WORLDWIDE PDB
PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Jun 26, 2024 – 06:45 PM EDT

PDB ID	:	8V1O
Title	:	Crystal structure of IRAK4 kinase domain with compound 4
Authors	:	Weiss, M.M.; Zheng, X.; Browne, C.M.; Campbell, V.; Chen, D.; Enerson, B.; Fei, X.; Huang, X.; Klaus, C.R.; Li, H.; Mayo, M.; McDonald, A.A.; Paul, A.; Sharma, K.; Shi, Y.; Slavin, A.; Walter, D.M.; Yuan, K.; Zhang, Y.; Zhu, X.; Kelleher, J.; Ji, N.; Walker, D.; Mainolfi, N.
Deposited on	:	2023-11-21
Resolution	:	2.92 Å(reported)

The following versions of software and data (see references ⓵) 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	:	2.37.1
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)	:	2.37.1

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 2.92 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.
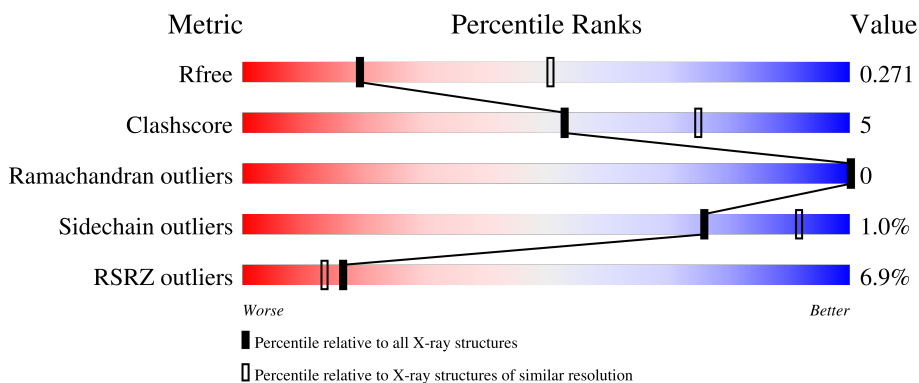
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2307 (2.94-2.90)
Clashscore	141614	2531 (2.94-2.90)
Ramachandran outliers	138981	2462 (2.94-2.90)
Sidechain outliers	138945	2464 (2.94-2.90)
RSRZ outliers	127900	2248 (2.94-2.90)

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	327	6% / 74% / 15% / 11%
1	B	327	7% / 78% / 10% / 12%
1	C	327	5% / 76% / 13% / · / 11%
1	D	327	7% / 80% / 9% / 12%

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
3	GOL	A	503	-	-	-	X
5	CL	D	502	-	-	X	-

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 9424 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 Interleukin-1 receptor-associated kinase 4.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	290	Total	C	N	O	P	S	0	0	0
			2292	1435	385	455	3	14			
1	B	289	Total	C	N	O	P	S	0	0	0
			2285	1431	384	453	3	14			
1	C	292	Total	C	N	O	P	S	0	0	0
			2309	1446	388	458	3	14			
1	D	288	Total	C	N	O	P	S	0	0	0
			2274	1424	382	451	3	14			

There are 104 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	134	MET	-	initiating methionine	UNP Q9NWZ3
A	135	SER	-	expression tag	UNP Q9NWZ3
A	136	TYR	-	expression tag	UNP Q9NWZ3
A	137	TYR	-	expression tag	UNP Q9NWZ3
A	138	HIS	-	expression tag	UNP Q9NWZ3
A	139	HIS	-	expression tag	UNP Q9NWZ3
A	140	HIS	-	expression tag	UNP Q9NWZ3
A	141	HIS	-	expression tag	UNP Q9NWZ3
A	142	HIS	-	expression tag	UNP Q9NWZ3
A	143	HIS	-	expression tag	UNP Q9NWZ3
A	144	ASP	-	expression tag	UNP Q9NWZ3
A	145	TYR	-	expression tag	UNP Q9NWZ3
A	146	ASP	-	expression tag	UNP Q9NWZ3
A	147	ILE	-	expression tag	UNP Q9NWZ3
A	148	PRO	-	expression tag	UNP Q9NWZ3
A	149	THR	-	expression tag	UNP Q9NWZ3
A	150	THR	-	expression tag	UNP Q9NWZ3
A	151	GLU	-	expression tag	UNP Q9NWZ3
A	152	ASN	-	expression tag	UNP Q9NWZ3
A	153	LEU	-	expression tag	UNP Q9NWZ3
A	154	TYR	-	expression tag	UNP Q9NWZ3

Continued on next page...

Continued from previous page...

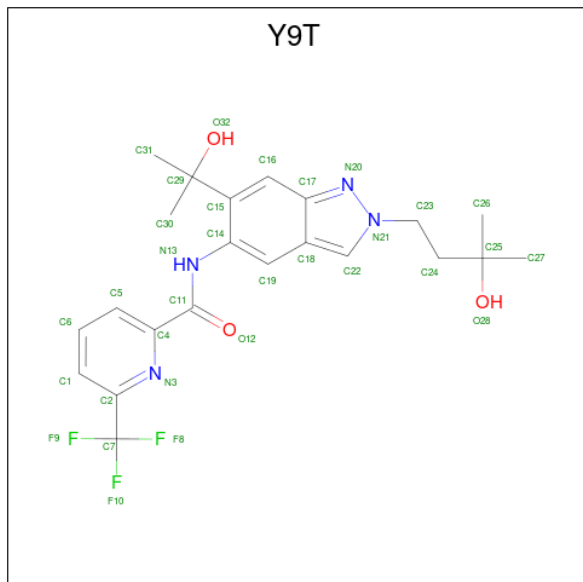| Chain	Residue	Modelled	Actual	Comment	Reference
A	155	PHE	-	expression tag	UNP Q9NWZ3
A	156	GLN	-	expression tag	UNP Q9NWZ3
A	157	SER	-	expression tag	UNP Q9NWZ3
A	158	ILE	-	expression tag	UNP Q9NWZ3
A	159	ALA	-	expression tag	UNP Q9NWZ3
B	134	MET	-	initiating methionine	UNP Q9NWZ3
B	135	SER	-	expression tag	UNP Q9NWZ3
B	136	TYR	-	expression tag	UNP Q9NWZ3
B	137	TYR	-	expression tag	UNP Q9NWZ3
B	138	HIS	-	expression tag	UNP Q9NWZ3
B	139	HIS	-	expression tag	UNP Q9NWZ3
B	140	HIS	-	expression tag	UNP Q9NWZ3
B	141	HIS	-	expression tag	UNP Q9NWZ3
B	142	HIS	-	expression tag	UNP Q9NWZ3
B	143	HIS	-	expression tag	UNP Q9NWZ3
B	144	ASP	-	expression tag	UNP Q9NWZ3
B	145	TYR	-	expression tag	UNP Q9NWZ3
B	146	ASP	-	expression tag	UNP Q9NWZ3
B	147	ILE	-	expression tag	UNP Q9NWZ3
B	148	PRO	-	expression tag	UNP Q9NWZ3
B	149	THR	-	expression tag	UNP Q9NWZ3
B	150	THR	-	expression tag	UNP Q9NWZ3
B	151	GLU	-	expression tag	UNP Q9NWZ3
B	152	ASN	-	expression tag	UNP Q9NWZ3
B	153	LEU	-	expression tag	UNP Q9NWZ3
B	154	TYR	-	expression tag	UNP Q9NWZ3
B	155	PHE	-	expression tag	UNP Q9NWZ3
B	156	GLN	-	expression tag	UNP Q9NWZ3
B	157	SER	-	expression tag	UNP Q9NWZ3
B	158	ILE	-	expression tag	UNP Q9NWZ3
B	159	ALA	-	expression tag	UNP Q9NWZ3
C	134	MET	-	initiating methionine	UNP Q9NWZ3
C	135	SER	-	expression tag	UNP Q9NWZ3
C	136	TYR	-	expression tag	UNP Q9NWZ3
C	137	TYR	-	expression tag	UNP Q9NWZ3
C	138	HIS	-	expression tag	UNP Q9NWZ3
C	139	HIS	-	expression tag	UNP Q9NWZ3
C	140	HIS	-	expression tag	UNP Q9NWZ3
C	141	HIS	-	expression tag	UNP Q9NWZ3
C	142	HIS	-	expression tag	UNP Q9NWZ3
C	143	HIS	-	expression tag	UNP Q9NWZ3
C	144	ASP	-	expression tag	UNP Q9NWZ3

