

A Platform Incorporating Trimeric Antigens into Self-Assembling Nanoparticles Reveals SARS-CoV-2-Spike Nanoparticles to Elicit Substantially Higher Neutralizing Responses than Spike Alone

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Supplementary Table S1. Amino acid sequences of constructs for protein expression.

Construct name	Amino acid sequence
LuS-N71-SpyTag	MDSKGSSQKGSRLLLLLVSNLLLPQGVVGAHIVMVDAYKPTKSGSAMQIYEGKLTAEGLRFGIVASRFNHALVDRL VEGAIDAIVRHGGREEDITLVRVPGSWEIPVAAGELARKENISAVIAIGVLIRGATPHFDYIASEVSKGLADLSLELRKPIT FGVITADTLEQAIERAGTKHGNKGWEAALSAIEMANLFKSLRGGLVPRGSHHHHHHSAWSHPQFEK
Ferritin-N96-SpyTag	MDSKGSSQKGSRLLLLLVSNLLLPQGVVQHHHHHHHSAWSHPQFEKGGLVPRGGAHIVMVDAYKPTKGGGSG DPMLSKDIIKLLNEQVNKEMQSSNLYMSMSSWCYTHSLDAGLFLFDHAAEEYEHAKKLIIFLNENNVPVQLTSISAPAE HKFEGLTQIFQKAYEHEQNISESINNIVDHAISKDHAFTNFLQWYVAEQHEEEVLFKDILDKIELIGNENHGLYLADQY VKGIASRKS
RSV F-SpyCatcher	MELLILKANAITILTAVTFCFASGQNITEEFYQSTCSAVSKGYLGALRTGWYTSVITIELSNIKEIKCNGTDAKVLIKQEQE LDKYKNAVTDLQLLMQSTPATGSGSAIASGVAVCKVLHLEGEVNIKISALLSTNKAVVSLSGCGVSVLTFKVLDLKNIYI DKQLLPILNKQSCSIPNIETVIEFQKKNRLLLEITREFSVNAGVTTPVSTYMLTNSELLSLINDMPITNDQKKLMSNNVQI VRQQSYSIMCIKEEVLAYVVLPLVGVIDTPCWKLHTSPLCTTNTKEGSGNICLTRDRGWYCDNAGSVSFFPQAETC KVQSNRVFCDTMNSRTLSEVNLCNVDFNPKYDCKIMTSKTDVSSSVITSLGAIVSCYKTKCTASNKCRGIIKTFSN GCDYVSNKGVDTVSVGNLTLYYVNKQEGQSLYVKGEPIINFYDPLVFPSEDFDASISQVNEKINQSLAFIRKSDHELLSAIG GYIPEAPRDGQAYVRKDGWVLLSTFLGSGDSATHIKFSKRDEDGKELAGATMELRDSSGKTISTWISDGQVKDFYL YPGKYTFVETAAPDGYEVATAITFTVNEQGQVTVNGKATKGAHIGSGLVPRGSHHHHHHSAWSHPQFEK
PIV3 F-SpyCatcher	MYSMQLASCVTLTLLVNSQIDITKLQHVGLVNSPKGMKISQNFETRYLILSLIPKIEDSNSCGDQQIKQYKRLLDRLII PLYDGLKLQKDVIVTNQESNENTDPRTERFFGGVIGTIALGVATSAQITAAVALVEAKQAKSDIEKLKEAIRDTNKAVQS VCSSVGNICVAIKSVQDYVNKEIVPSIARLGCEAAGLQLGIALTQHYSLELTNCFGDNIGSLQEKIGKILQCIASLYRTNITEI FTTSTVDKYDIYDLLFTESIKVRVIDVDLNDYSITLQVRLPLLTRLLNTQIYKVDSSISYNIQNREWIPLPSHIMTKGAFLG GADVKEICIEAFSSYICPSDPGFVLNHEMESCLSGNISQCPRTTVTSDIVPRYAFVNGGVVANCITTTCTCNGIGNRINQ PPDQGVKIITHKECNTIGINGMLFNTNKEGTAFYTPDDITLNNVALDPIDISIELNKVKSDEESKEWYRRSNQKLSAI EDKIEEILSKIYHIENEIARIKKLIGEAPGGSGGDSATHIKFSKRDEDGKELAGATMELRDSSGKTISTWISDGQVKDFYL YPGKYTFVETAAPDGYEVATAITFTVNEQGQVTVNGKATKGAHIGSGLVPRGSHHHHHHSAWSHPQFEK
SARS-CoV-2 spike-SpyCatcher*	MGWSCIIILFVATATGVHSAPELLGGPSVFLFPPKPKDITLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKT KPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLY CLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSSFFLYSKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLS LSPGKGGGSGGGGSGGGGSAPELLGGPSVFLFPPKPKDITLMISRTPEVTCVVVDVSHEDPEVKFNWYVD GVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDE LTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSSFFLTSLKLTVDKSRWQQGNVFCFSVMHEALH NHYTQKSLSLSPGKGGGSGGGGSGGLEVLFGQPQCVNLTTRTQLPPAYTNSFTRGVVYPDKVFRSSVLHSTQDLFLP FFSNVTWFHAIHVSNTGTNRFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLDSKTQSLIVNNATNVVIVKEFQFC NDPFLGVVYHKNKSWMESEFRVYSSANNCTFEYYSQPFMLDLEGKQGNFKNLREFVFNIDGYFKIYKHTPINLV RDLPLQGFSALEPLVDLPIGINITRFQTLALHRSYLTGPDSSSGWTAGAAAYVGYLQPRFTLLKYNENGTITDAVDCAL LDPLSETKCTLSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASVYAWNRRKISNCVADYSVLVNS ASFSTFKCYGVSPSTKLNDLCFTNVYADSFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGNY NYLYRFLFRKSNLKPFRDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGP KKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSN QVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAEHVNNSEYCDIPIGAGICASYQTQTNSPGSA SSVASQSIAYTMSLGAENSVAYSNNIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECNLLQYGSFCTQLNR ALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGFNFSQILPDPSKPSKRSFIEDLLFNKVTADAGFIKQYGDCLGDIA ARDLICAQKFNGLTVLPLLTDEMAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTVQNVLYENQKLI NQFNSAIGKIQDSLSTASALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLLDPPEAEVQIDRLITGRLQSL QTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLSFPPQSAPHGVVFLHVTYVPAQEKNFTTAPAIC HDGKAHFPREGVFSVNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSFKEELDKYFKNHT SPDVLGDISGINASVVNIQEKIDRLNEVAKNLNESLIDLQELGKYEQSGGYIPEAPRDGQAYVRKDGWVLLSTFLGR SGGGLVPQQSGDSATHIKFSKRDEDGKELAGATMELRDSSGKTISTWISDGQVKDFYLYPGKYTFVETAAPDGYEVA TAITFTVNEQGQVTVNGKATKGAHI

* This amino acid sequence includes a single chain Fc purification tag (see reference 38).