WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report (i)

Feb 6, 2024 – 03:58 AM EST

|		
PDB ID	:	1YNJ
Title	:	Taq RNA polymerase-Sorangicin complex
Authors	:	Campbell, E.A.; Pavlova, O.; Zenkin, N.; Leon, F.; Irschik, H.; Jansen, R.; Severinov, K.; Darst, S.A.
Deposited on	:	2005-01-24
Resolution	:	3.20 Å(reported)

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 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.
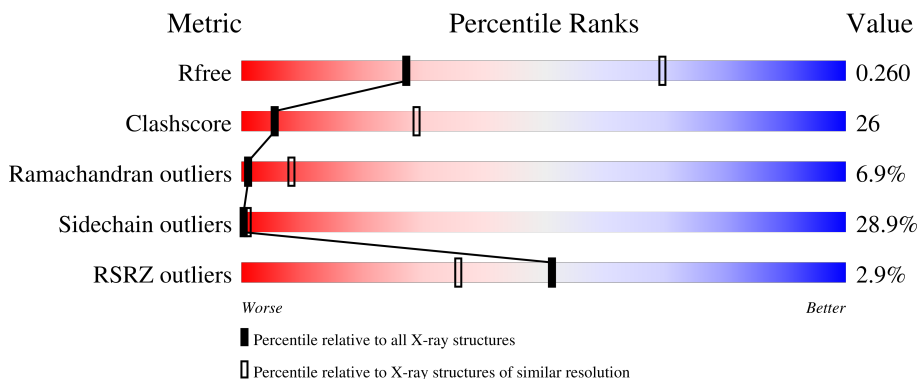
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

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
1	A	314	% 25% 32% 13% • 27%
1	B	314	32% 30% 8% • 28%
2	C	1119	% 39% 42% 15% •
3	D	1524	4% 36% 33% 11% • 19%
3	J	1524	% 7% 7% • 84%

Continued on next page...

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Mol	Chain	Length	Quality of chain
4	K	99	2% 42% 35% 17%

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 24369 atoms, of which 0 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 alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	230	Total	C	N	O	S	0	0	0
			1763	1126	300	334	3			
1	B	225	Total	C	N	O	S	0	0	0
			1750	1118	300	329	3			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	1114	Total	C	N	O	S	0	0	0
			8578	5431	1516	1607	24			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	D	1238	Total	C	N	O	S	0	0	0
			9602	6065	1703	1798	36			
3	J	249	Total	C	N	O	S	0	0	0
			1869	1191	320	356	2			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	K	95	Total	C	N	O	S	0	0	0
			747	476	134	132	5			

- Molecule 5 is SORANGICIN A (three-letter code: SRN) (formula: $C_{47}H_{66}O_{11}$).
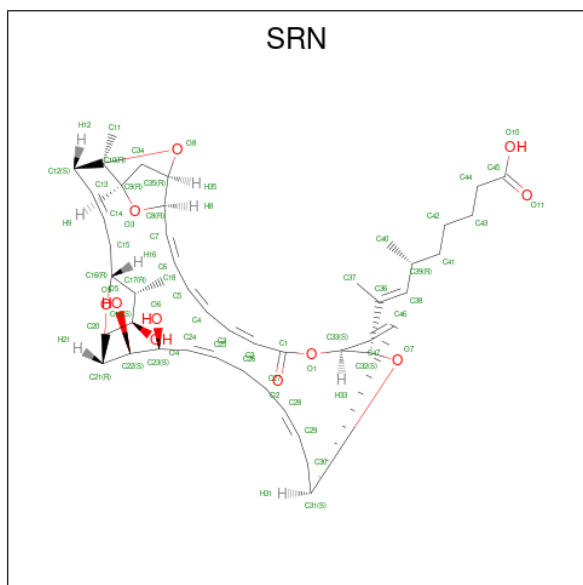
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total 58	C 47	O 11	0	0

- Molecule 6 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	D	2	Total 2	Zn 2	0	0

3 Residue-property plots ⓘ

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 alpha chain

• Molecule 1: DNA-directed RNA polymerase alpha chain

• Molecule 2: DNA-directed RNA polymerase beta chain

M1005 H1006 A1007 R1008 S1009 T1010 G1011 P1012 Y1013 S1014 L1015 Q1018 L1021 G1022 G1023 K1024 F1027 G1028 G1029 Q1030 R1031 F1032 G1033 E1034 M1035 E1036 L1040 Y1043 A1046 L1049 Q1050 E1051 M1052 L1053 T1054 T1055 K1056 S1057 D1058 D1059 I1060 R1063 Y1067 I1071 K1072 D1075 V1076 P1077

