

**Gone with sunscreens: Responses of blue mussels (*Mytilus edulis*) to a wide concentration range of a UV filter ensulizole**

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## Supplementary results

### 3.1 Mortality in chemical exposures

**Table S1.** Mortality of *Mytilus edulis* in chemical exposures. Exposure groups: CT – control, E1 – 10 ng/L, E2 – 10<sup>2</sup> ng/L, E3 – 10<sup>3</sup> ng/L, E4 – 10<sup>4</sup> ng/L, and E5 – 10<sup>5</sup> ng/L of ensulizole.

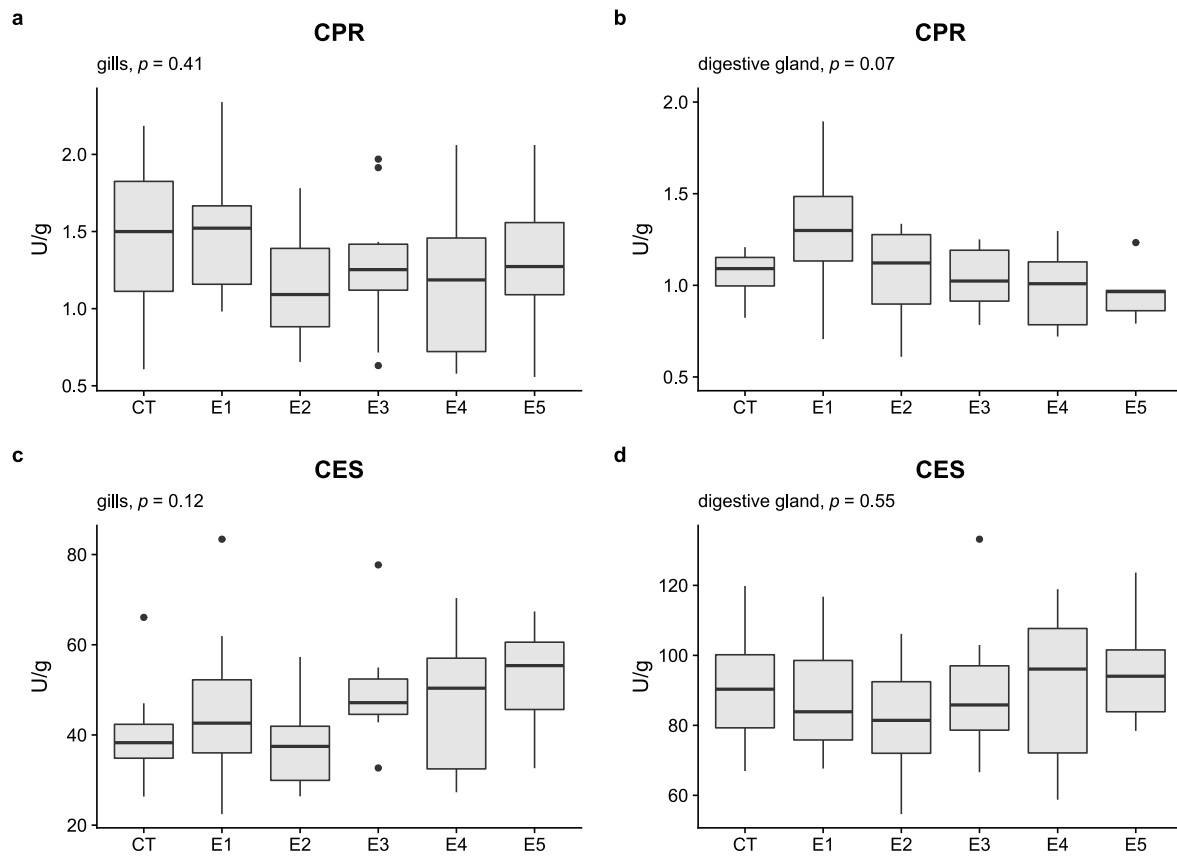
Group	<i>n</i>	Number of deaths
CT	55 + 35	0 + 6
E1	55 + 35	3 + 1
E2	55 + 35	2 + 0
E3	55 + 35	2 + 0
E4	55 + 35	6 + 3
E5	55 + 35	0 + 2

### 3.2 SoS response

**Table S2.** Median survival time (LT50) of *Mytilus edulis* in air exposure and hazard ratio (HR) with 95% confidence interval (CI). Exposure groups: CT – control, E1 – 10 ng/L, E2 – 10<sup>2</sup> ng/L, E3 – 10<sup>3</sup> ng/L, E4 – 10<sup>4</sup> ng/L, and E5 – 10<sup>5</sup> ng/L of ensulizole.

