Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

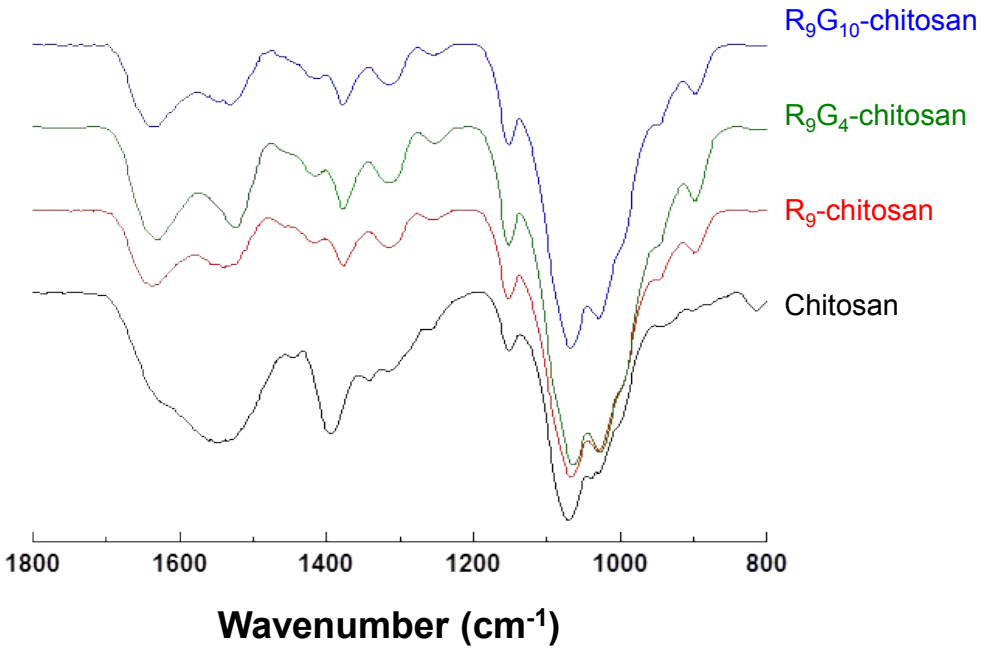

Fig. S1. FT-IR spectra of oligopeptide-modified chitosans with different spacer arm lengths.

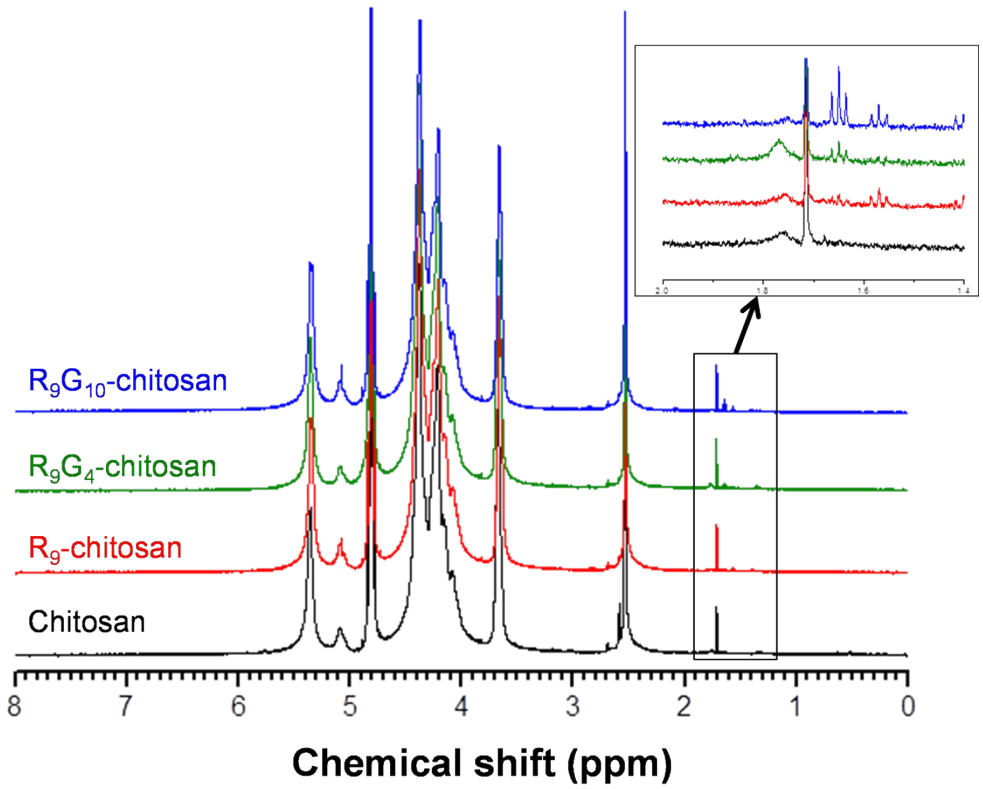

Fig. S2. ^{1}H NMR spectra of oligopeptide-modified chitosans with different spacer arm lengths.