E1078 P1079 S1080 S1084 F1085 L1088 V1089 K1090 Q1093 A1094 L1095 D1098 V1099 Q1100 T1101 L1102 D1103 D1106 N1107 P1108 V1109 D1110 I1111 F1112 E1113 G1114 LEU ALA SER LYS ARG

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

Chain D:

MET LYS K3 E4 V5 R6 R9 I10 A11 L12 A13 S14 P15 E16 K17 I18 R19 S20 W21 S22 V26 E27 K28 P29 E30 T31 I32 N33 Y34 R35 T36 L37 E40 R41 D42 G43 L44 F45 D46 E47 I48 I49 F50 G51 P52 I53 K54 D55 Y56 E57 C58 A59 C60 G61 K62 Y63 K64

R65 Q66 R67 F68 E69 G70 K71 V72 C73 E74 R75 E79 V80 T81 R82 S83 I84 V85 R86 R87 Y88 R89 M90 L95 A96 T97 P98 A99 A100 H101 I102 W103 F104 D107 V108 P109 S110 K111 I112 G113 T114 L115 L116 D117 L118 S119 A120 T121 E122 L123 Y128 F129 Y132 I133 V134

L135 D136 P137 K138 G139 A140 V141 K149 R150 Q151 L152 L153 T154 D155 E156 E157 E160 L161 Q166 E167 T168 Y169 P170 L171 D176 A177 L178 V179 D181 G182 E183 E184 V185 V186 K187 G188 Q189 E190 L191 A192 P193 G194 D200 G201 V202 A203 L204 Y205 R206 F207 P208 R209 R210 V211

R212 V213 D214 Y215 L216 E219 R220 R224 I225 P226 L227 S228 A229 W230 K233 Y236 R237 P238 G239 E240 V241 L242 A243 E244 L245 S246 L250 S256 V259 E260 L261 K262 D263 L264 A265 E266 I270 Y271 L272 R273 Y282 F283 L284 P285 T289 I297 V298 E299 D300
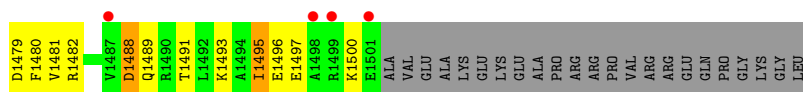
G301 Q302 P303 L304 A305 L310 I311 R312 L313 P314 R315 H316 M317 T318 A319 K320 E321 E326 E327 G328 D329 S330 V331 H332 L333 T334 L335 F336 L337 E338 W339 D344 Y345 K346 V347 A348 P349 H350 M351 I354 V355 P356 E357 K360 K366 I367 A370 I371 D372 P373 E374 E375 E376

V377 I378 G383 H388 E389 P390 I393 L394 V395 V396 K397 A398 R399 V400 F403 D406 V407 E408 V409 T410 T411 R414 V415 D419 V420 L421 S429 G433 R434 V435 V443 V446 V447 E448 S449 Y450 D451 T452 D453 A454 R455 M456 A458 E459 Q462 E463 L464

K472 L473 E479 E480 M481 K482 H483 P484 S485 R486 A487 R488 K491 R495 L496 E497 V498 V499 R500 A501 F502 L503 D504 S505 G506 N507 R508 P509 E510 W511 L514 E515 P518 V519 D523 L524 R525 P526 M527 V528 G532 G533 R534 T537 S538 D539 L540 N541 D542 L543 V544

R545 R546 L547 I548 N549 R550 N551 N552 R553 L554 K555 K556 L557 L558 G561 A562 P563 E564 I565 I566 I567 R568 N569 E570 K571 R572 M573 L574 Q575 V581 N584 R587 V591 T592 N593 P594 E597 L600 R601 S602 L603 T604 D605 I606 L607 S608 G609 R610 Q611 G612 R613 F614 R615

Q616 N617 L618 L619 G620 K621 R622 V623 D624 Y625 S626 G627 R628 S629 V630 I631 V632 V633 Q636 L637 K638 L639 H640 Q641 C642 G643 L644 P645 R646 R647 M648 A649 L650 E651 L652 F653 K654 P655 F656 L657 L658 K659 K660 M661 E662 E663 K664 A665 F666 A667 P668 N669 R674 R675 M676 L677 E678 R679

