SUPPLEMENTARY FIGURES



Supplementary Figure 1. The chondrogenic and adipogenic differentiation abilities of drug inducted cells. (A) Alcian blue staining on day 21 after transduction to label chondrocytes. Scale bar, 200 μ m. (C) Alizarin red staining on day 21 after transduction to label osteoblast. Scale bar, 200 μ m. (B) and (D) ImageJ was used for image analysis. Pictures were quantified by measuring the positive staining intensity area. Data are presented as sthe mean ± SEM, n > 3, *P < 0.05, **P < 0.01, ***P < 0.001.



Supplementary Figure 2. Transcriptomics characterization of oltipraz induced BM-hMSCs. (A) Common upregulated GOs enriched in the DEG of oltipraz treated cells. (B) Common downregulated GOs enriched in the DEG of oltipraz treated cells.



Supplementary Figure 3. Clustering of the FFA time series data. We combined all the FFAs' time-series fold-changes from the four drug-control pairs and clustered them using TiCoNE (version 1.3) [3]. Totally, we got 8 clusters. Each line shows a FFA's fluctuation, and each data point is the fold-change of a FFA between a drug and control. The black line shows the trend.

-log10 (p-value)

Overlap percentage

8	6	4	2	0	0.1 0.2 0.3 0.4 0.5 0.6
L	1	1	1		

response to cytokine	
phospholipid metabolic process	
Lactin cytoskeleton reorganization	
L-kappaB kinase/NE-kappaB signaling	
hone development	
Cellular response to mechanical stimulus	
regulation of actin filament hundle assembly	
myeloid leukocyte cytokine production	
nositive regulation of catalytic activity	
Positive regulation of exogenous	s nentide antigen
Cell junction assembly	s pepilde antigen
hone morphogenesis	
Inegative regulation of DNA-binding transcription f	actor activity
Cellular response to oxidative stress	actor activity
Cvtokine_mediated signaling pathway	
Pentry into other organism involved in symbiotic into	eraction
Penithelium development	oraodori
response to organic cyclic compound	
import into cell	
endochondral ossification	
muscle cell differentiation	
maintenance of unfolded protein	
response to gonadotropin	
regulation of cell-substrate adhesion	
myeloid leukocyte mediated immunity	
response to lipid	
response to ketone	
morphogenesis of an epithelium	
neuron differentiation	
glycerolipid metabolic process	
neuron development	
regulation of epidermis development	
myeloid leukocyte activation	
regulation of microtubule-based process	
endochondral bone growth	
eresponse to ionizing radiation	
regulation of protein complex assembly	

Supplementary Figure 4. Common upregulated GOs enriched in the DEG of vitamin C treated cells.