

# Supplementary Material

## **The toxic effects of electronic cigarette aerosol and cigarette smoke on cardiovascular, gastrointestinal and renal systems in mice**

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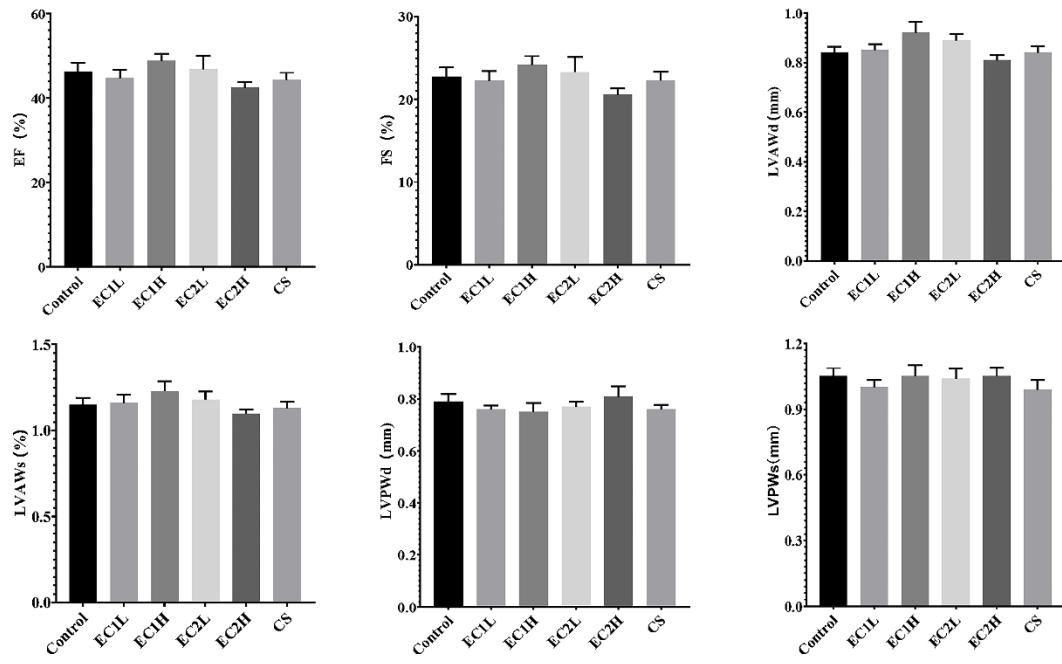
