

wwPDB X-ray Structure Validation Summary Report (i)

Oct 9, 2023 – 06:03 AM EDT

| PDB ID | : | 6WOY |
|--------------|---|-------------------------------------------------------------------------|
| Title | : | Thermus thermophilus RNA polymerase initially transcribing complex with |
| | | 3'dCTP |
| Authors | : | Shin, Y.; Murakami, K.S. |
| Deposited on | : | 2020-04-26 |
| Resolution | : | 3.00 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 (1)) were used in the production of this report:

| MolProbity | : | 4.02b-467 |
|--------------------------------|---|--------------------------------------------------------------------|
| Mogul | : | 1.8.5 (274361), CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.35.1 |
| buster-report | : | 1.1.7(2018) |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.35.1 |

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 3.00 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.



| Motria | Whole archive | Similar resolution |
|-----------------------|---------------------|-------------------------------------------------------------|
| | $(\# { m Entries})$ | $(\# { m Entries}, { m resolution} { m range}({ m \AA}))$ |
| R _{free} | 130704 | 2092 (3.00-3.00) |
| Clashscore | 141614 | 2416 (3.00-3.00) |
| Ramachandran outliers | 138981 | 2333 (3.00-3.00) |
| Sidechain outliers | 138945 | 2336 (3.00-3.00) |
| RSRZ outliers | 127900 | 1990 (3.00-3.00) |
| RNA backbone | 3102 | 1173 (3.30-2.70) |

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 c | hain | |
|-----|-------|--------|-----|--------------|------|------|
| 1 | А | 315 | 24% | 41% | 7% | 28% |
| 1 | В | 315 | 28% | 38% | 5% | 29% |
| 2 | С | 1119 | 41% | | 51% | 7% • |
| 3 | D | 1505 | 44% | | 48% | 7% • |

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| Mol | Chain | Length | | Quality of chain | | |
|-----|-------|--------|-----|------------------|----|-------|
| 4 | Е | 99 | 45% | 43% |) | 6% 5% |
| 5 | F | 423 | 3% | 43% | 6% | 18% |
| 6 | G | 22 | 14% | 55% | 9% | 23% |
| 7 | Н | 27 | 30% | 59% | | • 7% |
| 8 | Ι | 3 | 33% | 67% |) | |



2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 28581 atoms, of which 12 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 subunit alpha.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 1 | Δ | A 226 | Total | С | Ν | Ο | S | 0 | 0 | 0 |
| 1 | A 24 | 220 | 1782 | 1138 | 310 | 332 | 2 | 0 | | |
| 1 | р | 224 | Total | С | Ν | 0 | S | 0 | 0 | 0 |
| | D | 224 | 1767 | 1129 | 307 | 329 | 2 | 0 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|-----------|-----------|-----------|---------|---------|---------|-------|
| 2 | С | 1111 | Total 8770 | C 5548 | N 1564 | O 1634 | S 24 | 0 | 0 | 0 |

• Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|----------------|-----------|-----------|-----------|---------|---------|-------|---|
| 3 | D | 1485 | Total 11721 | C 7431 | N 2063 | O 2192 | S 35 | 0 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------|------------|
| D | 86 | LYS | ARG | conflict | UNP Q8RQE8 |

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

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|---------------|---------|---------|-------|
| 4 | Е | 94 | Total 761 | C 486 | N 132 | O 139 | ${S \atop 4}$ | 0 | 0 | 0 |

• Molecule 5 is a protein called RNA polymerase sigma factor SigA.



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace | |
|-----|-------|----------|---------------|-----------|----------|----------|---------------|---------|-------|---|
| 5 | F | 346 | Total 2807 | C 1770 | N 509 | O 524 | $\frac{S}{4}$ | 0 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------|------------|
| F | 46 | THR | ALA | conflict | UNP Q72L95 |

• Molecule 6 is a DNA chain called DNA (5'-D(P*TP*GP*CP*AP*TP*CP*CP*GP*TP*GP *AP*GP*TP*GP*CP*AP*G)-3').

| Mol | Chain | Residues | | At | oms | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------|----------|---------|---------|---------|-------|
| 6 | G | 17 | Total 351 | C 166 | N 65 | O 103 | Р 17 | 0 | 0 | 0 |

• Molecule 7 is a DNA chain called DNA (25-MER).

| Mol | Chain | Residues | | At | \mathbf{oms} | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------------|----------|---------|---------|---------|-------|
| 7 | Н | 25 | Total 516 | C 246 | N 99 | 0 147 | Р 24 | 0 | 0 | 0 |

• Molecule 8 is a RNA chain called RNA (5'-R(*GP*CP*A)-3').