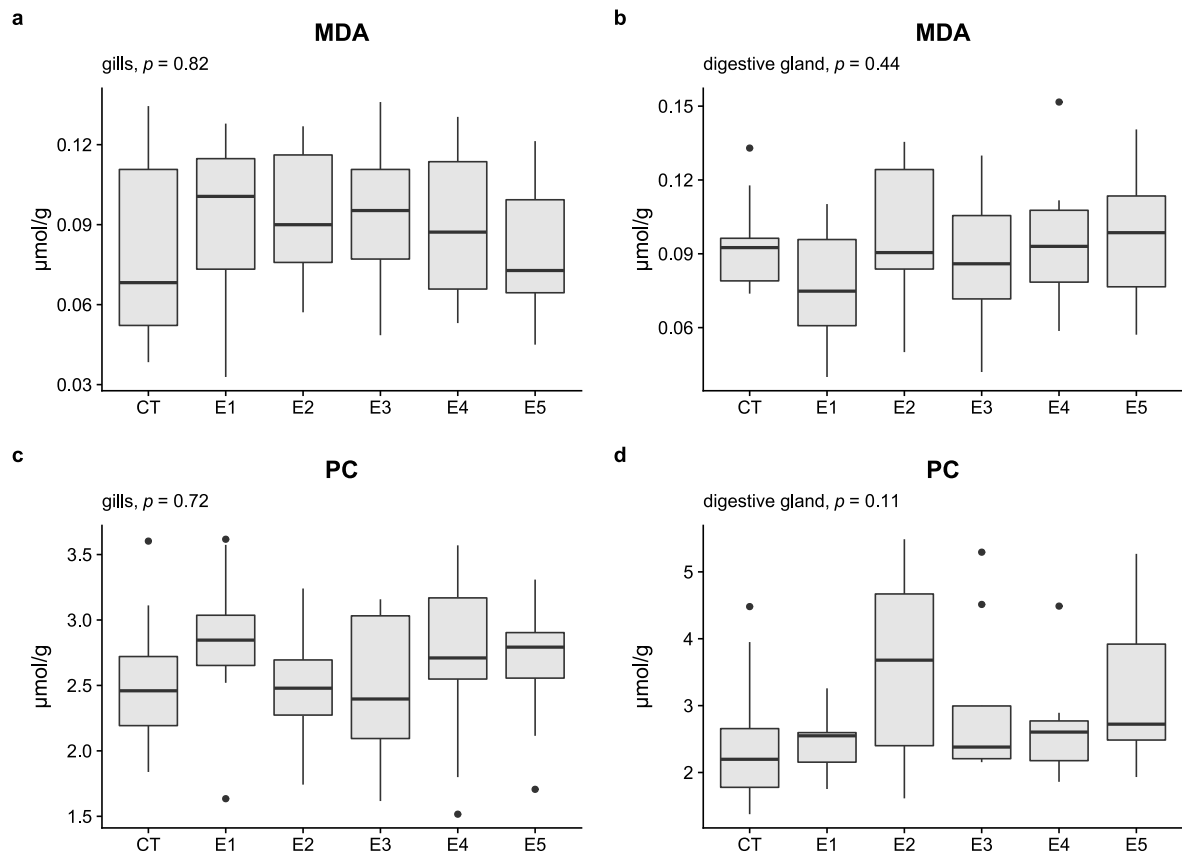
Group	<i>n</i>	LT50 (days)	95% CI of LT50	HR	95% CI of HR	<i>p</i>
CT	50	10	[9, 11]	-	-	-
E1	47	7	[6, 7]	7.04	[4.5, 11.02]	<0.0001
E2	48	7.5	[7, 8]	3.10	[2.04, 4.71]	<0.0001
E3	48	8	[7, 9]	2.02	[1.35, 3.04]	<0.001
E4	44	8	[7, 9]	1.82	[1.21, 2.75]	0.004
E5	50	9	[9, 10]	1.16	[0.78, 1.73]	0.46

