

wwPDB X-ray Structure Validation Summary Report (i)

Sep 9, 2024 – 10:11 AM EDT

| PDB ID | : | 8U9X |
|--------------|---|--|
| Title | : | STRUCTURAL BASIS OF TRANSCRIPTION: RNA POLYMERASE II |
| | | SUBSTRATE BINDING AND METAL COORDINATION AT 3.0 A OF |
| | | T834P MUTANT USING A FREE-ELECTRON LASER |
| Authors | : | Arjunan, P.; Calero, G.; Kaplan, C.D. |
| Deposited on | : | 2023-09-20 |
| Resolution | : | 3.05 Å(reported) |

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org* A user guide is available at https://www.wwpdb.org/validation/2017/XrayValidationReportHelp with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (i)) were used in the production of this report:

| MolProbity | : | 4.02b-467 |
|--------------------------------|---|--|
| Mogul | : | 2022.3.0, CSD as543be (2022) |
| Xtriage (Phenix) | : | 1.20.1 |
| EDS | : | 3.0 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| CCP4 | : | 9.0.002 (Gargrove) |
| Density-Fitness | : | 1.0.11 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.38.3 |

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure: $X\text{-}RAY \, DIFFRACTION$

The reported resolution of this entry is 3.05 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



| Metric | $egin{array}{c} { m Whole \ archive} \ (\#{ m Entries}) \end{array}$ | ${f Similar\ resolution}\ (\#{ m Entries,\ resolution\ range}({ m \AA}))$ |
|-----------------------|--|---|
| R _{free} | 164625 | 2258 (3.10-3.02) |
| Clashscore | 180529 | 2399 (3.10-3.02) |
| Ramachandran outliers | 177936 | 2269 (3.10-3.02) |
| Sidechain outliers | 177891 | 2268 (3.10-3.02) |
| RSRZ outliers | 164620 | 2258 (3.10-3.02) |
| RNA backbone | 3690 | 1166 (3.32-2.80) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain | | | | | | | | |
|-----|-------|--------|------------------|-----|-------|-----|--|--|--|--|--|
| | | | 4% | | | | | | | | |
| 1 | A | 1733 | 22% | 52% | 7% 19 | 3% | | | | | |
| 2 | В | 1224 | 21% | 58% | 7% | 13% | | | | | |
| 3 | С | 318 | % 30% | 50% | • | 16% | | | | | |



| Mol | Chain | Length | | Quality of a | chain | |
|-----|-------|--------|---------------|--------------|-------|---------|
| 4 | D | 221 | 2% | 46% | 6% | 27% |
| 5 | Е | 215 | 36% | | 56% | 5% • |
| 6 | F | 155 | 18% | 34% • | 46% | |
| 7 | G | 171 | 35% | | 57% | 7% • |
| 8 | Н | 146 | 9% | 50% | 6% | 20% |
| 9 | Ι | 122 | 34% | | 52% | 11% • |
| 10 | J | 70 | 20% | 64% | | 7% • 7% |
| 11 | K | 120 | 33% | | 55% | 8% • |
| 12 | L | 70 | 6% 10% 27% | 24% | 399 | % |
| 13 | R | 10 | 40% | | 50% | 10% |
| 14 | Т | 13 | 15% | 8 | 5% | |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 15 | ZN | L | 101 | - | - | Х | - |



2 Entry composition (i)

There are 19 unique types of molecules in this entry. The entry contains 30893 atoms, of which 8 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

• Molecule 1 is a protein called DNA-directed RNA polymerase II subunit RPB1.

| Mol | Chain | Residues | | A | toms | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|----------------|-----------|-----------|-----------|---------|---------|-------|---|
| 1 | А | 1398 | Total 10987 | C 6934 | N 1918 | O 2073 | S 62 | 0 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------------------------|------------|
| А | 834 | PRO | THR | $\operatorname{conflict}$ | UNP P04050 |

• Molecule 2 is a protein called DNA-directed RNA polymerase subunit beta.

| Mol | Chain | Residues | | Α | toms | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|---------------|-----------|-----------|-----------|---|---------|-------|---|
| 2 | В | 1060 | Total 8424 | C 5346 | N 1475 | O 1549 | $\begin{array}{c} \mathrm{S} \\ 54 \end{array}$ | 0 | 0 | 0 |

• Molecule 3 is a protein called DNA-directed RNA polymerase II subunit RPB3.

| Mol | Chain | Residues | | At | \mathbf{oms} | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|---------------|-----------|----------------|----------|---------|---------|-------|---|
| 3 | С | 266 | Total 2095 | C 1317 | N 348 | 0 417 | S 13 | 0 | 0 | 0 |

• Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB4.

| Mol | Chain | Residues | | At | oms | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|---------------|----------|----------|----------|-----------------|---------|-------|---|
| 4 | D | 162 | Total 1287 | C 799 | N 224 | O 262 | ${ m S} { m 2}$ | 0 | 0 | 0 |

• Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

| Mol | Chain | Residues | | Ate | oms | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|---------------|-----------|----------|----------|---------|---------|-------|---|
| 5 | Е | 208 | Total 1713 | C 1089 | N 303 | O 312 | S 9 | 0 | 0 | 0 |



• Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

| Mol | Chain | Residues | | At | oms | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|-----------------|---------|---------|-------|
| 6 | F | 84 | Total 679 | C 434 | N 115 | 0 127 | ${ m S} { m 3}$ | 0 | 0 | 0 |

• Molecule 7 is a protein called DNA-directed RNA polymerase II subunit RPB7.

| Mol | Chain | Residues | | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|---------------|----------|----------|----------|--------|---|---------|-------|
| 7 | G | 171 | Total 1340 | C 861 | N 222 | 0 249 | S 8 | 0 | 0 | 0 |

• Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

| Mol | Chain | Residues | | At | oms | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|---------------|---------|---------|-------|
| 8 | Н | 117 | Total 951 | C 605 | N 158 | 0 184 | ${S \atop 4}$ | 0 | 0 | 0 |

• Molecule 9 is a protein called DNA-directed RNA polymerase II subunit RPB9.

| Mol | Chain | Residues | | A | toms | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|---------|---------|---------|-------|
| 9 | Ι | 119 | Total 971 | C 596 | N 179 | 0 186 | S 10 | 0 | 0 | 0 |

• Molecule 10 is a protein called DNA-directed RNA polymerases II subunit RPABC5.

| Mol | Chain | Residues | | Ato | \mathbf{ms} | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------------|---------|--------|---------|---------|-------|
| 10 | J | 65 | Total 526 | C 336 | N 90 | 0 94 | S 6 | 0 | 0 | 0 |

• Molecule 11 is a protein called DNA-directed RNA polymerase II subunit RPB11.

| Mol | Chain | Residues | | At | oms | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|---------------|---------|---------|-------|
| 11 | K | 115 | Total 920 | C 590 | N 157 | 0 171 | ${S \over 2}$ | 0 | 0 | 1 |

• Molecule 12 is a protein called DNA-directed RNA polymerases II subunit RPABC4.

| Mol | Chain | Residues | | Ato | \mathbf{ms} | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------------|---------|---------------|---------|---------|-------|
| 12 | L | 43 | Total 343 | C 211 | N 69 | O 59 | $\frac{S}{4}$ | 0 | 0 | 0 |

• Molecule 13 is a RNA chain called MOL_ID: 13.



| Mol | Chain | Residues | | At | \mathbf{oms} | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|----------------|----|---|---------|---------|-------|
| 13 | В | 10 | Total | С | Ν | 0 | Р | 0 | 0 | 0 |
| 10 | 10 | 10 | 217 | 98 | 45 | 65 | 9 | 0 | | 0 |

• Molecule 14 is a DNA chain called MOL_ID: 14.

| Mol | Chain | Residues | | Ate | oms | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------|---------|---------|---------|---------|-------|
| 14 | Т | 13 | Total 260 | C 124 | N 44 | O 79 | Р 13 | 0 | 0 | 0 |

• Molecule 15 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 15 | А | 2 | Total Zn 2 2 | 0 | 0 |
| 15 | В | 1 | Total Zn 1 1 | 0 | 0 |
| 15 | С | 1 | Total Zn 1 1 | 0 | 0 |
| 15 | Ι | 2 | Total Zn 2 2 | 0 | 0 |
| 15 | J | 1 | Total Zn 1 1 | 0 | 0 |
| 15 | L | 1 | Total Zn 1 1 | 0 | 0 |

• Molecule 16 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 16 | А | 2 | Total Mn 2 2 | 0 | 0 |
| 16 | В | 1 | Total Mn 1 1 | 0 | 0 |

• Molecule 17 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).





| Mol | Chain | Residues | | Ate | oms | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|
| 17 | Р | 1 | Total | С | Ν | Ο | Р | 0 | 0 |
| 11 | D | | 31 | 10 | 5 | 13 | 3 | 0 | U |

• Molecule 18 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------------|--------|--------|--------|---------|---------|
| 18 | Е | 1 | Total 14 | С 3 | H 8 | O 3 | 0 | 0 |

• Molecule 19 is water.



| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|--|---------|---------|
| 19 | А | 46 | $\begin{array}{cc} \text{Total} & \text{O} \\ 46 & 46 \end{array}$ | 0 | 0 |
| 19 | В | 38 | Total O 38 38 | 0 | 0 |
| 19 | С | 6 | Total O 6 6 | 0 | 0 |
| 19 | D | 5 | $\begin{array}{cc} \text{Total} & \text{O} \\ 5 & 5 \end{array}$ | 0 | 0 |
| 19 | Е | 7 | Total O 7 7 | 0 | 0 |
| 19 | F | 3 | Total O 3 3 | 0 | 0 |
| 19 | G | 4 | Total O 4 4 | 0 | 0 |
| 19 | Н | 3 | Total O 3 3 | 0 | 0 |
| 19 | J | 2 | Total O 2 2 | 0 | 0 |
| 19 | К | 5 | Total O 5 5 | 0 | 0 |
| 19 | L | 2 | Total O 2 2 | 0 | 0 |
| 19 | R | 1 | Total O 1 1 | 0 | 0 |
| 19 | Т | 2 | Total O 2 2 | 0 | 0 |



3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.



