

## CERTIFICATE OF ANALYSIS

<b>Product Name</b>	SARS-CoV-2 Spike Glycoprotein BA.5-Omicron
<b>Cat No.</b>	RP30223
<b>Lot No</b>	E7040123H
<b>Sequence</b>	See appendix for details
<b>Modification</b>	N/A
<b>Size</b>	Subpool 1: 3.95mg and Subpool 2: 3.925mg
<b>Storage</b>	-20°C
<b>Recommended Solvent*</b>	Dimethyl sulfoxide(Analytical grade)
<b>HPLC purity</b>	Crude
<b>Appearance</b>	White lyophilized powder
<b>Comments</b>	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: *Shanshan Wei*      Date: 08/23/2023

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**Appendix:**

Subpool 1			
Sequence	MW	Quantity	Purity
MFVFLVLLPLVSSQC	1696.13	25ug	Crude
LVLLPLVSSQCVNLI	1611.01	25ug	Crude
PLVSSQCVNLITRTQ	1658.93	25ug	Crude
SQCVNLITRTQSYTN	1727.90	25ug	Crude
NLITRTQSYTNSFTR	1801.96	25ug	Crude
RTQSYTNSFTRGVYY	1842.97	25ug	Crude

YTNSFTRGVVYYPDKV	1809.98	25ug	Crude
FTRGVVYYPDKVFRSS	1822.04	25ug	Crude
VVYYPDKVFRSSVLHS	1797.03	25ug	Crude
DKVFRSSVLHSTQDL	1731.91	25ug	Crude
RSSVLHSTQDLFLPF	1746.97	25ug	Crude
LHSTQDLFLPFFSNV	1764.98	25ug	Crude
QDLFLPFFSNVTWFH	1898.13	25ug	Crude
LPFFSNVTWFHAISG	1722.95	25ug	Crude
SNVTWFHAISGTNGT	1591.69	25ug	Crude
WFHAISGTNGTKRFD	1736.89	25ug	Crude
ISGTNGTKRFDNPVL	1618.80	25ug	Crude
NGTKRFDNPVLPFND	1733.89	25ug	Crude
RFDNPVLPFNDGVYF	1799.99	25ug	Crude
PVLPFNDGVYFASTE	1655.81	25ug	Crude
FNDGVYFASTEKSNI	1691.80	25ug	Crude
VYFASTEKSNIIRGW	1770.99	25ug	Crude
STEKSNIIRGWIFGT	1708.92	25ug	Crude
SNIIRGWIFGTTLDS	1679.88	25ug	Crude
RGWIFGTTLDSKTQS	1696.87	25ug	Crude
FGTTLDSKTQSLIV	1622.87	25ug	Crude
LDSKTQSLIVNNAT	1616.82	25ug	Crude
TQSLIVNNATNVVI	1598.85	25ug	Crude
LIVNNATNVVIKVCE	1628.94	25ug	Crude
NATNVVIKVCEFQFC	1715.01	25ug	Crude
VVIKVCEFQFCNDPF	1788.10	25ug	Crude
VCEFQFCNDPFLDVY	1839.06	25ug	Crude
QFCNDPFLDVYYHKN	1903.09	25ug	Crude
DPFLDVYYHKNKSW	1926.10	25ug	Crude
DVYYHKNKSWMESE	1930.07	25ug	Crude
HKNKSWMESEFRVY	1955.17	25ug	Crude
KSWMESEFRVYSSAN	1820.98	25ug	Crude
ESEFRVYSSANNCTF	1753.85	25ug	Crude
RVYSSANNCTFEYVS	1739.87	25ug	Crude
SANNCTFEYVSPFL	1719.88	25ug	Crude
CTFEYVSPFLMDLE	1822.07	25ug	Crude
YVSPFLMDLEGKQG	1711.94	25ug	Crude
PFLMDLEGKQGNFKN	1737.98	25ug	Crude
DLEGKQGNFKNLREF	1794.97	25ug	Crude
KQGNFKNLREFVFKN	1869.14	25ug	Crude
FKNLREFVFKNIDGY	1890.15	25ug	Crude
REFVFKNIDGYFKIY	1939.23	25ug	Crude
FKNIDGYFKIYSKHT	1861.11	25ug	Crude
DGYFKIYSKHTPINL	1796.04	25ug	Crude
KIYSKHTPINLGRDL	1755.04	25ug	Crude
KHTPINLGRDLPQGF	1692.92	25ug	Crude

