Supporting Information

Glucosamine sulphate-loaded distearoyl phosphocholine liposomes for osteoarthritis treatment: combination of sustained drug release and improved lubrication

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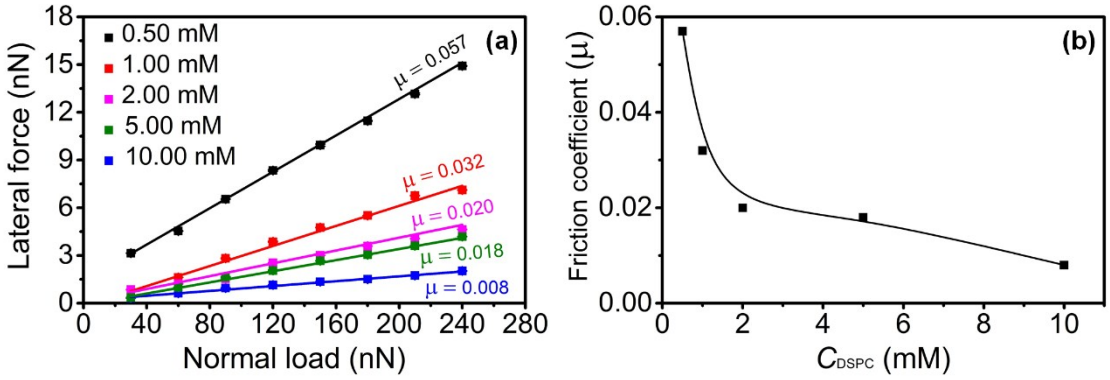

Fig. S1. (a) Lateral force as a function of normal load of the DSPC liposomes at a 2.00 Hz scanning speed. (b) Friction coefficient as a function of DSPC concentration.

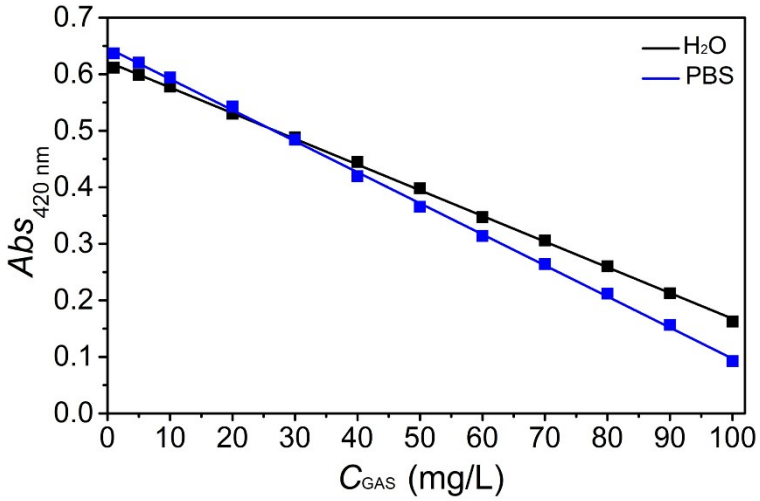

Fig. S2. GAS calibration curves obtained in H_2O and PBS as the medium.

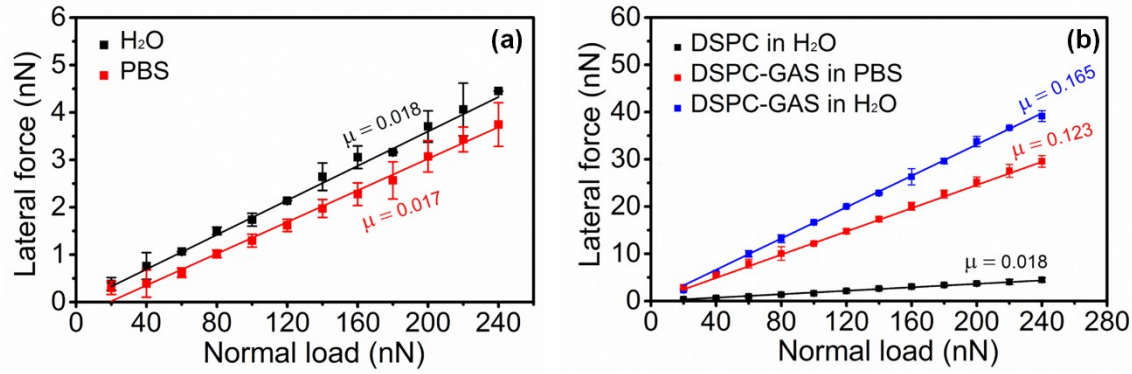

Fig. S3. Lateral force as a function of normal load of the 5.0 mM DSPC liposomes in H_2O and PBS (a) and of the DSPC liposomes and DSPC-GAS liposomes prepared with 2:8 molar ratio at 5.0 mM DSPC concentration after dialyzing for 14 days at a 2.00 Hz scanning speed.

