

CERTIFICATE OF ANALYSIS

Product Name	SARS-CoV-2 Spike Glycoprotein
Cat No.	RP30020
Lot No	E4634920K
Sequence	See appendix for details
Modification	N/A
Size	Subpool 1: 3.95mg and Subpool 2: 3.95mg
Storage	-20°C
Recommended Solvent*	dimethyl sulfoxide(Analytical grade)
HPLC purity	Crude
Appearance	White lyophilized powder
Comments	TFA salts

*Note: Above recommended solvents for reference only. If there is any request for detailed dissolution conditions, we suggest you choose our 'Peptide Solubility Test Service'.

Caution:

For laboratory or further manufacturing use only. Not intended for household use. If you have any questions about the Certificate of Analysis, please contact our customer service representative at 1-877-436-7274 (TollFree), or 1-732-885-9188.

Certified by:  Date: 11/06/2020
Peptide Production Director

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Appendix:

Subpool 1			
Sequence	MW	Quantity	Purity
MFVFLVLLPLVSSQC	1696.13	25ug	Crude
LVLLPLVSSQCVNLT	1598.95	25ug	Crude
PLVSSQCVNLTRTQ	1646.87	25ug	Crude
SQCVNLTRTQLPPA	1628.86	25ug	Crude
NLTRTQLPPAYTNS	1676.83	25ug	Crude
RTQLPPAYNSFTRG	1708.88	25ug	Crude
PPAYNSFTRGVYYP	1732.90	25ug	Crude
TNSFTRGVYYPDKVF	1793.98	25ug	Crude
TRGVYYPDKVFRSSV	1773.99	25ug	Crude
YYPDKVFRSSVLHST	1799.00	25ug	Crude
KVFRSSVLHSTQDLF	1764.00	25ug	Crude
SSVLHSTQDLFLPFF	1737.96	25ug	Crude
HSTQDLFLPFFSNVT	1752.93	25ug	Crude
DLFLPFFSNVTFHA	1841.08	25ug	Crude
PFFSNVTFHAIHVS	1789.01	25ug	Crude
NVTFHAIHVSGTNG	1639.78	25ug	Crude
FHAIHVSGTNGTKRF	1671.86	25ug	Crude
HVSGTNGTKRFDNPV	1628.75	25ug	Crude
TNGTKRFDNPVLPFN	1719.90	25ug	Crude
KRFDNPVLPFNDGVY	1780.98	25ug	Crude
NPVLPFNDGVYFAST	1640.80	25ug	Crude
PFNDGVYFASTEKSN	1675.76	25ug	Crude
GVYFASTEKSNIIRG	1641.83	25ug	Crude
ASTEKSNIIRGWIFG	1678.89	25ug	Crude
KSNIIRGWIFGTTLD	1720.97	25ug	Crude
IRGWIFGTTLDSTQ	1722.95	25ug	Crude
IFGTTLDSTQSLLI	1636.89	25ug	Crude
TLDSKTQSLLIVNNA	1616.82	25ug	Crude
KTQSLLIVNNAATNVV	1613.86	25ug	Crude
LLIVNNAATNVVIKVC	1612.98	25ug	Crude
NNATNVVIKVCEFQF	1725.97	25ug	Crude
NVVIKVCEFQFCNDP	1755.03	25ug	Crude
KVCEFQFCNDPFLGV	1746.02	25ug	Crude
FQFCNDPFLGVYYHK	1878.12	25ug	Crude
NDPFLGVYYHKNNKS	1795.96	25ug	Crude
LGVYYHKNNKSWMES	1856.07	25ug	Crude
YHKNNKSWMESEFRV	1955.17	25ug	Crude
NKSWMESEFRVYSSA	1820.98	25ug	Crude
MESEFRVYSSANNCT	1737.87	25ug	Crude
FRVYSSANNCTFEYV	1799.96	25ug	Crude
SSANNCTFEYVSQPF	1693.80	25ug	Crude
NCTFEYVSQPFLMDL	1807.06	25ug	Crude
EYVSQPFLMDLEGKQ	1784.00	25ug	Crude