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	145	TYR	-	expression tag	UNP Q9NWZ3
C	146	ASP	-	expression tag	UNP Q9NWZ3
C	147	ILE	-	expression tag	UNP Q9NWZ3
C	148	PRO	-	expression tag	UNP Q9NWZ3
C	149	THR	-	expression tag	UNP Q9NWZ3
C	150	THR	-	expression tag	UNP Q9NWZ3
C	151	GLU	-	expression tag	UNP Q9NWZ3
C	152	ASN	-	expression tag	UNP Q9NWZ3
C	153	LEU	-	expression tag	UNP Q9NWZ3
C	154	TYR	-	expression tag	UNP Q9NWZ3
C	155	PHE	-	expression tag	UNP Q9NWZ3
C	156	GLN	-	expression tag	UNP Q9NWZ3
C	157	SER	-	expression tag	UNP Q9NWZ3
C	158	ILE	-	expression tag	UNP Q9NWZ3
C	159	ALA	-	expression tag	UNP Q9NWZ3
D	134	MET	-	initiating methionine	UNP Q9NWZ3
D	135	SER	-	expression tag	UNP Q9NWZ3
D	136	TYR	-	expression tag	UNP Q9NWZ3
D	137	TYR	-	expression tag	UNP Q9NWZ3
D	138	HIS	-	expression tag	UNP Q9NWZ3
D	139	HIS	-	expression tag	UNP Q9NWZ3
D	140	HIS	-	expression tag	UNP Q9NWZ3
D	141	HIS	-	expression tag	UNP Q9NWZ3
D	142	HIS	-	expression tag	UNP Q9NWZ3
D	143	HIS	-	expression tag	UNP Q9NWZ3
D	144	ASP	-	expression tag	UNP Q9NWZ3
D	145	TYR	-	expression tag	UNP Q9NWZ3
D	146	ASP	-	expression tag	UNP Q9NWZ3
D	147	ILE	-	expression tag	UNP Q9NWZ3
D	148	PRO	-	expression tag	UNP Q9NWZ3
D	149	THR	-	expression tag	UNP Q9NWZ3
D	150	THR	-	expression tag	UNP Q9NWZ3
D	151	GLU	-	expression tag	UNP Q9NWZ3
D	152	ASN	-	expression tag	UNP Q9NWZ3
D	153	LEU	-	expression tag	UNP Q9NWZ3
D	154	TYR	-	expression tag	UNP Q9NWZ3
D	155	PHE	-	expression tag	UNP Q9NWZ3
D	156	GLN	-	expression tag	UNP Q9NWZ3
D	157	SER	-	expression tag	UNP Q9NWZ3
D	158	ILE	-	expression tag	UNP Q9NWZ3
D	159	ALA	-	expression tag	UNP Q9NWZ3

- Molecule 2 is N-[2-(3-hydroxy-3-methylbutyl)-6-(2-hydroxypropan-2-yl)-2H-indazol-5-yl]-6-(

trifluoromethyl)pyridine-2-carboxamide (three-letter code: Y9T) (formula: $C_{22}H_{25}F_3N_4O_3$) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	F	N	O	0	0
			32	22	3	4	3		
2	B	1	Total	C	F	N	O	0	0
			32	22	3	4	3		
2	C	1	Total	C	F	N	O	0	0
			32	22	3	4	3		
2	D	1	Total	C	F	N	O	0	0
			32	22	3	4	3		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL

C3

OH O3

C1　　C2

HO

O1

OH

O2

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 6	C 3	O 3	0	0
3	A	1	Total 6	C 3	O 3	0	0

• Molecule 4 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

SO4

O1

O

O3 O^- — S — O^- O4

S

O

O2
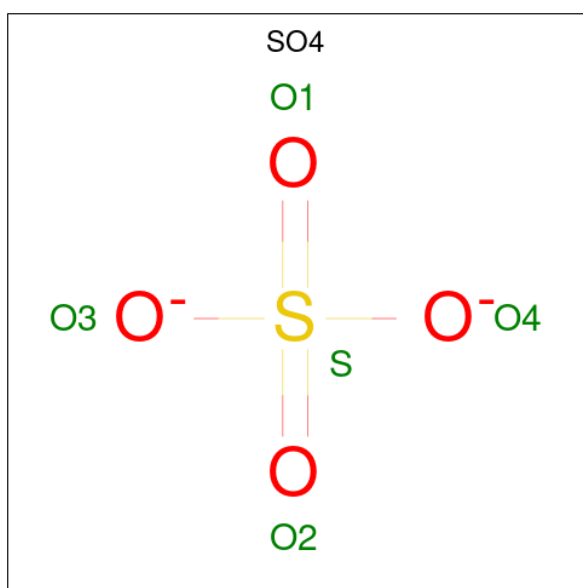
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 5	O 4	S 1	0	0

• Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	D	1	Total 1	Cl 1	0	0

- Molecule 6 is water.

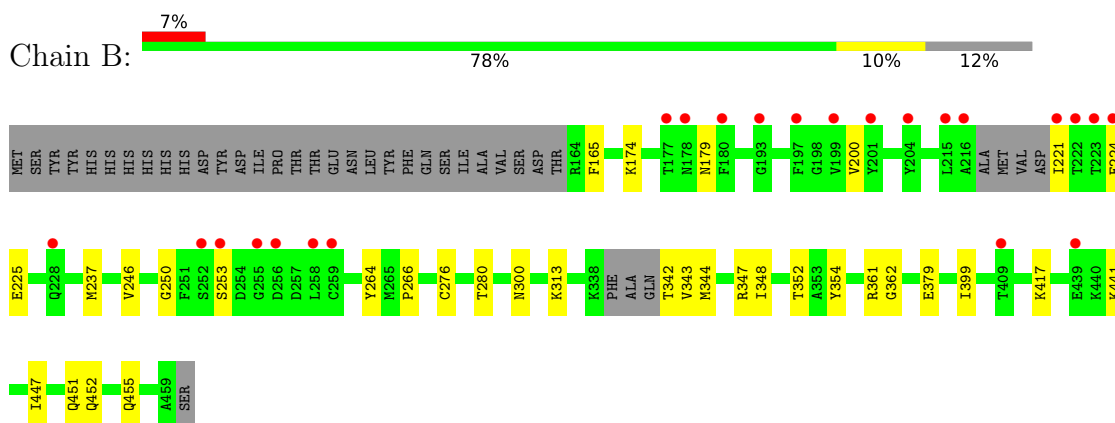| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	34	Total 34	O 34	0	0
6	B	29	Total 29	O 29	0	0
6	C	36	Total 36	O 36	0	0
6	D	19	Total 19	O 19	0	0

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.
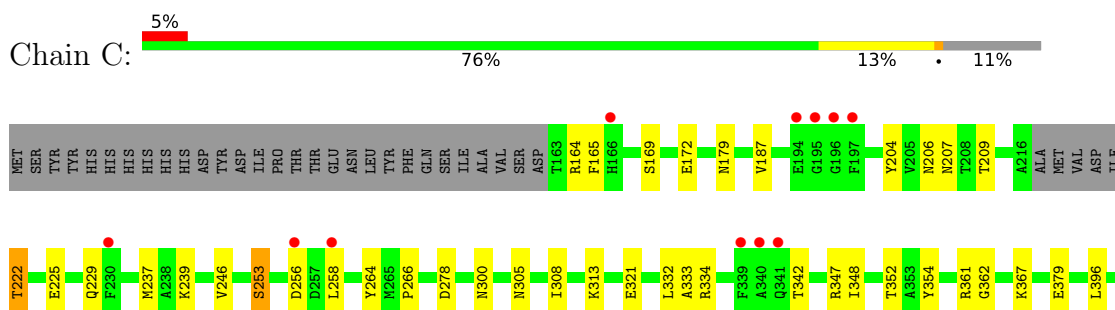
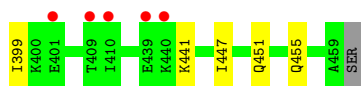• Molecule 1: Interleukin-1 receptor-associated kinase 4
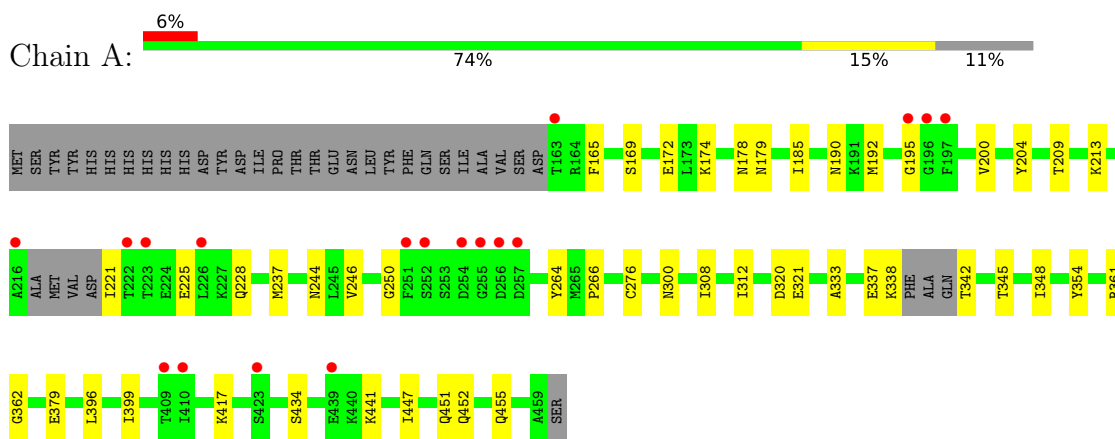
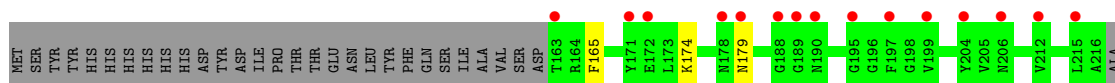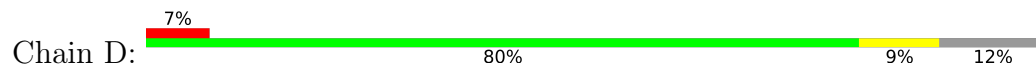• Molecule 1: Interleukin-1 receptor-associated kinase 4

