Electronic Supplementary Material (ESI) for RSC Advances. **TSupplementary Figures** and **Tables** istry 2023



**Figure S1.** (A) Graph showing the linear best fit curve of the MTS assay data on CMs with various cell population densities in the 3D bioprinted spheroidal droplets. All values are expressed as Mean  $\pm$  SEM of three replicates (n=3). (B) Table showing the amount of live CMs post-treatment with increasing concentrations of doxorubicin extrapolated from the linear best fit curve of MTS data during 5 days of culture.



**Figure S2.** (A) Graph showing the linear best fit curve of the MTS assay data on CMs with various cell population densities in 2D samples. All values are expressed as Mean  $\pm$  SEM of three replicates (n=3). (B) Table showing the amount of live CMs post-treatment with increasing concentrations of doxorubicin extrapolated from the linear best fit curve of MTS data during 5 days of culture.



**Figure S3:** (A-D) Representative figures demonstrating the diffusion of DOX ( $0.4\mu$ M,  $0.6\mu$ M,  $0.8\mu$ M and  $1\mu$ M) into the hydrogel scaffolds in comparison to the control sample scaffold (E) where DOX was not administered.



**Figure S4.** Optical density measurements for MTS assay of CMs in the 3D spheroidal droplets treated with increasing concentrations (3mM, 5mM, and 10mM) of (A) Tiron and (B) NAC respectively with 1 $\mu$ M DOX during 5 days of culture. \*p values were found to be all statistically different.

**(A)** 

Tiron	Day 1			Day 3			Day 5		
	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells
3mM	$0.76\pm0.06$	$81\pm6\%$	$23387 \pm 1846 \text{ cells}$	$0.40\pm0.05$	$41\pm5\%$	$11774 \pm 1472$ cells	$0.25\pm0.04$	$25\pm4\%$	6935 ± 1110 cells
5mM	$0.78\pm0.05$	$83\pm5\%$	$24032 \pm 1541 \text{ cells}$	$0.41\pm0.04$	$42 \pm 4\%$	$12096 \pm 1180$ cells	$0.27\pm0.04$	$27 \pm 4\%$	7581 ± 1123 cells
10mM	$0.80\pm0.06$	$85\pm6\%$	$24677 \pm 1851 \text{ cells}$	$0.52\pm0.05$	$55\pm5\%$	$15645 \pm 1504$ cells	$0.56\pm0.03$	$61 \pm 3\%$	$16935\pm907\ cells$
Control (NO DOX)	$0.93 \pm 0.04$	100%	28871 ± 1242 cells	$0.92\pm0.04$	100%	$28548 \pm 1241 \text{ cells}$	$0.90 \pm 0.04$	100%	$27903 \pm 1240$ cells
Control + Tiron (NO DOX)	$0.90\pm0.03$	100%	$27903 \pm 930$ cells	$0.90\pm0.03$	100%	$27903 \pm 930$ cells	$0.89\pm0.04$	100%	27581 ± 1239 cells

## **(B)**

NAC		Day 1			Day 3			Day 5		
	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells	
3mM	$0.77\pm0.04$	$82\pm4\%$	$23710 \pm 1232 \text{ cells}$	$0.40\pm0.04$	$42\pm4\%$	$11774 \pm 1177$ cells	$0.30\pm0.04$	$30 \pm 4\%$	8548 ± 1140 cells	
5mM	$0.78\pm0.04$	$84 \pm 4\%$	$24302 \pm 1232 \text{ cells}$	$0.42\pm0.05$	$44\pm5\%$	$12419 \pm 1478 \text{ cells}$	$0.31\pm0.04$	$31 \pm 4\%$	8871 ± 1145 cells	
10mM	$0.81\pm0.05$	$87\pm5\%$	$25000 \pm 1543 \text{ cells}$	$0.53\pm0.06$	$57\pm6\%$	$15968 \pm 1808 \text{ cells}$	$0.59\pm0.05$	$63 \pm 5\%$	$17903 \pm 1517 \text{ cells}$	
Control (NO DOX)	$0.93 \pm 0.04$	100%	$28870 \pm 1242 \text{ cells}$	$0.91\pm0.04$	100%	$28226 \pm 1241 \text{ cells}$	$0.91\pm0.04$	100%	$28226 \pm 1241 \text{ cells}$	
Control + Tiron (NO DOX)	$0.92\pm0.04$	100%	$28548 \pm 1241 \text{ cells}$	$0.92\pm0.05$	100%	$28548 \pm 1552 \text{ cells}$	$0.90\pm0.04$	100%	$27903 \pm 1240 \text{ cells}$	