### 3.3 Detoxification and antioxidant defense



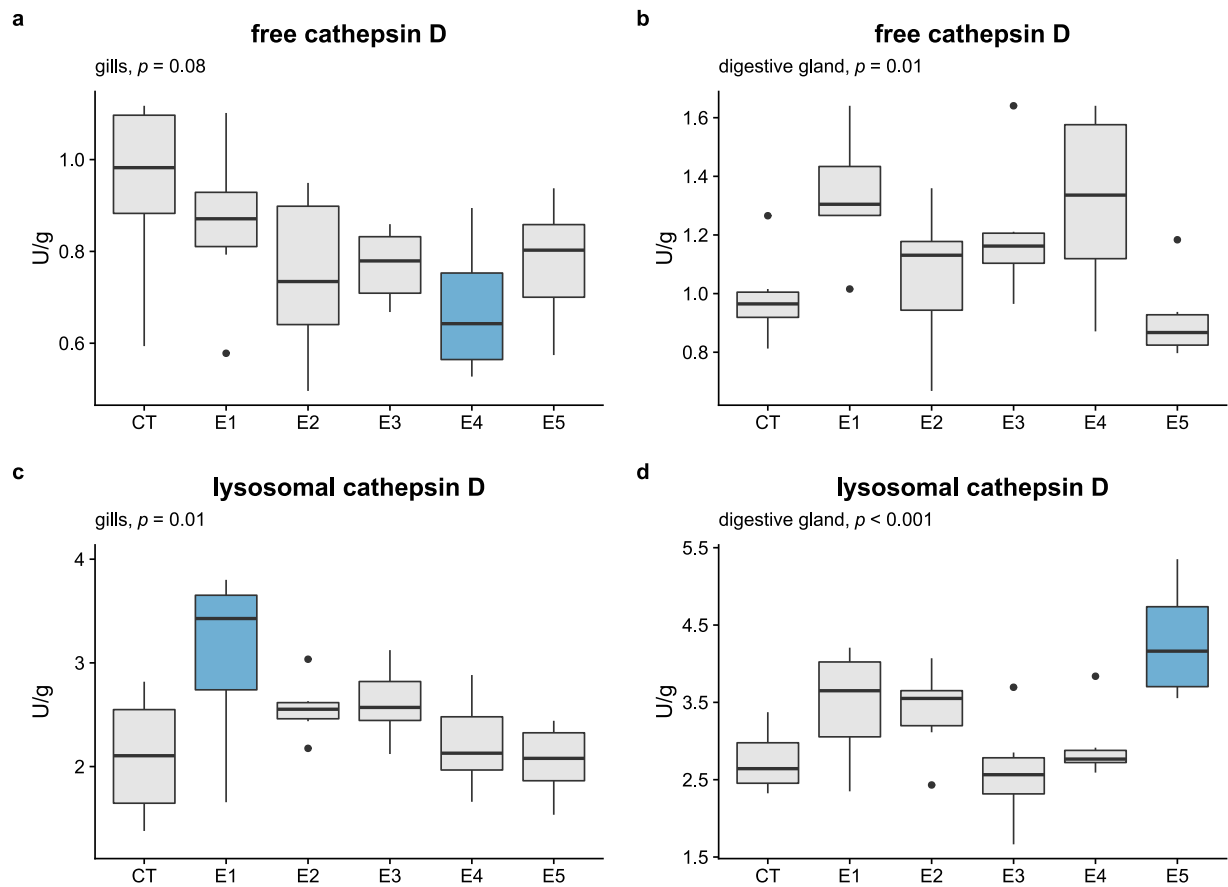
**Figure S1.** Effects of ensulizole exposures on the activities of NADPH-cytochrome P450 reductase (CPR) and carboxylesterase (CES) in the gills and digestive gland of *Mytilus edulis*. Exposure groups: CT – control, E1 – 10 ng/L, E2 – 10<sup>2</sup> ng/L, E3 – 10<sup>3</sup> ng/L, E4 – 10<sup>4</sup> ng/L, and E5 – 10<sup>5</sup> ng/L of ensulizole. The  $p$ -value is given for the global test and responses significantly different from the control ( $\alpha = 0.05$ ) in the multiple comparisons are indicated by boxplots of a different color.