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------------|---------|---------|---------|--------|---------|---------|-------|
| 8 | Ι | 3 | Total 62 | C 29 | N 13 | 0 18 | Р 2 | 0 | 0 | 0 |

• Molecule 9 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 9 | D | 2 | Total Mg 2 2 | 0 | 0 |

• Molecule 10 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 10 | D | 2 | Total Zn 2 2 | 0 | 0 |

• Molecule 11 is 3'-DEOXY-CYTIDINE-5'-TRIPHOSPHATE (three-letter code: CH1) (formula: $C_9H_{16}N_3O_{13}P_3$).





| Mol | Chain | Residues | | A | Aton | ns | | | ZeroOcc | AltConf |
|-----|-------|----------|-------------|--------|---------|--------|---------|--------|---------|---------|
| 11 | Ι | 1 | Total 40 | C 9 | H 12 | N 3 | 0 13 | Р 3 | 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 subunit alpha

• Molecule 2: DNA-directed RNA polymerase subunit beta



| Chair | ı C |): 🗖 | | | | 41 | % | | | | | | | | | | 51% | | | | | | 7% | 6• | |
|-------------------------------------------|---------------------------|---------------------|-------------------------|---------------------------|----------------|--------------|--------------|----------------------|--------------|----------------|----------------------|----------------------|--------------|----------------|-----------------------|----------------------------|--------------|----------------|--------------------|-------------------------|-----------------------|----------------------|-------------------------|-------------------------|-------------------------------------------|
| M1 E2 I3 | F6 G7 | R8 I9 | K10 E11 V12 | P16 | P17 L18 | E20 | 121 022 | V23 E24 Gor | 070 | A29 | L30 Q31 | P35 P36 | E37 | R39 | E40 N41 | I 44 Q 45 | A46 | R49 E50 | T51 F52 | | E56 G111 | ASP LYS | GLY GLY | GLY GLY L64 | V65 L66 D67 F68 |
| L69 E70 Y71 | G74 E75 | P76 | K84 E85 K86 | D87 L88 | 091 00 | P93 | R97 | 198 199 | 1101 | H1 02 K1 03 | D104 T105 C106 | L107 | K109 F140 | D111 D111 | L115 | G116 H117 | 1118 P119 | L120 M121 | T122 E123 | | 1128 1128 1129 | 6131 6131 | A132 D133 | 1136 V137 | 1140 1141 1142 |
| S143 P144 G145 V146 | T149 | P150 | K154 | 1162 | 1163 P164 | L165 P166 | K167 R168 | 1172 1172 | | E175 V176 | E177 P178 N170 | 6180 6180 V181 | V182 | M184 | | R189 K190 | F191 P192 | L193 V194 | L195 L196 | L19/ R198 V100 | L200 G201 | Y202 D203 | Q204 E205 8000 | 1206 | E210 L211 G212 A213 |
| Y214 G215 E216 L217 | V218 Q219 | G220 L221 | M222 D223 E224 | <mark>S225</mark> V226 | F227 A228 | M229 R230 | E233 | A234 L235 | 1230 R237 | F238 F239 | T240 L241 | P244 | D246 | P24/ P248 | R250 | A2 <mark>53</mark> V254 | L260 | 1261 A262 | D263 P264 | K205 R266 V767 | D268 D268 1.269 | G270 E271 | K276 | A277 E278 E279 | K280 L281 G282 I283 |
| R284 L285 L290 | A291 R292 | F293 | E297 F298 K299 | D300 E301 | L304 | T306 | L307 R308 | Y309 L310 | F311 A312 | G316 | V317 P318 C310 | H320 F321 | V322 V322 | | H327 | R331 R332 | 1333 R334 | T335 V336 | G337 E338 | H340 M340 T341 | D342 D343 | F344 F345 | L348 | L351 A352 | R353 G354 V355 R356 |
