

Electronic supplementary information (ESI) †

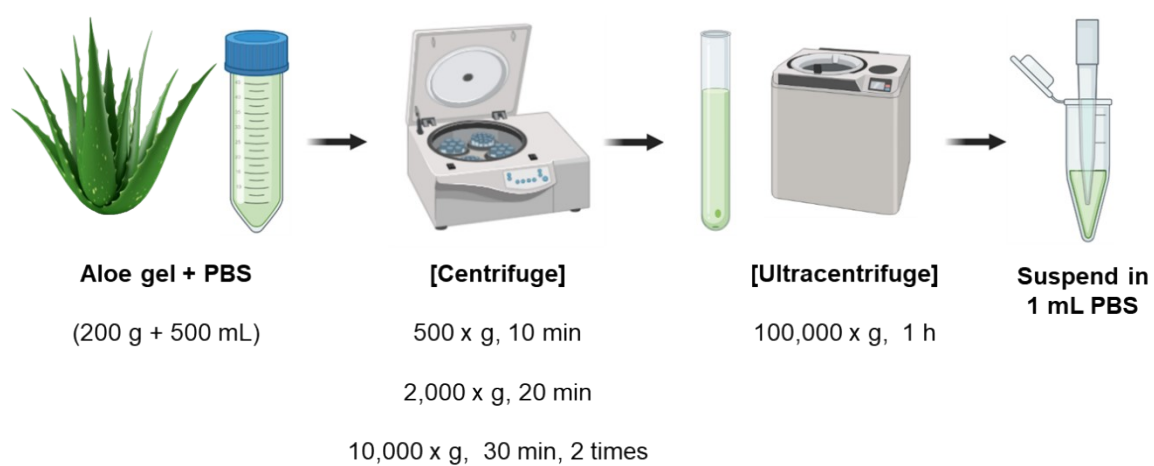
## Aloe-derived Nanovesicles Attenuate Inflammation and Enhance Tight Junction Proteins for Acute Colitis Treatment †

Sang-Hun Choi,<sup>‡a</sup> Jung-Young Eom,<sup>‡b</sup> Hyun-Jin Kim,<sup>c</sup> Wonhyo Seo,<sup>d</sup> Hyo-Jung Kwun,<sup>e</sup> Do-Kyun Kim,<sup>b</sup> Jihoon Kim<sup>\*a</sup> and Young-Eun Cho<sup>\*c</sup>

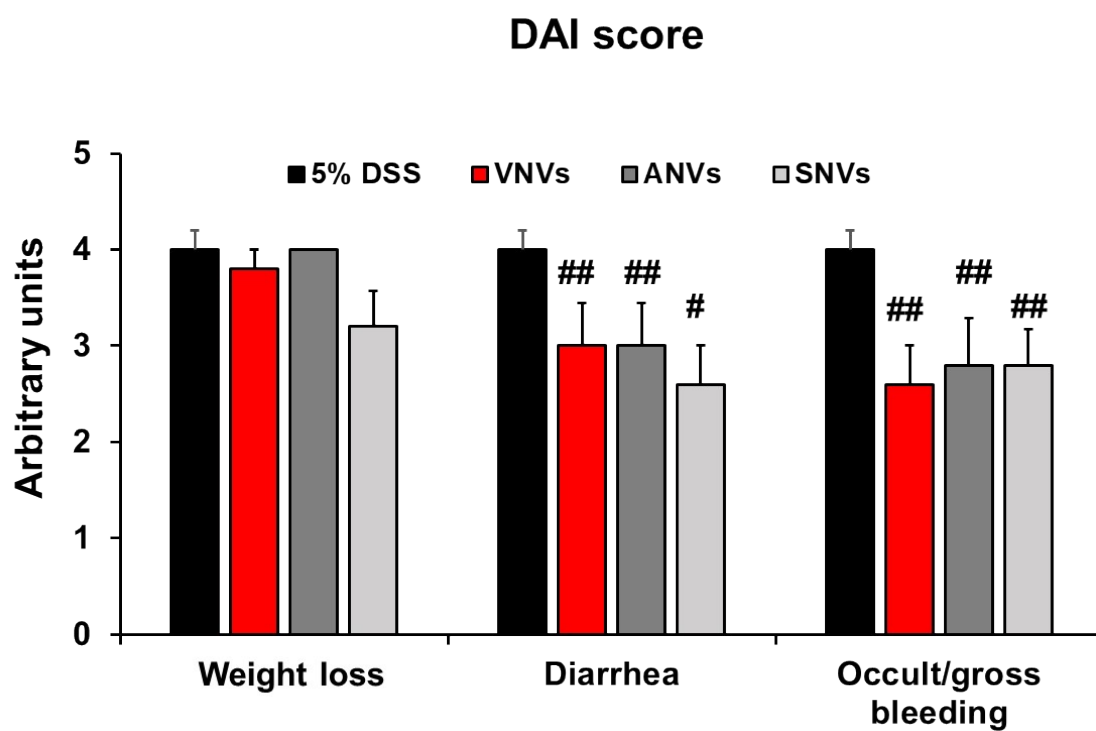
Table S1. Scoring system to calculate the disease activity index (DAI)

