

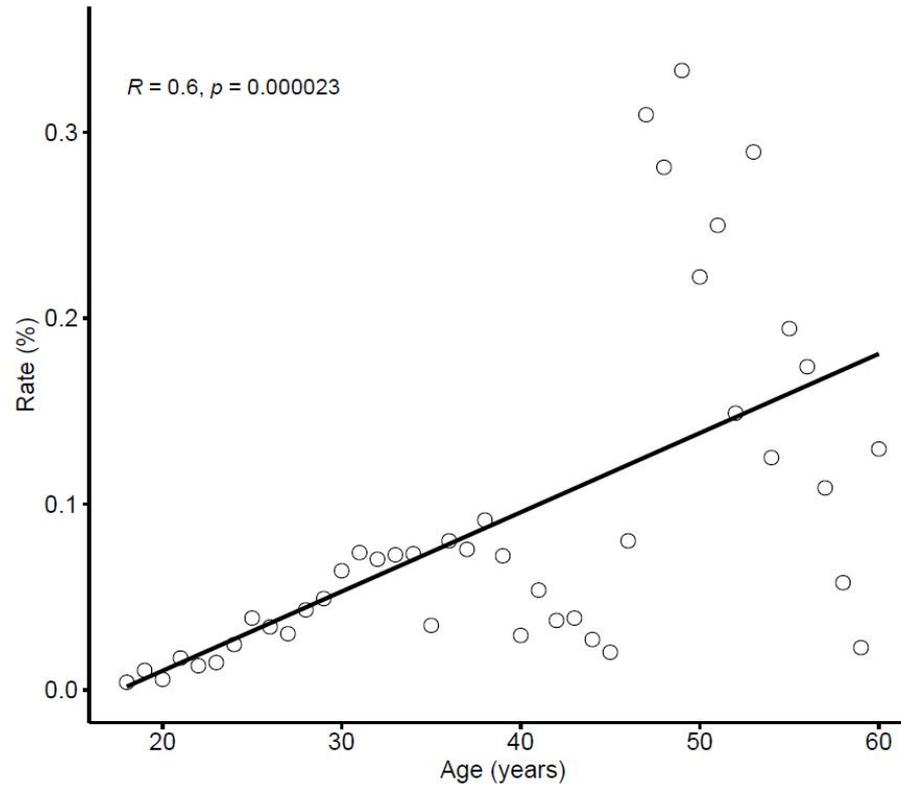
## Supplementary Table 1

Primer sequences used in real-time PCR.

Gene	Forward (5'→3')	Reverse (5'→3')
MMP2	CAACTACAACCTTCTTTCCCCGC	TTGATCATGATGTCAGCTTCCC
MMP3	ATCCCCTGATGTCCTCGTGGT	GGGTCCTGAGAGATTTTCGCC
MMP13	CCAACCCTAAGCACCCCAAAC	TCCTCAAAGTGAACCGCAGCAC
IL1 $\beta$	GCACCTTCTTTTCCTTCATCTTTG	TTTGTCGTTGCTTGTCTCTCCTT
IL6	TCCTACCCCAACTTCCAATGCTC	TTGGATGGTCTTGGTCCTTAGCC
TNF $\alpha$	AAATGGGCTCCCTCTCATCAGTTC	CCGCTTGGTGGTTTGCTACGAC
$\beta$ -Actin	TCAGGTCATCACTATCGGCAAT	AAAGAAAGGGTGTAACCGCAG