### 3.4 Oxidative stress damage



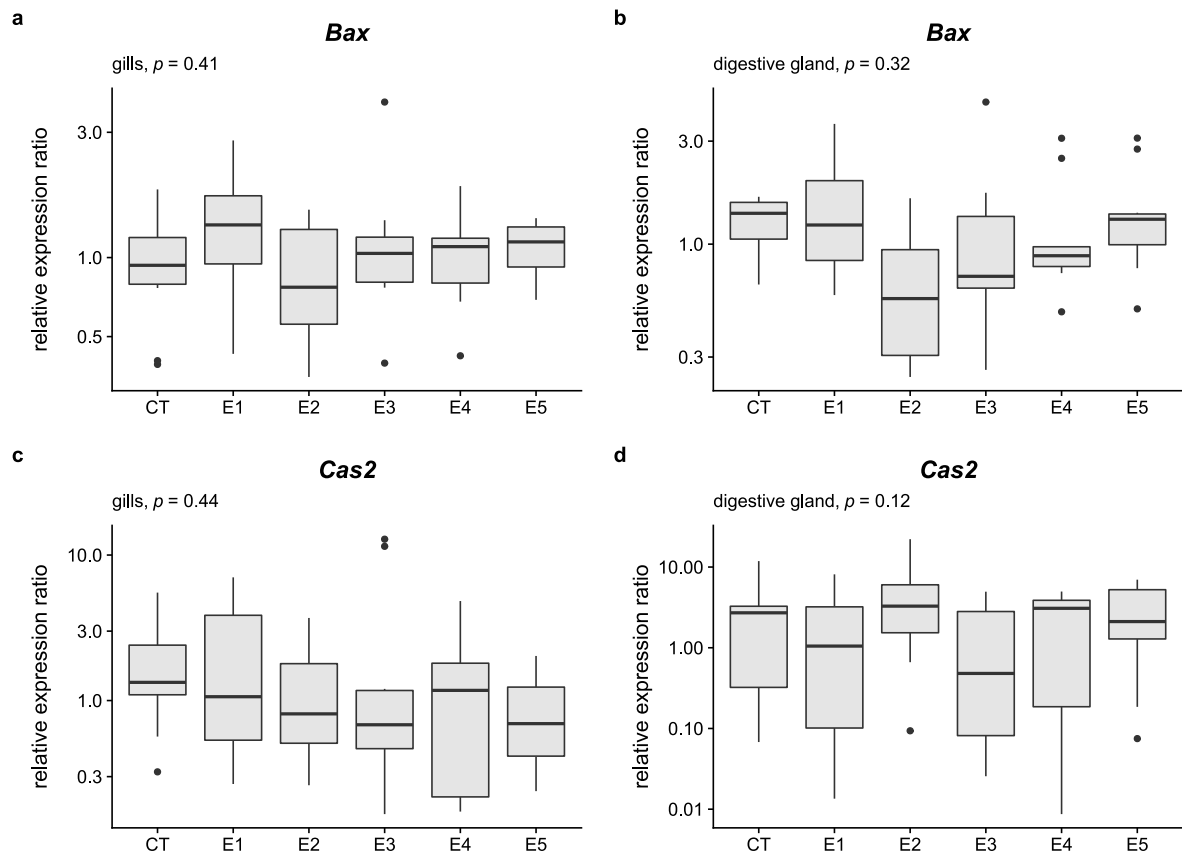
**Figure S2.** Effects of ensulizole exposures on the levels of malondialdehyde (MDA) and protein carbonyls (PC) in the gills and digestive gland of *Mytilus edulis*. Exposure groups: CT – control, E1 – 10 ng/L, E2 –  $10^2$  ng/L, E3 –  $10^3$  ng/L, E4 –  $10^4$  ng/L, and E5 –  $10^5$  ng/L of ensulizole. The  $p$ -value is given for the global test and responses significantly different from the control ( $\alpha = 0.05$ ) in the multiple comparisons are indicated by boxplots of a different color.