Score	Weight loss	Stool consistency	Visible blood feces
0	None	Normal	None
1	1~5%		
2	6~10%	Loose	Slight bleeding
3	11~20%		
4	<20%	Diarrhea	Gross bleeding

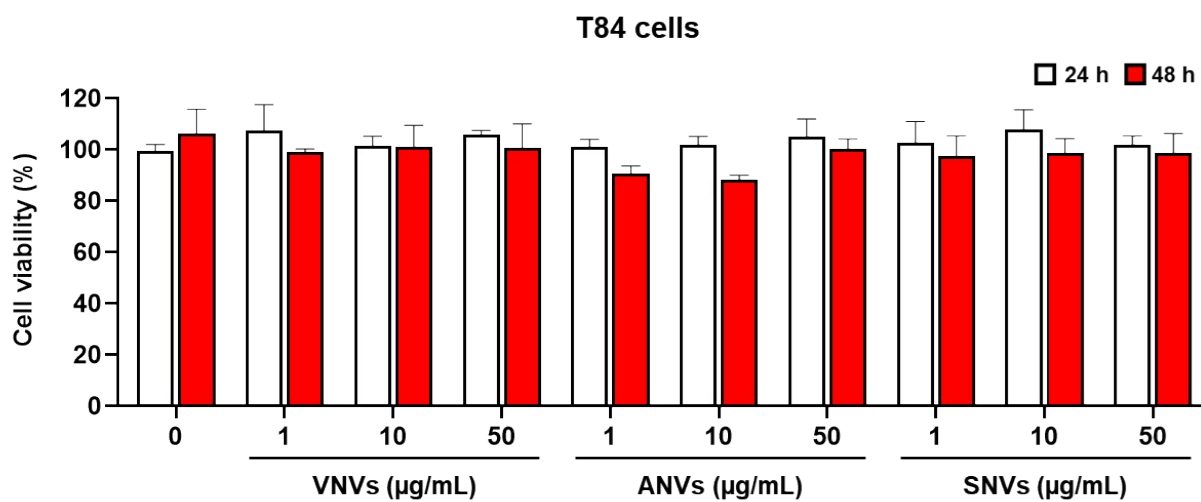
The DAI value was calculated as the sum of the scores for weight loss, steel consistency, and occult/gross blood.



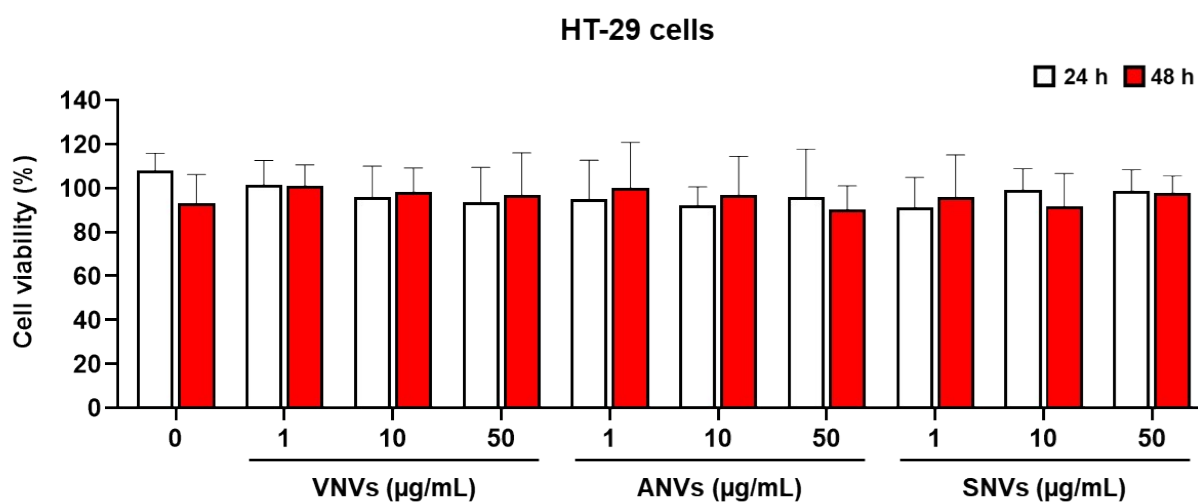
**Figure S1.** The optimized isolation method of aloe-derived nanovesicles.