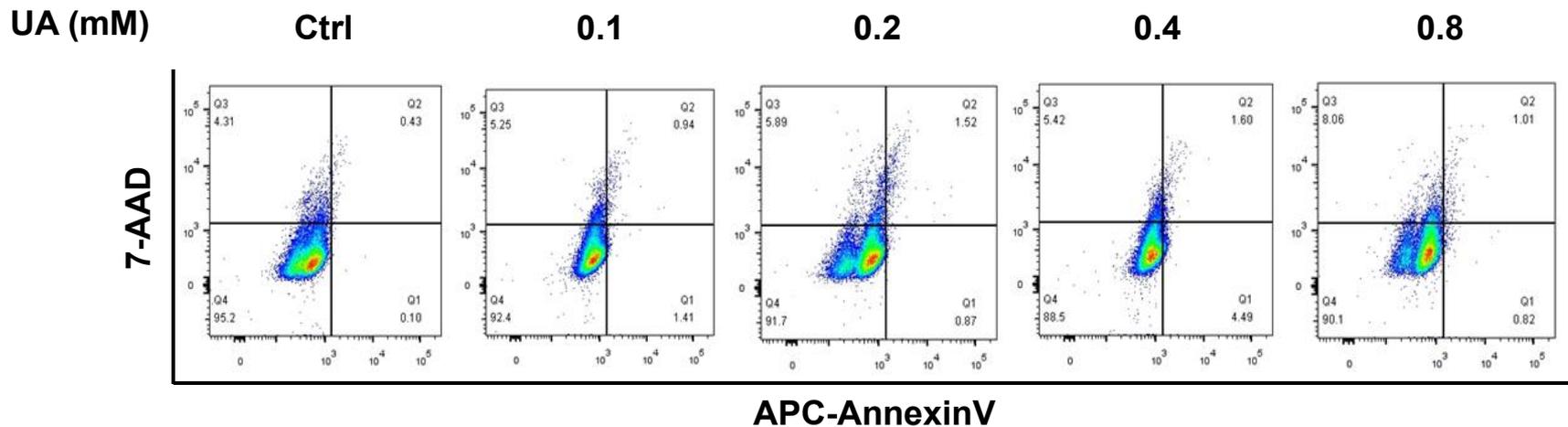
## Supplementary Figure 1

Pearson correlations of age and ATR incidence ( $P < 0.0001$ ). The incidence of ATR were calculated as the percentile of ATR patient numbers to the total number of participants of the same age. Age range were 18-60 years old, as matched to the control group.