INLGRDLPQGFSALE	1629.82	25ug	Crude
RDLPQGFSALEPLVD	1656.84	25ug	Crude
QGFSALEPLVDLPIG	1555.78	25ug	Crude
ALEPLVDLPIGINIT	1577.87	25ug	Crude
LVDLPIGINITRFQT	1700.00	25ug	Crude
PIGINITRFQTLAL	1670.01	25ug	Crude
NITRFQTLALHRSY	1833.11	25ug	Crude
FQTLALHRSYLTPG	1716.99	25ug	Crude
LALHRSYLTPGDSSS	1603.74	25ug	Crude
RSYLTPGDSSSGWTA	1584.65	25ug	Crude
TPGDSSSGWTAGAAA	1335.34	25ug	Crude
SSSGWTAGAAAYYVG	1447.51	25ug	Crude
WTAGAAAYYVGYLQP	1630.80	25ug	Crude
AAAYYVGYLQPRFTL	1732.98	25ug	Crude
YVGYLQPRFTLLKYN	1875.18	25ug	Crude
LQPRFTLLKYNENGT	1794.03	25ug	Crude
TLLKYNENGTITDA	1699.86	25ug	Crude
KYNENGTITDAVDCA	1613.71	25ug	Crude
NGTITDAVDCALDPL	1517.66	25ug	Crude
TDAVDCALDPLSETK	1577.72	25ug	Crude
DCALDPLSETKCTLK	1636.89	25ug	Crude
DPLSETKCTLKSFTV	1668.91	25ug	Crude
ETKCTLKSFTVEKGI	1683.97	25ug	Crude
TLKSFTVEKGIYQTS	1701.92	25ug	Crude
FTVEKGIYQTSNFRV	1789.01	25ug	Crude
KGIYQTSNFRVQPT	1767.94	25ug	Crude
QTSNFRVQPTESIVR	1761.94	25ug	Crude
FRVQPTESIVRFPNI	1803.08	25ug	Crude
PTESIVRFPNITNLC	1703.97	25ug	Crude
IVRFPNITNLCPFDE	1778.05	25ug	Crude
PNITNLCPFDEVFNA	1693.88	25ug	Crude
NLCPFDEVFNATRFA	1743.94	25ug	Crude
FDEVFNATRFASVYA	1736.89	25ug	Crude
FNATRFASVYAWNRK	1831.05	25ug	Crude
RFASVYAWNRKRISN	1868.12	25ug	Crude
VYAWNRKRISNCVAD	1795.04	25ug	Crude
NRKRISNCVADYSVL	1737.99	25ug	Crude
ISNCVADYSVLYNFA	1678.87	25ug	Crude
VADYSVLYNFAPFFA	1723.93	25ug	Crude
SVLYNFAPFFAFKCY	1817.12	25ug	Crude
NFAPFFAFKCYGVSP	1694.96	25ug	Crude
FFAFKCYGVSPTKLN	1722.02	25ug	Crude
KCYGVSPTKLNDLCF	1687.99	25ug	Crude
VSPTKLNDLCFTNVY	1713.96	25ug	Crude
KLNDLCFTNVYADSF	1749.95	25ug	Crude