• Molecule 1: DNA-directed RNA polymerase II subunit RPB1



| N648 1649 | <mark>0650</mark> К651 | V652 V653 | N654 F655 | V656 L657 | L658 H650 | N660 | G661 F662 | 5002 S663 | T664 | G665 T666 | G667 | D668 | 1670 | A671 | D672 | G673 P674 | | R677 | E678 | T680 | E681 | 1682 1683 | A684 | E685 A686 | K687 | K689 K689 | V690 | L691 D692 | V693 | 1694 K695 | E696 | A697 | 4030 A699 | N700 | L702 | T703 A704 | K705 | | |
|-----------------------|---------------------------|----------------|----------------|----------------|----------------|--------------|----------------|--------------|--------------|----------------|-------|-------|-----------------|-------|-------|----------------|-------------|-------|------------------|-------------|-------|------------------|-------|----------------|-------|----------------|----------------|----------------|-------|----------------|-------|----------------|----------------|----------------|-------|------------------|----------------|-------------------------|-------------|
| R711 | F714 E715 | D716 N717 | V718 V719 | R7 20 F7 21 | L722 N733 | E7 24 | A7 25 B7 76 | D727 | K7 28 | A729 G730 | R731 | L732 | A/ 33 E734 | V735 | N736 | L/3/ K738 | D739 | L740 | N741 N742 | V743 | K7 44 | ur 45 M7 46 | V747 | M748 A749 | G750 | S751 K752 | G753 | 5/54 F755 | 1756 | | M761 | S762 A763 | C764 | V765 C766 | Q767 | V770 | E771 | ur rz K773 R774 | |
| 1775 A776 | F777 G778 | F779 V780 | D781 R782 | T783 L784 | P785 H786 | F787 | S788 | D790 | - | S793 P794 | E795 | S796 | 6798 | F799 | V800 | E801 N802 | | L805 | R806 G807 | L808 | T809 | P810 Q811 | E812 | F813 F814 | F815 | H816 A817 | M818 | G820 | R821 | E822 G823 | L824 | 1825 De 26 | 1827 T827 | 4828 V820 | K830 | T831 A832 | E833 | ro34 G835 Y836 | 222 |
| 1837 Q 838 | R839 R840 | L841 V842 | K843 A844 | L845 E846 | D847 | 0401 W849 | V850 H851 | Y852 | D853 | N854 | R857 | N858 | 1860 L860 | G861 | N862 | V 863 T 864 | Q865 | F866 | 1867 Y868 | <u>6869</u> | E870 | D8/1 G872 | - | A875 A876 | H877 | 1878 E879 | K880 | 4881 S882 | L883 | D884 T885 | 1886 | G887 | 2889 S889 | D890 | A892 | F893 | R896 | R898 V898 | 222 |
| D900 L901 | L902 N903 | T904 D905 | H906 T907 | L908 D909 | P910 S011 | 5311 L912 | L913 F014 | 5915 S915 | G916 | T010 | L920 | G921 | 1.923 | K924 | L925 | 09.6h | L928 | L929 | E932 | | V937 | K938 D939 | R940 | K941 F942 | L943 | V946 | F947 | 0949 D949 | G950 | E951 A952 | N953 | V954 D066 | L956 | P957 VOE8 | N959 | 1960 R961 | R962 | 1964 1964 0965 | |
| N966 A967 | T970 | F971 H972 | 1973 D974 | H975 | P978 970 | D980 | L981 T082 | 1902 1983 | K984 | D985 T986 | V987 | L988 | 6909 | D992 | L993 | N996 | L997 | L998 | V999 L1000 | R1001 | 100 | N1 004 E1 005 | I1006 | 11007 01008 | N1009 | A1010 Q1011 | R1012 | A1014 | V1015 | 11016 L1017 | F1018 | | L1022 | R1023 | R1025 | L1026 A1027 | T1028 | R1030 V1031 | |