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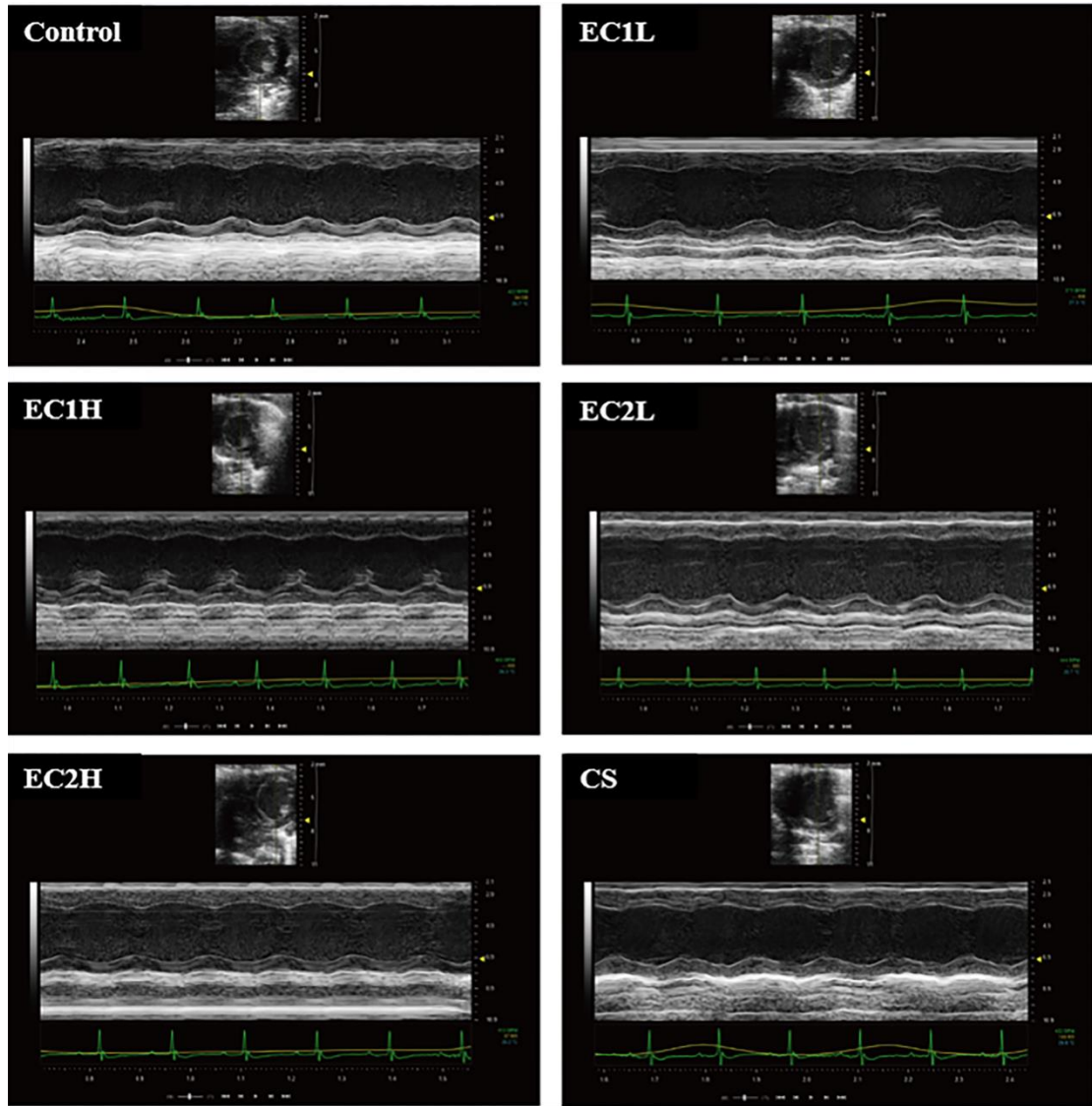
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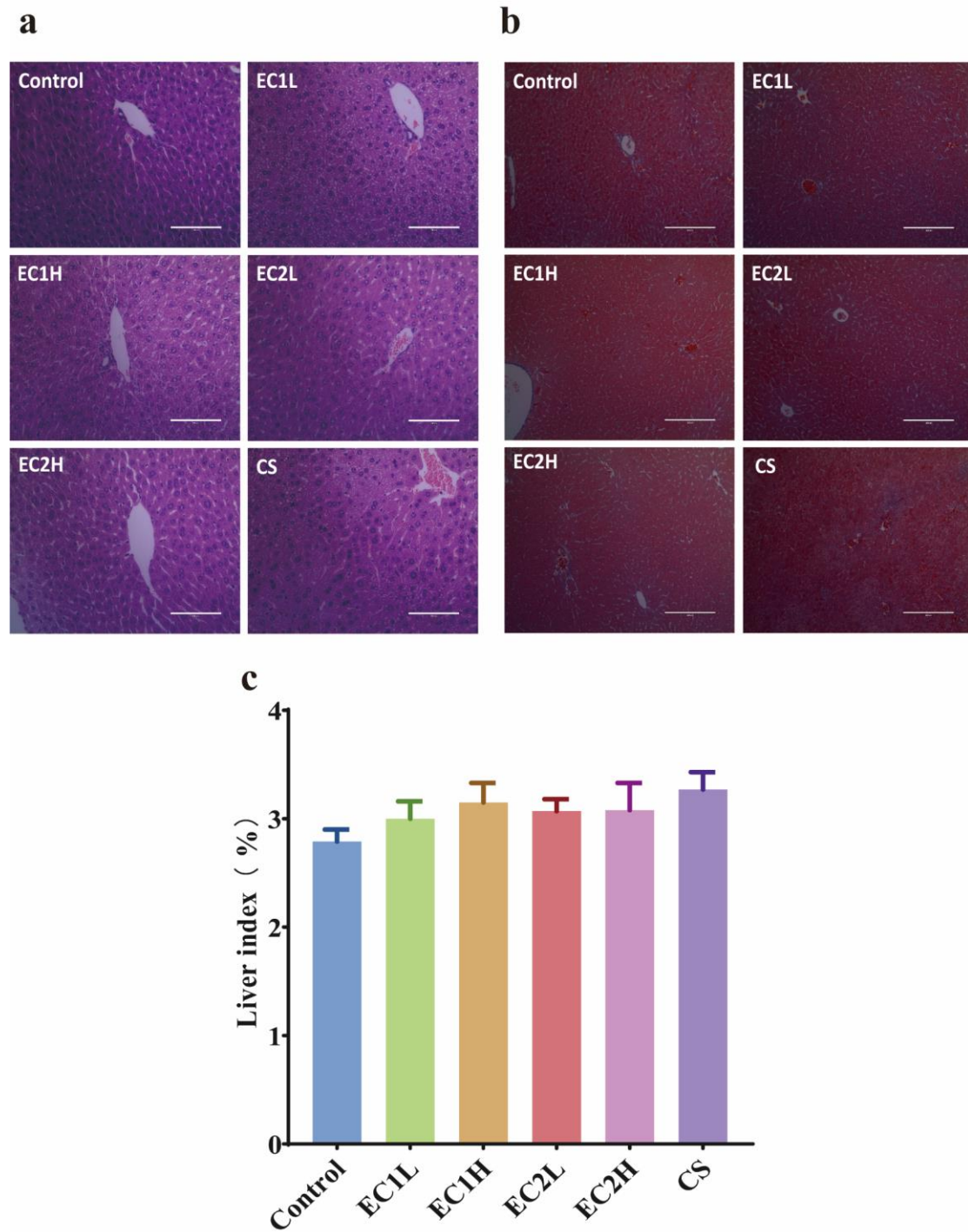
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**Figure S1.** Effects of EC and CS on cardiac function in mice (n=7-8) . Data are represented as mean± SEM.