LCFTNVYADSFVIRG	1704.95	25ug	Crude
NVYADSFVIRGNEVS	1669.80	25ug	Crude
DSFVIRGNEVSQIAP	1631.79	25ug	Crude
IRGNEVSQIAPGQTG	1526.66	25ug	Crude
EVSQIAPGQTGNIAD	1499.59	25ug	Crude
IAPGQTGNIADYNYK	1624.76	25ug	Crude
QTGNIADYNYKLPDD	1726.80	25ug	Crude
IADYNYKLPDDFTGC	1734.89	25ug	Crude
NYKLPDDFTGCVIAW	1741.97	25ug	Crude
PDDFTGCVIAWNSNK	1666.82	25ug	Crude
TGCVIAWNSNKLDSK	1635.85	25ug	Crude
IAWNSNKLDSKVGGN	1602.75	25ug	Crude
SNKLDSKVGGNYNYR	1714.84	25ug	Crude
DSKVGGNYNYRYRLF	1852.02	25ug	Crude
GGNYNYRYRLFRKSN	1908.09	25ug	Crude
NYRYRLFRKSNLKPF	2002.33	25ug	Crude
RLFRKSNLKPFERDI	1919.24	25ug	Crude
KSNLKPFERDISTEI	1776.99	25ug	Crude
KPFERDISTEIQAG	1753.91	25ug	Crude
RDISTEIQAGNKPC	1694.87	25ug	Crude
TEIQAGNKPCNGVA	1564.73	25ug	Crude
QAGNKPCNGVAGVNC	1431.61	25ug	Crude
KPCNGVAGVNCYFPL	1581.87	25ug	Crude
GVAGVNCYFPLQSYG	1574.76	25ug	Crude
VNCYFPLQSYGFRPT	1792.03	25ug	Crude
FPLQSYGFRPTYGVG	1688.89	25ug	Crude
SYGFRPTYGVGHQPY	1728.87	25ug	Crude
RPTYGVGHQPYRVVV	1727.97	25ug	Crude
GVGHQPYRVVLSFE	1686.92	25ug	Crude
QPYRVVLSFELLHA	1771.08	25ug	Crude
VVLSFELLHAPATV	1594.90	25ug	Crude
SFELLHAPATVCGPK	1569.83	25ug	Crude
LHAPATVCGPKKSTN	1523.76	25ug	Crude
ATVCGPKKSTNLVKN	1559.84	25ug	Crude
GPKKSTNLVKNKCVN	1629.93	25ug	Crude
STNLVKNKCVNFNFN	1741.97	25ug	Crude
VKNKCVNFNFNGLTG	1654.90	25ug	Crude
CVNFNFNGLTGTGVL	1555.76	25ug	Crude
NFNGLTGTGVLTESN	1523.61	25ug	Crude
LTGTGVLTESNKKFL	1607.85	25ug	Crude
GVLTESNKKFLPFQQ	1735.99	25ug	Crude
ESNKKFLPFQQFGRD	1841.04	25ug	Crude
KFLPFQQFGRDIADT	1783.00	25ug	Crude
FQQFGRDIADTTDAV	1683.78	25ug	Crude
GRDIADTTDAVRDPQ	1629.69	25ug	Crude