Q680 R681 D682 I683 K684 W688 D689 A690 L691 E692 E693 V694 I695 H696 V699 V700 L701 L702 N703 R704 A705 P706 H709 R710 L711 G712 I713 Q714 A715 F716 Q717 L720 V721 E722 G723 I726 Q727 L728 H729 P730 L731 A735 D739 F740 D741 M745 A746 V747 H748 V749 P750 L751

S752 S753 F754 A755 Q756 R760 I761 L764 H767 S771 P772 A773 S774 G775 E776 P777 L778 A779 K780 P781 S782 R783 D784 I785 I786 L787 G788 L789 Y790 Y791 I792 T793 Q794 V795 R796 K797 E798 K799 K800 M804 A805 F806 A807 T808 P809 E810 E811 A812 L813 E817 I827 V828 V829

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

Chain J:

%

7%　　7%　　•　　　　　　　　　　84%

T1253 Q1254 G1255 L1256 P1257 R1258 V1259 I1260

E1261 L1262 F1263 E1264 R1267 P1268 K1269 A1270 K1271 A1272 S1275 E1276 I1277 D1278 V1281 E1284 E1285 G1286 E1287 L1290 S1291 V1294 E1295 F1299 E1302 Y1303 K1304 L1305 P1306 K1307 D1308 L1311 L1312 V1313 K1314 D1315 G1316 D1317 Y1318 V1319 E1320 A1321 L1325 T1326 R1327 G1328 D1331 Q1334

L1335 L1336 E1337 R1346 Y1347 L1348 V1349 D1350 E1351 I1352 Q1353 K1354 V1355 Y1356 R1357 A1358 Q1359 G1360 V1361 K1362 L1363 H1364 D1365 K1366 H1367 I1368 E1369 I1370 T1371 V1372 R1373 Q1374 M1375 V1379 E1380 V1381 T1382 D1383 P1384 E1385 D1386 L1389 Q1393 V1394 L1395 E1396 K1397 W1398 D1399 V1400 E1401 A1402 L1403 N1404 L1407

K1412 V1413 P1414 V1415 A1416 W1417 K1418 P1419 L1420 L1421 M1422 G1423 V1424 T1425 K1426 L1429 S1430 T1431 K1432 S1433 W1434 L1435 S1439 F1440 Q1441 N1442 T1443 L1447 T1448 E1449 A1450 A1451 I1452 A1453 G1454 K1455 K1456 D1457 E1458 L1459 L1462 K1463 E1464 N1465 V1466 I1467 R1470 L1471 I1472 P1473 T1476 G1477 S1478

D1479 F1480 V1481 R1482 V1487 D1488 Q1489 R1490 T1491 L1492 K1493 A1494 I1495 E1496 E1497 A1498 R1499 K1500 E1501 ALA VAL GLU ALA LYS GLU LYS GLU ALA PRO ARG ARG PRO VAL ARG ARG GLU GLN PRO GLY LYS GLY LEU

• Molecule 4: DNA-directed RNA polymerase omega chain

Chain K:

2%

42% 35% 17%

M1 A2 E3 I6 D7 K8 L9 M12 V13 D14 S15 K16 Y17 R18 L19 T20 V21 V22 V23 A24 K25 R26 A27 Q28 Q29 L30 L31 R32 H33 R34 F35 K36 N37 T38 V39 L40 E41 P42 E43 E44 R45 M48 R49 T50 L51 E52 D56 N59 A60 V61 T62 W63 K66 E67

L68 L69 R72 L73 E77 N78 L79 V80 K87 L92 Y93 P94 T95 GLU GLU GLU ALA

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	199.19Å 199.19Å 289.31Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.00 – 3.20 39.84 – 3.18	Depositor EDS
% Data completeness (in resolution range)	93.1 (40.00-3.20) 92.3 (39.84-3.18)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.34 (at 3.18Å)	Xtriage
Refinement program	REFMAC 5.1.24	Depositor
R, R_{free}	0.281 , 0.346 0.259 , 0.260	Depositor DCC
R_{free} test set	4796 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	69.0	Xtriage
Anisotropy	0.147	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.24 , 44.0	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	0.87	EDS
Total number of atoms	24369	wwPDB-VP
Average B, all atoms (Å^2)	53.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.03% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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, SRN

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).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	0.52	0/1798	0.88	10/2453 (0.4%)
1	B	0.52	0/1784	0.87	6/2428 (0.2%)
2	C	0.55	0/8744	0.88	35/11850 (0.3%)
3	D	0.52	0/9772	0.81	27/13234 (0.2%)
3	J	0.49	0/1897	0.81	7/2570 (0.3%)
4	K	0.52	0/762	0.79	1/1029 (0.1%)
All	All	0.53	0/24757	0.84	86/33564 (0.3%)

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
2	C	0	3
3	D	0	2
All	All	0	5

There are no bond length outliers.