QPFLMDLEGKQGNFK	1752.01	25ug	Crude
MDLEGKQGNFKNLRE	1778.99	25ug	Crude
GKQGNFKNLREFVFK	1812.09	25ug	Crude
NFKNLREFVFKNIDG	1841.08	25ug	Crude
LREFVFKNIDGYFKI	1889.21	25ug	Crude
VFKNIDGYFKIYSKH	1859.14	25ug	Crude
IDGYFKIYSKHTPIN	1796.04	25ug	Crude
FKIYSKHTPINLVRD	1831.13	25ug	Crude
SKHTPINLVRDLPQG	1674.91	25ug	Crude
PINLVRDLPQGFSAL	1639.90	25ug	Crude
VRDLPQGFSALEPLV	1640.89	25ug	Crude
PQGFSALEPLVDLPI	1595.84	25ug	Crude
SALEPLVDLPIGINI	1563.84	25ug	Crude
PLVDLPIGINITRFQ	1696.01	25ug	Crude
LPIGINITRFQTLA	1670.01	25ug	Crude
INITRFQTLALHRS	1783.09	25ug	Crude
RFQTLALHRSYLTP	1816.12	25ug	Crude
LLALHRSYLTPGDSS	1629.82	25ug	Crude
HRSYLTPGDSSSGWT	1650.71	25ug	Crude
LTPGDSSSGWTAGAA	1377.42	25ug	Crude
DSSSGWTAGAAAYV	1505.55	25ug	Crude
GWTAGAAAYVGYLQ	1590.74	25ug	Crude
GAAAYVGYLQPRTF	1676.88	25ug	Crude
YYVGYLQPRTFLLKY	1924.25	25ug	Crude
YLQPRTFLLKYNENG	1856.09	25ug	Crude
RTFLLKYNENGTITD	1784.97	25ug	Crude
LKYNENGTITDAVDC	1655.79	25ug	Crude
ENGTITDAVDCALDP	1533.62	25ug	Crude
ITDAVDCALDPLSET	1562.70	25ug	Crude
VDCALDPLSETKCTL	1607.85	25ug	Crude
LDPLSETKCTLKSFT	1682.94	25ug	Crude
SETKCTLKSFTVEKG	1657.89	25ug	Crude
CTLKSFTVEKGIYQT	1717.99	25ug	Crude
SFTVEKGIYQTSNFR	1776.95	25ug	Crude
EKGIYQTSNFRVQPT	1767.94	25ug	Crude
YQTSNFRVQPTESIV	1768.93	25ug	Crude
NFRVQPTESIVRFPN	1804.02	25ug	Crude
QPTESIVRFPNITNL	1728.95	25ug	Crude
SIVRFPNITNLCPFG	1677.97	25ug	Crude
FPNITNLCPFGEVFN	1711.94	25ug	Crude
TNLCPFGEVFNATRF	1715.93	25ug	Crude
PFGEVFNATRFASVY	1704.89	25ug	Crude
VFNATRFASVYAWNR	1802.01	25ug	Crude
TRFASVYAWNRKRIS	1855.12	25ug	Crude
SVYAWNRKRISNCVA	1767.03	25ug	Crude
WNRKRISNCVADYSV	1811.04	25ug	Crude
RISNCVADYSVLYNS	1703.88	25ug	Crude
CVADYSVLYNSASFS	1625.76	25ug	Crude

