

1 **Supplementary Materials and Methods**

2 **Table S1. List of the primer sequences used for qRT-PCR analysis of specific genes**

Gene name	primer sequences (5'→3')	
	Forward	Reverse
Sel-H	GCTGCGCTCGGACACA	TCGTGGAGGGCCCTTTTA
GPx4	CTCCATGCACGAATTCTAG	ACGTCAGTTTTGCCTCATG
GRP40	GCCTCGGATGGCTACAAGT	CCTTCGCTCTCTATGTACTGCC
GRP120	ACCGCATAGGAGAAATCTCATGG	GATCTGGTGGCTCTCAGAGTA
c-fos	AGTCAAGGCTGGTCTGTGT	ATCAGCTGCTAGATACAATCC
c-jun	TACAGTCTCTATTGCAGTTTGTAA	ACTGCATGGACCTAACATTCC
N-cadherin	GTTCTCCACTTGATTGCCATTGA	GATCGAGAGCTGATAGCCCG
Vimentin	TGGAGTCACTTCCTCTGGTTG	CAAGGTCATCGTGATGCTGAG
PD-1	TTCAGGTTTACCACAAGCTGG	TGACAATAGGAAACCGGGAA
PD-L1	GAAGTCCAGCTCCTCATA	TTCTGCTCAACAAGTATGTC
PD-L2	CTGCACGTCTCCATCATA	GGTATGAACATCGGCTCA
CTLA-4	CCGAGTCTGTGTGGGTTCAA	GAGCAGAGTAAAACCCAACAGGAT
FoxP3	TACGAGTGGATGGTGCGCTG	AGGTTGTGCCGGATGGAGTTC
IL-2	TGTGTTGTAAGCAGGAGGTACA	GATGGATAGCCTTCTGTCAAAGC
Ki-67	CTGCCTGCGAAGAGAGCATC	AGCTCCACTTCGCCTTTTGG
TP53	CAGGTTATCTTGTGTCAGT	GAGGCAGGTCAATATCAG
GAPDH	GTATGACTCCACTCACGGCAA	CTTCCCATTCTCGGCCTTG
E-cadherin	#MP2 00650, Sino Biological, Wayne, NJ, USA	

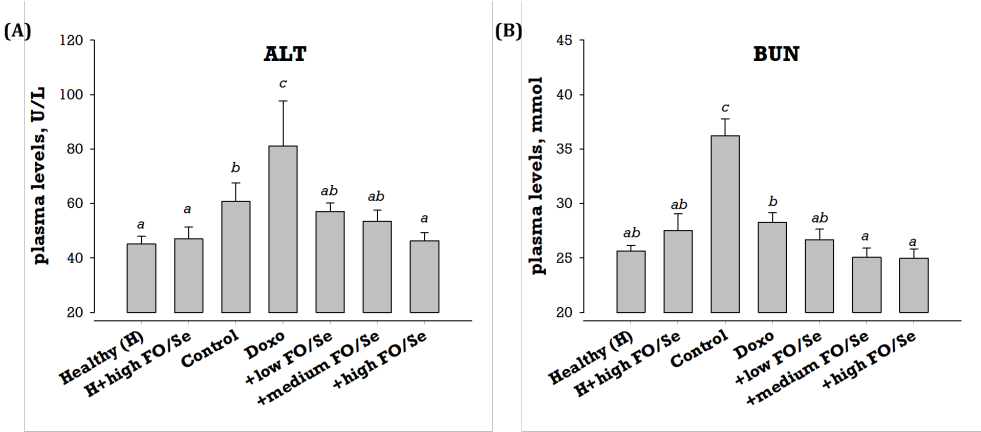
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4 **Table S2. List of antibodies used in this study**