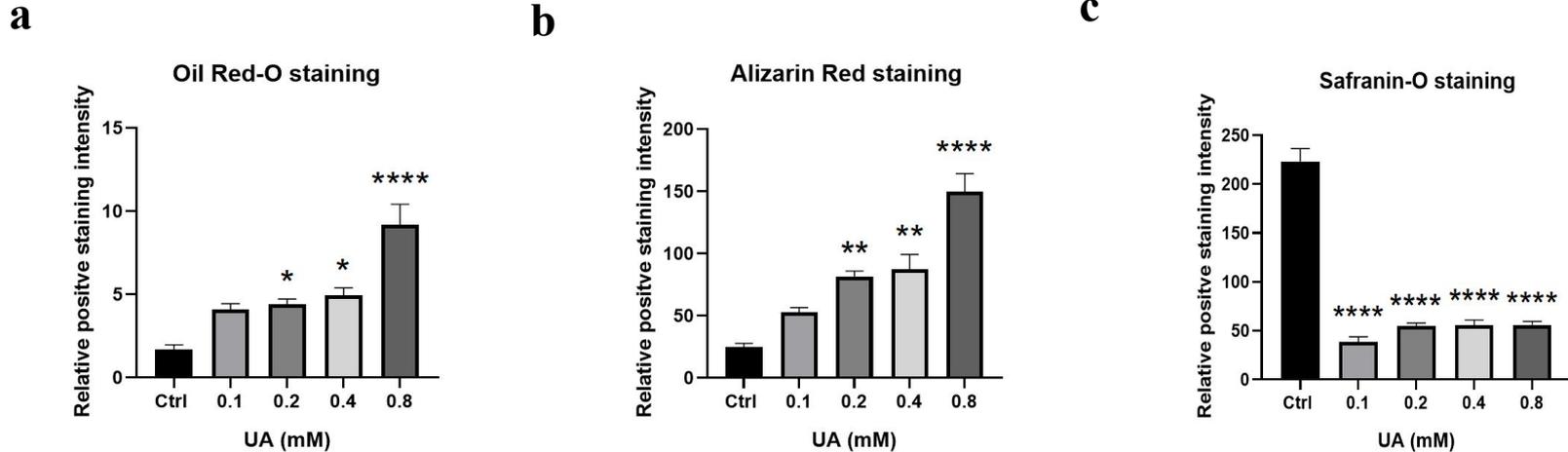
## Supplementary Figure 2

Flow cytometric analysis of Annexin V-PI staining results for TSPCs treated with different doses of UA.