**Figure S5.** Tables showing the percent cell viability of CMs in the 3D spheroidal droplets treated with the same concentrations of (A) Tiron and (B) NAC with 1µM DOX extrapolated from the linear best fit curve of MTS data.



**Figure S6.** Optical density measurements for MTS assay of CMs grown on 2D samples with increasing concentrations (3mM,5mM, and 10mM) of (A) Tiron and (B) NAC with 1µM DOX after 5 days of culture. \*p values were found to be all statistically different.

Tiron	Day 1			Day 3			Day 5		
	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells
3mM	$0.85\pm0.04$	$77 \pm 4\%$	$21556 \pm 1014 \text{ cells}$	$0.38\pm0.04$	$30 \pm 3\%$	$8500 \pm 895$ cells	$0.26\pm0.04$	$18 \pm 3\%$	$5167 \pm 795$ cells
5mM	$0.87\pm0.03$	$79 \pm 3\%$	22111 ± 762 cells	$0.42\pm0.04$	$34 \pm 3\%$	9611 ± 915 cells	$0.30\pm0.04$	$22 \pm 3\%$	$6278 \pm 837$ cells
10mM	$0.90\pm0.05$	$82\pm5\%$	$22944 \pm 1275 \text{ cells}$	$0.71\pm0.05$	$63 \pm 4\%$	$17667 \pm 1244$ cells	$0.73\pm0.05$	$65 \pm 4\%$	$18222 \pm 1248$ cells
Control (NO DOX)	$1.08 \pm 0.05$	100%	$27944 \pm 1294$ cells	$1.08\pm0.03$	100%	27944 ± 776 cells	$1.08\pm0.05$	100%	$27944 \pm 1294$ cells
Control + Tiron (NO DOX)	$1.08 \pm 0.04$	100%	$27944 \pm 1035 \text{ cells}$	$1.09\pm0.03$	100%	$28222 \pm 777$ cells	$1.08\pm0.04$	100%	$27944 \pm 1035$ cells

NAC	<b>(B)</b> Day 1			Day 3			Day 5		
	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells	OD Value	% Cell Viability (% CV)	Number of LIVE cells
3mM	$0.85\pm0.04$	$77 \pm 4\%$	$21556 \pm 1014 \text{ cells}$	$0.40\pm0.04$	32 ± 3%	$9056 \pm 906$ cells	$0.30 \pm 0.04$	22 ± 3%	$6278 \pm 837$ cells
5mM	$0.87\pm0.03$	$79 \pm 3\%$	$22111 \pm 762 \text{ cells}$	$0.44\pm0.04$	36 ± 3%	$10166 \pm 924$ cells	$0.34\pm0.03$	$26 \pm 2\%$	$7389 \pm 652$ cells
10mM	$0.90\pm0.07$	$82\pm6\%$	$22944 \pm 1785 \text{ cells}$	$0.72\pm0.05$	$64 \pm 4\%$	$17944 \pm 1246$ cells	$0.74\pm0.05$	$66 \pm 4\%$	$18500 \pm 1250$ cells
Control (NO DOX)	$1.08 \pm 0.05$	100%	$27944 \pm 1294$ cells	$1.08 \pm 0.03$	100%	$27944 \pm 776$ cells	$1.08 \pm 0.05$	100%	$27944 \pm 1294$ cells
Control + NAC (NO DOX)	$1.08 \pm 0.03$	100%	27944 ± 776 cells	$1.08\pm0.05$	100%	$27944 \pm 1294 \text{ cells}$	$1.09\pm0.05$	100%	$28222 \pm 1295 \text{ cells}$

Figure S7. (A, B) Tables showing the percent % CV and number of live CMs grown on 2D samples extrapolated from the linear best fit curve of MTS data after 5 days of culture.