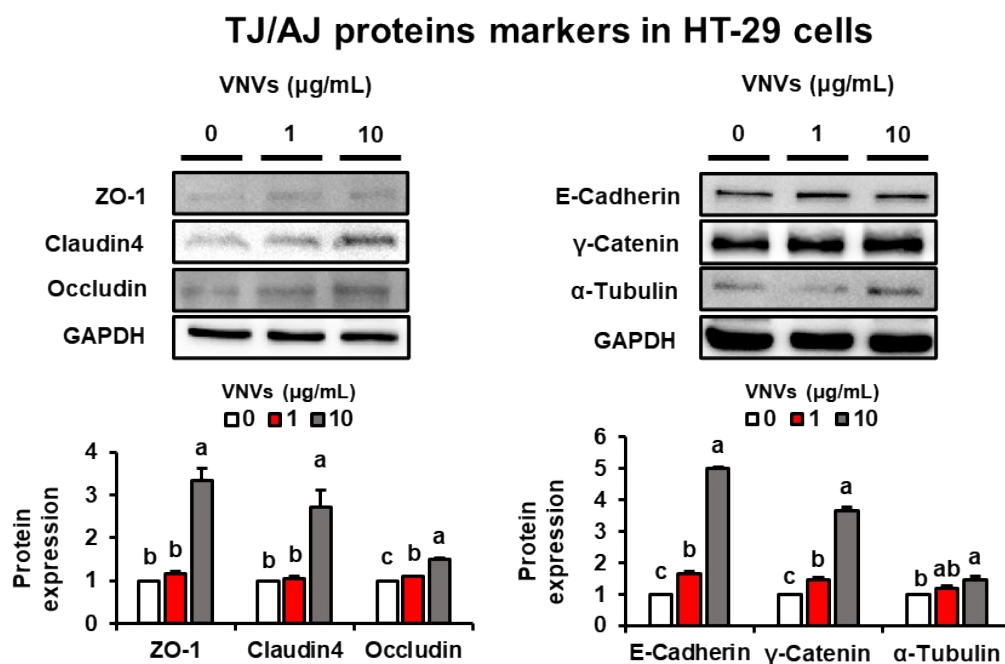
**Figure S2.** Total DAI scores with or without VNV, ANV, and SNV administration in DSS-induced acute colitis in mice evaluated at the end of the treatment are shown.  $###p < 0.01$ ,  $#p < 0.05$  between DSS vs. VNVs, ANVs, and SNVs groups. Significance of the values for each group was determined using ANOVA and Tukey's HSD test. Data represent means  $\pm$  S.E.M.



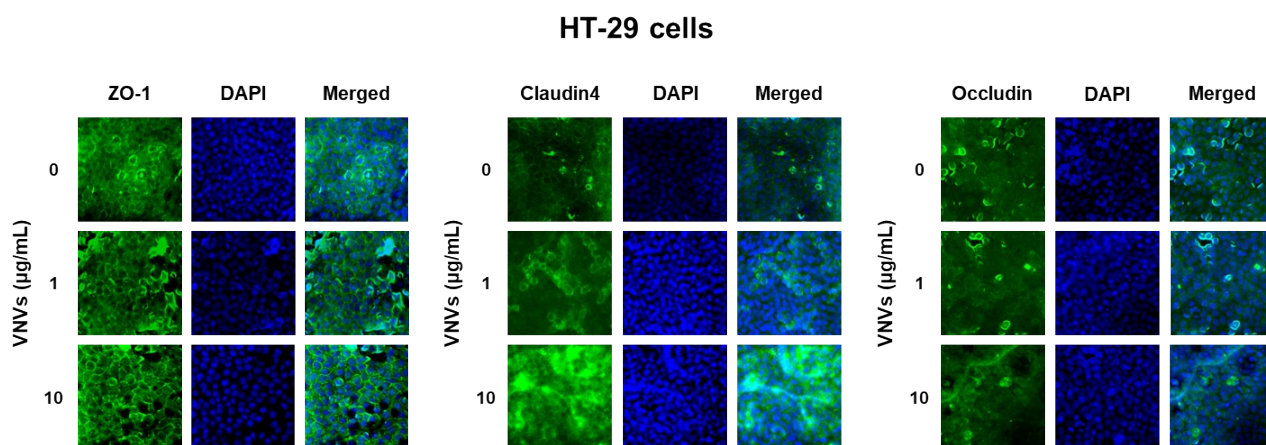
**Figure S3.** Cell cytotoxicity of T84 cells using aloe-derived nanovesicles.



**Figure S4.** Cell cytotoxicity of HT-29 cells using aloe-derived nanovesicles.



**Figure S5.** VNVs protected the levels of tight junction (TJ) and adherent junction (AJ) proteins in DSS-induced HT-29 cells. Enhancement of TJ protein markers (ZO-1, claudin4, and occludin) in HT-29 cells treated with VNVs. Enhancement of AJ protein markers ( $\gamma$ -catenin,  $\alpha$ -tubulin, and E-cadherin) in HT-29 cells treated with VNVs. Various letters in the superscripts indicate significant differences in the specific VNVs concentration (compared to the control; 0  $\mu\text{g/mL}$ ) as analyzed using one-way ANOVA followed by Duncan's multiple range test ( $p < 0.05$ )



**Figure S6.** Immunofluorescence imaging of tight junction (TJ) protein enhancement in VNV-treated HT-29 cells.