| L1032 Q1033 | E1034 Y1035 | R1036 L1037 | T1038 K1039 | F1042 | D1043 | V1045 | L1046 | N1048 | I1049 | E1050 A1051 | Q1052 | F1053 | L1055 R1055 | S1056 | V1057 | V1058 H1059 | P1060 | G1061 | E1062 M1063 | V1064 | G1065 | V1066 L1067 | A1068 | A1069 Q1070 | S1071 | 11072 G1073 | E1074 | A1076 | T1077 | M1078 | T1080 | | T1083 | F1084 | F1086 | A1087 G1088 | V1089 | 81091 81092 | |
| K1093 • V1094 • | T1095 S1096 | G1097 V1098 | P1099 R1100 | L1101 K1102 | E1103 T1104 | L1105 | N1106 V1107 | A1108 | K1109 | N1110 M1111 | | S1115 | | V1118 | Y1119 | L1120 E1121 | P1122 | G1123 | H1124 A1125 | A1126 | D1127 | 41128 E1129 | Q1130 | A1131 K1132 | L1133 | 11134 R1135 | S1136 | A113/ 11138 | E1139 | H1140 T1141 | T1142 | L1143 | V1146 | T1147 | A1149 | S1150 • E1151 | 11152 V1152 | Y1154 | P a a c c c |
| P1156 ASP | PRO ARG | SER T1161 | V1162 I1163 | E1167 | E1168 | 11170 | Q1171 | SIH | PHE | SER L FII | LEU | ASP | GLU | ALA | GLU | GLN SFR | PHE | ASP | Q1187 D1188 | S1189 | P1190 | W1191 L1192 | L1193 | K1194 L1195 | E1196 | A1201 | M1202 | K1205 | D1206 | L120/ T1208 | M1209 | G1210 | G1213 | E1214 | 11216 | T1219 | F1220 | F1225 | |
| 1228 | S1229 | D1233 | L1236 | 11238 R1239 | CVC1V | V1243 | ARG | LYS | SER | LEU | ALA | GLU | GLU | ALA | E1255 | E1256 | H1258 | M1259 | L1260 K1261 | K1262 | I1263 | E1264 N1265 | T1266 | M1267 L1268 | E1269 | 1270 11271 | | 61275 G1275 | V1276 | E1277 N1278 | I1279 | E1280 | V1282 | V1283 M1284 | ±0711 | D1288 R1289 | K1290 | V1291 P1292 S1293 | |
| P1294 T1295 | G1296 E1297 | Y1298 V1299 | K1300 E1301 | P1302 E1303 | W1304 V1305 | L1306 | E1307 T1308 | D1309 | G1310 | V1311 N1312 | L1313 | S1314 | L1316 V1316 | M1317 | T1318 | V1319 P1320 | G1321 | I1322 | D1323 P1324 | T1325 | R1326 | 1132/ Y1328 | T1329 | N1330 S1331 | F1332 | 11333 D1334 | 11335 11335 | M1330 E1337 | V1338 | L1339 G1340 | I1341 | E1342 A1343 | 61344 | R1345 | A1347 | L1348 Y1349 | K1350 E1251 | L1301 V1352 V1353 | |
| 11356 | A1357 S1358 | D1359 G1360 | S1361 Y1362 | V1363 N1364 | Y1365 B1366 | H1367 | M1368 A1360 | L1370 | L1371 | V1372 | V1374 | M1375 | 11370 T1377 | Q1378 | | L1381 | V1384 | T1385 | R1386 • H1387 | G1388 | F1389 | N1390 R1391 | S1392 | 11393 T1394 | G1395 | A1396 L1397 | M1398 | 61400 | S1401 | F1402 E1403 | E1404 | T1405 | V1400 E1407 | 11408 | F1410 | E1411 A1412 | G1413 | A1414 | N |
| D1419 D1420 | C1421 R1422 | G1423 V1424 | S1425 E1426 | N1427 V1428 | 11429 11430 | G1431 | 01430 | P1435 | I1436 | G1437 T1438 | G1439 | A1440 | r 1441 D1442 | V1443 | M1444 | 11445 D1446 | E1447 | | L1450 V1451 | K1452 | Y1453 | M1454 | GLU | GLN | ILE | GLU | ILE | ASP | GLY | ASP | GLY | GLY | THR | PR0 TVP | SER | GLU | SER | GLI LEU VAI. | |
| ASN ALA | ASP LEU | ASP VAL | LYS ASP | GLU LEU | MET | SER | PRO I FII | VAL | ASP | SER. GLV | SER | ASN | ASP ALA | MET | ALA | GL Y GL Y | PHE | THR | ALA TYR | GLY | GLY | ALA ASP | TYR | GLU | ALA | SER | PRO | GLY | ALA | UYR GLY | GLU | ALA | THR | SER | GLY | PHE GLY | VAL | SER PRO | 1 |









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• Molecule 7: DNA-directed RNA polymerase II subunit RPB7



• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3



• Molecule 9: DNA-directed RNA polymerase II subunit RPB9





P65 LEU GLU LYS ARG ASP

• Molecule 11: DNA-directed RNA polymerase II subunit RPB11

| Chain K: | 33% | 55% | 8% • |
|--|---|---|--|
| M1 N2 R8 F7 F3 F3 F3 F10 F10 F11 | L1 2 K18 K20 K20 D24 N29 N30 V31 V31 | 133 134 134 135 135 135 135 135 140 141 141 141 146 144 146 146 146 146 146 | F58 A59 A60 A60 X61 X62 B64 E64 E64 F65 F67 F67 F67 F67 |
| 175 976 177 177 178 178 178 178 178 178 178 178 | Lat A85 A86 A86 A86 A90 A90 C91 C91 C91 K97 | A100 1.001 1.001 1.002 1.003 1.004 1.110 1.111 1.110 1.111 1.113 1 | |
| • Molecule 1 | 2: DNA-directed | RNA polymerases II subunit RPA | ABC4 |
| Chain L: 10 | % 27% | 24% 39% | |
| MET SER ARG GLU GLV PHE CLN TLE PRO | 1000 ALA ASP ASP ALA ALA ALA ALA ALA GLY SER SER ALA | ARG THR THR LEU K28 K28 K28 130 C33 C33 C33 C33 C33 C33 C33 C33 C33 C | <mark>K49 D50 G51 G51 G51 H53 R54 L55 K58 K58 K58 R56 R60 R51 T51</mark> |
| K62 R63 L64 V65 Q66 F67 F67 E68 A69 R70 | | | |
| • Molecule 1 | 3: MOL_ID: 13 | | |
| Chain R: | 40% | 50% | 10% |
| A1 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 | | | |
| • Molecule 14 | 4: MOL_ID: 14 | | |
| Chain T: | 15% | 85% | |
| A15 118 118 118 122 122 122 124 | 427 427 | | |



4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|-----------|
| Space group | C 2 2 21 | Depositor |
| Cell constants | 220.17Å 392.60Å 280.92Å | Demonitor |
| a, b, c, α , β , γ | 90.00° 90.00° 90.00° | Depositor |
| Bosolution(A) | 18.00 - 3.05 | Depositor |
| Resolution (A) | 18.00 - 3.05 | EDS |
| % Data completeness | 98.0 (18.00-3.05) | Depositor |
| (in resolution range) | 99.2(18.00-3.05) | EDS |
| R_{merge} | 0.67 | Depositor |
| R _{sym} | (Not available) | Depositor |
| $< I/\sigma(I) > 1$ | $1.10 (at 3.00 \text{\AA})$ | Xtriage |
| Refinement program | PHENIX (1.19.2_4158: ???) | Depositor |
| D D | 0.283 , 0.307 | Depositor |
| Λ, Λ_{free} | 0.293 , 0.314 | DCC |
| R_{free} test set | 6982 reflections $(3.07%)$ | wwPDB-VP |
| Wilson B-factor $(Å^2)$ | 76.8 | Xtriage |
| Anisotropy | 0.192 | Xtriage |
| Bulk solvent $k_{sol}(e/Å^3), B_{sol}(Å^2)$ | 0.15, 0.0 | EDS |
| L-test for twinning ² | $< L > = 0.33, < L^2 > = 0.17$ | Xtriage |
| Estimated twinning fraction | 0.073 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l | Vtriago |
| Estimated twinning fraction | 0.078 for $1/2$ *h+ $1/2$ *k, $3/2$ *h- $1/2$ *k,-l | Athage |
| F_o, F_c correlation | 0.89 | EDS |
| Total number of atoms | 30893 | wwPDB-VP |
| Average B, all atoms $(Å^2)$ | 110.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 2.27% of the height of the origin peak. No significant pseudotranslation is detected.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



¹Intensities estimated from amplitudes.

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, MN, GOL, ATP

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with |Z| > 5 is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mal | Chain | Bo | nd lengths | Bond | angles |
|------|-------|------|----------------|------|----------|
| WIOI | Unam | RMSZ | # Z > 5 | RMSZ | # Z > 5 |
| 1 | А | 0.58 | 0/11181 | 0.76 | 0/15114 |
| 2 | В | 0.54 | 0/8589 | 0.75 | 0/11581 |
| 3 | С | 0.51 | 0/2133 | 0.71 | 0/2891 |
| 4 | D | 0.47 | 0/1296 | 0.67 | 0/1741 |
| 5 | Е | 0.66 | 0/1747 | 0.82 | 0/2349 |
| 6 | F | 0.70 | 1/691~(0.1%) | 0.80 | 0/933 |
| 7 | G | 0.73 | 0/1368 | 0.85 | 0/1844 |
| 8 | Н | 0.47 | 0/965 | 0.66 | 0/1302 |
| 9 | Ι | 0.46 | 0/989 | 0.68 | 0/1331 |
| 10 | J | 0.54 | 0/535 | 0.71 | 0/720 |
| 11 | Κ | 0.53 | 0/938 | 0.68 | 0/1267 |
| 12 | L | 0.61 | 0/345 | 0.77 | 0/457 |
| 13 | R | 0.55 | 0/244 | 1.11 | 0/380 |
| 14 | Т | 1.06 | 0/289 | 1.05 | 0/442 |
| All | All | 0.57 | 1/31310~(0.0%) | 0.76 | 0/42352 |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | А | 0 | 1 |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 6 | F | 104 | ASN | C-N | -5.56 | 1.21 | 1.34 |

There are no bond angle outliers.