**Figure S2.** Ultra- high resolution ultrasound image of small animal heart.



**Figure S3.** Pathological changes of liver in mice. **(a)** (HE,  $\times 400$ ) and **(b)** (Masson,  $\times 200$ ) **(c)** Liver index ( $n=7-8$ ).

## RAW data

**Fig.1a**

	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	95.76	87.12	91.94	95.83	96.11	79.05
	96.26	90.56	85.86	93.06	90.26	84.17
	98.99	85.02	90.89	92.43	89.57	79.29
	90.6	90.73	96.38	94.56	93.51	80.41
	92.84	95.29	94.03	92.61	92.61	79.3
	95.23	93.73	91.02	98.49	91.87	78.21
	98.07	94.36	85.82	90.46	89.75	85.62
	98.06	91.43	89.87	87.76	84.29	
<b>mean</b>	<b>95.73</b>	<b>91.03</b>	<b>90.73</b>	<b>93.15</b>	<b>91.00</b>	<b>80.86</b>
<b>SEM</b>	<b>1.01</b>	<b>1.26</b>	<b>1.29</b>	<b>1.16</b>	<b>1.23</b>	<b>1.08</b>

**Fig.1b**

	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	587.04	571.55	563.77	593.84	652.74	654.73
	633.56	636.61	606.49	596.70	518.67	580.31
	592.19	658.76	643.88	655.89	663.63	626.36
	599.54	637.68	624.32	575.47	587.56	607.01
	543.84	635.85	608.92	596.02	662.90	685.73
	573.96	548.00	658.86	604.48	583.79	635.22
	561.24	582.55	593.32	576.84	596.25	602.29
	619.11	587.99	612.11	533.25	622.73	
<b>mean</b>	<b>588.81</b>	<b>607.37</b>	<b>613.96</b>	<b>591.56</b>	<b>611.03</b>	<b>627.38</b>
<b>SEM</b>	<b>10.4</b>	<b>14.03</b>	<b>10.39</b>	<b>12.13</b>	<b>17.61</b>	<b>13.34</b>