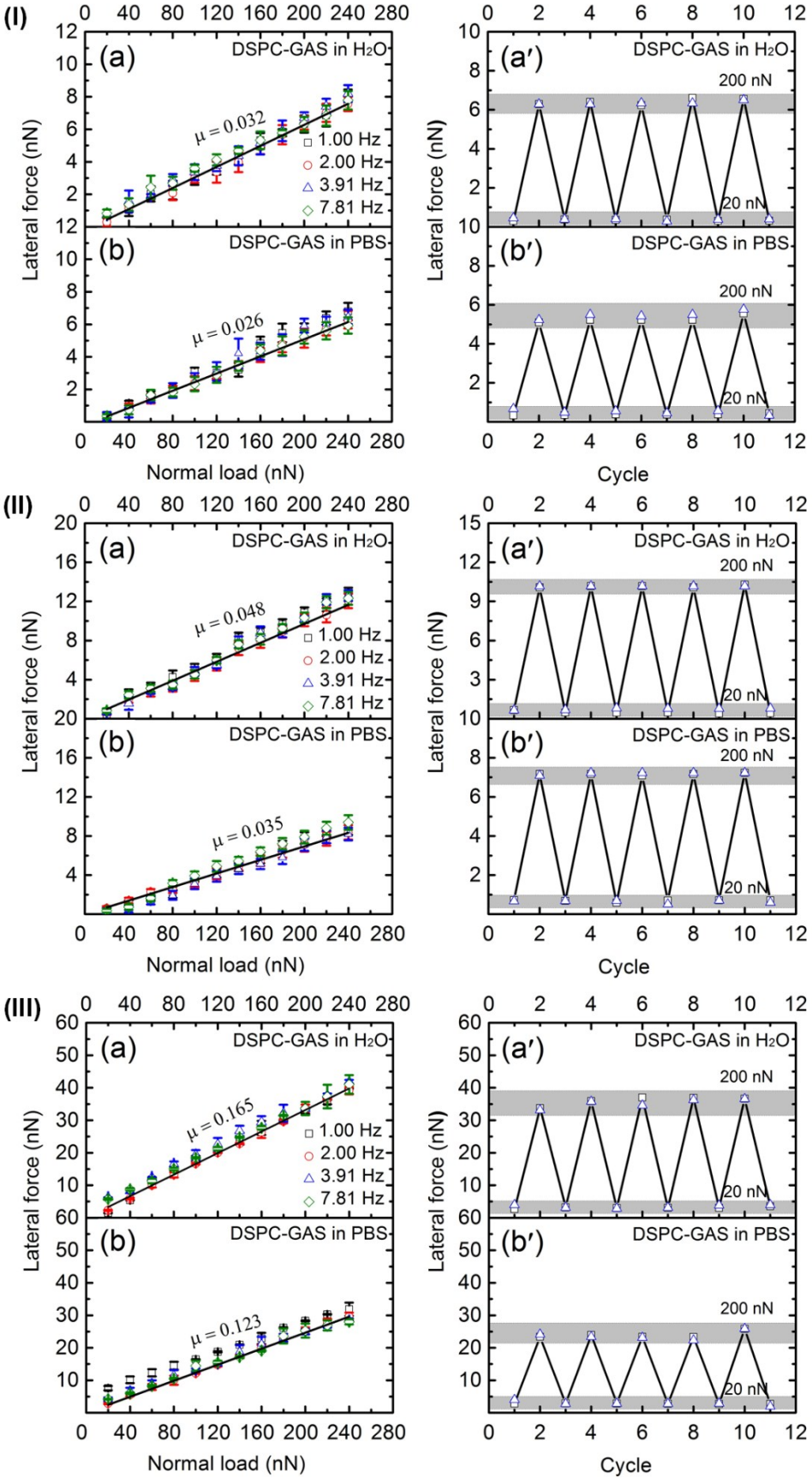

Fig. S4. Lateral force as a function of normal load (Left) under four different scanning speeds (1.00,

2.00, 3.91 and 7.81 Hz) and of cycle (Right) under a high load (F_N = 200 nN) and a low load (F_N = 20 nN) at a 2.00 Hz scanning speed. The data were shown from runs at two different positions with five steps (from increasing load to reducing load as one step). GAS-loaded DSPC liposomes separately dialyzed for (I) 3 days, (II) 7 days and (III) 14 days were prepared with a 2:8 molar ratio at the DSPC concentration of 5.0 mM in H_2O and PBS. The temperature was set as 37°C.