(A)		Day 1	Day 3	Day 5	
()		Number of LIVE cells	Number of LIVE cells	Number of LIVE cells	
	1mM	$23709 \pm 1847$ cells	$11452 \pm 881$ cells	$6613 \pm 827$ cells	
	8mM	$24032 \pm 1849 \text{ cells}$	$15000 \pm 1200$ cells	$14032 \pm 597$ cells	
Tiron	15mM	$28225 \pm 1551 \text{ cells}$	$28226 \pm 1241$ cells	$25645 \pm 1545$ cells	
	Control (NO DOX)	28871 ± 1242 cells	28548 ± 1241 cells	$27903 \pm 1240$ cells	
	Control + Tiron (NO DOX)	$28548 \pm 1552$ cells	28226 ± 931 cells	$28225 \pm 1241$ cells	

<b>(B)</b>		Day 1	Day 3	Day 5	
		Number of LIVE cells	Number of LIVE cells	Number of LIVE cells	
	1mM	22741 ± 922 cells	$12419 \pm 1183$ cells	6935 ± 1110 cells	
	8mM	$23710 \pm 1232$ cells	$15645 \pm 1203$ cells	$15000 \pm 900$ cells	
NAC	15mM	$27903 \pm 620$ cells	$26612 \pm 1547$ cells	$26612 \pm 619$ cells	
	Control (NO DOX)	$28870 \pm 1242$ cells	$28548 \pm 1241 \text{ cells}$	$27903 \pm 1240$ cells	
	Control + Tiron (NO DOX)	28548 ± 931 cells	28548 ± 1552 cells	$27903 \pm 1240$ cells	

**Figure S8.** Tables showing the amount of live CMs in the 3D spheroidal droplets post-treatment with increasing concentrations of (A) Tiron and (B) NAC extrapolated from the linear best fit curve of MTS data during 5 days of culture.

(A)		Day 1	Day 3	Day 5	
		Number of LIVE cells	Number of LIVE cells	Number of LIVE cells	
	1mM	21278 ± 1013 cells	7944 ± 441 cells	$3778 \pm 900$ cells	
	8mM	$21833 \pm 1269$ cells	$13222 \pm 1202$ cells	$12667 \pm 717$ cells	
Tiron	15mM	$26277 \pm 773$ cells	$26833 \pm 774$ cells	$26833 \pm 774$ cells	
	Control (NO DOX)	27944 ± 1294 cells	27944 ± 776 cells	27944 ± 1294 cells	
	Control + Tiron (NO DOX)	27944 ± 1035 cells	28222 ± 518 cells	$28500 \pm 78$ cells	

<b>(B)</b>		Day 1	Day 3	Day 5	
		Number of LIVE cells	Number of LIVE cells	Number of LIVE cells	
	1mM	$21556 \pm 761$ cells	9333 ± 911 cells	$4611 \pm 769$ cells	
	8mM	22388 ± 2035 cells	$13222 \pm 1202$ cells	$12667 \pm 956$ cells	
NAC	15mM	$26833 \pm 774$ cells	$26278 \pm 1030 \text{ cells}$	$26833 \pm 774$ cells	
	Control (NO DOX)	27944 ± 1294 cells	27944 ± 776 cells	27944 ± 1294 cells	
	Control + Tiron (NO DOX)	27944 ± 776 cells	27944 ± 1035 cells	$28222 \pm 1295$ cells	

**Figure S9.** Tables showing the amount of live CMs in 2D samples post-treatment with increasing concentrations of (A) Tiron and (B) NAC extrapolated from the linear best fit curve of MTS data during 5 days of culture.