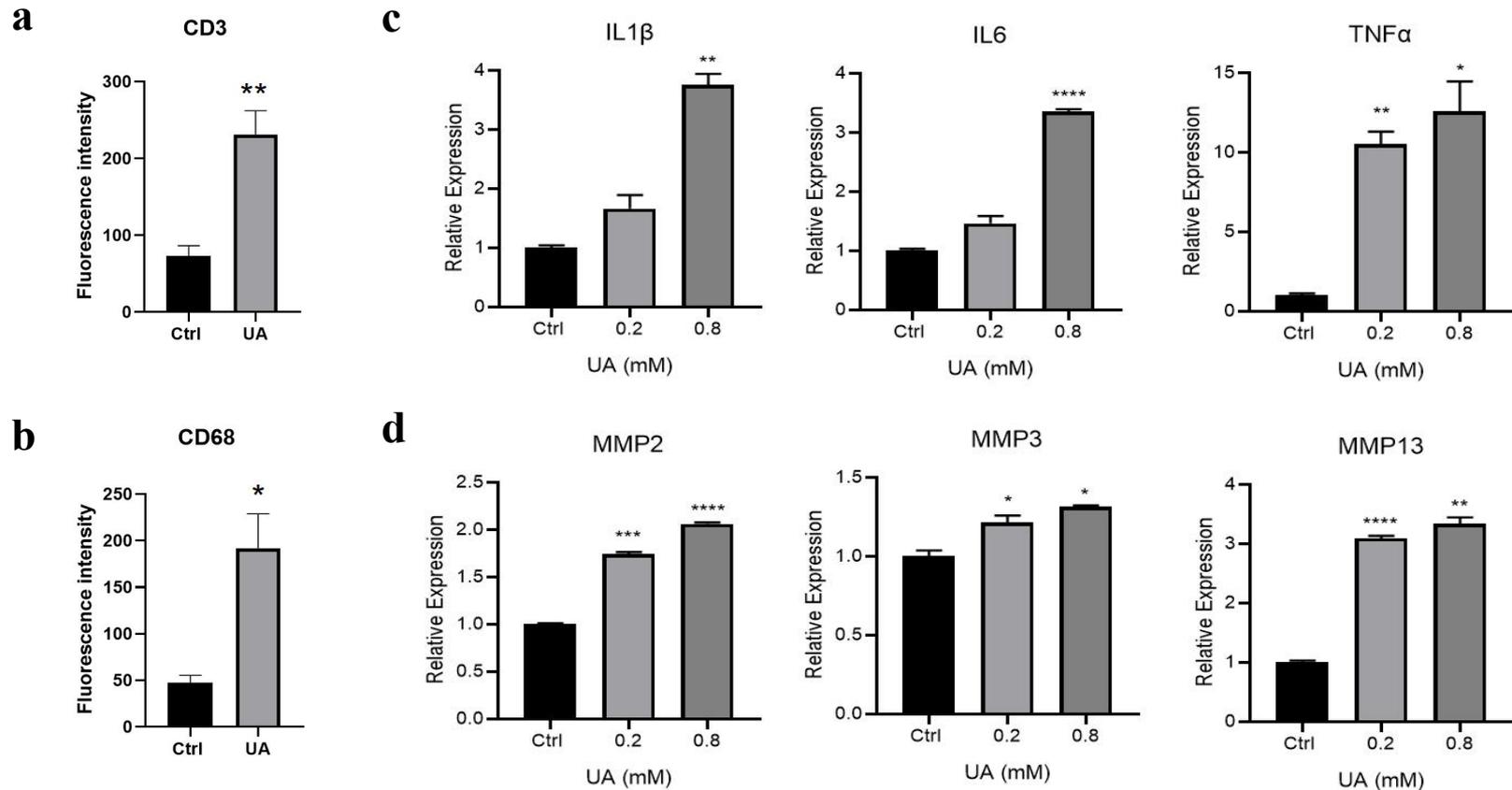
### Supplementary Figure 3

Quantification for the Oil Red-O staining (a), Alizarin Red staining (b) and Safranin-O staining (c) staining images in Figure 3 of TSPCs differentiation potential when treated with different doses of UA (n = 3). Data were the normalized ratio of staining intensity of each treatment group over that of the PBS control. Values are the mean  $\pm$  SD staining intensity of representative images of three independent experiments. \*:  $P < 0.05$ ; \*\*:  $P < 0.01$ ; \*\*\*\*:  $P < 0.0001$  versus PBS control.



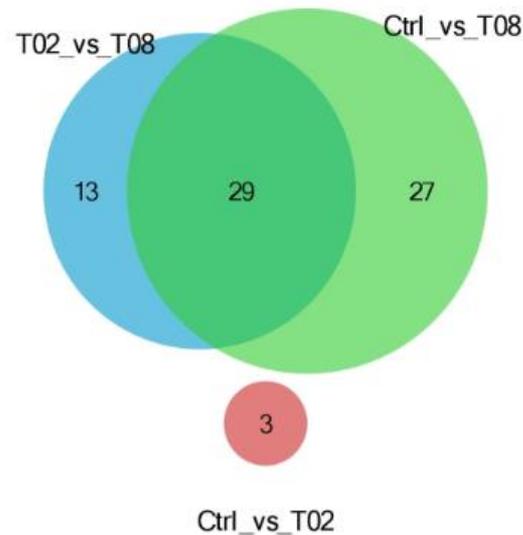
## Supplementary Figure 4

Quantification of CD3 (a) and CD68 (b) immunofluorescent staining results in Figure 4b and 4c, respectively (n = 3). Values are the mean  $\pm$  SD staining intensity of representative images of three independent experiments. Real-time qPCR results of pro-inflammatory markers (c) and degradative enzymes (d) in TSPCs treated with different concentrations of UA or PBS (n = 3 each). Values show the mean  $\pm$  SEM. \*:  $P < 0.05$ ; \*\*:  $P < 0.01$ ; \*\*\*:  $P < 0.001$ ; \*\*\*\*:  $P < 0.0001$  versus PBS-treated control within each group, analyzed using two-way ANOVA. Results are from two independent experiments.



### Supplementary Figure 5

Venn diagrams illustrate the sharing of DEG between TSPCs treated with control (PBS) or different concentrations of UA. Ctrl: TSPCs treated with PBS, T02: TSPCs treated with 0.2 mM of UA, T08: TSPCs treated with 0.8 mM UA. The numbers (13, 29, 27 and 3) indicate the DEG between two groups.



## Supplementary Figure 6

Quantification for Western blot analysis images in Figure 5C of TSPCs treated with different doses of UA (n = 3). Data were the normalized ratio of indicated protein expression over that of the corresponding loading control. Values are the mean  $\pm$  SEM from three independent experiments. \*:  $P < 0.05$ ; \*\*:  $P < 0.01$ ; \*\*\*:  $P < 0.001$ ; \*\*\*\*:  $P < 0.0001$  versus PBS control.