• Molecule 1: Interleukin-1 receptor-associated kinase 4

I399 K400 E401 T409 I410 E439 K440 K441 I447 Q451 Q455 A459 SER

• Molecule 1: Interleukin-1 receptor-associated kinase 4

Chain D:

7%

80% 9% 12%

MET SER TYR TYR HIS HIS HIS HIS HIS HIS ASP TYR ASP ILE PRO THR THR GLU ASN LEU TYR PHE GLN SER ILE ALA VAL SER ASP T163 R164 F165 Y171 E172 L173 K174 N178 N179 G188 G189 N190 G195 G196 F197 G198 V199 Y204 V205 N206 V212 L215 A216 ALA

MET VAL ASP I221 E225 L226 K227 Q228 M237 C240 V246 G250 S253 D254 Y264 M265 P266 S284 N300 K313 S336 GLU LYS PHE ALA GLN T342 V343 M344 I348 T352 A353 Y354 G362 E379 I399 M418 E439 K440 K441 I447

Q451 Q455 A459 SER

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	142.85Å 140.49Å 87.94Å 90.00° 123.73° 90.00°	Depositor
Resolution (Å)	47.87 – 2.92 47.88 – 2.92	Depositor EDS
% Data completeness (in resolution range)	98.8 (47.87-2.92) 98.8 (47.88-2.92)	Depositor EDS
R_{merge}	0.20	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.39 (at 2.91Å)	Xtriage
Refinement program	REFMAC 5.8.0232	Depositor
R, R_{free}	0.216 , 0.266 0.219 , 0.271	Depositor DCC
R_{free} test set	1524 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å^2)	57.3	Xtriage
Anisotropy	0.063	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 39.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	9424	wwPDB-VP
Average B, all atoms (Å^2)	66.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 26.69 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.5146e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

---

[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 ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, SO4, TPO, Y9T, SEP, CL

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	0.69	0/2296	0.82	0/3092
1	B	0.68	0/2289	0.81	0/3082
1	C	0.69	0/2314	0.82	0/3116
1	D	0.69	0/2278	0.83	0/3069
All	All	0.69	0/9177	0.82	0/12359

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	2292	0	2257	30	0
1	B	2285	0	2250	22	0
1	C	2309	0	2266	30	0
1	D	2274	0	2238	18	0
2	A	32	0	0	2	0
2	B	32	0	0	2	0
2	C	32	0	0	1	0
2	D	32	0	0	1	0
3	A	12	0	16	1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	5	0	0	0	0
5	D	1	0	0	2	0
6	A	34	0	0	4	0
6	B	29	0	0	3	0
6	C	36	0	0	1	0
6	D	19	0	0	0	0
All	All	9424	0	9027	99	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 5.