| <mark>E357</mark> R358 M359 L360 | M361 G362 | 8363 E364 | 1365 5366 L367 | T368 P369 | A370 K371 | | R376 P377 | E379 | A360 | F384 F385 | F386 S387 D388 | 8389 8389 | | 0393 1393 | r 395 K395 D396 | E397 | 8402 8403 | L404 R405 | H406 K407 | R408 | A412 1.413 | G414 | L418 T419 | R420 E421 R422 | A423 G424 F425 D426 |
| V427 R428 H431 | R432 T433 | H434 Y435 | 6436 R437 I438 | E442 | T443 P444 | E445 G446 | A447 N448 | 1449 G450 | 1451 1452 | T453 S454 | | V461 V461 | | 140/ R468 | Y471 R470 | R473 V474 | T480 | D481 E482 | Y485 | M480 T487 | T489 F490 | E491 D492 | R493 Y494 m405 | 1495 | A499 N500 T501 P502 |
| L503 R507 I508 | V513 | V514 A515 | K516 K517 K518 | G519 E520 | P521 | V5.24 | E528 V529 | D533 | 8535 | P536 K537 | 4539 V539 F540 | 5541 S541 V542 | N543 | 1544 N545 | | E551 H552 | D553 D554 | R557 | A558 L559 | MERA | 0565 0565 T566 | 1000 Q567 A568 | V569 P570 | | P577 V578 <mark>V579</mark> M580 |
| L583 E584 E585 | R586 V587 | V588 R589 | 0590 8591 1592 | A593 A594 | L595 Y596 | E598 | E599 | E602 V603 | K605 | V606 D607 | G608 N609 D610 | 0 TOV | R614 Vete | E616 E616 | 001 / G618 R619 | Y623 | R626 | R627 F628 | Y629 R630 | 8631 N632 D633 | | R640 P641 | R642 V643 | V 644 V 645 G 646 | 0647 R648 V649 R650 |
| K651 L654 L655 | A656 | G664 F665 | Lete AG67 L668 | N671 | V672 L673 | V674 A675 | F679 | D680 G681 | 1682 N683 | F684 E685 | V689 TEOD | LOSO FRO3 | | R697 | F699 F699 V700 | T701 S702 | 1703 H704 | I705 E706 | R707 Y708 | E/09 I710 E711 | A712 R713 | D714 D715 T715 | K716 L717 | G/18 P719 E720 | R721 1722 T723 R724 |
| D725 1726 P727 H728 | L729 S730 | D736 | L(3) D738 E739 | E740 G741 | V742 V743 | K/44 1745 | G746 A747 | E748 V749 | P751 | G752 D753 | 1754 L755 V756 | | S760 S760 | r / 61 K762 | S765 E766 | P767 T768 | P769 E770 | E771 R772 | L773 L774 | 6/18 S776 T777 | E780 | K781 A782 | R783 D784 | 0787 8786 0787 | T788 S789 L790 R791 |
| V792 P793 E796 | <mark>G797</mark> G798 | 1799 V800 | V 801 R 802 T 803 | V804 R805 | L806 R807 | 6809 1809 | D810 P811 | 6812 V813 | E014 L815 | K816 | V819 R820 F821 | E021 V822 V823 | R824 R824 | 078 A | А 020 Ц829 К830 | R831 K832 | L833 0834 | K838 | N8 <mark>41</mark> | G844 Nove | K846 | 1852 L853 | P854 V855 | E856 D857 M858 | L861 P862 D863 |
| G864 T865 <mark>P866</mark> V867 | D868 V869 | 1870 L871 | N872 P873 L874 | G875 | S878 R879 | M880 N881 | L882 G883 | 1884 1885 1985 | E887 | T888 H889 | L890 G891 1802 | L092 A893 | L897 | 0899 0899 | Y901 | S903 P904 | 1905 F906 | D907 G908 | A909 K910 | 1914 1915 | E916 | L918 A919 | 0920 4921 | F926 G927 | K928 R929 K930 G931 |
| E932 G933 F934 G935 | V936 D937 | K938 R939 | E940 V941 E942 | V943 L944 | R945 R946 | E948 | K949 L950 | G951 L952 1055 | T954 | K957 | T958 P959 | E961 | L963 L963 | N904 | 0969 0969 | K971 | T979 | I983 E984 | G985 P986 | 198/ V988 V000 | 6990 1991 | M992 F993 | L997 | 1998 H999 M1000 | V1001 E1002 D1003 K1004 |
| M1005 H1006 A1007 R1008 | S1009 | P1012 Y1013 | 51014 L1015 I1016 | 01019 | P1020 L1021 | K1024 | G1028 | 61029 01030 | TEOLA | M1035 E1036 | V1037 W1038 | Y1043 | A1045 | A1046 H1047 | M1052 | T1054 L1055 | D1058 | D1059 I1060 | E1061 G1062 | K1063 N1064 A1066 | A1066 Y1067 | E1068 A1069 | 11070 11071 21070 | K1072 G1073 E1074 | P1077 E1078 P1079 |