ADTTDAVRDPQTLEI	1644.74	25ug	Crude
DAVRDPQTLEILDIT	1698.88	25ug	Crude
DPQTLEILDITPCSF	1691.90	25ug	Crude
LEILDITPCSFGGVS	1550.78	25ug	Crude
DITPCSFGGVSVITP	1492.70	25ug	Crude
CSFGGVSVITPGTNT	1439.60	25ug	Crude
GVSVITPGTNTSNQV	1473.59	25ug	Crude
ITPGTNTSNQVAVLY	1577.74	25ug	Crude
TNTSNQVAVLYQGVN	1607.73	25ug	Crude
NQVAVLYQGVNCTEV	1636.83	25ug	Crude
VLYQGVNCTEVPVAI	1604.87	25ug	Crude
GVNCTEVPVAIHADQ	1552.72	25ug	Crude
TEVPVAIHADQLTPT	1591.77	25ug	Crude
VAIHADQLTPTWRVY	1770.01	25ug	Crude
ADQLTPTWRVYSTGS	1681.81	25ug	Crude
TPTWRVYSTGSNVFQ	1742.89	25ug	Crude
RVYSTGSNVFQTRAG	1642.78	25ug	Crude
Subpool 2			
Sequence	MW	Quantity	Purity
TGSNVFQTRAGCLIG	1523.72	25ug	Crude
VFQTRAGCLIGAEYV	1626.88	25ug	Crude
RAGCLIGAEYVNNSY	1629.80	25ug	Crude
LIGAEYVNNSYECDI	1702.84	25ug	Crude
EYVNNSYECDIPIGA	1686.80	25ug	Crude
NSYECDIPIGAGICA	1525.71	25ug	Crude
CDIPIGAGICASYQT	1511.73	25ug	Crude
IGAGICASYQTQTKS	1527.71	25ug	Crude
ICASYQTQTKSHRRA	1749.96	25ug	Crude
YQTQTKSHRRARSVA	1788.97	25ug	Crude
TKSHRRARSVASQSI	1683.88	25ug	Crude
RRARSVASQSIIAYT	1678.90	25ug	Crude
SVASQSIIAYTMSLG	1527.75	25ug	Crude
QSIIAYTMSLGAENS	1584.75	25ug	Crude
AYTMSLGAENSVAYS	1563.69	25ug	Crude
SLGAENSVAYSNNSI	1525.58	25ug	Crude
ENSVAYSNNSIAIPT	1579.67	25ug	Crude
AYSNNSIAIPTNFTI	1625.78	25ug	Crude
NSIAIPTNFTISVTT	1578.77	25ug	Crude
IPTNFTISVTTEILP	1645.90	25ug	Crude
FTISVTTEILPVSMT	1638.93	25ug	Crude
VTTEILPVSMTKTSV	1605.90	25ug	Crude
ILPVSMTKTSVDCTM	1625.98	25ug	Crude
SMTKTSVDCTMYICG	1639.94	25ug	Crude
TSVDCTMYICGDSTE	1624.77	25ug	Crude
CTMYICGDSTECSNL	1639.86	25ug	Crude