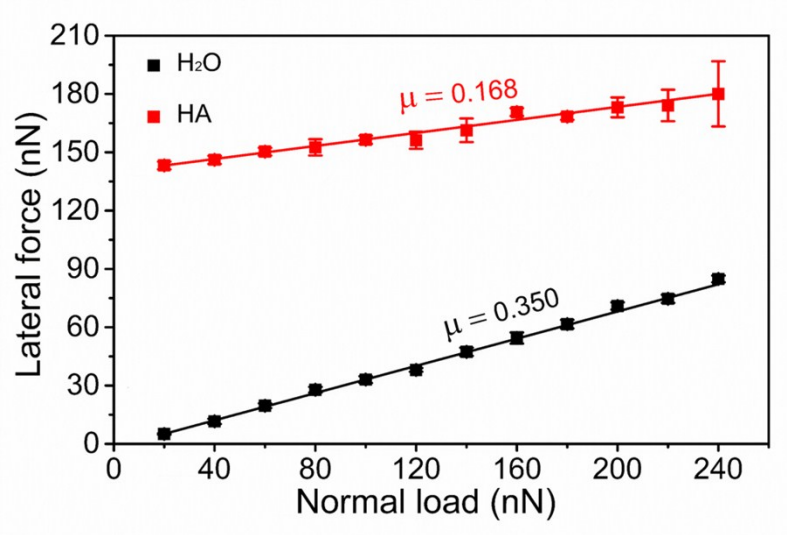

Fig. S5. Lateral force as a function of normal load for H_2O and 5.0 mg/mL HA.

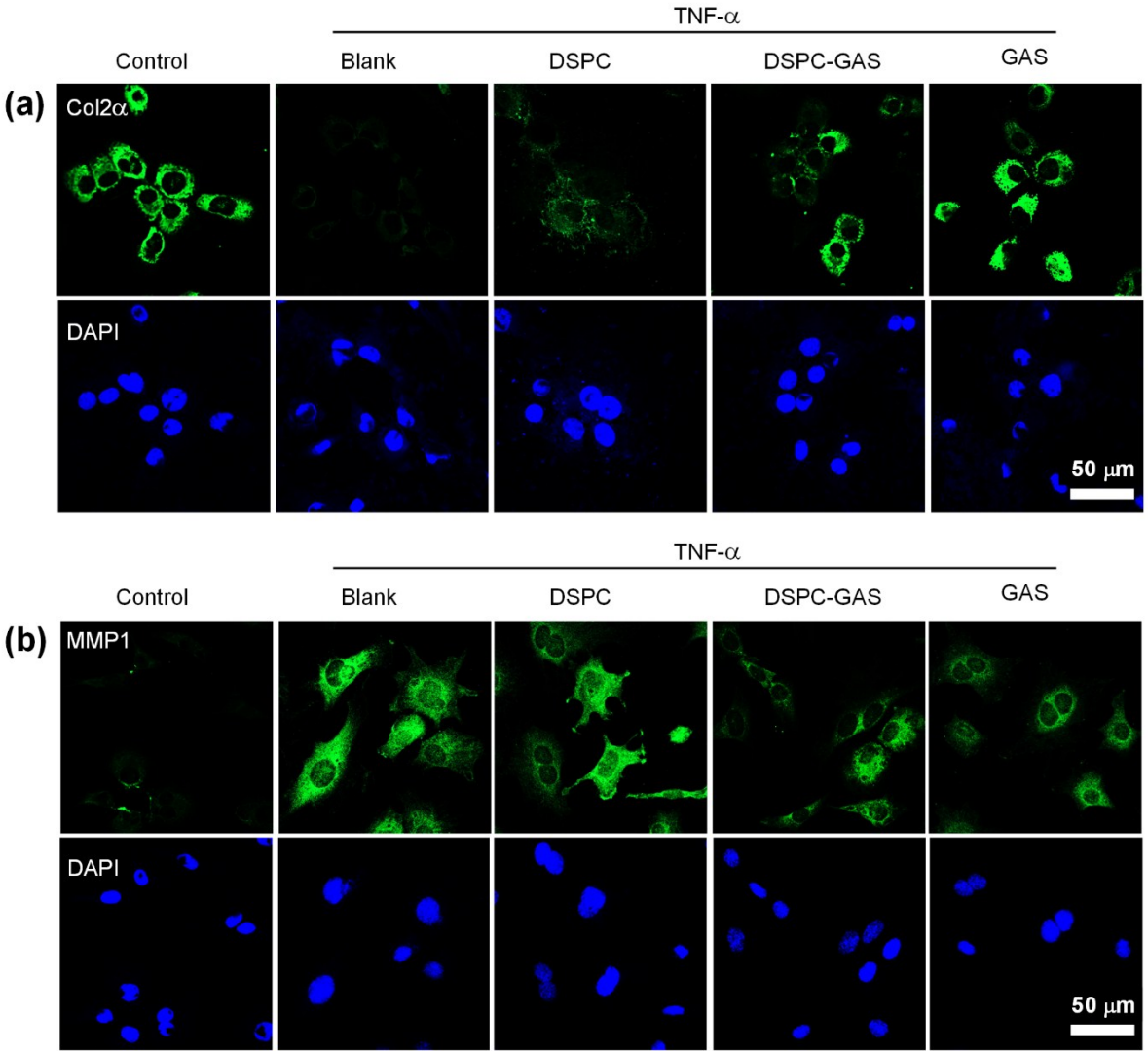

Fig. S6. Representative photomicrographs of chondrocytes treated with 5 nM of TNF-α, and cultured with DSPC, DSPC-GAS liposomes or free GAS for 12 h. Results were acquired using laser scanning confocal microscopy. Green: Alexa Fluor (488) labeling (a) Col2α or (b) MMP1. Blue: DAPI labeling cell nuclei.