S1080 E1085 F1085 F1085 F1085 F1085 F1085 F1085 F1086 F1089 F1099 F1108 F1108 F1112 F1112 F1115 F115 F1115 F115 F15

• Molecule 3: DNA-directed RNA polymerase subunit beta'

| Chain D: | 44% | 48% | 7% • |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| MET LYS K3 E4 K7 K7 | V8 V8 110 110 111 111 111 1112 1113 1113 1113 | 130 137 137 138 139 139 143 144 144 144 144 144 144 144 144 144 | Y555 1557 1557 1558 1559 1559 1662 1663 1665 1665 1665 |
| 670 673 674 78 879 | V80 V80 K82 K83 K85 V88 V88 V88 V88 V88 V88 V88 V88 V88 V | V105 V105 V106 V110 V111 V1112 V112 V115 U116 U116 U116 U116 U116 U115 U118 U118 U118 U118 U118 U118 U118 | L127 Y128 F129 S130 Y132 T133 T133 L133 L135 D136 D136 D136 D136 |
| 1141 L142 N143 G144 V145 P146 V147 | R148 R149 0151 0151 1152 1153 1155 1155 1155 1156 1156 1156 1156 | 0175 0176 0176 0176 0178 0178 0178 0178 0188 0188 0188 0188 | P193 P194 V195 V195 N196 R199 R199 C201 C201 P200 A203 A203 Y205 |
| R206 F207 P208 R209 V211 V211 | V216 K217 K217 K218 K219 K219 K220 A221 L225 L225 A226 K230 V231 K236 K236 K237 V236 K239 K239 K239 V236 K239 K239 | 1241 1241 1245 1245 1246 1246 1246 1246 1246 1246 1246 1246 | E266 L270 L270 R274 E275 E277 E277 A280 T281 Y282 |
| F283 L284 P285 V286 G287 M288 T289 | P290 1291 1295 1296 1297 1296 1296 12300 12300 12300 12300 12300 12311 12311 12311 12313 12314 12315 12316 12316 12316 12316 | R319 R319 A319 A324 E326 E326 E326 E326 E336 L333 L334 L333 L334 L335 L334 L335 L334 L335 L334 L335 L334 L335 L334 L335 L334 L335 L334 L335 L336 L335 L336 L335 L336 L335 L336 L335 L336 L336 | K342 K345 D344 R345 V347 Q348 M351 N352 V352 V352 P356 |
| E357 G358 A359 R360 V361 E362 A363 | K366 1367 1368 1368 1369 1371 1371 1373 1375 1375 1376 1376 1378 1378 1378 1378 1378 1378 1378 1378 | E389 1390 1391 1393 1391 1393 1395 1395 1395 1395 | 4409 8410 7411 6412 8414 8416 8416 8416 6418 0419 0419 0419 1421 |
| A422 V427 K428 S429 D430 V431 | 7432 7435 7435 7435 7435 7435 7435 7445 7445 | 1450 1457 1462 1463 1465 1465 1465 1466 1466 1466 1473 1473 1473 1473 1473 1473 1473 1473 | M481 M481 H483 P484 P485 R486 R486 R488 R488 R489 R489 R492 R495 |
| L496 E497 V498 V499 R500 A501 | N507 N509 E510 E510 1514 1524 1526 1526 1526 1528 N627 N627 N627 N627 N627 N627 N627 N627 N627 N627 N627 N627 N628 N628 N628 N628 N658 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N668 N6688 N668 N6688 N668 N6688 N6688 N66888 N6688 N6688 N668 | 1655 5538 5538 7544 7544 1546 1546 1546 15556 15556 15556 15556 15556 15556 15556 15556 | 1566 1566 R568 B569 B569 B570 K571 K571 R572 L574 C575 C575 |
| L581 L582 L583 N584 G585 R586 R586 | T592 R597 R598 R598 R601 R613 R613 R613 R613 R613 R613 R613 R613 R614 R615 R616 R617 R618 R621 R613 R622 | D624 D624 S526 S526 S526 D624 L637 L633 L633 L633 L633 L634 C644 C644 C644 C644 C644 C644 C644 C | A649 L651 E652 F653 F653 F654 F655 F655 F655 F657 F657 K660 K660 |
| E662 E663 K664 N669 A672 | 6673 8675 16675 16675 16675 16675 1667 1667 16 | 1034 1035 1695 1695 1695 1695 1695 1695 1700 1700 1700 1700 1700 1700 1700 1710 1711 1711 1711 1711 1711 1711 | 1713 4715 4715 15 1720 1724 1728 1728 1728 1728 |
| F736 D741 G742 D743 D743 Q744 | M745 A746 4746 4749 4749 7750 7756 7756 A756 A756 A756 A756 A756 A756 | 8771 6775 6775 8776 8776 8776 8776 8781 8782 8782 8782 8782 1798 1793 1793 1793 1793 1793 | R796 R799 E798 R799 R800 R801 R801 R800 R801 R800 R803 R806 R806 R806 R806 R806 R806 |
| E810 E811 A812 L813 A814 A815 H816 | 8817 8816 8816 6818 6818 6821 1827 1825 1825 1825 1825 7831 8832 8835 8835 8835 8835 8835 8835 8835 | L 833 K840 Y 841 Y 842 Y 842 Y 844 Y 844 F 844 A 844 F 846 F 866 D 865 D | U864 1865 V866 V866 V866 N866 M869 M869 B873 E874 E874 E874 E874 E875 S875 S877 S877 |
| G878 R879 1880 L881 F882 R882 R884 | 1885 V886 A887 A889 A889 A889 V890 V990 C12 B903 C12 C20 C20 C20 C20 C20 C20 C20 C20 C20 C2 | 1932 1922 1922 1922 1923 1924 1933 1933 1933 1933 1933 1933 1933 193 | 1943 1944 1948 1948 1952 1955 1956 1956 |