There are no chirality outliers.

All (1) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 1 | А | 56 | PRO | Mainchain |

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | А | 10987 | 0 | 11060 | 1415 | 0 |
| 2 | В | 8424 | 0 | 8455 | 1094 | 0 |
| 3 | С | 2095 | 0 | 2052 | 230 | 0 |
| 4 | D | 1287 | 0 | 1296 | 157 | 0 |
| 5 | Е | 1713 | 0 | 1739 | 186 | 0 |
| 6 | F | 679 | 0 | 701 | 85 | 0 |
| 7 | G | 1340 | 0 | 1357 | 172 | 0 |
| 8 | Н | 951 | 0 | 926 | 132 | 0 |
| 9 | Ι | 971 | 0 | 930 | 116 | 0 |
| 10 | J | 526 | 0 | 533 | 85 | 0 |
| 11 | K | 920 | 0 | 929 | 104 | 0 |
| 12 | L | 343 | 0 | 364 | 70 | 0 |
| 13 | R | 217 | 0 | 109 | 15 | 0 |
| 14 | Т | 260 | 0 | 147 | 20 | 0 |
| 15 | А | 2 | 0 | 0 | 0 | 0 |
| 15 | В | 1 | 0 | 0 | 0 | 0 |
| 15 | С | 1 | 0 | 0 | 0 | 0 |
| 15 | Ι | 2 | 0 | 0 | 0 | 0 |
| 15 | J | 1 | 0 | 0 | 0 | 0 |
| 15 | L | 1 | 0 | 0 | 2 | 0 |
| 16 | А | 2 | 0 | 0 | 0 | 0 |
| 16 | В | 1 | 0 | 0 | 0 | 0 |
| 17 | В | 31 | 0 | 12 | 3 | 0 |
| 18 | Е | 6 | 8 | 8 | 2 | 0 |
| 19 | А | 46 | 0 | 0 | 0 | 0 |
| 19 | В | 38 | 0 | 0 | 0 | 0 |
| 19 | С | 6 | 0 | 0 | 0 | 0 |
| 19 | D | 5 | 0 | 0 | 0 | 0 |
| 19 | Е | 7 | 0 | 0 | 0 | 0 |



| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 19 | F | 3 | 0 | 0 | 0 | 0 |
| 19 | G | 4 | 0 | 0 | 0 | 0 |
| 19 | Н | 3 | 0 | 0 | 1 | 0 |
| 19 | J | 2 | 0 | 0 | 0 | 0 |
| 19 | Κ | 5 | 0 | 0 | 0 | 0 |
| 19 | L | 2 | 0 | 0 | 0 | 0 |
| 19 | R | 1 | 0 | 0 | 0 | 0 |
| 19 | Т | 2 | 0 | 0 | 0 | 0 |
| All | All | 30885 | 8 | 30618 | 3486 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 57.

The worst 5 of 3486 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|-----------------------------|----------------------|
| 12:L:48:CYS:SG | 12:L:51:CYS:HB2 | 1.92 | 1.09 |
| 12:L:48:CYS:SG | 12:L:51:CYS:CB | 2.41 | 1.09 |
| 2:B:1082:MET:HA | 3:C:189:THR:HA | 1.38 | 1.05 |
| 12:L:30:ILE:HG22 | 12:L:31:CYS:H | 1.23 | 1.04 |
| 2:B:963:PHE:HE2 | 2:B:965:LYS:HE2 | 1.22 | 1.03 |

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|-----|-------|-----------------|-----------|-----------|-----------|-------------|
| 1 | А | 1380/1733~(80%) | 959~(70%) | 290 (21%) | 131 (10%) | 0 2 |
| 2 | В | 1036/1224~(85%) | 726 (70%) | 220 (21%) | 90 (9%) | 0 3 |
| 3 | С | 264/318~(83%) | 205 (78%) | 48 (18%) | 11 (4%) | 2 10 |



| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Perce | ntiles |
|-----|-------|-----------------|------------|-----------|----------|-------|--------|
| 4 | D | 156/221~(71%) | 113 (72%) | 29~(19%) | 14 (9%) | 0 | 2 |
| 5 | Е | 202/215~(94%) | 164 (81%) | 29 (14%) | 9~(4%) | 2 | 9 |
| 6 | F | 82/155~(53%) | 56~(68%) | 24 (29%) | 2(2%) | 5 | 19 |
| 7 | G | 169/171~(99%) | 132 (78%) | 27~(16%) | 10 (6%) | 1 | 6 |
| 8 | Н | 107/146~(73%) | 73~(68%) | 26 (24%) | 8 (8%) | 1 | 3 |
| 9 | Ι | 117/122~(96%) | 82 (70%) | 24 (20%) | 11 (9%) | 0 | 2 |
| 10 | J | 63/70~(90%) | 51 (81%) | 6 (10%) | 6 (10%) | 0 | 2 |
| 11 | K | 113/120 (94%) | 77~(68%) | 27 (24%) | 9~(8%) | 1 | 3 |
| 12 | L | 41/70~(59%) | 15 (37%) | 10 (24%) | 16 (39%) | 0 | 0 |
| All | All | 3730/4565~(82%) | 2653 (71%) | 760 (20%) | 317 (8%) | 0 | 3 |