### 3.6 Autophagy



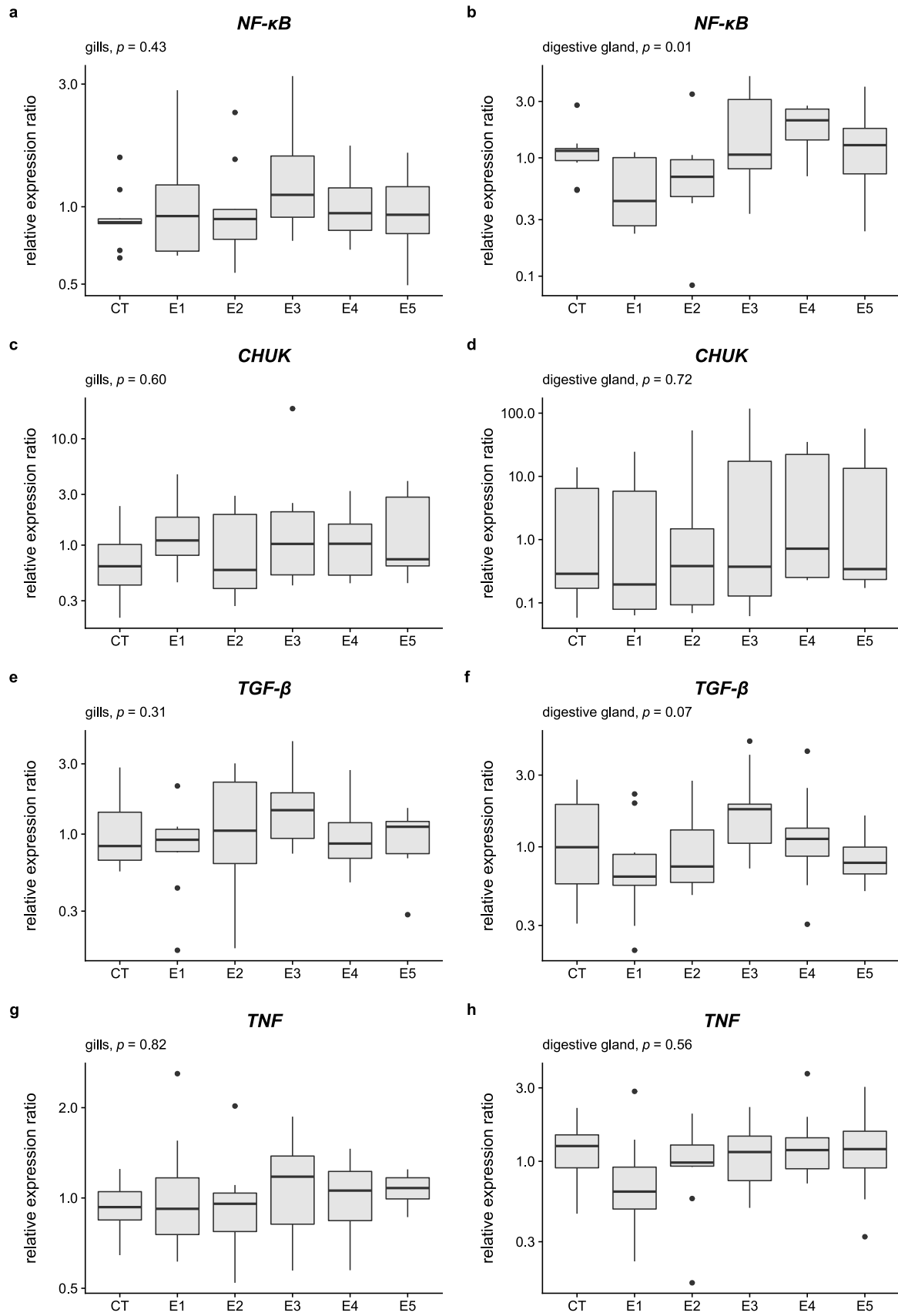
**Figure S3.** Effects of ensulizole exposures on free and lysosomal activities of cathepsin D in the gills and digestive gland of *Mytilus edulis*. Exposure groups: CT – control, E1 – 10 ng/L, E2 –  $10^2$  ng/L, E3 –  $10^3$  ng/L, E4 –  $10^4$  ng/L, and E5 –  $10^5$  ng/L of ensulizole. The  $p$ -value is given for the global test and responses significantly different from the control ( $\alpha = 0.05$ ) in the multiple comparisons are indicated by boxplots of a different color.

### 3.7 Apoptotic markers



**Figure S4.** Effects of ensulizole exposures on mRNA expression levels of *Bax* and *Cas2* in the gills and digestive gland of *Mytilus edulis*. Exposure groups: CT – control, E1 – 10 ng/L, E2 –  $10^2$  ng/L, E3 –  $10^3$  ng/L, E4 –  $10^4$  ng/L, and E5 –  $10^5$  ng/L of ensulizole. The  $p$ -value is given for the global test and responses significantly different from the control ( $\alpha = 0.05$ ) in the multiple comparisons are indicated by boxplots of a different color.

### 3.8 Inflammatory markers



**Figure S5.** Effects of ensulizole exposures on mRNA expression levels of *NF-κB*, *CHUK*, *TGF-β*, and *TNF* in the gills and digestive gland of *Mytilus edulis*. Exposure groups: CT – control, E1 – 10 ng/L, E2 – 10<sup>2</sup> ng/L, E3 – 10<sup>3</sup> ng/L, E4 – 10<sup>4</sup> ng/L, and E5 – 10<sup>5</sup> ng/L of ensulizole. The *p*-value is given for the global test and responses significantly different from the control ( $\alpha = 0.05$ ) in the multiple comparisons are indicated by boxplots of a different color.