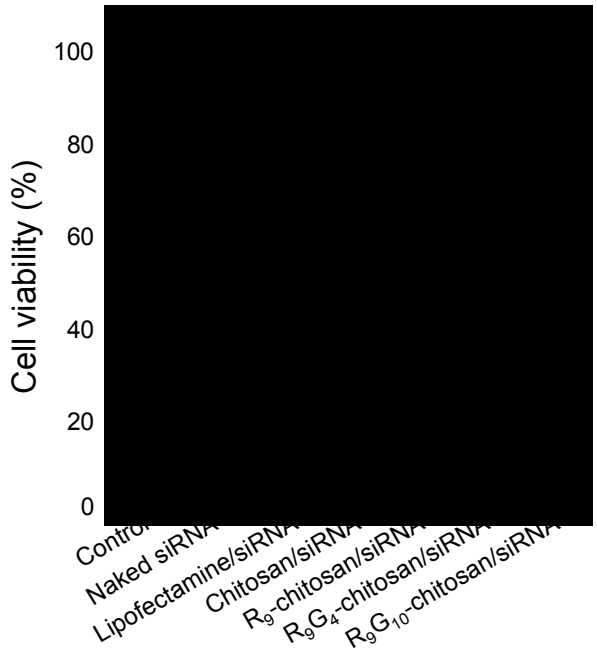

Fig. S3. Cytotoxicity of chitosan-based nanoparticles tested with A549 cells (n = 6). MTT assays were performed to evaluate the cytotoxicity of oligopeptide-chitosan/siRNA nanoparticles. In brief, cells were plated in 96-well tissue culture plates at a density of 5×10^3 cells/well in RPMI 1640. After incubation with nanoparticles at 37 °C for 24 h, 10 μl of MTT was added to each well and subsequently incubated for 4 h to allow the formation of formazan crystals. Unreduced MTT and medium were then removed, and 100 μl of DMSO was added to each well to dissolve the MTT formazan crystals. The absorbance of formazan products was measured at 540 nm using a spectrophotometer (Molecular Devices). The cell viability was normalized to that of the untreated cells used as a control.