5 of 317 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | А | 40 | THR |
| 1 | А | 57 | ARG |
| 1 | А | 76 | GLU |
| 1 | А | 119 | ASN |
| 1 | А | 128 | ILE |

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|-----|-------|-----------------|------------|----------|-------------|
| 1 | А | 1218/1520~(80%) | 1173~(96%) | 45 (4%) | 29 56 |
| 2 | В | 917/1061~(86%) | 873~(95%) | 44 (5%) | 21 48 |
| 3 | С | 234/274~(85%) | 228~(97%) | 6 (3%) | 41 65 |
| 4 | D | 144/200~(72%) | 136 (94%) | 8 (6%) | 17 43 |
| 5 | Ε | 192/197~(98%) | 185~(96%) | 7 (4%) | 30 57 |
| 6 | F | 74/137~(54%) | 70~(95%) | 4 (5%) | 18 44 |
| 7 | G | 152/152~(100%) | 145~(95%) | 7 (5%) | 23 49 |



| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | | |
|-----|-------|-----------------|------------|----------|-------------|----|--|
| 8 | Н | 104/128~(81%) | 100 (96%) | 4 (4%) | 28 | 55 | |
| 9 | Ι | 113/116~(97%) | 102 (90%) | 11 (10%) | 6 | 22 | |
| 10 | J | 59/65~(91%) | 56~(95%) | 3~(5%) | 20 | 46 | |
| 11 | Κ | 99/102~(97%) | 98~(99%) | 1 (1%) | 73 | 85 | |
| 12 | L | 38/57~(67%) | 34 (90%) | 4 (10%) | 5 | 19 | |
| All | All | 3344/4009~(83%) | 3200 (96%) | 144 (4%) | 25 | 51 | |

5 of 144 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | G | 3 | PHE |
| 12 | L | 66 | GLN |
| 7 | G | 106 | MET |
| 9 | Ι | 74 | GLU |
| 2 | В | 236 | HIS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 45 such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | С | 264 | GLN |
| 7 | G | 102 | GLN |
| 4 | D | 31 | GLN |
| 5 | Е | 147 | HIS |
| 8 | Н | 137 | GLN |

5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|------------|-------------------|-----------------|
| 13 | R | 8/10 (80%) | 1 (12%) | 0 |

All (1) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13 | R | 8 | G |

There are no RNA pucker outliers to report.



5.4 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 13 ligands modelled in this entry, 11 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with |Z| > 2 is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mal | ol Turno Chain Bog I | | Tinle | Bond lengths | | | Bond angles | | | |
|-----|----------------------|-------|-------|--------------|-------------|------|-------------|----------------|------|----------|
| | туре | Chain | nes | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 18 | GOL | Е | 301 | - | $5,\!5,\!5$ | 1.38 | 0 | $5,\!5,\!5$ | 1.02 | 0 |
| 17 | ATP | В | 2501 | 16 | 28,33,33 | 1.07 | 3 (10%) | $34,\!52,\!52$ | 1.74 | 5 (14%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|------------|---------|
| 18 | GOL | Е | 301 | - | - | 2/4/4/4 | - |
| 17 | ATP | В | 2501 | 16 | - | 2/18/38/38 | 0/3/3/3 |

All (3) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|--------|-------|-------------|----------|
| 17 | В | 2501 | ATP | PG-O2G | -2.81 | 1.44 | 1.54 |
| 17 | В | 2501 | ATP | C1'-N9 | -2.61 | 1.43 | 1.49 |
| 17 | В | 2501 | ATP | PB-O2B | -2.25 | 1.44 | 1.55 |

All (5) bond angle outliers are listed below:



| 8U | 9X |
|----|----|
|----|----|

| Mol | Chain | Res | Type | Atoms | Z | $Observed(^{o})$ | $Ideal(^{o})$ |
|-----|-------|------|------|------------|-------|------------------|---------------|
| 17 | В | 2501 | ATP | O2G-PG-O3B | -5.73 | 85.43 | 104.64 |
| 17 | В | 2501 | ATP | O2B-PB-O3B | -5.62 | 92.07 | 107.27 |
| 17 | В | 2501 | ATP | O3G-PG-O3B | 2.71 | 113.72 | 104.64 |
| 17 | В | 2501 | ATP | C5-C6-N6 | 2.41 | 123.98 | 120.31 |
| 17 | В | 2501 | ATP | O3A-PA-O1A | -2.09 | 104.42 | 110.70 |

There are no chirality outliers.