All (99) 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)
1:D:174:LYS:HE2	1:D:179:ASN:HD22	1.40	0.86
1:A:300:ASN:HA	1:A:447:ILE:HG21	1.76	0.68
1:C:204:TYR:HE1	1:C:209:THR:HG1	1.43	0.66
1:B:300:ASN:HA	1:B:447:ILE:HG21	1.77	0.66
1:D:300:ASN:HA	1:D:447:ILE:HG21	1.76	0.65
1:C:300:ASN:HA	1:C:447:ILE:HG21	1.78	0.64
1:B:342:TPO:O1P	1:B:441:LYS:NZ	2.31	0.63
1:C:222:THR:HG23	1:C:225:GLU:HB2	1.81	0.62
1:A:342:TPO:O3P	1:A:441:LYS:NZ	2.32	0.62
1:D:342:TPO:O3P	1:D:441:LYS:NZ	2.33	0.61
1:A:195:GLY:O	1:A:213:LYS:HE3	2.02	0.60
1:C:342:TPO:O3P	1:C:441:LYS:NZ	2.33	0.59
1:B:280:THR:OG1	6:B:601:HOH:O	2.02	0.58
1:C:222:THR:HG23	1:C:225:GLU:CB	2.34	0.57
1:C:169:SER:N	1:C:172:GLU:OE2	2.36	0.56
1:D:174:LYS:HE2	1:D:179:ASN:ND2	2.14	0.56
1:C:164:ARG:HG2	1:C:165:PHE:H	1.71	0.56
1:A:204:TYR:HE1	1:A:209:THR:HG1	1.53	0.56
1:D:418:MET:HA	5:D:502:CL:CL	2.44	0.55
1:B:451:GLN:O	1:B:455:GLN:HG2	2.09	0.52
1:C:451:GLN:O	1:C:455:GLN:HG2	2.10	0.52
1:A:451:GLN:O	1:A:455:GLN:HG2	2.09	0.52
1:C:237:MET:CE	1:C:246:VAL:HG23	2.40	0.52
1:C:164:ARG:HG2	1:C:165:PHE:N	2.25	0.52
1:C:396:LEU:O	1:C:399:ILE:HG12	2.10	0.52
1:A:169:SER:HB3	1:A:172:GLU:HG3	1.92	0.52
1:A:361:ARG:HA	1:D:352:THR:CG2	2.40	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:451:GLN:O	1:D:455:GLN:HG2	2.10	0.51
1:B:237:MET:CE	1:B:246:VAL:HG23	2.40	0.51
1:A:237:MET:CE	1:A:246:VAL:HG23	2.41	0.51
1:A:165:PHE:HB3	1:A:250:GLY:HA2	1.93	0.51
1:B:165:PHE:HB3	1:B:250:GLY:HA2	1.93	0.51
1:A:200:VAL:HG11	2:A:501:Y9T:C31	2.41	0.51
1:B:347:ARG:HB2	6:B:614:HOH:O	2.11	0.51
1:D:237:MET:CE	1:D:246:VAL:HG23	2.41	0.50
1:B:264:TYR:CE2	1:B:266:PRO:HA	2.46	0.50
1:D:165:PHE:HB3	1:D:250:GLY:HA2	1.94	0.50
1:A:396:LEU:HD12	1:A:399:ILE:HD12	1.95	0.49
1:B:200:VAL:HG11	2:B:501:Y9T:C31	2.43	0.49
1:D:264:TYR:CE2	1:D:266:PRO:HA	2.48	0.49
1:C:367:LYS:HG2	6:C:626:HOH:O	2.12	0.49
1:A:337:GLU:O	1:A:338:LYS:HB2	2.14	0.48
1:A:174:LYS:HE2	1:A:179:ASN:OD1	2.14	0.47
1:A:417:LYS:HD2	1:B:276:CYS:HB2	1.97	0.47
1:B:352:THR:CG2	1:C:361:ARG:HA	2.44	0.47
1:D:284:SER:HA	5:D:502:CL:CL	2.51	0.47
1:B:224:GLU:HA	1:B:224:GLU:OE1	2.14	0.46
1:D:174:LYS:CE	1:D:179:ASN:HD22	2.20	0.46
1:C:222:THR:CG2	1:C:225:GLU:HB2	2.44	0.46
1:D:237:MET:HE3	1:D:246:VAL:HG23	1.96	0.46
1:C:264:TYR:CE2	1:C:266:PRO:HA	2.51	0.46
1:C:179:ASN:CG	1:C:179:ASN:O	2.54	0.45
1:A:264:TYR:CE2	1:A:266:PRO:HA	2.52	0.45
1:A:348:ILE:HG12	1:A:362:GLY:HA2	1.97	0.45
1:C:321:GLU:H	1:C:321:GLU:CD	2.20	0.45
1:C:229:GLN:NE2	1:C:332:LEU:HD21	2.31	0.45
2:A:501:Y9T:C31	2:A:501:Y9T:N13	2.78	0.45
1:D:348:ILE:HG12	1:D:362:GLY:HA2	1.99	0.45
1:A:228:GLN:NE2	6:A:603:HOH:O	2.51	0.44
1:B:452:GLN:HB3	6:B:606:HOH:O	2.16	0.44
1:A:452:GLN:HB3	6:A:604:HOH:O	2.18	0.44
1:B:361:ARG:HA	1:C:352:THR:CG2	2.48	0.44
1:C:225:GLU:OE2	1:C:347:ARG:CZ	2.66	0.44
1:A:244:ASN:HD21	3:A:503:GOL:H31	1.83	0.44
1:A:185:ILE:HG23	6:A:606:HOH:O	2.18	0.44
1:B:221:ILE:HG13	1:B:225:GLU:OE2	2.18	0.44
1:B:354:TYR:OH	1:B:379:GLU:OE2	2.30	0.43
1:C:354:TYR:OH	1:C:379:GLU:OE2	2.32	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:501:Y9T:N13	2:D:501:Y9T:C30	2.80	0.43
1:C:348:ILE:HG12	1:C:362:GLY:HA2	2.00	0.43
2:C:501:Y9T:N13	2:C:501:Y9T:C30	2.82	0.43
1:B:174:LYS:HG2	1:B:179:ASN:HA	2.01	0.43
1:C:237:MET:HE3	1:C:246:VAL:HG23	2.00	0.43
1:C:313:LYS:HB2	1:C:354:TYR:CZ	2.54	0.43
1:A:276:CYS:HB2	1:B:417:LYS:HD2	2.01	0.43
1:B:313:LYS:HB2	1:B:354:TYR:CZ	2.53	0.43
1:A:192:MET:CE	1:A:200:VAL:HG22	2.49	0.42
1:A:221:ILE:HG13	1:A:225:GLU:OE2	2.19	0.42
1:A:237:MET:HE3	1:A:246:VAL:HG23	2.01	0.42
1:C:206:ASN:O	1:C:207:ASN:HB2	2.20	0.42
1:D:221:ILE:HG13	1:D:225:GLU:OE2	2.19	0.42
1:A:308:ILE:O	1:A:333:ALA:HA	2.19	0.42
1:B:348:ILE:HG12	1:B:362:GLY:HA2	2.00	0.42
2:B:501:Y9T:C30	2:B:501:Y9T:N13	2.83	0.42
1:A:321:GLU:H	1:A:321:GLU:CD	2.23	0.42
1:D:354:TYR:OH	1:D:379:GLU:OE2	2.33	0.42
1:A:312:ILE:HB	6:A:611:HOH:O	2.19	0.42
1:B:237:MET:HE3	1:B:246:VAL:HG23	2.01	0.42
1:A:266:PRO:HD2	1:A:320:ASP:HA	2.02	0.41
1:C:253:SER:HA	1:C:258:LEU:HD23	2.01	0.41
1:A:178:ASN:HB3	1:A:190:ASN:OD1	2.20	0.41
1:C:334:ARG:HD3	1:C:334:ARG:HA	1.95	0.41
1:D:343:VAL:HG12	1:D:344:MET:N	2.35	0.41
1:C:308:ILE:O	1:C:333:ALA:HA	2.20	0.41
1:B:343:VAL:HG12	1:B:344:MET:N	2.35	0.41
1:C:187:VAL:HG12	1:C:187:VAL:O	2.21	0.41
1:C:305:ASN:N	1:C:305:ASN:HD22	2.20	0.40
1:D:313:LYS:HB2	1:D:354:TYR:CZ	2.56	0.40
1:A:354:TYR:OH	1:A:379:GLU:OE2	2.30	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	282/327 (86%)	265 (94%)	17 (6%)	0	100	100
1	B	281/327 (86%)	263 (94%)	18 (6%)	0	100	100
1	C	285/327 (87%)	267 (94%)	18 (6%)	0	100	100
1	D	280/327 (86%)	264 (94%)	16 (6%)	0	100	100
All	All	1128/1308 (86%)	1059 (94%)	69 (6%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	250/284 (88%)	249 (100%)	1 (0%)	91	97
1	B	249/284 (88%)	247 (99%)	2 (1%)	81	93
1	C	251/284 (88%)	246 (98%)	5 (2%)	55	81
1	D	248/284 (87%)	246 (99%)	2 (1%)	81	93
All	All	998/1136 (88%)	988 (99%)	10 (1%)	76	91

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	434	SER
1	B	253	SER
1	B	399	ILE
1	C	222	THR
1	C	239	LYS
1	C	253	SER
1	C	256	ASP
1	C	278	ASP
1	D	253	SER
1	D	399	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	166	HIS
1	A	178	ASN
1	A	241	GLN
1	A	305	ASN
1	B	166	HIS
1	B	178	ASN
1	B	305	ASN
1	B	442	ASN
1	C	166	HIS
1	C	175	ASN
1	C	178	ASN
1	C	179	ASN
1	C	229	GLN
1	C	241	GLN
1	C	305	ASN
1	C	442	ASN
1	D	166	HIS
1	D	175	ASN
1	D	178	ASN
1	D	179	ASN
1	D	241	GLN
1	D	305	ASN
1	D	442	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

12 non-standard protein/DNA/RNA residues are modelled in this entry.

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	$\#\|Z\| > 2$
1	SEP	B	346	1	8,9,10	0.61	0	8,12,14	0.74	0
1	TPO	A	342	1	8,10,11	0.67	0	10,14,16	1.08	0
1	SEP	D	346	1	8,9,10	0.60	0	8,12,14	0.88	0
1	SEP	A	346	1	8,9,10	0.58	0	8,12,14	0.80	0
1	TPO	C	342	1	8,10,11	0.64	0	10,14,16	1.02	0
1	TPO	B	342	1	8,10,11	0.58	0	10,14,16	1.04	0
1	SEP	C	346	1	8,9,10	0.63	0	8,12,14	0.63	0
1	TPO	C	345	1	8,10,11	0.81	0	10,14,16	0.89	0
1	TPO	D	345	1	8,10,11	0.76	0	10,14,16	0.78	0
1	TPO	B	345	1	8,10,11	0.84	0	10,14,16	0.82	0
1	TPO	D	342	1	8,10,11	0.69	0	10,14,16	0.95	0
1	TPO	A	345	1	8,10,11	0.89	1 (12%)	10,14,16	0.89	0

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
1	SEP	B	346	1	-	3/5/8/10	-
1	TPO	A	342	1	-	3/9/11/13	-
1	SEP	D	346	1	-	3/5/8/10	-
1	SEP	A	346	1	-	3/5/8/10	-
1	TPO	C	342	1	-	3/9/11/13	-
1	TPO	B	342	1	-	3/9/11/13	-
1	SEP	C	346	1	-	3/5/8/10	-
1	TPO	C	345	1	-	3/9/11/13	-
1	TPO	D	345	1	-	3/9/11/13	-
1	TPO	B	345	1	-	3/9/11/13	-
1	TPO	D	342	1	-	3/9/11/13	-
1	TPO	A	345	1	-	4/9/11/13	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	345	TPO	P-OG1	2.01	1.63	1.59

There are no bond angle outliers.

There are no chirality outliers.