ICGDSTECSNLLLQY	1658.86	25ug	Crude
STECSNLLLQYGSFC	1664.86	25ug	Crude
SNLLLQYGSFCTQLK	1714.99	25ug	Crude
LQYGSFCTQLKRALT	1729.02	25ug	Crude
SFCTQLKRALTGIAV	1607.92	25ug	Crude
QLKRALTGIAVEQDK	1669.93	25ug	Crude
ALTGIAVEQDKNTQE	1616.73	25ug	Crude
IAVEQDKNTQEVFAQ	1719.86	25ug	Crude
QDKNTQEVFAQVKQI	1775.96	25ug	Crude
TQEVFAQVKQIYKTP	1780.04	25ug	Crude
FAQVKQIYKTPPIKY	1824.18	25ug	Crude
KQIYKTPPIKYFGGF	1787.12	25ug	Crude
KTPPIKYFGGFNFSQ	1730.97	25ug	Crude
IKYFGGFNFSQILPD	1745.98	25ug	Crude
GGFNFSQILPDPSKP	1603.78	25ug	Crude
FSQILPDPSKPSKRS	1686.91	25ug	Crude
LPDPSKPSKRSFIED	1715.91	25ug	Crude
SKPSKRSFIEDLLFN	1781.03	25ug	Crude
KRSFIEDLLFNKVTL	1823.15	25ug	Crude
IEDLLFNKVTLADAG	1618.83	25ug	Crude
LFNKVTLADAGFIKQ	1664.95	25ug	Crude
VTLADAGFIKQYGDC	1600.80	25ug	Crude
DAGFIKQYGDCLGDI	1614.78	25ug	Crude
IKQYGDCLGDIAARD	1637.82	25ug	Crude
GDCLGDIAARDLICA	1505.72	25ug	Crude
GDIAARDLICAQKFN	1634.86	25ug	Crude
ARDLICAQKFNGLTV	1648.93	25ug	Crude
ICAQKFNGLTVLPPL	1613.97	25ug	Crude
KFNGLTVLPPLLTDE	1656.93	25ug	Crude
LTVLPPLLTDEMIQ	1653.99	25ug	Crude
PPLLTDEMIQY TSA	1649.87	25ug	Crude
TDEMIQY TSALLAG	1583.77	25ug	Crude
IAQY TSALLAGTITS	1509.71	25ug	Crude
TSALLAGTITSGWTF	1525.71	25ug	Crude
LAGTITSGWTFGAGA	1409.55	25ug	Crude
ITSGWTFGAGAALQI	1492.68	25ug	Crude
WTFGAGAALQIPFAM	1580.86	25ug	Crude
AGAALQIPFAMQMAY	1582.89	25ug	Crude
LQIPFAMQMAYRFNG	1787.12	25ug	Crude
FAMQMAYRFNGIGVT	1706.01	25ug	Crude
MAYRFNGIGVTQNVL	1682.95	25ug	Crude
FNGIGVTQNVLYENQ	1695.84	25ug	Crude
GVTQNVLYENQKLIA	1689.92	25ug	Crude
NVLYENQKLIANQFN	1808.01	25ug	Crude
ENQKLIANQFN SAIG	1646.81	25ug	Crude

LIANQFNSAIGKIQD	1631.84	25ug	Crude
QFNSAIGKIQDSLSS	1594.73	25ug	Crude
AIGKIQDSLSTASA	1448.58	25ug	Crude
IQDSLSTASALGKL	1490.66	25ug	Crude
LSSTASALGKLQDVV	1488.69	25ug	Crude
ASALGKLQDVVNHNA	1536.70	25ug	Crude
GKLQDVVNHNAQALN	1620.77	25ug	Crude
DVVNHNAQALNTLVK	1635.83	25ug	Crude
HNAQALNTLVKQLSS	1623.82	25ug	Crude
ALNTLVKQLSSKFGA	1576.84	25ug	Crude
LVKQLSSKFGAISSV	1563.84	25ug	Crude
LSSKFGAISSVLNDI	1550.76	25ug	Crude
FGAISSVLNDILSRL	1604.85	25ug	Crude
SSVLNDILSRDKVE	1687.90	25ug	Crude
NDILSRDKVEAEVQ	1728.91	25ug	Crude
SRLDKVEAEVQIDRL	1770.99	25ug	Crude
KVEAEVQIDRLITGR	1726.98	25ug	Crude
EVQIDRLITGRLQSL	1741.01	25ug	Crude
DRLITGRLQSLQTYV	1763.01	25ug	Crude
TGRLQSLQTYVTQQL	1735.94	25ug	Crude
QSLQTYVTQQLIRAA	1719.94	25ug	Crude
TYVTQQLIRAAEIRA	1732.99	25ug	Crude
QQLIRAAEIRASANL	1653.89	25ug	Crude
RAAEIRASANLAATK	1542.75	25ug	Crude
IRASANLAATKMSEC	1565.82	25ug	Crude
ANLAATKMSECVLGQ	1535.79	25ug	Crude
ATKMSECVLGQSKRV	1636.94	25ug	Crude
SECVLGQSKRVDFCG	1627.85	25ug	Crude
LGQSKRVDFCGKGYH	1694.92	25ug	Crude
KRVDFCGKGYHLMSF	1788.11	25ug	Crude
FCGKGYHLMSFPQSA	1672.93	25ug	Crude
GYHLMSFPQSAPHGV	1627.83	25ug	Crude
MSFPQSAPHGVVFLH	1653.91	25ug	Crude
QSAPHGVVFLHVITYV	1653.89	25ug	Crude
HGVVFLHVITYVPAQE	1695.92	25ug	Crude
FLHVITYVPAQEKNFT	1794.02	25ug	Crude
TYVPAQEKNFTTAPA	1637.80	25ug	Crude
AQEKNFTTAPAICHD	1645.80	25ug	Crude
NFTTAPAICHDGKAH	1582.75	25ug	Crude
APAICHDGKAHFPRE	1648.85	25ug	Crude
CHDGKAHFPREGVFV	1698.91	25ug	Crude
KAHFPREGVFVSNGT	1645.82	25ug	Crude
PREGVFVSNGTHWFV	1731.92	25ug	Crude
VFVSNGTHWFVTQRN	1791.97	25ug	Crude
NGTHWFVTQRNFYEP	1896.03	25ug	Crude