**Figure S10.** Representative fluorescence images of live/dead staining of 3D bioprinted spheroidal scaffolds treated with increasing concentrations (3mM, 5mM, and 10mM) of Tiron and NAC and 1 $\mu$ M DOX. Live cells are stained in green by calcein AM and dead cells stained in red by ethidium homodimer after (A) 1 day and (C) 5 days of culture. (B, D) Tables representing the percent live/dead cells of CMs. The scale bar corresponds to 100 $\mu$ m.



**Figure S11.** Representative fluorescence images of live/dead staining of cardiomyocytes grown in 2D samples treated with increasing concentrations (3mM, 5mM, and 10mM) of Tiron and NAC and 1 $\mu$ M DOX. Live cells are stained in green by calcein AM and dead cells stained in red by ethidium homodimer treated with Tiron and NAC after (A) 1 day and (C) 5 days of culture. (B, D) Tables representing the percent live/dead cells of CMs. The scale bar corresponds to 100 $\mu$ m.



**Figure S12:** (A-D) Representative figures acquired using the 43 DsRed filter showing no fluorescence with different concentrations of DOX ( $0.4\mu$ M,  $0.6\mu$ M,  $0.8\mu$ M and  $1\mu$ M) in comparison to the control sample scaffold (E) where DOX was not administered.



**Figure S13.** Bar charts illustrating intracellular ROS production using DHE staining of CMs treated with 1,8, and 15 mM of Tiron and 1 $\mu$ M DOX in (A) 3D spheroidal droplets and (B) 2D samples. \**p* values were found to be all statistically different (p<0.05).



**Figure S14.** (A) Representative figure demonstrating a characteristic peak of a negative control samples (to the left). On the other hand, shown to the right is a characteristic peak of a positive control sample (B) whereby cells were prestained with CTV dye.

Supplementary Table 1. Dose responsive effects of DOX on CMs using 3D bioprinted spheroidal droplets (A) and 2D samples (B). Optical density measurements for MTS assay of CMs treated with increasing concentrations of DOX during 5 days of culture. Table showing the percent cell viability of CMs in 3D bioprinted spheroidal droplets (A) and 2D samples (B) treated with increasing concentrations of doxorubicin extrapolated from the linear best fit curve of MTS data (Figure S1-A and S8-A) over 5 days. The actual cell numbers used to generate % CV are shown in Figure S1-B and S8-B.

(4)	D	ay 1	Da	y 3	Day 5		
	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	
0.4µM DOX	$0.90\pm0.02$	$97\pm2\%$	$0.80\pm0.04$	$86\pm4\%$	$0.52\pm0.04$	$56\pm4\%$	
0.6µM DOX	$0.85\pm0.05$	91 ± 5%	$0.67\pm0.04$	$72 \pm 4\%$	$0.43\pm0.03$	$46 \pm 3\%$	
0.8µM DOX	$0.77\pm0.06$	$82\pm6\%$	$0.33\pm0.06$	$33 \pm 6\%$	$0.12\pm0.02$	$10 \pm 2\%$	
1μΜ DOX	$0.71 \pm 0.03$	75 ± 3%	$0.20 \pm 0.03$	$19 \pm 3\%$	$0.002 \pm 0.001$	0.22±0.11%	
Control (NO DOX)	$0.93\pm0.03$	100%	$0.92\pm0.04$	100%	$0.90\pm0.04$	100%	

<b>(B)</b>	Day	y 1	Da	ny 3	Day 5		
	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	
0.4µM DOX	$1.02\pm0.04$	$94\pm4\%$	$0.83\pm0.04$	$75\pm4\%$	$0.72\pm0.04$	$64 \pm 4\%$	
0.6µM DOX	$1.00\pm0.05$	$92\pm5\%$	$0.67\pm0.04$	$59\pm4\%$	$0.56\pm0.04$	48 ± 3%	
0.8µM DOX	$0.90\pm0.06$	$82\pm6\%$	$0.30\pm0.06$	$22 \pm 4\%$	$0.22\pm0.02$	$15 \pm 1\%$	
1μM DOX	$0.81 \pm 0.05$	73 ± 5%	$0.14 \pm 0.04$	$7\pm2\%$	0.011 ± 0.003	1.02 ± 0.28%	
Control (NO DOX)	$1.08 \pm 0.05$	100%	$1.08 \pm 0.03$	100%	$1.08 \pm 0.05$	100%	