All (37) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	342	TPO	N-CA-CB-OG1
1	A	342	TPO	C-CA-CB-CG2
1	A	342	TPO	O-C-CA-CB
1	A	345	TPO	N-CA-CB-OG1
1	A	346	SEP	CB-OG-P-O2P
1	A	346	SEP	CB-OG-P-O3P
1	B	342	TPO	N-CA-CB-OG1
1	B	342	TPO	C-CA-CB-CG2
1	B	345	TPO	N-CA-CB-OG1
1	B	345	TPO	CB-OG1-P-O1P
1	B	346	SEP	CB-OG-P-O2P
1	B	346	SEP	CB-OG-P-O3P
1	C	342	TPO	N-CA-CB-OG1
1	C	342	TPO	C-CA-CB-CG2
1	C	342	TPO	O-C-CA-CB
1	C	345	TPO	N-CA-CB-OG1
1	C	346	SEP	CB-OG-P-O2P
1	C	346	SEP	CB-OG-P-O3P
1	D	342	TPO	N-CA-CB-OG1
1	D	342	TPO	C-CA-CB-CG2
1	D	345	TPO	N-CA-CB-OG1
1	D	346	SEP	CB-OG-P-O1P
1	D	346	SEP	CB-OG-P-O2P
1	D	346	SEP	CB-OG-P-O3P
1	A	346	SEP	CB-OG-P-O1P
1	B	346	SEP	CB-OG-P-O1P
1	C	346	SEP	CB-OG-P-O1P
1	A	345	TPO	CB-OG1-P-O2P
1	A	345	TPO	CB-OG1-P-O3P
1	C	345	TPO	CB-OG1-P-O3P
1	D	345	TPO	CB-OG1-P-O3P
1	A	345	TPO	O-C-CA-CB
1	B	342	TPO	O-C-CA-CB
1	B	345	TPO	O-C-CA-CB
1	C	345	TPO	O-C-CA-CB
1	D	342	TPO	O-C-CA-CB
1	D	345	TPO	O-C-CA-CB

There are no ring outliers.

4 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	342	TPO	1	0
1	C	342	TPO	1	0
1	B	342	TPO	1	0
1	D	342	TPO	1	0

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 8 ligands modelled in this entry, 1 is monoatomic - leaving 7 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	$\#|Z| > 2$
3	GOL	A	503	-	5,5,5	0.14	0	5,5,5	0.40	0
3	GOL	A	502	-	5,5,5	0.14	0	5,5,5	0.30	0
2	Y9T	C	501	-	32,34,34	1.17	5 (15%)	45,53,53	1.96	14 (31%)
2	Y9T	B	501	-	32,34,34	1.51	4 (12%)	45,53,53	2.44	17 (37%)
4	SO4	A	504	-	4,4,4	0.36	0	6,6,6	0.05	0
2	Y9T	A	501	-	32,34,34	1.47	5 (15%)	45,53,53	1.90	12 (26%)
2	Y9T	D	501	-	32,34,34	1.11	3 (9%)	45,53,53	2.30	13 (28%)

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
3	GOL	A	503	-	-	2/4/4/4	-
3	GOL	A	502	-	-	0/4/4/4	-
2	Y9T	C	501	-	-	3/26/26/26	0/3/3/3
2	Y9T	B	501	-	-	2/26/26/26	0/3/3/3

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	Y9T	A	501	-	-	3/26/26/26	0/3/3/3
2	Y9T	D	501	-	-	2/26/26/26	0/3/3/3

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501	Y9T	C29-C15	-5.38	1.50	1.54
2	A	501	Y9T	C29-C15	-5.19	1.50	1.54
2	C	501	Y9T	C16-C17	-2.79	1.37	1.41
2	B	501	Y9T	F9-C7	2.61	1.42	1.32
2	D	501	Y9T	F9-C7	2.55	1.42	1.32
2	D	501	Y9T	F8-C7	2.50	1.41	1.32
2	A	501	Y9T	F9-C7	2.44	1.41	1.32
2	B	501	Y9T	F10-C7	2.43	1.41	1.32
2	B	501	Y9T	F8-C7	2.37	1.41	1.32
2	C	501	Y9T	F10-C7	2.29	1.41	1.32
2	C	501	Y9T	C14-C15	2.25	1.42	1.40
2	D	501	Y9T	F10-C7	2.21	1.40	1.32
2	C	501	Y9T	C2-N3	-2.12	1.31	1.34
2	C	501	Y9T	F9-C7	2.06	1.40	1.32
2	A	501	Y9T	C17-N20	-2.06	1.32	1.37
2	A	501	Y9T	F8-C7	2.03	1.40	1.32
2	A	501	Y9T	F10-C7	2.02	1.40	1.32

All (56) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501	Y9T	C30-C29-C15	7.54	123.54	111.55
2	D	501	Y9T	C31-C29-C30	-6.19	102.92	110.49
2	B	501	Y9T	C15-C14-N13	-5.97	114.64	120.54
2	D	501	Y9T	C4-N3-C2	5.03	125.50	118.83
2	B	501	Y9T	C7-C2-N3	4.80	120.00	114.56
2	C	501	Y9T	F8-C7-C2	-4.74	104.37	112.47
2	A	501	Y9T	C15-C14-N13	-4.61	115.98	120.54
2	D	501	Y9T	C16-C17-N20	4.59	136.07	130.28
2	C	501	Y9T	C30-C29-C15	4.58	118.83	111.55
2	A	501	Y9T	C7-C2-N3	4.57	119.74	114.56
2	D	501	Y9T	C30-C29-C15	4.41	118.55	111.55
2	A	501	Y9T	F8-C7-C2	-4.38	104.98	112.47
2	D	501	Y9T	F9-C7-C2	-4.27	105.17	112.47
2	D	501	Y9T	C5-C4-N3	-4.20	117.99	122.92
2	B	501	Y9T	F8-C7-C2	-4.06	105.53	112.47

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	501	Y9T	C31-C29-C15	-4.05	105.10	111.55
2	B	501	Y9T	O32-C29-C15	-4.02	102.78	109.78
2	A	501	Y9T	C16-C15-C14	3.91	123.65	118.72
2	D	501	Y9T	C5-C4-C11	3.76	125.70	119.57
2	B	501	Y9T	F9-C7-C2	-3.59	106.32	112.47
2	B	501	Y9T	C16-C15-C14	3.55	123.19	118.72
2	C	501	Y9T	C16-C17-C18	-3.53	116.61	121.16
2	C	501	Y9T	C31-C29-C15	-3.48	106.00	111.55
2	D	501	Y9T	C16-C17-C18	-3.25	116.97	121.16
2	D	501	Y9T	C31-C29-C15	-3.23	106.42	111.55
2	B	501	Y9T	C31-C29-C30	-3.18	106.59	110.49
2	C	501	Y9T	C5-C4-N3	-3.10	119.28	122.92
2	B	501	Y9T	C16-C17-C18	-3.08	117.20	121.16
2	D	501	Y9T	C23-N21-C22	-3.07	122.59	129.82
2	C	501	Y9T	C7-C2-N3	3.07	118.04	114.56
2	C	501	Y9T	C16-C15-C14	3.07	122.59	118.72
2	C	501	Y9T	C4-N3-C2	2.98	122.79	118.83
2	A	501	Y9T	O32-C29-C15	-2.90	104.73	109.78
2	D	501	Y9T	F10-C7-C2	-2.85	107.59	112.47
2	A	501	Y9T	C16-C17-C18	-2.82	117.53	121.16
2	A	501	Y9T	C31-C29-C30	2.65	113.73	110.49
2	B	501	Y9T	C5-C4-N3	-2.62	119.85	122.92
2	A	501	Y9T	O32-C29-C31	-2.61	101.82	107.08
2	D	501	Y9T	F10-C7-F9	2.53	115.00	105.72
2	C	501	Y9T	O32-C29-C31	2.51	112.13	107.08
2	C	501	Y9T	C14-N13-C11	2.44	133.61	126.93
2	B	501	Y9T	C16-C17-N20	2.42	133.34	130.28
2	C	501	Y9T	F10-C7-C2	-2.38	108.39	112.47
2	B	501	Y9T	C4-N3-C2	2.34	121.94	118.83
2	C	501	Y9T	C16-C17-N20	2.25	133.13	130.28
2	B	501	Y9T	O32-C29-C31	2.21	111.52	107.08
2	A	501	Y9T	C16-C17-N20	2.21	133.07	130.28
2	A	501	Y9T	C5-C4-N3	-2.21	120.33	122.92
2	A	501	Y9T	C4-N3-C2	2.17	121.71	118.83
2	B	501	Y9T	C27-C25-C26	-2.16	106.06	110.57
2	C	501	Y9T	C23-N21-C22	-2.13	124.80	129.82
2	C	501	Y9T	C22-N21-N20	-2.11	109.80	111.45
2	D	501	Y9T	O32-C29-C30	2.07	111.24	107.08
2	B	501	Y9T	C1-C2-C7	-2.05	118.09	121.01
2	B	501	Y9T	F9-C7-F8	2.04	113.21	105.72
2	A	501	Y9T	C26-C25-C24	-2.01	105.22	111.42

There are no chirality outliers.