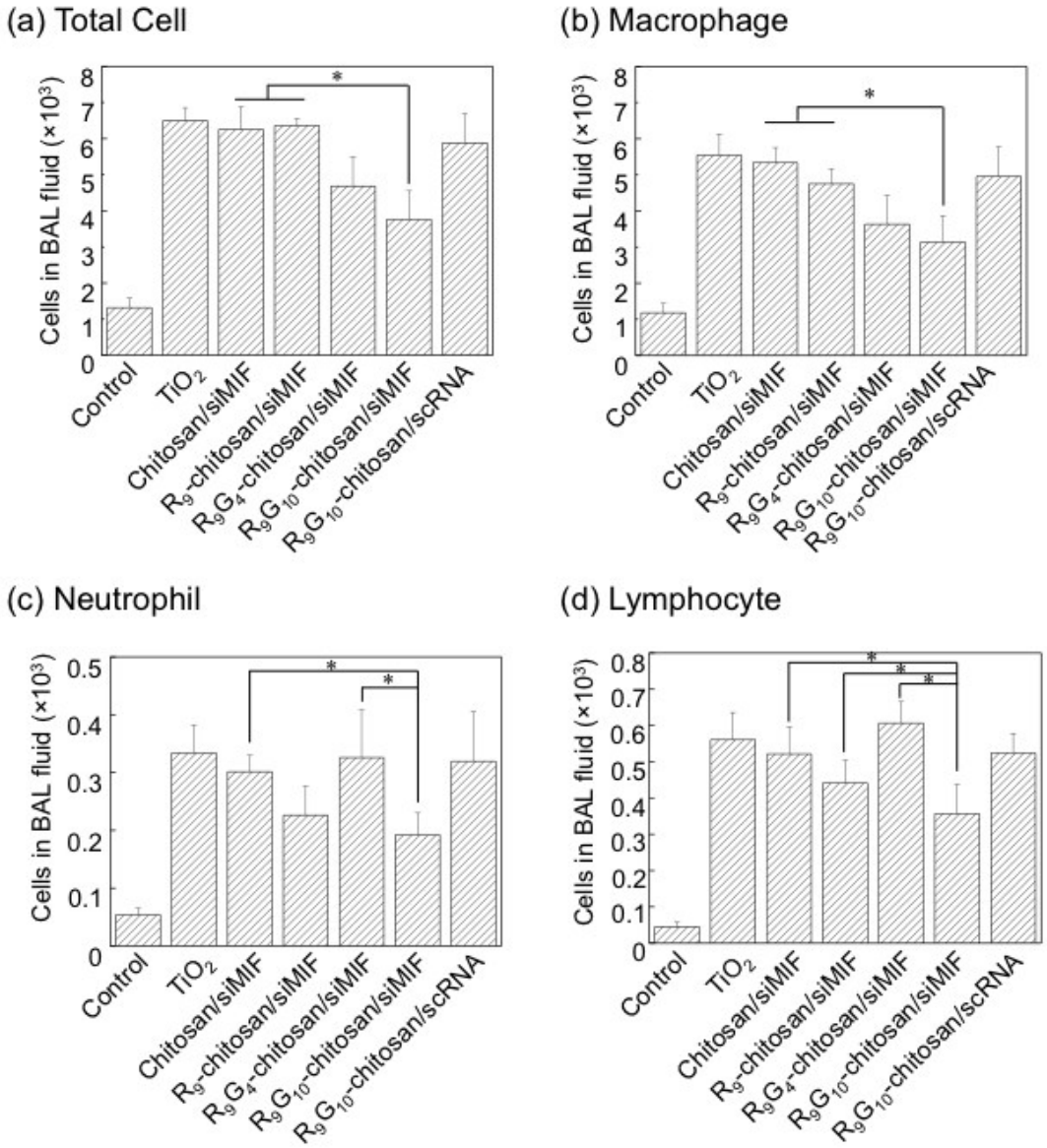

Fig. S4. (a) The total number of bronchoalveolar lavage (BAL) cells after instillation of TiO_2 and oligopeptide-chitosan/MIF siRNA nanoparticles. The number of (b) macrophages, (c) neutrophils, and (d) lympocytes in the BAL cells (*$p < 0.05$). Bronchoalveolar lavage was performed four times by the instillation of 1 ml normal saline and gentle retrieval. Cell numbers were determined using a hemocytometer and differential cell counts were performed by Diff-Quik stained cytospin preparation (Scientific Products, Gibbstown, NJ).

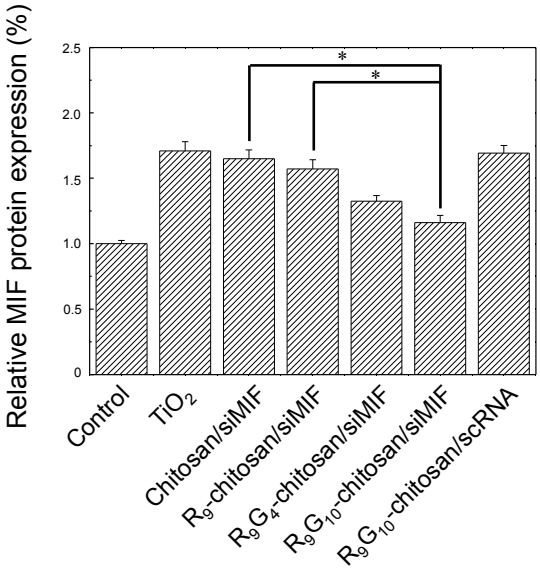

Fig. S5. Indirect ELISA results for MIF protein expression in BAL fluids after the instillation of TiO_2 and oligopeptide-chitosan/MIF siRNA nanoparticles. An ELISA starter kit (Koma Biotech Inc., Korea) was used to determine MIF protein expression level in BAL fluids. Briefly, BAL fluids from TiO_2-induced airway inflammation mouse model were placed in a 96-well tissue culture plate, incubated with BSA blocking buffer for 2 h at 25°C, and treated with anti-MIF antibody (1:500 ratio, 2 h, 25°C) (Sigma-Aldrich, St. Louis, MO, USA). After washing, the plate was treated with anti-rabbit IgG for 1 h at 25°C and TMB solution for 5 min at 25°C. After the stop solution was added, the optical density was measured at 450 nm (*$p < 0.05$).