The worst 5 of 86 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	680	ASP	CB-CG-OD2	7.16	124.74	118.30
2	C	554	ASP	CB-CG-OD2	6.96	124.56	118.30
3	D	860	LEU	CA-CB-CG	6.92	131.22	115.30
2	C	492	ASP	CB-CG-OD2	6.87	124.48	118.30
1	B	193	ASP	CB-CG-OD2	6.71	124.34	118.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

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Mol	Chain	Res	Type	Group
2	C	1076	VAL	Peptide
2	C	213	ALA	Peptide
2	C	671	ASN	Peptide
3	D	1207	TYR	Peptide
3	D	21	TRP	Peptide

5.2 Too-close contacts ⓘ

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	A	1763	0	1760	117	0
1	B	1750	0	1775	77	0
2	C	8578	0	8517	538	0
3	D	9602	0	9556	504	0
3	J	1869	0	1876	88	0
4	K	747	0	735	41	0
5	C	58	0	64	5	0
6	D	2	0	0	0	0
All	All	24369	0	24283	1265	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 26.

The worst 5 of 1265 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)
3:D:705:ALA:CB	3:D:706:PRO:HD3	1.72	1.17
3:D:643:GLY:HA3	3:D:727:GLN:H	1.12	1.15
2:C:263:ASP:HB3	2:C:264:PRO:HD3	1.18	1.12
3:D:1110:ALA:HA	3:D:1202:GLN:HB3	1.33	1.09
3:D:551:ASN:O	3:D:555:LYS:HB2	1.51	1.08

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	A	228/314 (73%)	169 (74%)	45 (20%)	14 (6%)	1	12
1	B	223/314 (71%)	177 (79%)	33 (15%)	13 (6%)	1	13
2	C	1112/1119 (99%)	859 (77%)	168 (15%)	85 (8%)	1	7
3	D	1236/1524 (81%)	971 (79%)	186 (15%)	79 (6%)	1	10
3	J	247/1524 (16%)	190 (77%)	39 (16%)	18 (7%)	1	7
4	K	93/99 (94%)	66 (71%)	18 (19%)	9 (10%)	0	3
All	All	3139/4894 (64%)	2432 (78%)	489 (16%)	218 (7%)	1	8

5 of 218 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	20	TYR
1	A	111	ALA
1	A	139	TYR
1	A	187	GLY
1	A	203	GLY

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	A	189/270 (70%)	135 (71%)	54 (29%)	0	1
1	B	191/270 (71%)	138 (72%)	53 (28%)	0	1
2	C	889/936 (95%)	633 (71%)	256 (29%)	0	1

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles		
3	D	992/1281 (77%)	715 (72%)	277 (28%)		0	1
3	J	191/1281 (15%)	123 (64%)	68 (36%)		0	0
4	K	75/88 (85%)	53 (71%)	22 (29%)		0	1
All	All	2527/4126 (61%)	1797 (71%)	730 (29%)		0	1

5 of 730 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	D	488	ARG
3	D	930	LEU
3	D	534	ARG
3	D	486	ARG
3	D	700	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 51 such sidechains are listed below:

Mol	Chain	Res	Type
2	C	1030	GLN
3	D	680	GLN
4	K	29	GLN
3	D	33	ASN
3	D	616	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 3 ligands modelled in this entry, 2 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	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
5	SRN	C	1120	-	60,62,62	1.34	4 (6%)	62,84,84	1.63	10 (16%)

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
5	SRN	C	1120	-	-	10/52/105/105	0/4/5/5

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	1120	SRN	O1-C1	6.91	1.48	1.34
5	C	1120	SRN	C2-C1	-4.71	1.37	1.48
5	C	1120	SRN	C5-C6	-3.50	1.34	1.44
5	C	1120	SRN	C3-C4	-3.12	1.35	1.44

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	1120	SRN	O1-C1-C2	5.25	123.29	111.38
5	C	1120	SRN	O1-C33-C47	-3.80	100.97	108.85
5	C	1120	SRN	C34-C9-C10	-3.53	106.16	114.05
5	C	1120	SRN	C35-O8-C12	3.22	118.53	112.81
5	C	1120	SRN	C8-C7-C6	-3.18	119.38	125.61

There are no chirality outliers.

