Development of a sensitive immunochromatographic method using lanthanide fluorescent microsphere for rapid serodiagnosis of COVID-19

Meng Feng[a,§], Jun Chen[b,§], Jingna Xun[b], Ruixue Dai[c], Wang Zhao[c], Hongzhou Lu[b], Jin Xu[d], Li Chen[a], Guodong Sui[c,*], and Xunjia Cheng[a,*]

a Department of Medical Microbiology and Parasitology, School of Basic Medical Sciences, Fudan University, Shanghai 200032, China

b Department of Infectious Diseases and Immunology, Shanghai Public Health Clinical Center, Shanghai 201508, China

c Department of Environmental Science and Engineering, Fudan University, Shanghai 200438, China

d Division of Infection, Children's Hospital of Fudan University, Shanghai 201103, China

Materials

The polystyrene lanthanide Eu(III) fluorescent microspheres were purchased from Thermo Fisher Scientific Co.,Ltd (USA). N-hydroxysulfosuccinimide and N-(3-dimethylaminopropyl)-N-ethylcarbodiimide were purchased from Pierce Chemical Co. (USA). Anti-human-IgM, anti-human-IgG, chicken IgY and anti-chicken-IgY were purchased from Abcam Co. (UK). *EcoRI* restriction endonuclease and λ*Hind* III DNA ladder were purchased from TAKARA Co.,Ltd (Japan). Pre-stained protein marker was purchased from Tanon Co. (China). HRP conjugated goat anti human IgG was purchased from Cappel Co. (USA).

Supporting Figure:

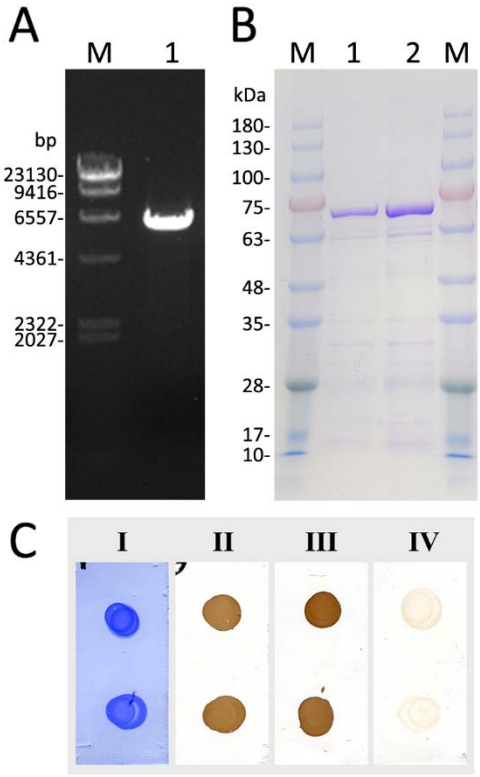

Figure S1. Purification and immune response of recombinant NP. (A) pGEX-2T-NP plasmid was digested by *EcoRI* restriction endonuclease and subject to agarose gel electrophoresis. M: λ*Hind III* DNA ladder; lane 1: digested pGEX-2T-NP plasmid. (B) Recombinant NP with GST tag were prokaryotically expressed, purified and subject to SDS-PAGE. M: Pre-stained protein marker; lane 1: purified soluble NP; lane 2: refolded inclusion body of NP. (C) Dot-blot of recombinant NP reacted with patients' serum. Upper dot was purified soluble NP and below dot was refolded inclusion body of NP. Lane I: Coomassie brilliant blue (CBB) staining; lane II: use SARS-CoV patient's sera as 1st antibody; lane III: use SARS-CoV2 patient's sera as 1st antibody; lane IV: use healthy person's sera as 1st antibody. The serum were 1 : 400 diluted with PBS and HRP conjugated goat anti human IgG were used as 2nd antibody.