**Fig.1d**

	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	0.47	0.55	0.44	0.56	0.51	0.55
	0.52	0.66	0.58	0.57	0.52	0.61
	0.55	0.54	0.64	0.51	0.57	0.56
	0.56	0.45	0.55	0.59	0.47	0.55
	0.50	0.51	0.51	0.50	0.52	0.51
	0.47	0.57	0.54	0.52	0.54	0.55
	0.49	0.52	0.56	0.49	0.56	0.56
	0.52	0.52	0.53	0.51	0.54	
<b>mean</b>	<b>0.51</b>	<b>0.54</b>	<b>0.54</b>	<b>0.53</b>	<b>0.53</b>	<b>0.56</b>
<b>SEM</b>	<b>0.01</b>	<b>0.02</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

**Fig.5a**

	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	0	0	0	0	0	1
	0	0	0	0	1	2
	0	0	0	0	0	1
	0	0	1	0	0	2
	0	0	0	0	1	2
	0	0	1	0	0	1
	0	1	0	1	0	0
	0	0	0	0	0	
<b>mean</b>	<b>0.00</b>	<b>0.13</b>	<b>0.25</b>	<b>0.13</b>	<b>0.25</b>	<b>1.29</b>
<b>SEM</b>	<b>0</b>	<b>0.13</b>	<b>0.16</b>	<b>0.13</b>	<b>0.16</b>	<b>0.29</b>

**Fig.6c**

	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	0.48	0.54	0.56	0.55	0.59	0.50
	0.50	0.47	0.53	0.54	0.51	0.50
	0.55	0.53	0.47	0.52	0.53	0.57
	0.56	0.50	0.54	0.54	0.53	0.58
	0.39	0.46	0.55	0.49	0.58	0.71
	0.55	0.62	0.46	0.56	0.49	0.59
	0.48	0.57	0.50	0.48	0.51	0.54
	0.44	0.52	0.54	0.52	0.54	
<b>mean</b>	<b>0.49</b>	<b>0.53</b>	<b>0.52</b>	<b>0.52</b>	<b>0.53</b>	<b>0.57</b>
<b>SEM</b>	<b>0.02</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.03</b>

**Fig.S3 c**

	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	2.74	3.09	2.35	3.54	2.03	3.41
	2.86	2.62	2.77	3.19	2.68	3.97
	3.37	3.21	3.21	2.66	3.36	2.92
	2.88	2.68	3.46	3.41	3.29	2.87
	2.23	2.70	3.90	3.15	2.49	3.41
	2.94	3.97	3.31	2.83	4.37	3.46
	2.75	2.82	3.47	2.83	3.08	2.85
	2.58	2.88	2.72	2.94	3.33	
<b>mean</b>	<b>2.79</b>	<b>3.00</b>	<b>3.15</b>	<b>3.07</b>	<b>3.08</b>	<b>3.27</b>
<b>SEM</b>	<b>0.11</b>	<b>0.16</b>	<b>0.18</b>	<b>0.11</b>	<b>0.25</b>	<b>0.16</b>

**Fig.S1**

<b>FS (%)</b>	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	15.96	19.83	22.31	25.23	21.69	20.95
	22.74	24.37	23.47	14.06	22.25	25.47
	21.76	22.43	26.58	26.77	19.66	25.26
	22.01	22.68	21.75	22.25	18.74	17.53
	25.33	16.60	23.57	20.41	23.08	23.29
	25.43	20.41	26.35	20.18	22.77	22.09
	27.07	27.31	20.74	30.41	18.14	21.51
	21.26	24.48	29.10	27.23	18.20	
<b>mean</b>	<b>22.70</b>	<b>22.26</b>	<b>24.23</b>	<b>23.32</b>	<b>20.57</b>	<b>22.30</b>
<b>SEM</b>	<b>1.21</b>	<b>1.17</b>	<b>1.01</b>	<b>1.82</b>	<b>0.74</b>	<b>1.04</b>

<b>EF (%)</b>	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	34.01	40.93	45.80	50.34	43.74	43.29
	46.28	48.97	47.56	30.42	45.55	50.87
	46.42	45.86	53.03	52.84	41.03	42.16
	44.71	46.35	44.48	45.55	39.17	36.85
	50.43	35.35	47.50	41.88	46.77	44.61
	50.70	42.17	52.44	41.66	46.75	48.36
	53.63	53.55	42.80	58.62	38.17	44.02
	43.77	44.81	56.67	53.83	38.34	
<b>mean</b>	<b>46.24</b>	<b>44.75</b>	<b>48.79</b>	<b>46.89</b>	<b>42.44</b>	<b>44.31</b>
<b>SEM</b>	<b>2.11</b>	<b>1.93</b>	<b>1.69</b>	<b>3.16</b>	<b>1.31</b>	<b>1.7</b>

