2511). As myofibroblasts, C2C12 cells, which are myoblasts isolated and cultured from C3H mice, were purchased from ATCC (CRL-1772).

Subcultured passage 27 human fibroblast HS68 (hereinafter referred to as FB) or C2C12 was inoculated onto a 96-well plate at a concentration of $1x10^4$ cells/well and cultured in an incubator at 5% CO_2 and 37°C for 24 hours. After culturing, cells were treated with betaine at different concentrations and additionally cultured for 24 hours, and an untreated group was used as a control. After the cells were washed with PBS, the cells were additionally cultured with CCK-8 (DONGJIN, CK04-11) for 2 hours, and absorbance was measured at 450 nm using a microplate reader. From the measured results, relative cell viability according to the betaine treatment concentration was calculated by setting the value of the control to 100.

As a result, it was confirmed that there was no change in the viability of FB and C2C12 even after treatment with betaine (FIGS. 1A and 1B).

1-2. Isolation of exosomes

After treating the subcultured passage 27 FB with betaine for 48 hours, the medium was collected and centrifuged at 3000xg for 30 minutes. After centrifugation, exosomes were isolated according to the method recommended by Total Exosome Isolation Reagent (Invitrogen, Cat No # 4478539). The exosomes obtained in the present example are hereinafter referred to as “fibroblast-derived exosomes”

[Table 1]

Classification	Material name	Concentration	fold change (vs. control)	p-value
peptide	Kojyl carboxy dipeptide-23	10 ppm	1.483	*
	Copper Tripeptide (Biosynth carbosynth, FC138108)		1.743	**
	L-carnosine (Sigma Aldrich, C9625)	5 ppm (0.0005%)	1.537	*
Chemical	Betaine (Sigma Aldrich, W422312)	1 mM	1.821	**
	Camelliaside A (Biosynth carbosynth, OC33270)	1 ppm	1.956	**
flavonols	Myricetin (Sigma Aldrich, M6760)	25 uM	1.599	*
flavanones	Naringenin (Sigma Aldrich, N5893)	10 uM	1.854	***
Flavones	Nobiletin (Sigma Aldrich, N1538)	30 uM	1.447	**
Extract	Camellia japonica flower extract	50 ppm	3.618	***

Example 2: Confirmation of changes in gene expression of myofibroblasts

2-1. Confirmation of changes in muscle loss/myogenesis marker expression_qPCR

C2C12 cells were inoculated onto a 6-well plate at a concentration of $1.5x10^5$ cells/well and cultured for 24 hours. Thereafter, the medium was exchanged with a medium supplemented with 2% horse serum, and the cells were further cultured for 72 hours to promote the differentiation of C2C12 cells. After the differentiation was completed, the cells were treated with betaine at 0.1 mM or fibroblast-derived exosomes (about 20 μg/ml) obtained in Example 1-2 and further cultured for 48 hours. Total RNA was extracted with an RNeasy plus mini kit and cDNA was synthesized with SuperScript™ III (Invitrogen, USA). Thereafter, qPCR was performed with a target gene taqman probe, and then analysis was performed.