Sel-H (1:1000, orb317826, biorbyt)	p-Tyr1007/1008-Jak2 (1:500, #3776, Cell signaling)
Sel-W (1:1000, GTX48717, GeneTex)	STAT3 (1:2000, #4904, Cell signaling)
EGFR (1:1000, #2193153, Millipore)	p-Tyr705-STAT3 (1:1000, #9131, Cell signaling)
p-Tyr1068-EGFR (1:1000, #2234, Cell signaling)	p-NF- κ B p65 (1:1000, #3033, Cell signaling)
FGFR (1:1000, #9740, Cell signaling)	c-Myc (1:1000, sc-40, Santa Cruz)
p-FGFR (1:1000, GTX32182, GeneTex)	HIF-1 α (1:500, ab42091, Abcam)
GAPDH (1:2000, MAB 374, Millipore)	HIF-2 α (1:1000, ab109616, Abcam)
β -actin (1:4000, MAB 1501, Millipore)	α -Tubulin (1:2000, ab4074, Abcam)
p-Tyr199/458-PI3K (1:1000, #4228, Cell signaling)	Cyclin D1 (1:1000, sc-450, Santa Cruz Bio-technology)
p-Ser473-Akt (1:1000, #4058, Cell signaling)	Cyclin E (1:1000, sc-247, Santa Cruz Bio-technology)
p-Thr308-Akt (1:1000, #9275, Cell signaling)	CDK-2 (1:1500, sc-6248, Santa Cruz Bio-technology)
mTOR (1:1000, GTX101557, GeneTex)	CDK-4,6 (1:1500, sc-23896, Santa Cruz Bio-technology)
p-Ser2448-mTOR (1:1000, #5536, Cell signaling)	CDK-6 (1:1500, sc-7961, Santa Cruz Bio-technology)
PTEN (1:1000, #9552, Cell signaling)	
p-Ser385-PTEN (1:1000, #9551, Cell signaling)	

TSC1 (1:1000, #4906, Cell signaling) TSC2 (1:1000, #4308, Cell signaling) 4E-BP-1 (1:1000, #9644, Cell signaling) p-Thr37/46-4E-BP1 (1:1500, #2855, Cell signaling) p70S6K (1:1000, #9202, Cell signaling) p-Thr421-Ser424-p70S6K (1:1000, #9204, Cell signaling) Ras (1:1000, 3233-S, Epitomics) p-Ser338-c-Raf1(1:1000, #9427, Cell signaling) p-Ser217/221-MEK1/2 (1:1000, #9154, Cell signaling) ERK1/2 (1:1000, GTX59618, GeneTex) p-Thr202-Tyr204-ERK (1:1000, #GTX59568, GeneTex) p-Tyr416-c-Src (1:1000, #2101, Cell signaling)	Lamin B1 (1:2000, E-AB-31901, Elab-science) CD24 (1:2000, #2514189, Millipore) CD29 (1:2000, ab179471, Abcam) PD-1 (1:1000, 18106-1-AP, Proteintech) PD-L1 (1:1000, 66248-1-Ig, Proteintech) PD-L2 (1:1000, 18251-1-AP, proteintech) CD80 (1:1000, ab215166, Abcam) CD28 (1:1000, ab205136, Abcam) CD86 (1:1000, ab112490, Abcam) Foxp3 (1:1000, ab450, Abcam) IL-2 (1:1000, 60306-1-Ig, Proteintech) P53 (1:1000, ab26, Abcam) p-P53 (1:1000, #2525, Cell signaling)
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Figure S1. Comparison of plasma ALT and BUN in all groups.

Healthy non-tumor-bearing mice were assigned as Healthy (H) and H+high FO/Se groups and treated with or without high dose-FO/Se by oral gavage. Additionally, tumor-bearing mice were allocated to the following groups: control group, saline injected; Doxo group, injected intraperitoneally with doxorubicin; +low FO/Se, +medium FO/Se, and +high FO/Se groups were injected intraperitoneally with doxorubicin together with a low, medium, or high dose of FO/Se p.o. Superscript *a, b, c, d*: Bars sharing the same superscript are not significantly different from each other; Bars with different superscript are significantly different from each other ($p < 0.05$). Doxo, doxorubicin; FO, fish oil; Se, selenium.

Figure S2. Supplementary set of figures showing all original western blots.

Tumor-bearing mice were randomized into 5 weight-matched groups as follows: 1) Control group, saline injected; 2) Doxo group, injected intraperitoneally with doxorubicin; 3) +low FO/Se, +medium FO/Se, and +high FO/Se groups were injected intraperitoneally with doxorubicin together with a low, medium, or high dose of fish oil/selenium. Doxo, doxorubicin; FO, fish oil; Se, selenium. Western blotting of protein expression in tumor tissues ($n = 3$ mice per group) and each band in blotting membrane represents an individual mouse.

Figure S2. Supplementary set of figures with all original western blots