ESS5 L271 A357 L271 A357 A275 A357 A275 K366 C275 K366 C286 K370 E289 K370 E289 K377 K300 K376 K301 K377 K300 K377 K300 K377 K300 K377 K301 K377 K302 K376</t



• Molecule 6: DNA (5'-D(P*TP*GP*CP*AP*TP*CP*CP*GP*TP*GP*AP*GP*TP*GP*CP*A P*G)-3')

| Chain G: | 14% | 55% | 9% | 23% |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------|-----|------|
| DC DC G4 C5 C8 C8 C8 C8 | T11 612 612 613 616 616 616 619 619 619 00 00 | DA | | |
| • Molecule | 7: DNA (25-MI | ER) | | |
| Chain H: | 30% | 59% | | • 7% |
| T1 A2 A4 A5 G7 G7 | C12 113 114 115 115 115 115 115 115 115 115 120 120 120 122 122 | C24 A25 DG | | |
| • Molecule | 8: RNA (5'-R(* | GP*CP*A)-3') | | |
| Chain I: | 33% | | 67% | |
| G1 A3 A3 | | | | |



4 Data and refinement statistics (i)

| Property | Value | Source | |
|---------------------------------------------|-------------------------------------------------|-----------|--|
| Space group | C 1 2 1 | Depositor | |
| Cell constants | 185.98Å 102.47Å 296.04Å | Depositor | |
| a, b, c, α , β , γ | 90.00° 98.86° 90.00° | Depositor | |
| Bosolution (Å) | 29.98 - 3.00 | Depositor | |
| Resolution (A) | 29.98 - 3.00 | EDS | |
| % Data completeness | 96.5(29.98-3.00) | Depositor | |
| (in resolution range) | 96.5(29.98-3.00) | EDS | |
| R_{merge} | (Not available) | Depositor | |
| R_{sym} | (Not available) | Depositor | |
| $< I/\sigma(I) > 1$ | $2.21 (at 3.00 \text{\AA})$ | Xtriage | |
| Refinement program | PHENIX 1.15.2_3472 | Depositor | |
| D D | 0.206 , 0.219 | Depositor | |
| Λ, Λ_{free} | 0.207 , 0.221 | DCC | |
| R_{free} test set | 2002 reflections $(1.88%)$ | wwPDB-VP | |
| Wilson B-factor $(Å^2)$ | 79.7 | Xtriage | |
| Anisotropy | 0.748 | Xtriage | |
| Bulk solvent $k_{sol}(e/Å^3), B_{sol}(Å^2)$ | 0.28 , 55.5 | EDS | |
| L-test for $twinning^2$ | $ < L >=0.49, < L^2>=0.32$ | Xtriage | |
| Estimated twinning fraction | No twinning to report. | Xtriage | |
| F_o, F_c correlation | 0.95 | EDS | |
| Total number of atoms | 28581 | wwPDB-VP | |
| Average B, all atoms $(Å^2)$ | 84.0 | wwPDB-VP | |