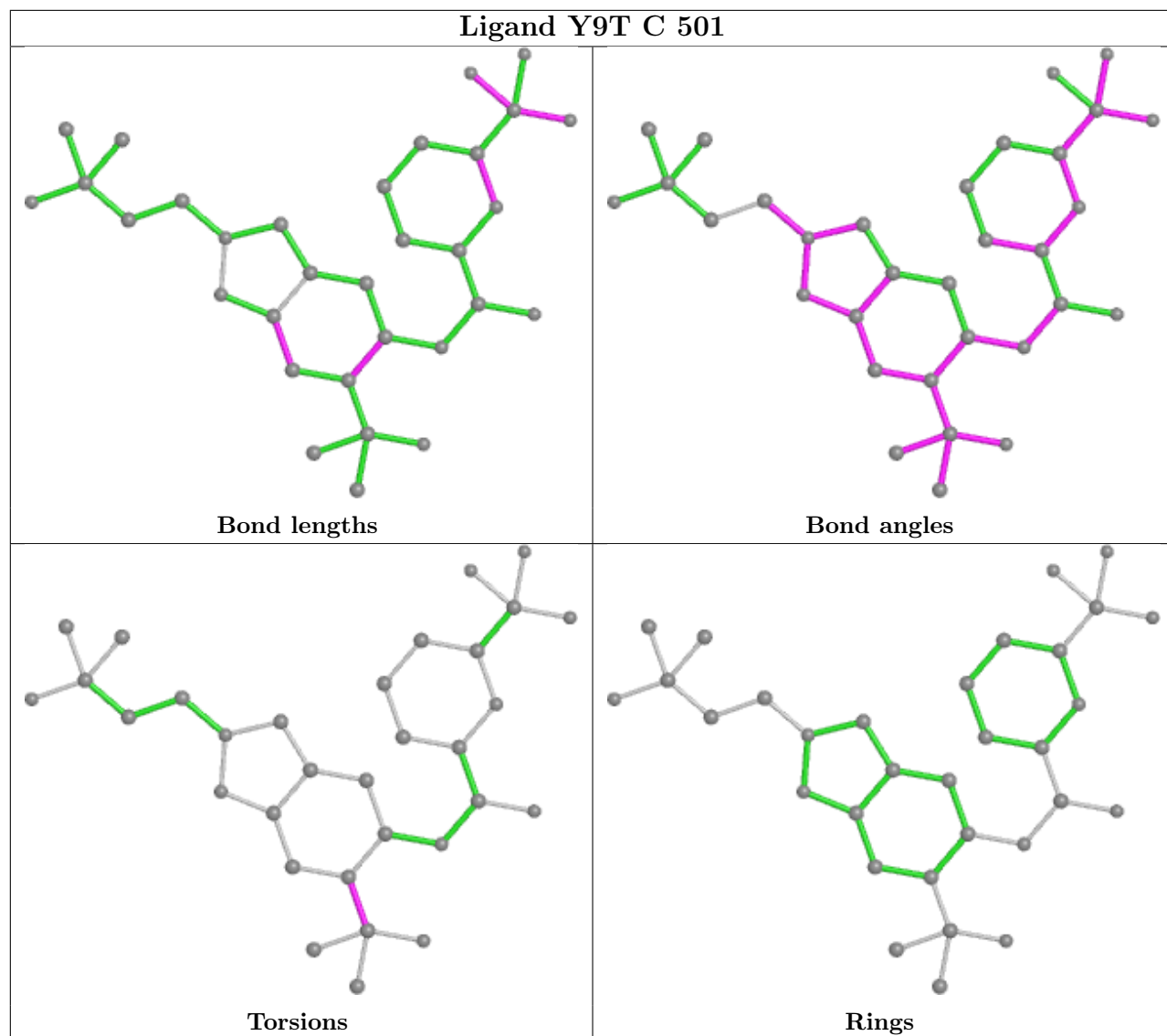All (12) torsion outliers are listed below:

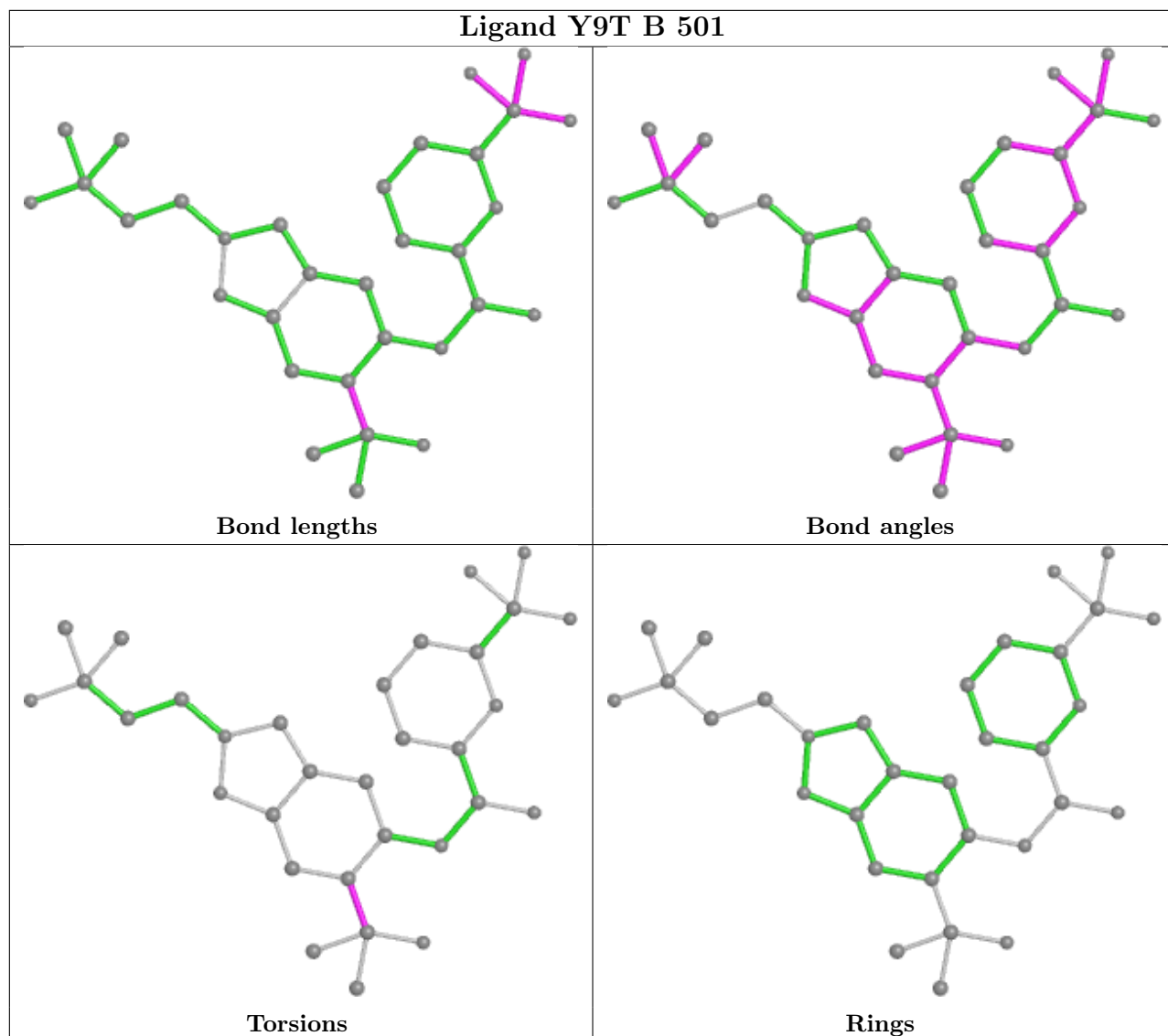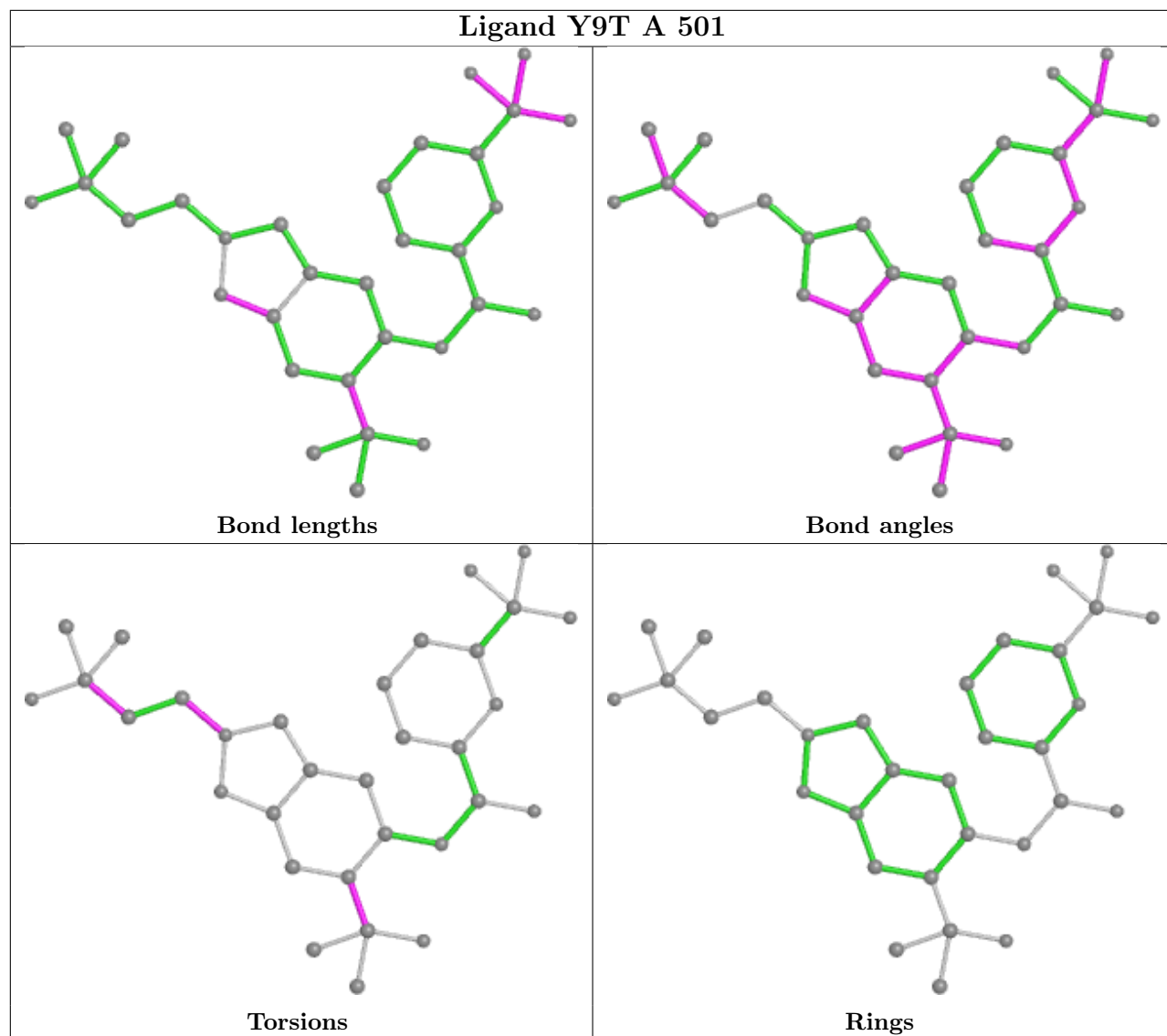| Mol	Chain	Res	Type	Atoms
2	C	501	Y9T	C14-C15-C29-C30
2	C	501	Y9T	C16-C15-C29-C30
2	D	501	Y9T	C14-C15-C29-C30
2	D	501	Y9T	C16-C15-C29-C30
3	A	503	GOL	O1-C1-C2-C3
3	A	503	GOL	O1-C1-C2-O2
2	B	501	Y9T	C16-C15-C29-C30
2	B	501	Y9T	C14-C15-C29-C30
2	A	501	Y9T	C14-C15-C29-O32
2	C	501	Y9T	C14-C15-C29-O32
2	A	501	Y9T	C24-C23-N21-N20
2	A	501	Y9T	C23-C24-C25-O28