YSVLYNSASFSTFKC	1716.92	25ug	Crude
YNSASFSTFKCYGVS	1660.81	25ug	Crude
SFSTFKCYGVSPTKL	1664.93	25ug	Crude
FKCYGVSPTKLNDLC	1687.99	25ug	Crude
GVSPTKLNDLCFTNV	1607.83	25ug	Crude
TKLNDLCFTNVYADS	1703.88	25ug	Crude
DLCFTNVYADSFVIR	1762.99	25ug	Crude
TNVYADSFVIRGDEV	1684.81	25ug	Crude
ADSFVIRGDEV RQIA	1675.85	25ug	Crude
VIRGDEV RQIAPGQT	1638.83	25ug	Crude
DEV RQIAPGQTGKIA	1582.76	25ug	Crude
QIAPGQTGKIADYNY	1638.78	25ug	Crude
GQTGKIADYNYKLPD	1682.84	25ug	Crude
KIADYNYKLPDDFTG	1759.92	25ug	Crude
YNYKLPDDFTGCVIA	1718.93	25ug	Crude
LPDDFTGCVIAWNSN	1651.80	25ug	Crude
FTGCVIAWNSNNLDS	1640.78	25ug	Crude
VIAWNSNNLDSKVG	1573.71	25ug	Crude
NSNNLDSKVG GNYNY	1658.69	25ug	Crude
LDSKVG GNYNYLYRL	1774.98	25ug	Crude
VGGNYNYLYRLFRKS	1850.09	25ug	Crude
YNYLYRLFRKSNLKP	1975.31	25ug	Crude
YRLFRKSNLKP FERD	1969.26	25ug	Crude
RKSNLKP FERDISTE	1820.02	25ug	Crude
LKP FERDISTEIQQA	1810.02	25ug	Crude
ERDISTEIQAGSTP	1666.75	25ug	Crude
STEIQAGSTPCNGV	1526.63	25ug	Crude
YQAGSTPCNGVEGFN	1543.62	25ug	Crude
STPCNGVEGFNCYFP	1634.80	25ug	Crude
NGVEGFNCYFPLQSY	1737.89	25ug	Crude
GFNCYFPLQSYGFQP	1767.96	25ug	Crude
YFPLQSYGFQPTNGV	1717.88	25ug	Crude
QSYGFQPTNGVGYQP	1642.73	25ug	Crude
FQPTNGVGYQPYRVV	1724.92	25ug	Crude
NGVGYQPYRVVLSF	1697.94	25ug	Crude
YQPYRVVLSFELLH	1863.17	25ug	Crude
RVVLSFELLHAPAT	1651.95	25ug	Crude
LSFELLHAPATVCGP	1554.82	25ug	Crude
LLHAPATVCGPKKST	1522.82	25ug	Crude
PATVCGPKKSTNLVK	1542.85	25ug	Crude
CGPKKSTNLVKNCV	1618.97	25ug	Crude
KSTNLVKNCVNFNF	1756.04	25ug	Crude
LVKNKCVNFNFGLT	1711.00	25ug	Crude
KCVNFNFGLTGTGV	1570.78	25ug	Crude
FNFNGLTGTGVLTES	1556.68	25ug	Crude
GLTGTGVLTESNKKF	1551.75	25ug	Crude
TGVLTESNKKFLPFQ	1708.96	25ug	Crude
TESNKKFLPFQQFGR	1827.06	25ug	Crude