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 3.27% 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, CH1, MG

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 | Bo | ond angles |
|------|-------|------|----------------|------|----------------|
| MIOI | Unam | RMSZ | # Z > 5 | RMSZ | # Z > 5 |
| 1 | А | 0.46 | 0/1814 | 0.67 | 0/2466 |
| 1 | В | 0.45 | 0/1799 | 0.63 | 0/2447 |
| 2 | С | 0.47 | 0/8937 | 0.63 | 1/12087~(0.0%) |
| 3 | D | 0.51 | 1/11927~(0.0%) | 0.66 | 0/16127 |
| 4 | Е | 0.43 | 0/775 | 0.58 | 0/1045 |
| 5 | F | 0.45 | 0/2852 | 0.61 | 0/3837 |
| 6 | G | 1.12 | 3/393~(0.8%) | 1.11 | 3/605~(0.5%) |
| 7 | Н | 0.98 | 0/580 | 1.02 | 1/895~(0.1%) |
| 8 | Ι | 0.80 | 0/69 | 1.46 | 0/106 |
| All | All | 0.51 | 4/29146~(0.0%) | 0.67 | 5/39615~(0.0%) |

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 |
| 1 | В | 0 | 2 |
| 2 | С | 0 | 2 |
| 3 | D | 0 | 6 |
| All | All | 0 | 11 |

All (4) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Ζ | $\operatorname{Observed}(\operatorname{\AA})$ | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-----------------------------------------------|----------|
| 3 | D | 301 | GLY | C-N | 7.26 | 1.50 | 1.34 |
| 6 | G | 12 | DG | C3'-O3' | -5.67 | 1.36 | 1.44 |
| 6 | G | 13 | DA | C3'-O3' | -5.53 | 1.36 | 1.44 |
| 6 | G | 14 | DG | C3'-O3' | -5.10 | 1.37 | 1.44 |



| Mol | Chain | Res | Type | Atoms | Z | $Observed(^{o})$ | $Ideal(^{o})$ |
|-----|-------|-----|------|-------------|-------|------------------|---------------|
| 7 | Н | 5 | DA | O4'-C1'-N9 | 6.27 | 112.39 | 108.00 |
| 6 | G | 16 | DG | OP1-P-OP2 | 6.14 | 128.81 | 119.60 |
| 6 | G | 16 | DG | O4'-C4'-C3' | -6.01 | 102.10 | 104.50 |
| 2 | С | 107 | LEU | CA-CB-CG | 5.90 | 128.87 | 115.30 |
| 6 | G | 13 | DA | O4'-C4'-C3' | -5.80 | 102.18 | 104.50 |

All (5) bond angle outliers are listed below:

There are no chirality outliers.

5 of 11 planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 1 | А | 46 | SER | Peptide |
| 1 | В | 46 | SER | Peptide |
| 1 | В | 58 | ILE | Peptide |
| 2 | С | 268 | ASP | Peptide |
| 2 | С | 766 | GLU | Peptide |

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 | 1782 | 0 | 1834 | 173 | 0 |
| 1 | В | 1767 | 0 | 1816 | 186 | 0 |
| 2 | С | 8770 | 0 | 8874 | 732 | 1 |
| 3 | D | 11721 | 0 | 11941 | 967 | 2 |
| 4 | Е | 761 | 0 | 778 | 59 | 0 |
| 5 | F | 2807 | 0 | 2882 | 263 | 1 |
| 6 | G | 351 | 0 | 192 | 19 | 0 |
| 7 | Н | 516 | 0 | 283 | 28 | 0 |
| 8 | Ι | 62 | 0 | 34 | 3 | 0 |
| 9 | D | 2 | 0 | 0 | 0 | 0 |
| 10 | D | 2 | 0 | 0 | 0 | 0 |
| 11 | Ι | 28 | 12 | 11 | 2 | 0 |
| All | All | 28569 | 12 | 28645 | 2219 | 2 |

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 39.



| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|-----------------------------|----------------------|
| 7:H:15:DT:H2" | 7:H:16:DC:H5' | 1.22 | 1.16 |
| 5:F:338:LEU:HD23 | 5:F:339:PRO:HD2 | 1.21 | 1.13 |
| 1:A:206:THR:HG22 | 1:A:209:GLU:HG3 | 1.24 | 1.11 |
| 3:D:203:ALA:HB1 | 3:D:393:ILE:HD11 | 1.31 | 1.10 |
| 2:C:1012:PRO:HB2 | 2:C:1021:LEU:HD13 | 1.32 | 1.08 |

The worst 5 of 2219 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------------|-----------------------------|----------------------|
| 2:C:70:GLU:OE2 | 3:D:1151:ARG:NH1[3_545] | 2.04 | 0.16 |
| 3:D:296:GLU:OE2 | 5:F:222:ARG:NH1[4_1149] | 2.12 | 0.08 |

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 | Perce | ntiles |
|-----|-------|----------------------|------------|-----------|----------|-------|--------|
| 1 | А | 224/315~(71%) | 183 (82%) | 40 (18%) | 1 (0%) | 34 | 72 |
| 1 | В | 222/315~(70%) | 187 (84%) | 33 (15%) | 2 (1%) | 17 | 55 |
| 2 | С | $1107/1119 \ (99\%)$ | 971 (88%) | 133 (12%) | 3 (0%) | 41 | 76 |
| 3 | D | 1481/1505~(98%) | 1302 (88%) | 172 (12%) | 7 (0%) | 29 | 68 |
| 4 | Е | 92/99~(93%) | 81 (88%) | 11 (12%) | 0 | 100 | 100 |
| 5 | F | 344/423~(81%) | 293~(85%) | 51 (15%) | 0 | 100 | 100 |
| All | All | 3470/3776~(92%) | 3017 (87%) | 440 (13%) | 13 (0%) | 34 | 72 |

5 of 13 Ramachandran outliers are listed below:



| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | В | 37 | GLY |
| 3 | D | 276 | ASP |
| 1 | А | 154 | GLU |
| 1 | В | 36 | LEU |
| 3 | D | 275 | GLU |

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent side chain 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 | Perce | entiles |
|-----|-------|-----------------|------------|-----------|-------|---------|
| 1 | А | 199/273~(73%) | 166~(83%) | 33~(17%) | 2 | 11 |
| 1 | В | 197/273~(72%) | 180 (91%) | 17 (9%) | 10 | 37 |
| 2 | С | 936/941~(100%) | 823 (88%) | 113 (12%) | 5 | 21 |
| 3 | D | 1249/1265~(99%) | 1115 (89%) | 134 (11%) | 6 | 26 |
| 4 | Ε | 83/88~(94%) | 77~(93%) | 6 (7%) | 14 | 45 |
| 5 | F | 301/371~(81%) | 268 (89%) | 33 (11%) | 6 | 25 |
| All | All | 2965/3211~(92%) | 2629~(89%) | 336 (11%) | 6 | 24 |

 $5~{\rm of}~336$ residues with a non-rotameric side chain are listed below:

| Mol | Chain | \mathbf{Res} | Type |
|-----|-------|----------------|------|
| 3 | D | 600 | LEU |
| 3 | D | 1394 | VAL |
| 3 | D | 679 | ARG |
| 3 | D | 982 | PHE |
| 4 | Е | 74 | VAL |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 34 such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 3 | D | 1442 | ASN |
| 4 | Е | 86 | GLN |
| 5 | F | 248 | ASN |
| 2 | С | 834 | GLN |

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| \mathbf{Mol} | Chain | \mathbf{Res} | Type |
|----------------|-------|----------------|------|
| 2 | С | 728 | HIS |

5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------|-------------------|-----------------|
| 8 | Ι | 2/3~(66%) | 0 | 0 |

There are no RNA backbone outliers to report.

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 5 ligands modelled in this entry, 4 are monoatomic - leaving 1 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).

| Mol | Tuno | Type Chain | Chain | Chain | Dog | Link | Bo | ond leng | $_{\rm ths}$ | B | ond ang | les |
|-----|------|------------|---------|-------|----------|------|----------|----------|--------------|----------|---------|-----|
| | туре | | nam res | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 | | |
| 11 | CH1 | Ι | 101 | 9 | 24,29,29 | 3.05 | 9 (37%) | 33,45,45 | 1.53 | 7 (21%) | | |

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 |
|-----|------|-------|-----|------|---------|------------|---------|
| 11 | CH1 | Ι | 101 | 9 | - | 5/22/34/34 | 0/2/2/2 |