There are no ring outliers.

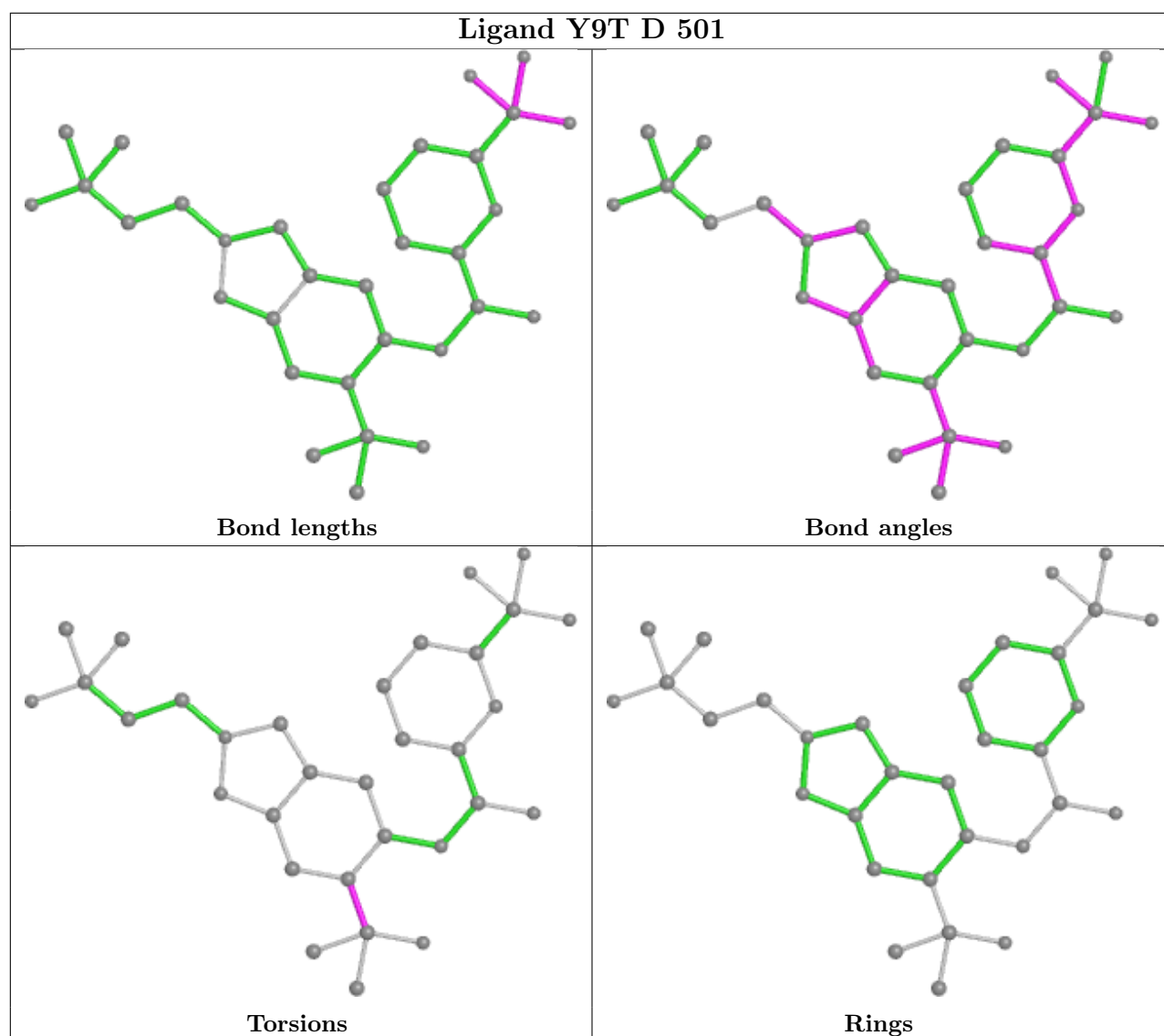5 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	503	GOL	1	0
2	C	501	Y9T	1	0
2	B	501	Y9T	2	0
2	A	501	Y9T	2	0
2	D	501	Y9T	1	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 Y9T C 501

Bond lengths

Bond angles

Torsions

Rings

Ligand Y9T B 501

Bond lengths

Bond angles

Torsions

Rings

Ligand Y9T A 501

Bond lengths

Bond angles

Torsions

Rings

Ligand Y9T D 501

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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	287/327 (87%)	0.37	18 (6%)	20	17	36, 60, 102, 117	0
1	B	286/327 (87%)	0.44	23 (8%)	12	10	38, 62, 108, 137	0
1	C	289/327 (88%)	0.27	16 (5%)	25	22	32, 57, 97, 153	0
1	D	285/327 (87%)	0.45	22 (7%)	13	11	36, 64, 113, 153	0
All	All	1147/1308 (87%)	0.38	79 (6%)	16	13	32, 61, 107, 153	0

