

Hemp sprout-derived exosomes-like nanovesicles as hepatoprotective agent attenuate liver fibrosis

Ji-Su Kim ^{a,1}, Jung-Young Eom ^{a,b,1}, Hyun-Woo Kim ^b, Je-Won Ko ^c, Eui-Ju Hong ^c, Mun-Nyeon

Kim ^d, Jihoon Kim ^e, Do-Kyun Kim ^{b***}, Hyo-Jung Kwon ^{c**}, and Young-Eun Cho ^{a*}

^a Department of Food and Nutrition, Andong National University, Andong 1375, South Korea

^b Korea Zoonosis Research Institute, Jeonbuk National University, Iksan 54531, South Korea

^c Department of Veterinary Pathology, College of Veterinary Medicine, Chungnam National University, Daejeon 34134, South Korea

^d Hempgropharm company, Andong 1439-2, South Korea

^e School of Integrative Engineering, Chung-Ang University, Seoul 06974, South Korea

* Corresponding authors. Department of Food and Nutrition, Andong National University, Andong1375, South Korea.

** Corresponding authors. Department of Veterinary Pathology, College of Veterinary Medicine, Chungnam National University, Daejeon 34134, South Korea.

*** Corresponding authors. Korea Zoonosis Research Institute, Jeonbuk National University, Iksan 54531, South Korea.

E-mail addresses: dkkim714@jbnu.ac.kr (Do-Kyun Kim), hyojung@cnu.ac.kr (Hyo-Jung Kwon), yecho@anu.ac.kr (Young-Eun Cho).

¹ These authors contributed equally to this article

Table S1. The primary antibodies used in immunoblotting analyses.

	Antibody	Dilution Factor	Corporation	Catalouge number	Clone
Primary antibody					
	TLR4	1:5,000	Abcam	ab22048	Mouse
	3NT	1:5,000	Abcam	ab61392	Mouse
	ZO-1	1:5,000	Abcam	#5406	Rabbit
	Occludin	1:1,000	Santa Cruz	sc-271842	Mouse
	E-cadherin	1:1,000	Santa Cruz	sc-8426	Mouse
	β -catenin	1:1,000	Santa Cruz	sc-7963	Mouse
	α -tubulin	1:1,000	Santa Cruz	sc-5286	Mouse
	TGF	1:1,000	Santa Cruz	sc130348	Mouse
	α -SMA	1:5,000	Sigma-Aldrich	A5228	Mouse
	Pro collagen-1	1:1,000	Santa Cruz	sc-166572	Mouse
	Collagen-1	1:1,000	Santa Cruz	sc59772	Mouse
	MMP2	1:1,000	Santa Cruz	sc-10736	Rabbit
	MMP9	1:1,000	Santa Cruz	sc-21733	Mouse
	P-AMPK	1:1,000	Merck	#07-681	Rabbit
	SREBP-1	1:1,000	Santa Cruz	sc-13551	Mouse
	GAPDH	1:1,000	Santa Cruz	sc-47724	Mouse

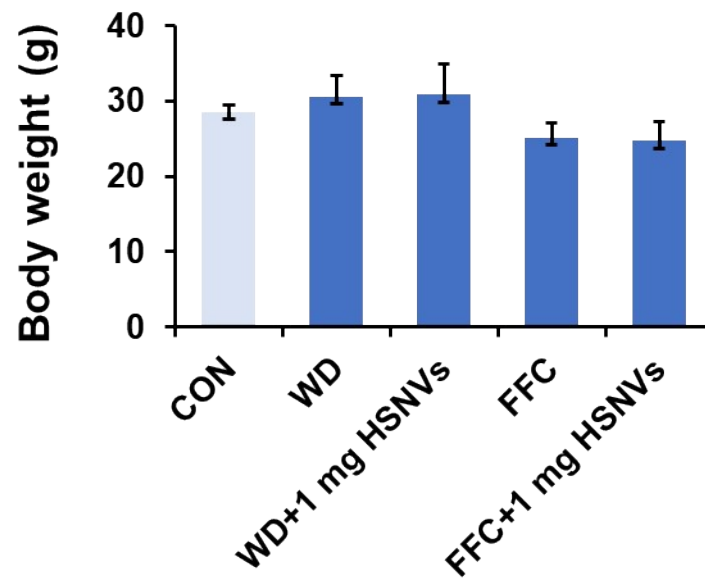


Fig. S1. HSNVs treatment unchanged body weight in NADLD mouse models such as WD and FFC. There is no significant difference between groups.

