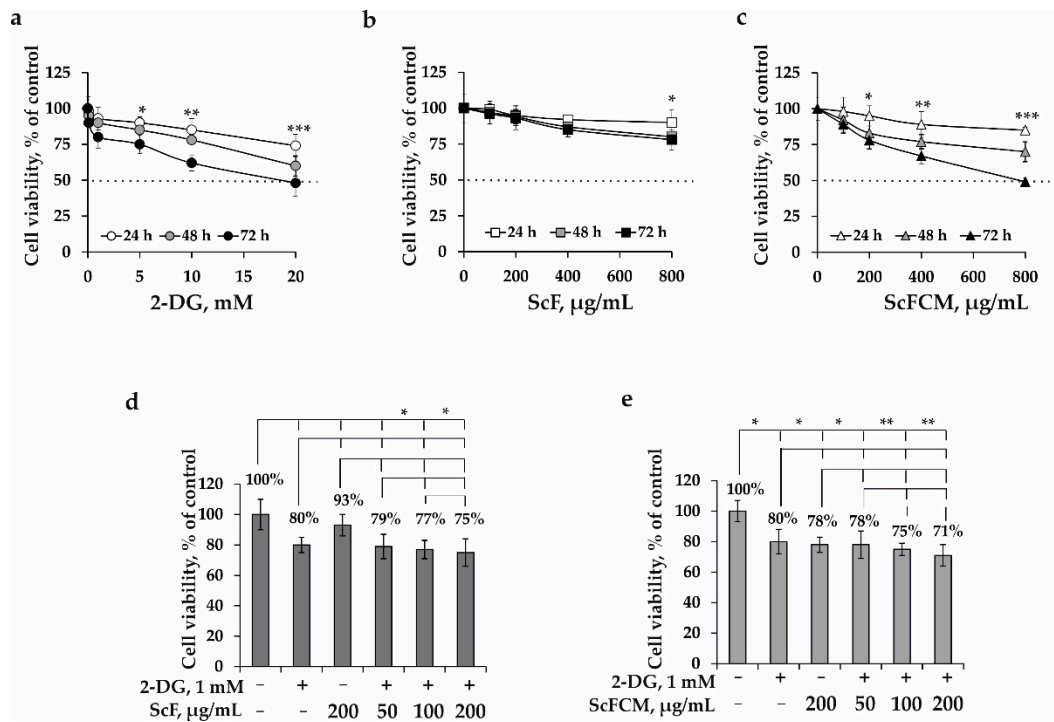
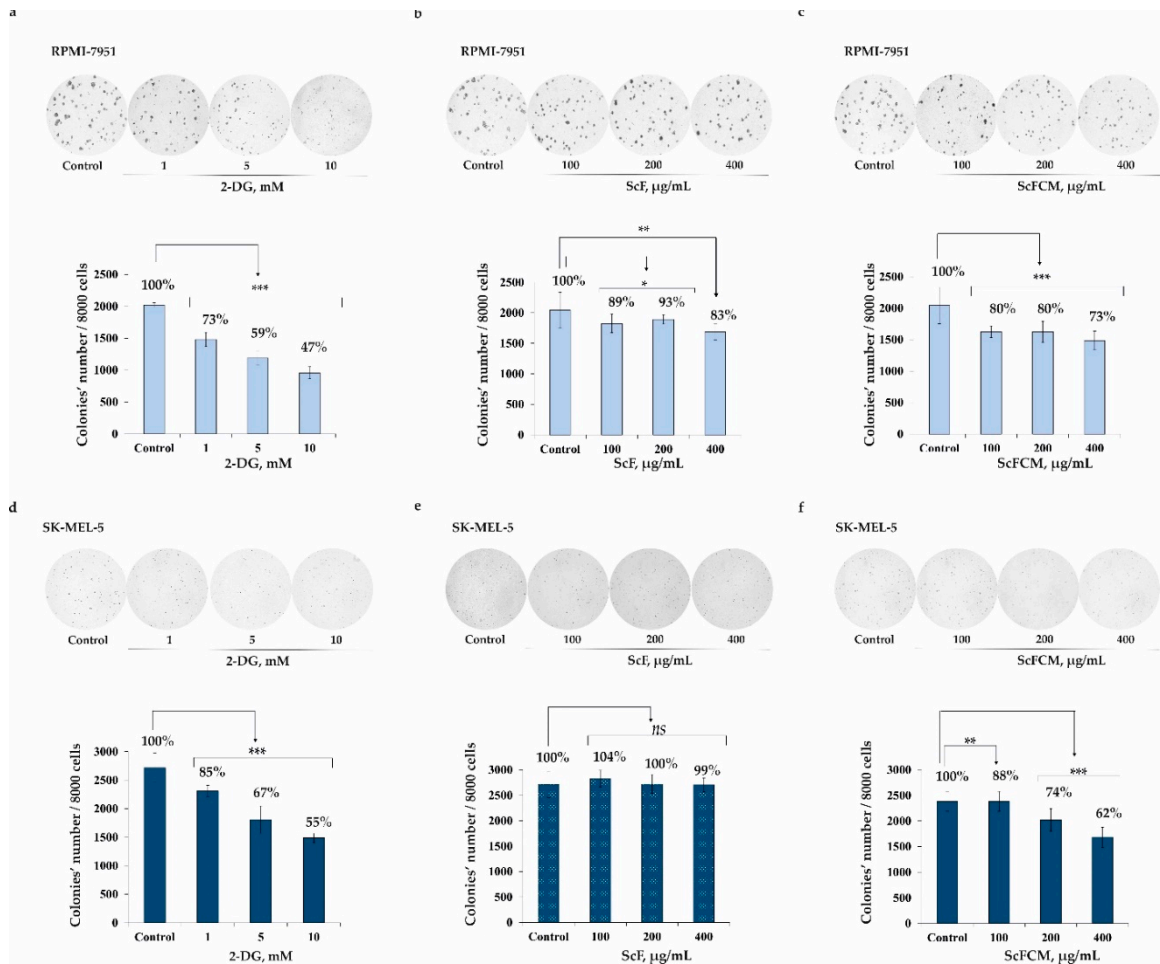