All (4) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 17 | В | 2501 | ATP | O4'-C4'-C5'-O5' |
| 18 | Е | 301 | GOL | O1-C1-C2-C3 |
| 17 | В | 2501 | ATP | C3'-C4'-C5'-O5' |
| 18 | Е | 301 | GOL | O1-C1-C2-O2 |

There are no ring outliers.

2 monomers are involved in 5 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 18 | Е | 301 | GOL | 2 | 0 |
| 17 | В | 2501 | ATP | 3 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.







5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.



6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed | <RSRZ $>$ | #RSRZ>2 | $OWAB(Å^2)$ | Q<0.9 |
|-----|-------|---------------------|-----------|----------------|--------------------|-------|
| 1 | А | 1398/1733~(80%) | 0.16 | 76 (5%) 32 19 | 38, 100, 164, 286 | 0 |
| 2 | В | 1060/1224~(86%) | 0.21 | 60 (5%) 30 18 | 40, 103, 172, 273 | 0 |
| 3 | С | 266/318~(83%) | -0.08 | 2 (0%) 82 66 | 50, 102, 153, 197 | 0 |
| 4 | D | 162/221~(73%) | 0.02 | 4 (2%) 58 39 | 73, 118, 163, 198 | 0 |
| 5 | E | 208/215~(96%) | 0.45 | 14 (6%) 25 14 | 59, 132, 186, 293 | 0 |
| 6 | F | 84/155~(54%) | -0.03 | 0 100 100 | 44, 77, 116, 167 | 0 |
| 7 | G | $171/171 \ (100\%)$ | 0.35 | 12 (7%) 24 13 | 61, 103, 153, 189 | 0 |
| 8 | Н | 117/146~(80%) | 0.55 | 13 (11%) 12 7 | 93, 133, 189, 235 | 0 |
| 9 | Ι | 119/122~(97%) | 0.86 | 17 (14%) 7 4 | 92, 147, 208, 248 | 0 |
| 10 | J | 65/70~(92%) | 0.02 | 0 100 100 | 68, 106, 148, 186 | 0 |
| 11 | K | 115/120~(95%) | -0.24 | 0 100 100 | 54, 95, 154, 175 | 0 |
| 12 | L | 43/70~(61%) | 0.61 | 4 (9%) 16 9 | 78, 120, 181, 202 | 0 |
| 13 | R | 10/10~(100%) | 0.55 | 0 100 100 | 117, 161, 213, 218 | 0 |
| 14 | Т | 13/13~(100%) | 0.92 | 0 100 100 | 128, 140, 169, 212 | 0 |
| All | All | 3831/4588 (83%) | 0.20 | 202 (5%) 33 19 | 38, 106, 173, 293 | 0 |

The worst 5 of 202 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 7 | G | 95 | SER | 7.9 |
| 2 | В | 728 | ARG | 6.8 |
| 7 | G | 153 | GLN | 6.3 |
| 1 | А | 1084 | PHE | 5.1 |
| 2 | В | 525 | ALA | 5.0 |



6.2 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | $B-factors(Å^2)$ | Q<0.9 |
|-----|------|-------|------|-------|------|------|-------------------------|-------|
| 18 | GOL | Е | 301 | 6/6 | 0.87 | 0.19 | 113,136,158,158 | 0 |
| 16 | MN | В | 2503 | 1/1 | 0.89 | 0.20 | 138,138,138,138 | 1 |
| 15 | ZN | L | 101 | 1/1 | 0.91 | 0.06 | $153,\!153,\!153,\!153$ | 0 |
| 17 | ATP | В | 2501 | 31/31 | 0.94 | 0.12 | 117,141,170,172 | 0 |
| 15 | ZN | Ι | 202 | 1/1 | 0.97 | 0.03 | 182,182,182,182 | 0 |
| 15 | ZN | А | 1801 | 1/1 | 0.98 | 0.05 | 139,139,139,139 | 0 |
| 15 | ZN | Ι | 201 | 1/1 | 0.98 | 0.12 | 119,119,119,119 | 0 |
| 16 | MN | А | 1804 | 1/1 | 0.98 | 0.04 | 78,78,78,78 | 0 |
| 15 | ZN | С | 401 | 1/1 | 0.99 | 0.04 | 69,69,69,69 | 0 |
| 15 | ZN | J | 101 | 1/1 | 0.99 | 0.04 | 85,85,85,85 | 0 |
| 15 | ZN | А | 1802 | 1/1 | 0.99 | 0.05 | $65,\!65,\!65,\!65$ | 0 |
| 16 | MN | А | 1803 | 1/1 | 0.99 | 0.04 | 69,69,69,69 | 0 |
| 15 | ZN | В | 2502 | 1/1 | 1.00 | 0.02 | 77,77,77,77 | 0 |

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

















6.5 Other polymers (i)

There are no such residues in this entry.