Adipose histology stained

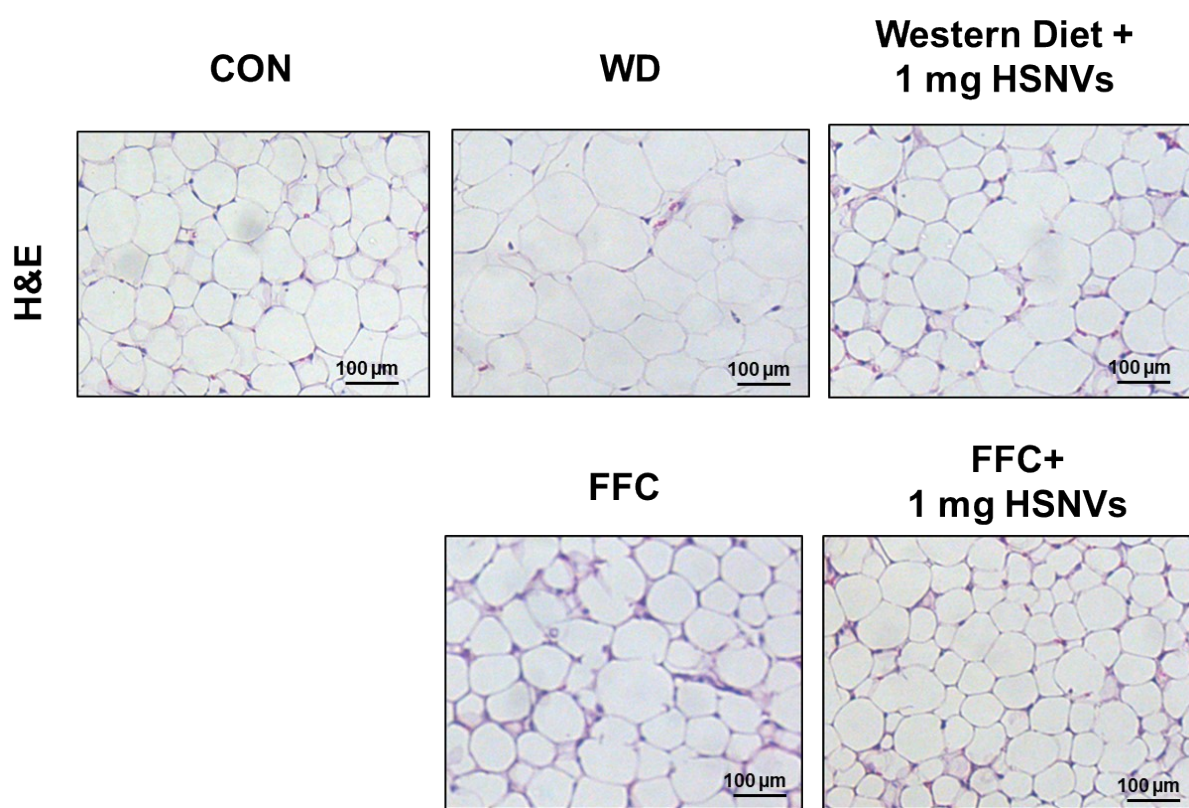


Fig. S2. HSNVs treatment attenuated NAFLD-induced adipose inflammation in mice. Representative adipose image and H&E of formalin-fixed adipose sections for CON, WD, WD+1 mg HSNVs, FFC, and FFC+ 1mg HSNVs treatments.

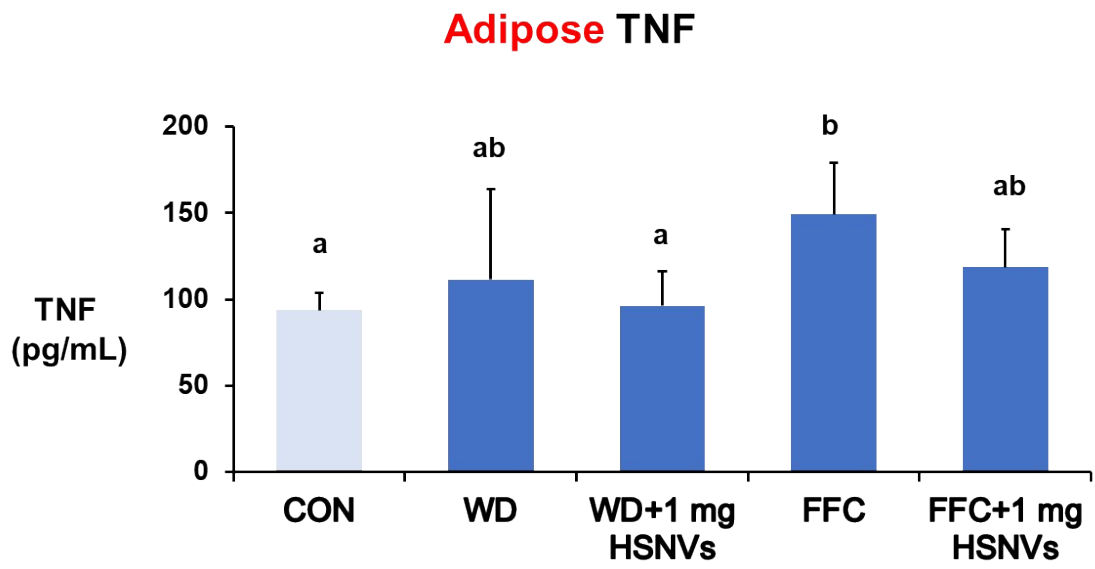


Fig. S3. HSNVs treatment reduced TNF in NAFLD-induced adipose inflammation in mice.