The worst 5 of 9 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | $\operatorname{Ideal}(\operatorname{\AA})$ |
|-----|-------|-----|------|---------|--------|-------------|--------------------------------------------|
| 11 | Ι | 101 | CH1 | C3'-C2' | -10.67 | 1.24 | 1.52 |
| 11 | Ι | 101 | CH1 | O4'-C1' | -5.91 | 1.28 | 1.42 |
| 11 | Ι | 101 | CH1 | O2-C2 | -3.59 | 1.17 | 1.23 |
| 11 | Ι | 101 | CH1 | C2-N1 | -3.33 | 1.32 | 1.40 |
| 11 | Ι | 101 | CH1 | C4-N4 | 3.26 | 1.41 | 1.33 |

The worst 5 of 7 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | $\mathbf{Observed}(^{o})$ | $Ideal(^{o})$ |
|-----|-------|-----|------|-------------|-------|---------------------------|---------------|
| 11 | Ι | 101 | CH1 | O4'-C4'-C3' | -3.87 | 100.08 | 105.07 |
| 11 | Ι | 101 | CH1 | O4'-C1'-N1 | 3.51 | 116.38 | 108.36 |
| 11 | Ι | 101 | CH1 | PB-O3A-PA | -2.96 | 122.68 | 132.83 |
| 11 | Ι | 101 | CH1 | PB-O3B-PG | -2.20 | 125.28 | 132.83 |
| 11 | Ι | 101 | CH1 | C2'-C3'-C4' | 2.06 | 106.82 | 102.94 |

There are no chirality outliers.

All (5) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-----------------|
| 11 | Ι | 101 | CH1 | C3'-C4'-C5'-O5' |
| 11 | Ι | 101 | CH1 | O4'-C4'-C5'-O5' |
| 11 | Ι | 101 | CH1 | PB-O3A-PA-O1A |
| 11 | Ι | 101 | CH1 | PB-O3A-PA-O2A |
| 11 | Ι | 101 | CH1 | C2'-C1'-N1-C2 |

There are no ring outliers.

1 monomer is involved in 2 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 11 | Ι | 101 | CH1 | 2 | 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, 95^{th} 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 | 226/315~(71%) | -0.53 | 0 100 100 | 58, 79, 98, 110 | 0 |
| 1 | В | 224/315~(71%) | -0.49 | 0 100 100 | 59, 85, 110, 122 | 0 |
| 2 | С | 1111/1119 (99%) | -0.41 | 2 (0%) 95 87 | 47, 81, 125, 144 | 0 |
| 3 | D | 1485/1505~(98%) | -0.44 | 0 100 100 | 40, 75, 122, 141 | 0 |
| 4 | Е | 94/99~(94%) | -0.43 | 0 100 100 | 57, 90, 116, 121 | 0 |
| 5 | F | 346/423~(81%) | -0.25 | 12 (3%) 44 18 | 57, 88, 138, 150 | 0 |
| 6 | G | 17/22~(77%) | -0.01 | 0 100 100 | 64, 92, 152, 155 | 0 |
| 7 | Н | 25/27~(92%) | -0.32 | 0 100 100 | 77, 106, 149, 157 | 0 |
| 8 | Ι | 3/3~(100%) | -0.79 | 0 100 100 | 72, 72, 73, 75 | 0 |
| All | All | 3531/3828~(92%) | -0.42 | 14 (0%) 92 79 | 40, 81, 126, 157 | 0 |

The worst 5 of 14 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 5 | F | 360 | LYS | 3.4 |
| 5 | F | 376 | ILE | 3.3 |
| 5 | F | 375 | LEU | 3.2 |
| 2 | С | 219 | GLN | 3.0 |
| 5 | F | 381 | HIS | 2.9 |

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 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 9 | MG | D | 2002 | 1/1 | 0.90 | 0.18 | 64,64,64,64 | 0 |
| 11 | CH1 | Ι | 101 | 28/28 | 0.91 | 0.17 | 59,77,94,100 | 0 |
| 9 | MG | D | 2001 | 1/1 | 0.97 | 0.14 | 47,47,47,47 | 0 |
| 10 | ZN | D | 2004 | 1/1 | 0.98 | 0.17 | 76,76,76,76 | 0 |
| 10 | ZN | D | 2003 | 1/1 | 0.98 | 0.13 | 96,96,96,96 | 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.