5 of 10 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	1120	SRN	O7-C32-C36-C37
5	C	1120	SRN	O2-C1-O1-C33
5	C	1120	SRN	C42-C43-C44-C45
5	C	1120	SRN	C2-C1-O1-C33
5	C	1120	SRN	C39-C41-C42-C43

There are no ring outliers.

1 monomer is involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	C	1120	SRN	5	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.

Ligand SRN C 1120

Bond lengths

Bond angles

Torsions

Rings
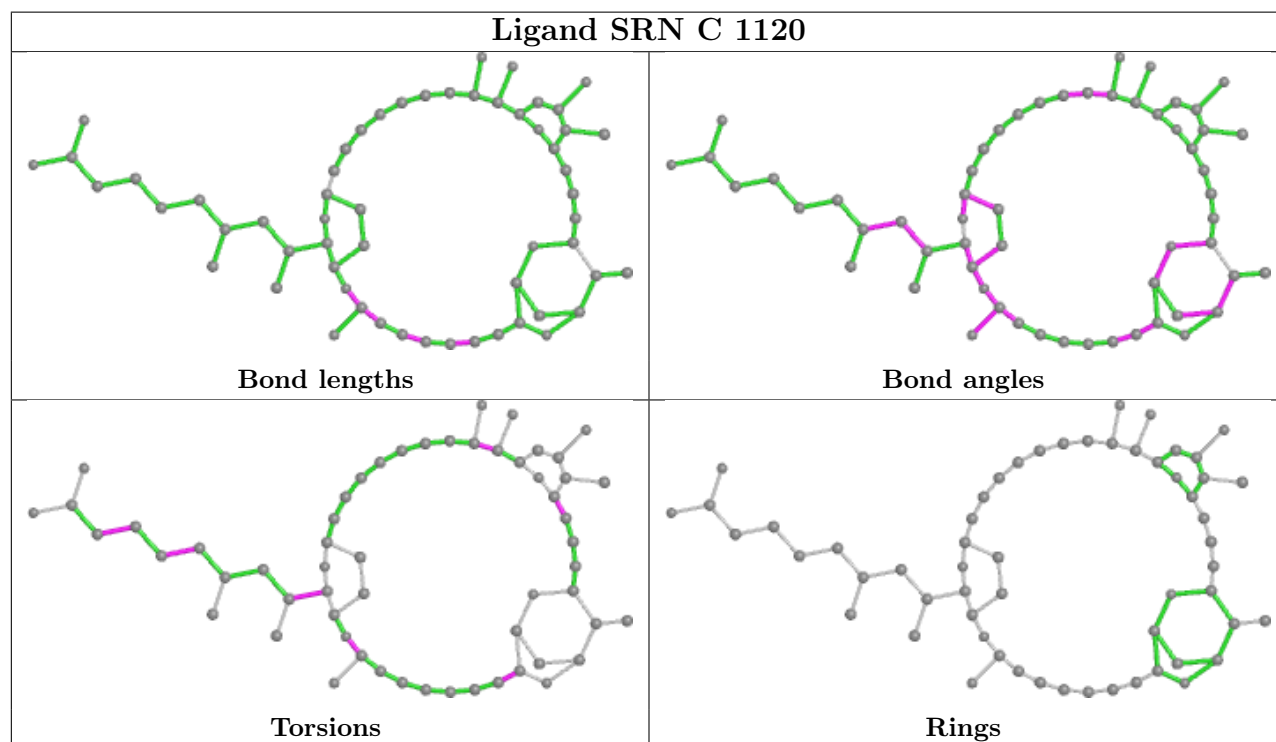
5.7   Other polymers (i)

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 ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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	A	230/314 (73%)	-0.27	2 (0%)	84	75	22, 43, 76, 112	0
1	B	225/314 (71%)	-0.33	1 (0%)	92	89	24, 51, 81, 86	0
2	C	1114/1119 (99%)	-0.28	13 (1%)	79	67	19, 50, 90, 115	0
3	D	1238/1524 (81%)	-0.10	59 (4%)	30	18	18, 49, 94, 139	0
3	J	249/1524 (16%)	0.02	15 (6%)	21	12	24, 51, 125, 139	0
4	K	95/99 (95%)	-0.24	2 (2%)	63	49	27, 64, 149, 162	0
All	All	3151/4894 (64%)	-0.19	92 (2%)	51	36	18, 50, 95, 162	0