KKFLPFQQFGRDIAD	1810.07	25ug	Crude
PFQQFGRDIADTTDA	1681.76	25ug	Crude
FGRDIADTTDAVRDP	1648.74	25ug	Crude
IADTTDAVRDPQTLE	1644.74	25ug	Crude
TDAVRDPQTLEILDI	1698.88	25ug	Crude
RDPQTLEILDITPCS	1700.92	25ug	Crude
TLEILDITPCSFGGV	1564.81	25ug	Crude
LDITPCSFGGVSVIT	1508.74	25ug	Crude
PCSFGGVSVITPGTN	1435.61	25ug	Crude
GGVSVITPGTNTSNQ	1431.51	25ug	Crude
VITPGTNTSNQVAVL	1513.70	25ug	Crude
GTNTSNQVAVLYQDV	1608.71	25ug	Crude
SNQVAVLYQDVNCTE	1682.81	25ug	Crude
AVLYQDVNCTEVPVA	1620.83	25ug	Crude
QDVNCTEVPVAIHAD	1610.75	25ug	Crude
CTEVPVAIHADQLTP	1593.81	25ug	Crude
PVAIHADQLTPTWRV	1703.95	25ug	Crude
HADQLTPTWRVYSTG	1731.87	25ug	Crude
LTPTWRVYSTGSNVF	1727.92	25ug	Crude
Subpool 2			
Sequence	MW	Quantity	Purity
WRVYSTGSNVFQTRA	1771.94	25ug	Crude
STGSNVFQTRAGCLI	1553.75	25ug	Crude
NVFQTRAGCLIGAEH	1615.82	25ug	Crude
TRAGCLIGAEHVNNS	1541.70	25ug	Crude
CLIGAEHVNNSYECD	1666.80	25ug	Crude
AEHVNNSYECDIPIG	1660.77	25ug	Crude
NNSYECDIPIGAGIC	1568.73	25ug	Crude
ECDIPIGAGICASYQ	1539.74	25ug	Crude
PIGAGICASYQTQTN	1523.67	25ug	Crude
GICASYQTQTNSPRR	1681.84	25ug	Crude
SYQTQTNSPRRARSV	1750.88	25ug	Crude
QTNSPRRARSVASQS	1644.76	25ug	Crude
PRRARSVASQSIAY	1674.91	25ug	Crude
RSVASQSIAYTMSL	1626.88	25ug	Crude
SQSIAYTMSLGAEN	1584.75	25ug	Crude
IAYTMSLGAENSVAY	1589.77	25ug	Crude
MSLGAENSVAYSNNS	1543.62	25ug	Crude
AENSVAYSNNSIAP	1549.64	25ug	Crude
VAYSNNSIAIPTNFT	1611.76	25ug	Crude
NNSIAIPTNFTISVT	1591.77	25ug	Crude
AIPTNFTISVTTEIL	1619.86	25ug	Crude
NFTISVTTEILPVSM	1651.93	25ug	Crude
SVTTEILPVSMTKTS	1593.85	25ug	Crude
EILPVSMTKTSVDCT	1623.90	25ug	Crude
VSMTKTSVDCTMYIC	1682.02	25ug	Crude
KTSVDCTMYICGDST	1623.83	25ug	Crude
DCTMYICGDSTECSN	1641.78	25ug	Crude