<b>LVAW;d (mm)</b>	<b>Control</b>	<b>EC1L</b>	<b>EC1H</b>	<b>EC2L</b>	<b>EC2H</b>	<b>CS</b>
	0.83	0.73	0.95	0.97	0.74	0.93
	0.96	0.91	1.01	0.81	0.82	0.90
	0.86	0.86	0.75	0.85	0.85	0.85
	0.85	0.93	0.74	0.94	0.88	0.70
	0.83	0.92	0.90	0.81	0.72	0.84
	0.81	0.82	0.89	0.89	0.86	0.84
	0.86	0.78	1.10	1.00	0.77	0.86
	0.72	0.86	1.04	0.84	0.85	
<b>mean</b>	<b>0.84</b>	<b>0.85</b>	<b>0.92</b>	<b>0.89</b>	<b>0.81</b>	<b>0.84</b>
<b>SEM</b>	<b>0.02</b>	<b>0.02</b>	<b>0.05</b>	<b>0.03</b>	<b>0.02</b>	<b>0.03</b>

LVAW;s (mm)	Control	EC1L	EC1H	EC2L	EC2H	CS
	1.18	1.05	1.23	1.33	1.11	1.25
	1.26	1.22	1.26	1.04	1.08	1.13
	1.15	1.17	1.03	1.16	1.17	1.11
	1.09	1.26	1.00	1.18	1.20	0.94
	1.15	1.26	1.34	1.03	1.07	1.16
	1.23	1.01	1.13	1.15	1.03	1.17
	1.23	0.97	1.40	1.42	1.02	1.18
	0.91	1.33	1.43	1.16	1.10	
mean	<b>1.15</b>	<b>1.16</b>	<b>1.23</b>	<b>1.18</b>	<b>1.10</b>	<b>1.13</b>
SEM	<b>0.04</b>	<b>0.05</b>	<b>0.06</b>	<b>0.05</b>	<b>0.02</b>	<b>0.04</b>

LVPW;d (mm)	Control	EC1L	EC1H	EC2L	EC2H	CS
	0.870833	0.7425	0.870833	0.7975	0.944167	0.7975
	0.7425	0.779167	0.715	0.760833	0.88	0.7975
	0.7896	0.753333	0.678333	0.806667	0.7975	0.7258
	0.7425	0.77	0.751667	0.7975	0.733333	0.678333
	0.715	0.7425	0.66	0.7425	0.678333	0.7402
	0.941875	0.7	0.733333	0.834167	0.953333	0.7947
	0.815833	0.843333	0.669167	0.733333	0.779167	0.788333
	0.715	0.751667	0.916667	0.669167	0.678333	
mean	<b>0.79</b>	<b>0.76</b>	<b>0.75</b>	<b>0.77</b>	<b>0.81</b>	<b>0.76</b>
SEM	<b>0.03</b>	<b>0.01</b>	<b>0.03</b>	<b>0.02</b>	<b>0.04</b>	<b>0.02</b>

LVPW;s (mm)	Control	EC1L	EC1H	EC2L	EC2H	CS
	0.980833	0.889167	1.310833	1.045	1.173333	1.081667
	1.081667	1.045	0.935	0.788333	1.164167	1.035833
	1.05216	1.0015	0.9625	1.2375	1.026667	0.933333
	0.925833	0.971667	1.081667	1.109167	0.916667	0.843333
	1.026667	1.118333	0.999167	1.054167	0.9625	0.8521
	1.189375	0.860417	0.980833	0.980833	1.173333	1.1508
	1.191667	1.1275	0.925833	1.1	1.045	1.054167
	0.916667	0.99	1.21	1.035833	0.9075	
mean	<b>1.05</b>	<b>1.00</b>	<b>1.05</b>	<b>1.04</b>	<b>1.05</b>	<b>0.99</b>
SEM	<b>0.04</b>	<b>0.03</b>	<b>0.05</b>	<b>0.05</b>	<b>0.04</b>	<b>0.04</b>