

SUPPLEMENTARY METHODS

Cytological analysis

In P1 and P2, bronchoscopy was performed under conscious sedation using intravenous midazolam. Heart rate, respiratory rate, blood pressure, and oxygen saturation were monitored before, during, and after the procedure. Bronchoalveolar lavage fluid (BALF) was performed with a single-use disposable bronchoscope (Ambu® aScope™ 4, Ambu A/S, Ballerup, Denmark) in a wedged position within a subsegmental bronchus by a pulmonologist. Sterile 0.9% NaCl saline was instilled in the selected subsegmental bronchus in sequential aliquots (30, 30, and 40 mL). After saline instillation, the fluid was immediately recovered into the same syringe by gentle and continuous manual aspiration. BAL and sputum cytology samples were obtained and smeared onto glass slides immediately after collection. The slides were then immediately fixed with 95% ethanol in a Coplin jar. After fixing, hematoxylin and eosin (H&E) staining was performed. Concentration of eosinophil cationic protein in respiratory specimens was measured using clinical diagnosis service from Seoul clinical laboratory (Seoul, Korea) after gamma-irradiation (30 kGy, Soyagreentech, Seoul, Korea).

Flow cytometry

Peripheral blood mononuclear cells (PBMCs) were prepared by standard density gradient centrifugation using Histo-paque-1077 and 1119 (Sigma-Aldrich, St. Louis, MO, USA) in a Biosafety Level 3 laboratory at Seoul National University. Blood leukocytes and PBMCs were cryopreserved in liquid nitrogen or directly stained with antibodies listed below for flow cytometry in the same laboratory. Dead cells were stained with Zombie Aqua Fixable Viability Dye (BioLegend, San Diego, CA, USA). Cells were stained with the following sets of antibodies differentially labeled with indicated fluorochrome; anti-CD4-Alexa488, anti-CD8-PerCP or APC, anti-CD14-BV605, anti-CD16-Alexa700, anti-CD24-BV421, anti-CD45-PerCP-Cy5.5, anti-CD206-Alexa488, anti-HLA-DR-BV711 (from BioLegend), anti-CD3-PE-CF594 or Pacific blue, anti-CD20-APC/H7, and anti-CD56-APC (from BD Bioscience, Franklin

Lakes, NJ, USA). PE-conjugated CD1d/PBS57 tetramers obtained from the National Institute of Health Tetramer Core Facility (Bethesda, MD, USA) were kindly supplied by Dr. Doo Hyun Cheong at Seoul National University College of Medicine. Cells were then fixed with a fixation buffer (BD Bioscience) and analyzed using a FACS Fortessa II flow cytometer (BD Biosciences). Data were analyzed using Flowjo software (Tree Star, Ashland, OR, USA).

Enzyme-linked immunosorbent assay

To assess SARS-CoV N protein-specific antibody responses, 96-well immunoassay plates (Nunc, Waltham, MA, USA) were coated with 100 μ L of purified antigen at a concentration of 1 μ g/mL at 4°C for overnight. The plates were then blocked for 2 hours at room temperature (RT) with PBS containing 5% skim milk. One hundred microliters of serially diluted plasma samples were incubated for 2 hours at RT. After washing with PBS containing 0.05% Tween20 (0.05% PBST), horseradish peroxidase-conjugated mouse anti-human immunoglobulin G1 (IgG1), IgG2, IgG3, IgG4, IgA, or IgE antibody (Southern Biotech, Birmingham, AL, USA) was added and incubated for 1 hour at RT. Wells were then washed with 0.05% PBST and incubated with a 3,3',5,5'-tetramethylbenzidine peroxidase substrate solution (KPL, Gaithersburg, MD, USA) for 10 minutes. The reactions were stopped by adding 1 M phosphoric acid solution. Absorbance was measured at 450 nm using a microplate reader (Beckman Coulter, Brea, CA, USA). The cut-off titer for the enzyme-linked immunosorbent assay (ELISA) was determined as the lowest titer showing an optical density (OD) over the mean OD plus 3 \times standard deviation from three control plasma samples (diluted 1:10).

Statistical analysis

Data was analyzed using the Graph Pad Prism 5.01 software (GraphPad Software, La Jolla, CA, USA). Statistical analysis was performed using one-way analysis of variance (ANOVA) followed by Newman-Keuls *t* test for comparisons of values among different groups. A *p* < 0.05 was considered statistically significant.