

ESI statistical analysis

Fig. 2A

Average±SD	MeHgCl	HgCl ₂	β-HgS
control	100.00±3.52	100.00±1.83	100.00±4.63
200 ng Hg/mL	97.71±3.01	94.01±2.05	78.30±2.54
400 ng Hg/mL	89.70±1.59	94.14±2.38	71.03±2.30
600 ng Hg/mL	70.92±2.33	93.86±2.94	65.26±2.02
800 ng Hg/mL	43.23±1.64	93.41±1.69	62.18±1.74
1000 ng Hg/mL	25.22±1.01	90.51±1.49	57.02±1.61

Adjusted P Value of MeHgCl	Control	200 ng Hg/mL	400 ng Hg/mL	600 ng Hg/mL	800 ng Hg/mL	1000 ng Hg/mL
Control						
200 ng Hg/mL	0.2696					
400 ng Hg/mL	<0.0001	<0.0001				
600 ng Hg/mL	<0.0001	<0.0001	<0.0001			
800 ng Hg/mL	<0.0001	<0.0001	<0.0001	<0.0001		
1000 ng Hg/mL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

Adjusted P Value of HgCl ₂	Control	200 ng Hg/mL	400 ng Hg/mL	600 ng Hg/mL	800 ng Hg/mL	1000 ng Hg/mL
Control						
200 ng Hg/mL	<0.0001					
400 ng Hg/mL	<0.0001	>0.9999				
600 ng Hg/mL	<0.0001	>0.9999	0.9998			
800 ng Hg/mL	<0.0001	0.9938	0.9844	0.9983		
1000 ng Hg/mL	<0.0001	0.0164	0.0111	0.0247	0.0777	

Adjusted P Value of β-HgS	Control	200 ng Hg/mL	400 ng Hg/mL	600 ng Hg/mL	800 ng Hg/mL	1000 ng Hg/mL
Control						
200 ng Hg/mL	<0.0001					
400 ng Hg/mL	<0.0001	<0.0001				
600 ng Hg/mL	<0.0001	<0.0001	<0.0001			
800 ng Hg/mL	<0.0001	<0.0001	<0.0001	0.0508		
1000 ng Hg/mL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

Adjusted P Value among different groups	Control vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
Control	>0.9999	>0.9999	>0.9999
200 ng Hg/mL	0.0002	<0.0001	<0.0001
400 ng Hg/mL	0.0002	<0.0001	<0.0001
600 ng Hg/mL	<0.0001	<0.0001	<0.0001
800 ng Hg/mL	<0.0001	<0.0001	<0.0001
1000 ng Hg/mL	<0.0001	<0.0001	<0.0001

ESI statistical analysis

Fig. 2B

400 ng Hg/mL

Average±SD	control	MeHgCl	HgCl ₂	β-HgS
3 h	100.00±3.21	98.46±2.32	99.88±1.78	94.40±1.78
6 h	100.00±2.75	95.95±1.70	96.57±2.53	88.88±1.42
12 h	100.00±2.56	93.80±2.92	98.72±2.02	84.00±1.92
24 h	100.00±2.03	82.60±2.05	93.81±2.22	73.50±1.03
48 h	100.00±1.30	15.52±0.83	88.67±3.08	73.62±1.65

Adjusted P Value of MeHgCl	3 h	6 h	12 h	24 h	48 h
3 h					
6 h	0.0727				
12 h	<0.0001	0.1722			
24 h	<0.0001	<0.0001	<0.0001		
48 h	<0.0001	<0.0001	<0.0001	<0.0001	

Adjusted P Value of HgCl ₂	3 h	6 h	12 h	24 h	48 h
3 h					
6 h	0.0066				
12 h	0.7486	0.1739			
24 h	<0.0001	0.0374	<0.0001		
48 h	<0.0001	<0.0001	<0.0001	<0.0001	

Adjusted P Value of β-HgS	3 h	6 h	12 h	24 h	48 h
3 h					
6 h	<0.0001				
12 h	<0.0001	<0.0001			
24 h	<0.0001	<0.0001	<0.0001		
48 h	<0.0001	<0.0001	<0.0001	>0.9999	

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
3 h	0.3839	0.9992	<0.0001	0.4598	0.0002	<0.0001
6 h	0.0002	0.0026	<0.0001	0.9177	<0.0001	<0.0001
12 h	<0.0001	0.5428	<0.0001	<0.0001	<0.0001	<0.0001
24 h	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
48 h	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