WFVTQRNFYEPQIIT	1942.19	25ug	Crude
QRNFYEPQIITDNT	1839.96	25ug	Crude
YEPQIITDNTFVSG	1684.81	25ug	Crude
IITDNTFVSGNCDV	1598.74	25ug	Crude
DNTFVSGNCDVVIGI	1552.71	25ug	Crude
VSGNCDVVIGIVNNT	1503.68	25ug	Crude
CDVVIGIVNNTVYDP	1620.83	25ug	Crude
IGIVNNTVYDPLQPE	1671.85	25ug	Crude
NNTVYDPLQPELDSF	1751.85	25ug	Crude
YDPLQPELDSFKEEL	1822.97	25ug	Crude
QPELDSFKEELDKYF	1888.04	25ug	Crude
DSFKEELDKYFKNHT	1901.05	25ug	Crude
EELDKYFKNHTSPDV	1821.95	25ug	Crude
KYFKNHTSPDVDLGD	1735.86	25ug	Crude
NHTSPDVDLGDISGI	1539.61	25ug	Crude
PDVDLGDISGINASV	1471.57	25ug	Crude
LGDISGINASVVNIQ	1499.67	25ug	Crude
SGINASVVNIQKEID	1586.75	25ug	Crude
ASVVNIQKEIDRLNE	1727.92	25ug	Crude
NIQKEIDRLNEVAKN	1783.99	25ug	Crude
EIDRLNEVAKNLNES	1743.88	25ug	Crude
LNEVAKNLNESLIDL	1684.89	25ug	Crude
AKNLNESLIDLQELG	1656.84	25ug	Crude
NESLIDLQELGKYEQ	1778.92	25ug	Crude
IDLQELGKYEQYIKW	1926.18	25ug	Crude
ELGKYEQYIKWPWYI	2016.31	25ug	Crude
YEQYIKWPWYIWLGF	2092.40	25ug	Crude
IKWPWYIWLGFIAGL	1863.26	25ug	Crude
WYIWLGFIAGLIAIV	1735.13	25ug	Crude
LGFIAGLIAIVMVTI	1530.96	25ug	Crude
AGLIAIVMVTIMLCC	1551.06	25ug	Crude
AIVMVTIMLCCMTSC	1619.14	25ug	Crude
VTIMLCCMTSCCSCL	1611.10	25ug	Crude
LCCMTSCCSCLKGCC	1558.02	25ug	Crude
TSCCSCLKGCCSCGS	1441.73	25ug	Crude
SCLKGCCSCGSCCKF	1528.89	25ug	Crude
GCCSCGSCCKFDEDD	1571.72	25ug	Crude
CGSCCKFDEDDSEPV	1633.74	25ug	Crude
CKFDEDDSEPVLKGV	1680.84	25ug	Crude
EDDSEPVLKGVKLHY	1728.91	25ug	Crude
EPVLKGVKLVHYT	1383.64	25ug	Crude