Supplementary Table 2. Quantitative analysis depicting the effects of supplementing Tiron/NAC on CMs using 3D spheroidal droplets (A, B) and 2D samples (C, D). Optical density measurements for MTS assay of CMs treated with increasing concentrations (1mM, 8mM, and 15mM) of Tiron and NAC with 1 $\mu$ M DOX. Tables representing the percent cell viability of CMs in 3D spheroidal droplets (A and B) and 2D samples (C and D) extrapolated from the linear best fit curve of MTS data during 5 days of culture. \*p values were found to be all statistically different. The actual cell numbers used to generate % CV are shown in Figure S8.

(A)								
		D	Day 1		ay 3	Da	Day 5	
		OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	
	1mM	$0.77\pm0.06$	82 ± 6%	$0.39\pm0.03$	$40\pm3\%$	$0.24\pm0.03$	$24\pm3\%$	
Tiron	8mM	$0.78\pm0.06$	83 ± 6%	$0.50\pm0.04$	53 ± 4%	$0.47\pm0.02$	50 ± 2%	
	15mM	$0.91\pm0.05$	98 ± 5%	$0.91\pm0.04$	$99\pm4\%$	$0.83\pm0.05$	92 ± 6%	
	Control (NO DOX)	$0.93\pm0.04$	100%	$0.92\pm0.04$	100%	$0.90\pm0.04$	100%	
	Control + Tiron (NO DOX)	$0.92\pm0.05$	100%	0.91 ± 0.03	100%	$0.91\pm0.04$	100%	

Tiron

NAC

		Day 1		Da	iy 3	Day 5	
		OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)
NAC	1mM	$0.74\pm0.03$	$78\pm3\%$	$0.42\pm0.04$	$44\pm4\%$	$0.25\pm0.04$	$25\pm4\%$
	8mM	$0.77\pm0.04$	$82\pm4\%$	$0.52\pm0.04$	$55\pm4\%$	$0.50\pm0.03$	$54\pm3\%$
	15mM	$0.90\pm0.02$	$97\pm2\%$	$0.86\pm0.05$	93 ± 5%	$0.86\pm0.02$	$95\pm2\%$
	Control (NO DOX)	$0.93\pm0.04$	100%	$0.92\pm0.04$	100%	$0.90\pm0.04$	100%
	Control + NAC (NO DOX)	$0.92\pm0.03$	100%	$0.92\pm0.05$	100%	$0.90\pm0.04$	100%

**(C)** 

	·						
	Day 1		ay 1	Day 3		Day 5	
Tiron		OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)
	1mM	$0.84\pm0.04$	$76 \pm 4\%$	$0.36\pm0.02$	$28\pm2\%$	$0.21\pm0.05$	$14\pm 3\%$
	8mM	$0.86\pm0.05$	$78\pm5\%$	$0.55\pm0.05$	47 ± 4%	$0.53\pm0.03$	$45\pm3\%$
	15mM	$1.02\pm0.03$	$94 \pm 3\%$	$1.04\pm0.03$	$96\pm3\%$	$1.04\pm0.03$	$96\pm3\%$
	Control (NO DOX)	$1.08\pm0.05$	100%	$1.08\pm0.03$	100%	$1.08 \pm 0.05$	100%
	Control + Tiron (NO DOX)	$1.08\pm0.04$	100%	$1.09\pm0.02$	100%	$1.10\pm0.003$	100%

## **(D)**

**(B)** 

		D	ay 1	Day 3		Day 5	
		OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)	OD Value	% Cell Viability (% CV)
NAC	1mM	$0.85\pm0.03$	$77\pm3\%$	$0.41\pm0.04$	$33\pm3\%$	$0.24\pm0.04$	$17\pm3\%$
	8mM	$0.88\pm0.08$	$80\pm7\%$	$0.55\pm0.05$	$47\pm4\%$	$0.53\pm0.04$	$45\pm3\%$
	15mM	$1.04\pm0.03$	$96\pm3\%$	$1.02\pm0.04$	$94\pm4\%$	$1.04\pm0.03$	$96\pm3\%$
	Control (NO DOX)	$1.08\pm0.05$	100%	$1.08\pm0.03$	100%	$1.08\pm0.05$	100%
	Control + NAC (NO DOX)	$1.08\pm0.03$	100%	$1.08\pm0.04$	100%	$1.09\pm0.05$	100%