ESI statistical analysis

Fig. 2C

1000 ng Hg/mL

Average±SD	control	MeHgCl	HgCl ₂	β-HgS
3 h	100.00±3.01	85.01±3.47	92.72±2.44	86.34±1.93
6 h	100.00±1.76	72.83±2.40	95.48±2.11	81.08±1.05
12 h	100.00±3.25	48.30±1.41	95.24±1.95	70.93±1.31
24 h	100.00±1.90	24.97±1.21	89.01±1.45	59.15±1.12
48 h	100.00±1.87	3.71±0.30	89.61±1.44	63.22±1.60

Adjusted P Value of MeHgCl	3 h	6 h	12 h	24 h	48 h
3 h					
6 h	<0.0001				
12 h	<0.0001	<0.0001			
24 h	<0.0001	<0.0001	<0.0001		
48 h	<0.0001	<0.0001	<0.0001	<0.0001	

Adjusted P Value of HgCl ₂	3 h	6 h	12 h	24 h	48 h
3 h					
6 h	0.0203				
12 h	0.0438	0.9988			
24 h	0.0005	<0.0001	<0.0001		
48 h	0.0077	<0.0001	<0.0001	0.9661	

Adjusted P Value of β-HgS	3 h	6 h	12 h	24 h	48 h
3 h					
6 h	<0.0001				
12 h	<0.0001	<0.0001			
24 h	<0.0001	<0.0001	<0.0001		
48 h	<0.0001	<0.0001	<0.0001	<0.0001	

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
3 h	<0.0001	<0.0001	<0.0001	<0.0001	0.449	<0.0001
6 h	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
12 h	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
24 h	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
48 h	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

ESI statistical analysis

Fig. 3 apoptosis rate

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL	3.43±0.622	9.10±0.622	4.48±0.868	3.17±1.653
1000 ng Hg/mL	3.66±0.632	67.43±1.429	3.89±1.344	3.81±1.737

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
400 ng Hg/mL	0.0086	0.9953	>0.9999	0.0526	0.0053	0.983
1000 ng Hg/mL	<0.0001	>0.9999	>0.9999	<0.0001	<0.0001	>0.9999

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL vs 1000 ng Hg/mL	>0.9999	<0.0001	0.9999	0.9998

Fig. 4A ROS

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL	100.00±0.00	116.10±5.21	99.60±3.17	91.40±2.18
1000 ng Hg/mL	100.00±0.00	165.57±5.36	99.47±5.56	90.73±5.81

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
400 ng Hg/mL	0.0012	>0.9999	0.1193	0.0009	<0.0001	0.1495
1000 ng Hg/mL	<0.0001	>0.9999	0.081	<0.0001	<0.0001	0.1105

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL vs 1000 ng Hg/mL	>0.9999	<0.0001	>0.9999	0.9994

Fig. 4B MDA

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL	100.00±0.00	102.49±2.31	104.55±2.47	103.07±6.05
1000 ng Hg/mL	100.00±0.00	255.29±3.11	105.48±7.49	165.09±5.61

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
400 ng Hg/mL	0.8898	0.5721	0.8147	0.9331	0.9983	0.9732
1000 ng Hg/mL	<0.0001	0.4193	<0.0001	<0.0001	<0.0001	<0.0001

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL vs 1000 ng Hg/mL	>0.9999	<0.0001	0.9981	<0.0001

ESI statistical analysis

Fig. 5A GSH

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL	100.00±3.66	126.74±5.32	175.26±10.40	147.53±6.24
1000 ng Hg/mL	100.00±3.66	185.75±15.69	173.04±5.53	182.80±7.58

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
400 ng Hg/mL	0.0051	<0.0001	<0.0001	<0.0001	0.0308	0.0038
1000 ng Hg/mL	<0.0001	<0.0001	<0.0001	0.2659	0.9704	0.4822

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL vs 1000 ng Hg/mL	>0.9999	<0.0001	0.9956	0.0003

Fig. 5B GSSG

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL	100.00±7.31	103.3±9.82	155.89±13.73	144.56±7.61
1000 ng Hg/mL	100.00±7.31	230.64±37.62	150.63±14.71	120.97±6.98

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
400 ng Hg/mL	0.9945	0.0034	0.0193	0.0057	0.0316	0.8297
1000 ng Hg/mL	<0.0001	0.0077	0.4201	<0.0001	<0.0001	0.1582

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL vs 1000 ng Hg/mL	>0.9999	<0.0001	0.9917	0.3309

Fig. 5C GSH/GSSG

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL	100.00±3.66	122.70±5.15	112.43±6.67	102.05±4.32
1000 ng Hg/mL	100.00±3.66	80.54±6.80	114.88±3.67	151.12±6.27

