>hsp-16.2</i>	Fig. 1 Fig. 2A Fig. 2B Fig. 2C Fig. 6A Fig. 6B Fig. 6C	
Zhu et al., 2016 [26]	[OMMIM]Br	0.01 mg/L	ML Lipofus cin Lipofus cin Lipofus cin Lipofus cin Lipofus cin <i>daf-16</i> <i>daf-16</i> <i>daf-16</i> <i>daf-16</i> <i>daf-16</i>	Fig. 2 Fig. 4A Fig. 4A Fig. 4A Fig. 4A Fig. 4A Fig. 4A Fig. 5B Fig. 5B Fig. 5B Fig. 5B	Treatment for 2 days Treatment for 5 days Treatment for 7 days Treatment for 9 days Treatment for 11 days Treatment for 2 days Treatment for 5 days Treatment for 7 days Treatment for 9 days Treatment for 11 days
	[DMMIM]Br	0.01 mg/L	ML	Fig. 2	

		Lipofuscin	Fig. 4A	Treatment for 2 days
		Lipofuscin	Fig. 4A	Treatment for 5 days
		Lipofuscin	Fig. 4A	Treatment for 7 days
		Lipofuscin	Fig. 4A	Treatment for 9 days
		Lipofuscin	Fig. 4A	Treatment for 11 days
		<i>daf-16</i>	Fig. 5B	Treatment for 2 days
		<i>daf-16</i>	Fig. 5B	Treatment for 5 days
		<i>daf-16</i>	Fig. 5B	Treatment for 7 days
		<i>daf-16</i>	Fig. 5B	Treatment for 9 days
		<i>daf-16</i>	Fig. 5B	Treatment for 11 days
[DoMMIM]Br	0.01 mg/L	ML	Fig. 2	
		Lipofuscin	Fig. 4A	Treatment for 2 days
		Lipofuscin	Fig. 4A	Treatment for 5 days
		Lipofuscin	Fig. 4A	Treatment for 7 days
		Lipofuscin	Fig. 4A	Treatment for 9 days
		Lipofuscin	Fig. 4A	Treatment for 11 days
		<i>daf-16</i>	Fig. 5B	Treatment for 2 days
		<i>daf-16</i>	Fig. 5B	Treatment for 5 days
		<i>daf-16</i>	Fig. 5B	Treatment for 7 days
		<i>daf-16</i>	Fig. 5B	Treatment for 9 days
		<i>daf-16</i>	Fig. 5B	Treatment for 11 days

**Abbreviation:** CML, mean lifespan measured under cold stress; HML, mean lifespan measured under heat stress; NML, mean lifespan measured under normal condition; UML, mean lifespan measured under UV irradiation stress; *ctl-1*, *catalase-1*; *daf-16*, *dauer formation protein-16*; *hsp-16.2*, *small heat shock protein-16.2*; *sod-3*, *superoxide dismutase-3*. As, Arsenic; BOB, Boeravinone B; CA, Caffeic acid; DEM, Diethyl maleate; [DMMIM]Br, 1-decyl-2-methyl-3-methyl-imidazolium bromine; DMSO, Dimethyl sulfoxide; [DoMMIM]Br, 1-dodecyl-2-methyl-3-methyl-imidazolium bromine; FA, Folic acid; IF, Intermittent fasting; JBEO, Juniper berry essential oil; OA, Oleanolic acid; [OMMIM]Br, 1-octyl-2-methyl-3-methyl-imidazolium bromine; Q, Quercetin; RA, Rosmarinic acid; RHS, Repeated heat shock; STS, Short-term starvation; [TAT-PtBP-Pt], TAT-conjugated nano-Pt; WA, Withanolide A; 4-HEG, 4-Hydroxy-E-globularinin.

## SUPPLEMENTARY REFERENCES

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