Supplementary Table 3. Live/Dead assay analysis representing the effects of supplementing Tiron/NAC on 3D spheroids droplets (A, C) and 2D samples (B, D) with CM. Tables representing the percent live/dead cells fluorescence staining of CMs grown on 3D spheroids droplet and 2D models treated with increasing concentrations of AO (1mM, 8mM, and 15mM) and 1µM DOX.

(A)			Day 1 % Cell Viability (% CV)	Day 5 % Cell Viability (% CV)
		1mM	$85\pm13\%$	42 ± 13%
	Tiron	8mM	89 ± 13%	$52\pm6\%$
		15mM	95 ± 11%	$93\pm9\%$
		Control (NO DOX)	94 ± 9%	$94\pm6\%$

		Day 1 % Cell Viability (% CV)	Day 5 % Cell Viability (% CV)
	1mM	94 ± 7%	$57\pm9\%$
Tiron	8mM	89 ± 13%	$43\pm9\%$
	15mM	89 ± 22%	$95\pm6\%$
	Control (NO DOX)	95 ± 4%	$94 \pm 6\%$

$(\mathbf{C})$				
(C)			Day 1 % Cell Viability (% CV)	Day 5 % Cell Viability (% CV)
		1mM	84 ± 12%	$52 \pm 4\%$
	NAC	8mM	94 ± 11%	$54 \pm 3\%$
		15mM	93 ± 14%	$96 \pm 4\%$
		Control (NO DOX)	95 ± 3%	94 ±12%

(D)			Day 1 % Cell Viability (% CV)	Day 5 % Cell Viability (% CV)
		1mM	$90\pm7\%$	$56 \pm 8\%$
	NAC	8mM	90 ± 12%	49 ± 12%
		15mM	96 ± 5%	95 ± 6%
		Control (NO DOX)	93 ± 8%	94 ± 7%

**Supplementary Table 4:** Analysis of the effect of DOX and NAC using FACS analysis within the 3D bioprinted spheroidal droplets (A) and 2D (B). Cardiomyocytes were prestained with CellTrace Violet (CTV) and mixed with the bioink prior to the 3D bioprinting and 2D. Cells were extracted from the scaffolds and culture plates from the experimental and control groups and analyzed using a flow cytometer. Shown in A and B is the average of %CTV+ of prestained CMs on days 1 and 3.

## **(A)**

		1µM DOX + 1mM NAC	1µM DOX + 8mM NAC	1µM DOX + 15mM NAC	(+) Control 1µM DOX	(-) Control NO DOX
Day 1	Average %CTV+	91.87±5.3%	88.07±7.63%	87.75±8.56%	88.27±9.79%	87.02±4.82%
Day 3	Average %CTV+	88.84±3.83%	93.11±1.37%	88.16±7.81%	87.29±2.99%	78.77±0.40
% Change (DAY 1 – DAY 3)		-3.29±0.02%	5.72±0.07%	0.47±0.008%	-1.12±0.01%	-9.48±0.05%

**(B)** 

		1µM DOX + 1mM NAC	1µM DOX + 8mM NAC	1µM DOX + 15mM NAC	(+) Control 1µM DOX	(-) Control NO DOX
Day 1	Average %CTV+	93.83±1.97%	93.66±0.98%	89.35±5.14%	92.64±0.32%	89.22±4.71%
Day 3	Average %CTV+	94.19±0.17%	94.04±1.64%	93.72±1.96%	94.21±2.12%	74.67±1.03%
% Change (DAY 1 – DAY 3)		0.38±0.02%	0.41±0.007%	4.89±0.03%	1.69±0.02%	-16.17±0.04%