YICGDSTECSNLLLQ	1658.86	25ug	Crude
DSTECSNLLLQYGSF	1676.81	25ug	Crude
CSNLLLQYGSFCTQL	1689.96	25ug	Crude
LLQYGSFCTQLNRAL	1727.00	25ug	Crude
GSFCTQLNRALTGIA	1551.77	25ug	Crude
TQLNRALTGIAVEQD	1628.79	25ug	Crude
RALTGIAVEQDKNTQ	1643.80	25ug	Crude
GIAVEQDKNTQEVEFA	1648.78	25ug	Crude
EQDKNTQEVEFAQVKQ	1791.92	25ug	Crude
NTQEVEFAQVKQIYKT	1797.03	25ug	Crude
VFAQVKQIYKTPPIK	1760.14	25ug	Crude
VKQIYKTPPIKDFGG	1690.99	25ug	Crude
YKTPPIKDFGGFNFS	1717.93	25ug	Crude
PIKDFGGFNFSQILP	1679.92	25ug	Crude
FGGFNFSQILPDPSK	1653.84	25ug	Crude
NFSQILPDPSKPSKR	1713.94	25ug	Crude
ILPDPSKPSKRSEFIE	1713.98	25ug	Crude
PSKPSKRSEFIEDLLF	1764.04	25ug	Crude
SKRSEFIEDLLFNKVT	1797.07	25ug	Crude
FIEDLLFNKVTLADA	1708.96	25ug	Crude
LLFNKVTLADAGFIK	1649.98	25ug	Crude
KVTLADAGFIKQYGD	1625.83	25ug	Crude
ADAGFIKQYGDCLGD	1572.70	25ug	Crude
FIKQYGDCLGDIAAR	1669.91	25ug	Crude
YGDCLGDIAARDLIC	1597.82	25ug	Crude
LGDIAARDLICAQKF	1633.92	25ug	Crude
AARDLICAQKFNGLT	1620.88	25ug	Crude
LICAQKFNGLTVLPP	1613.97	25ug	Crude
QKFNGLTVLPPLTD	1655.94	25ug	Crude
GLTVLPPLTDDEMIA	1582.91	25ug	Crude
LPPLTDDEMIAQYTS	1691.95	25ug	Crude
LTDEMIAQYTSALLA	1639.87	25ug	Crude
MIAQYTSALLAGTIT	1553.83	25ug	Crude
YTSALLAGTITSGWT	1541.71	25ug	Crude
LLAGTITSGWTFGAG	1451.63	25ug	Crude
TITSGWTFGAGAALQ	1480.63	25ug	Crude
GWTFGAGAALQIPFA	1506.71	25ug	Crude
GAGAALQIPFAMQMA	1476.77	25ug	Crude
ALQIPFAMQMAYRFN	1801.15	25ug	Crude
PFAMQMAYRFNGIGV	1702.02	25ug	Crude
QMAYRFNGIGVTQNV	1697.92	25ug	Crude
RFNGIGVTQNVLYEN	1723.89	25ug	Crude
IGVTQNVLYENQKLI	1731.99	25ug	Crude
QNVLYENQKLIANQF	1822.03	25ug	Crude
YENQKLIANQFNSAI	1752.93	25ug	Crude
KLIANQFNSAIGKIQ	1644.92	25ug	Crude
NQFNSAIGKIQDLSL	1621.75	25ug	Crude
SAIGKIQDLSLSTAS	1464.58	25ug	Crude

KIQDLSSTASALGK	1505.68	25ug	Crude
SLSSTASALGKLQDV	1476.64	25ug	Crude
TASALGKLQDVVNQN	1557.71	25ug	Crude
LGKLQDVVNQNAQAL	1610.82	25ug	Crude
QDVVNQNAQALNTLV	1626.77	25ug	Crude
NQNAQALNTLVKQLS	1641.83	25ug	Crude
QALNTLVKQLSSNFG	1619.82	25ug	Crude
TLVKQLSSNFGAISS	1551.75	25ug	Crude
QLSSNFGAISSVLND	1551.66	25ug	Crude
NFGAISSVLNDILSR	1605.80	25ug	Crude
ISSVLNDILSRDKV	1671.94	25ug	Crude
LNDILSRDKVEAEV	1713.93	25ug	Crude
LSRLDKVEAEVQIDR	1770.99	25ug	Crude
DKVEAEVQIDRLITG	1685.88	25ug	Crude
AEVQIDRLITGRLQS	1698.93	25ug	Crude
IDRLITGRLQSLQTY	1777.04	25ug	Crude
ITGRLQSLQTYVTQQ	1735.94	25ug	Crude
LQSLQTYVTQQLIRA	1762.02	25ug	Crude
QTYVTQQLIRAAEIR	1790.04	25ug	Crude
TQQLIRAAEIRASAN	1641.83	25ug	Crude
IRAAEIRASANLAAT	1527.73	25ug	Crude
EIRASANLAATKMSE	1591.79	25ug	Crude
SANLAATKMSECVLG	1494.74	25ug	Crude
AATKMSECVLGQSKR	1608.89	25ug	Crude
MSECVLGQSKRVDFC	1701.99	25ug	Crude
VLGQSKRVDFCGKGY	1656.91	25ug	Crude
SKRVDFCGKGYHLMS	1728.01	25ug	Crude
DFCGKGYHLMSFPQS	1716.94	25ug	Crude
KGYHLMSFPQSAPHG	1656.87	25ug	Crude
LMSFPQSAPHG VVFL	1629.93	25ug	Crude
PQSAPHG VVFLHVTY	1651.87	25ug	Crude
PHG VVFLHVTYVPAQ	1663.92	25ug	Crude
VFLHVTYVPAQEKNF	1792.05	25ug	Crude
VTYVPAQEKNFTTAP	1665.85	25ug	Crude
PAQEKNFTTAPAICH	1627.83	25ug	Crude
KNFTTAPAICHDGKA	1573.78	25ug	Crude
TAPAICHDGKAHFPR	1620.84	25ug	Crude
ICHDGKAHFPRGVF	1712.94	25ug	Crude
GKAHFPRGVFVSNG	1601.77	25ug	Crude
FPREGVFVSNGTHWF	1779.96	25ug	Crude
GVFVSNGTHWFTQR	1734.92	25ug	Crude
SNGTHWFTQRNFYE	1886.00	25ug	Crude
HWFTQRNFYEPQII	1978.22	25ug	Crude
TQRNFYEPQIITTDN	1839.96	25ug	Crude
FYEPQIITTDNTFVS	1774.93	25ug	Crude
QIITTDNTFVSGNCD	1627.74	25ug	Crude
TDNTFVSGNCDVVIG	1540.66	25ug	Crude
FVSGNCDVVIGIVNN	1549.75	25ug	Crude