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
400 ng Hg/mL	0.0003	0.0436	0.9615	0.1127	0.0009	0.1076
1000 ng Hg/mL	0.0015	0.0138	<0.0001	<0.0001	<0.0001	<0.0001

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
400 ng Hg/mL vs 1000 ng Hg/mL	>0.9999	<0.0001	0.9662	<0.0001

ESI statistical analysis

Fig. 6A mRNA

Average±SD	Control	MeHgCl	HgCl ₂	β-HgS
Nrf2-400 ng Hg/mL	1.00±0.04	1.33±0.01	0.80±0.05	0.80±0.05
Nrf2-1000 ng Hg/mL	1.00±0.04	1.70±0.10	1.05±0.08	1.14±0.01
NQO-1-400 ng Hg/mL	1.00±0.04	1.68±0.16	2.01±0.29	2.03±0.24
NQO-1-1000 ng Hg/mL	1.00±0.04	1.90±0.08	2.48±0.28	3.26±0.31
HO-1-400 ng Hg/mL	1.00±0.00	1.86±0.04	1.26±0.02	1.49±0.05
HO-1-1000 ng Hg/mL	1.00±0.00	22.53±0.94	1.44±0.06	1.62±0.02

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
Nrf2-400 ng Hg/mL	0.6536	0.9516	0.9516	0.1385	0.1385	>0.9999
Nrf2-1000 ng Hg/mL	0.0189	>0.9999	0.9909	0.0361	0.1081	0.9991
NQO-1-400 ng Hg/mL	0.0235	0.0002	0.0001	0.643	0.579	>0.9999
NQO-1-1000 ng Hg/mL	0.0011	<0.0001	<0.0001	0.0773	<0.0001	0.0054
HO-1-400 ng Hg/mL	0.0017	0.8567	0.2124	0.0589	0.5043	0.9091
HO-1-1000 ng Hg/mL	<0.0001	0.3193	0.0501	<0.0001	<0.0001	0.9708

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
Nrf2-400 ng Hg/mL vs 1000 ng Hg/mL		0.5362	0.8711	0.6111
NQO-1-400 ng Hg/mL vs 1000 ng Hg/mL		0.9301	0.2547	<0.0001
HO-1-400 ng Hg/mL vs 1000 ng Hg/mL		<0.0001	0.9681	0.9938

ESI statistical analysis

Fig. 6B

WB

Average±SD	Control	MeHgCl	HgCl ₂	HgS
Nrf2-400 ng Hg/mL	1.00±0.00	0.93±0.036	1.00±0.120	0.93±0.048
Nrf2-1000 ng Hg/mL	1.00±0.00	0.66±0.051	0.92±0.125	0.98±0.160
NQO-1-400 ng Hg/mL	1.00±0.00	1.06±0.088	1.11±0.127	1.14±0.034
NQO-1-1000 ng Hg/mL	1.00±0.00	0.94±0.012	1.06±0.066	1.17±0.109
HO-1-400 ng Hg/mL	1.00±0.00	1.27±0.011	1.51±0.084	1.69±0.037
HO-1-1000 ng Hg/mL	1.00±0.00	1.72±0.039	1.39±0.078	1.38±0.031

Adjusted P Value among different groups	Control vs MeHgCl	Control vs HgCl ₂	Control vs β-HgS	MeHgCl vs HgCl ₂	MeHgCl vs β-HgS	HgCl ₂ vs β-HgS
Nrf2-400 ng Hg/mL	0.8911	>0.9999	0.9285	0.8759	>0.9999	0.9167
Nrf2-1000 ng Hg/mL	<0.0001	0.8834	>0.9999	0.0022	0.0001	0.9594
NQO-1-400 ng Hg/mL	0.9466	0.5534	0.2682	0.9853	0.8571	0.9988
NQO-1-1000 ng Hg/mL	0.957	0.9512	0.1149	0.4459	0.0101	0.5984
HO-1-400 ng Hg/mL	0.0015	<0.0001	<0.0001	0.0052	<0.0001	0.0822
HO-1-1000 ng Hg/mL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	>0.9999

Adjusted P Value between two dosage	Control	MeHgCl	HgCl ₂	β-HgS
Nrf2-400 ng Hg/mL vs 1000 ng Hg/mL		0.002	0.8677	0.9802
NQO-1-400 ng Hg/mL vs 1000 ng Hg/mL		0.434	0.9834	0.9994
HO-1-400 ng Hg/mL vs 1000 ng Hg/mL		<0.0001	0.4134	0.0002