The worst 5 of 92 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	D	191	LEU	8.9
3	D	193	PRO	7.3
3	D	346	LYS	5.3
3	D	1240	THR	5.3
3	D	373	PRO	5.0

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

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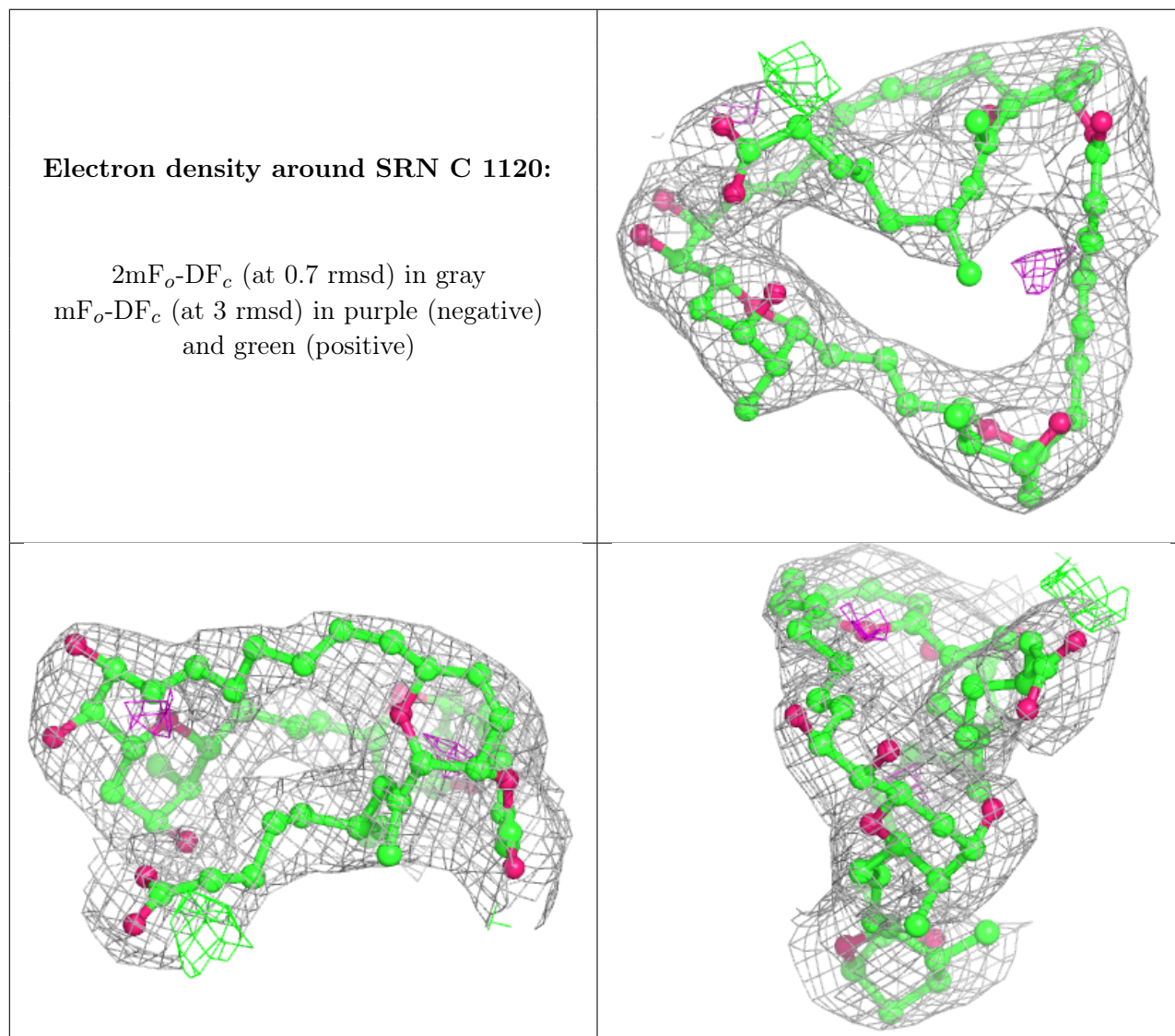
6.3 Carbohydrates ⓘ

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, 95th 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
5	SRN	C	1120	58/58	0.92	0.27	33,45,56,59	0
6	ZN	D	1526	1/1	0.93	0.13	64,64,64,64	0
6	ZN	D	1525	1/1	0.96	0.03	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.

Electron density around SRN C 1120:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.