NCDVVIGIVNNTVYD	1637.82	25ug	Crude
VIGIVNNTVYDPLQP	1641.87	25ug	Crude
VNNTVYDPLQPELDS	1703.81	25ug	Crude
VYDPLQPELDSFKEE	1808.94	25ug	Crude
LQPELDSFKEELDKY	1854.03	25ug	Crude
LDSFKEELDKYFKNH	1913.10	25ug	Crude
KEELDKYFKNHTSPD	1850.99	25ug	Crude
DKYFKNHTSPDVDLG	1735.86	25ug	Crude
KNHTSPDVDLGDISG	1554.62	25ug	Crude
SPDVDLGDISGINAS	1459.52	25ug	Crude
DLGDISGINASVUNI	1486.63	25ug	Crude
ISGINASVUNIQKEI	1584.82	25ug	Crude
NASVVNIQKEIDRLN	1712.91	25ug	Crude
VNIQKEIDRLNEVAK	1769.02	25ug	Crude
KEIDRLNEVAKNLNE	1784.97	25ug	Crude
RLNEVAKNLNESLID	1727.92	25ug	Crude
VAKNLNESLIDLQEL	1698.92	25ug	Crude
LNESLIDLQELGKYE	1763.95	25ug	Crude
LIDLQELGKYEQYIK	1853.13	25ug	Crude
QELGKYEQYIKWPWY	2031.28	25ug	Crude
KYEQYIKWPWYIWLG	2073.40	25ug	Crude
YIKWPWYIWLGFIAG	1913.27	25ug	Crude
PWYIWLGFIAGLIAI	1733.11	25ug	Crude
WLGFIAGLIAIVMT	1604.02	25ug	Crude
IAGLIAIVMTIMLC	1561.08	25ug	Crude
IAIVMTIMLCCMTS	1629.15	25ug	Crude
MVTIMLCCMTSCCSC	1629.14	25ug	Crude
MLCCMTSCCSCCLKGC	1586.07	25ug	Crude
MTSCCSCCLKGCCSCG	1485.85	25ug	Crude
CSCCLKGCCSCGSCCK	1484.86	25ug	Crude
KGCCSCGSCCKFDED	1584.80	25ug	Crude
SCGSCCKFDEDDSEP	1621.69	25ug	Crude
CCKFDEDDSEPVKLG	1684.85	25ug	Crude
DEDDSEPVKLGVKLH	1680.82	25ug	Crude
SEPVKLGVKLHYT	1470.72	25ug	Crude