Supplementary Figure S1. The ^{13}C NMR spectra of (a) fucoidan ScF from *S. cichorioides* (signals C1–C6 of α -(1 \rightarrow 3)-L-fucopyranose residues of the main chain are indicated) and (b) its carboxymethylated derivative ScFCM.



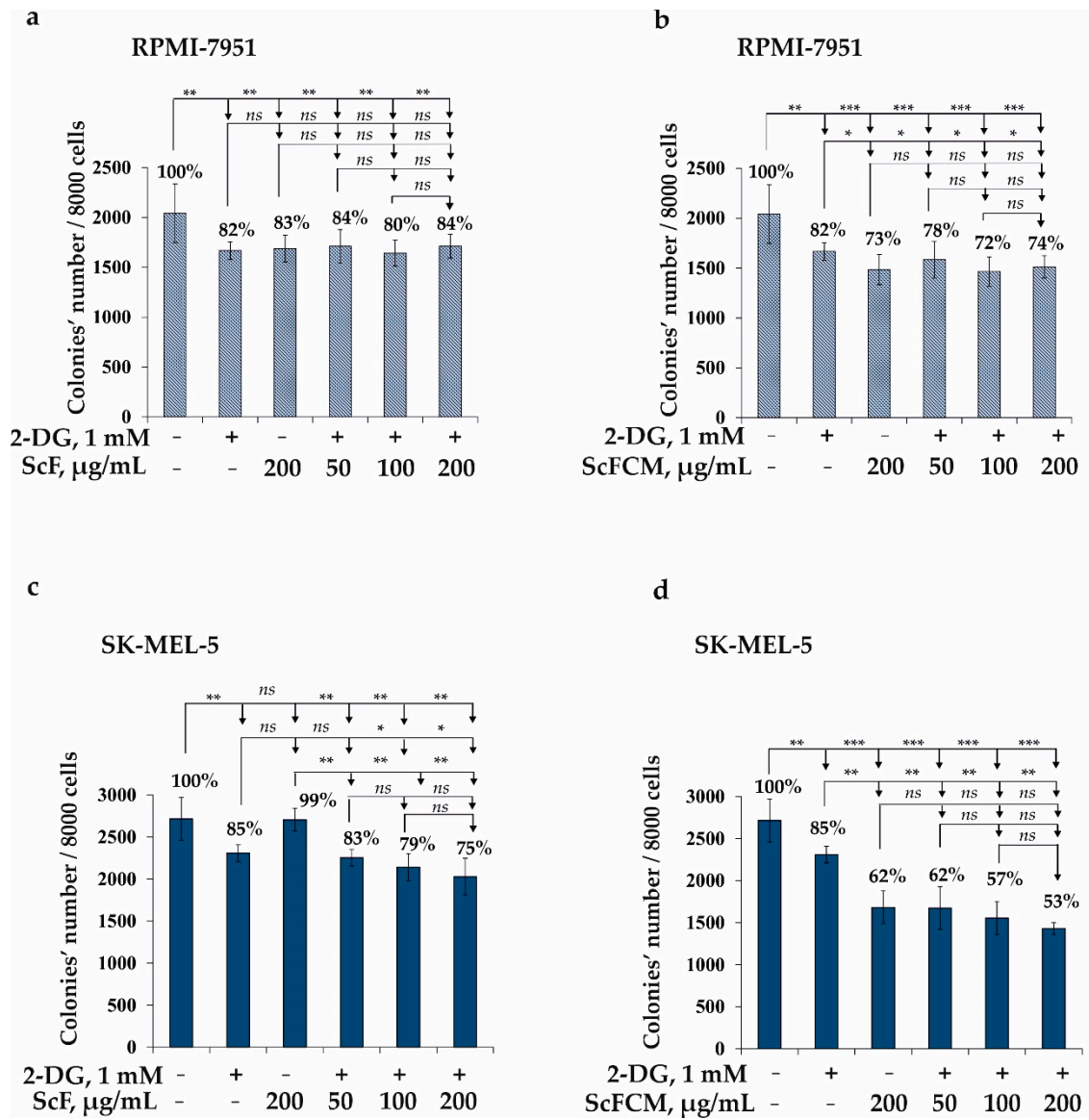
Supplementary Figure S2. The effect of 2-DG, the fucoidan (ScF) from *S. cichorioides*, and its carboxymethylated derivative (ScFCM) or their combinations on the viability and proliferation of human immortal keratinocyte (HaCaT).

HaCaT cells were treated by (a) 2-DG (0.1–20 mM), (b) ScF (100–800 μg/mL), (c) ScFCM (100–800 μg/mL), and incubated for 24, 48, and 72 h, (d) 2-DG (1 mM) in combination with ScF (50, 100, 200 μg/mL) or by (e) 2-DG (1 mM) in combination with ScFCM (50, 100, 200 μg/mL) and incubated for 72 h. The cell viability was estimated by the MTS assay. Data are presented as mean ± SD for triplicate experiments, * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.



Supplementary Figure S3. The inhibiting effect of 2-DG, fucoidan from *S. cichorioides* (ScF), and its carboxymethylated derivative (ScFCM) on the colony formation in human melanoma cells (RPMI-7951 and SK-MEL-5).

RPMI-7951 and SK-MEL-5 cells were treated with (a, d) 2-DG (1, 5, 10 mM), (b, e) ScF (100, 200, 400 µg/mL), and (c, f) ScFCM (100, 200, 400 µg/mL) in soft agar. Number of colonies was counted under a microscope (at a total magnification of 40×) using the ImageJ software. Results are presented as mean ± standard deviation (SD); *ns* – not significant difference, **p* < 0.05, ***p* < 0.01, and ****p* < 0.001.



Supplementary Figure S4. The metabolically-oriented effect of 2-DG in combination with fucoidan from *S. cichorioides* (ScF) or carboxymethylated derivative of fucoidan (ScFCM) on the colony formation in human melanoma cells (RPMI-7951 and SK-MEL-5).

RPMI-7951 and SK-MEL-5 cells were treated with (a, c) 2-DG (1 mM) in combination with ScF (50, 100, 200 μg/mL) or (b, d) 2-DG (1 mM) with ScFCM (50, 100, 200 μg/mL) in soft agar. The number of colonies was counted under a microscope (at a total magnification of 40×) using the ImageJ software. Results are presented as mean ± standard deviation (SD); ns – not significant difference, * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.