All (79) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	197	PHE	6.7
1	D	221	ILE	5.0
1	B	216	ALA	4.8
1	A	197	PHE	4.7
1	C	340	ALA	4.1
1	A	216	ALA	3.9
1	A	255	GLY	3.8
1	B	221	ILE	3.8
1	D	212	VAL	3.5
1	B	253	SER	3.4
1	C	339	PHE	3.3
1	B	199	VAL	3.2
1	D	172	GLU	3.2
1	B	204	TYR	3.1
1	B	259	CYS	3.1
1	A	252	SER	3.1
1	D	163	THR	3.1
1	C	197	PHE	3.1
1	D	171	TYR	3.1
1	D	253	SER	3.1
1	A	409	THR	3.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	222	THR	3.0
1	A	226	LEU	3.0
1	D	189	GLY	3.0
1	D	190	ASN	3.0
1	B	215	LEU	2.9
1	B	256	ASP	2.9
1	D	197	PHE	2.9
1	D	226	LEU	2.9
1	C	409	THR	2.8
1	C	256	ASP	2.8
1	D	204	TYR	2.6
1	A	256	ASP	2.6
1	D	254	ASP	2.6
1	B	180	PHE	2.6
1	B	201	TYR	2.5
1	B	439	GLU	2.5
1	B	224	GLU	2.5
1	B	255	GLY	2.5
1	A	257	ASP	2.5
1	B	223	THR	2.4
1	A	251	PHE	2.4
1	C	440	LYS	2.4
1	B	409	THR	2.4
1	A	222	THR	2.4
1	C	230	PHE	2.4
1	C	166	HIS	2.4
1	B	178	ASN	2.4
1	C	439	GLU	2.3
1	A	410	ILE	2.3
1	D	178	ASN	2.3
1	C	258	LEU	2.3
1	D	215	LEU	2.3
1	D	195	GLY	2.3
1	D	206	ASN	2.3
1	A	439	GLU	2.3
1	C	194	GLU	2.3
1	B	177	THR	2.3
1	C	410	ILE	2.3
1	A	254	ASP	2.2
1	D	439	GLU	2.2
1	C	196	GLY	2.2
1	A	423	SER	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	195	GLY	2.2
1	D	199	VAL	2.1
1	A	223	THR	2.1
1	B	258	LEU	2.1
1	B	193	GLY	2.1
1	D	179	ASN	2.1
1	B	252	SER	2.1
1	C	401	GLU	2.1
1	B	228	GLN	2.1
1	D	228	GLN	2.0
1	A	196	GLY	2.0
1	A	163	THR	2.0
1	D	240	CYS	2.0
1	C	195	GLY	2.0
1	D	188	GLY	2.0
1	C	341	GLN	2.0

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

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
1	SEP	C	346	10/11	0.81	0.18	81,107,128,131	0
1	SEP	B	346	10/11	0.83	0.17	70,87,110,117	0
1	TPO	D	342	11/12	0.85	0.18	78,83,115,116	0
1	SEP	D	346	10/11	0.85	0.12	82,98,105,110	0
1	SEP	A	346	10/11	0.87	0.17	75,93,105,108	0
1	TPO	B	342	11/12	0.91	0.15	68,87,97,98	0
1	TPO	C	342	11/12	0.92	0.14	71,84,91,96	0
1	TPO	A	342	11/12	0.92	0.12	76,88,96,97	0
1	TPO	A	345	11/12	0.95	0.11	60,70,75,85	0
1	TPO	B	345	11/12	0.95	0.08	55,65,75,77	0
1	TPO	D	345	11/12	0.95	0.11	63,81,97,107	0
1	TPO	C	345	11/12	0.95	0.12	63,80,95,112	0

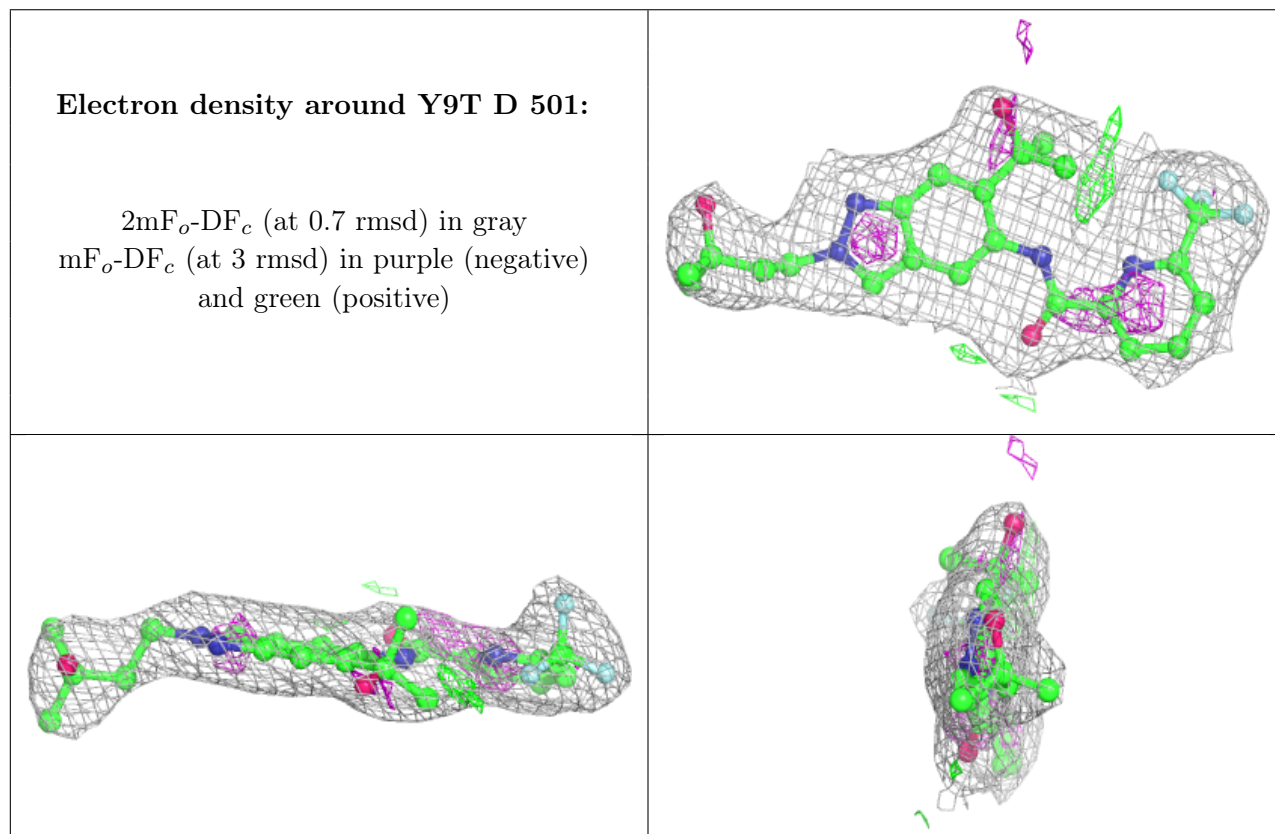## 6.3 Carbohydrates ⓘ

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(Å²)	Q<0.9
3	GOL	A	503	6/6	0.73	0.43	54,61,64,66	0
3	GOL	A	502	6/6	0.89	0.23	66,71,74,76	0
4	SO4	A	504	5/5	0.93	0.14	121,121,122,125	5
5	CL	D	502	1/1	0.93	0.25	74,74,74,74	0
2	Y9T	D	501	32/32	0.94	0.17	36,44,55,57	0
2	Y9T	B	501	32/32	0.95	0.19	31,41,64,65	0
2	Y9T	A	501	32/32	0.95	0.15	40,44,53,57	0
2	Y9T	C	501	32/32	0.96	0.15	39,45,49,61	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.
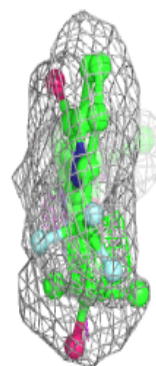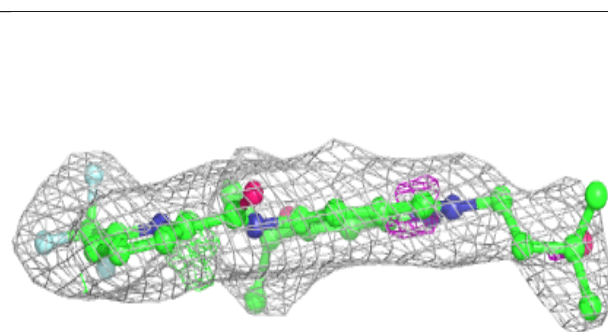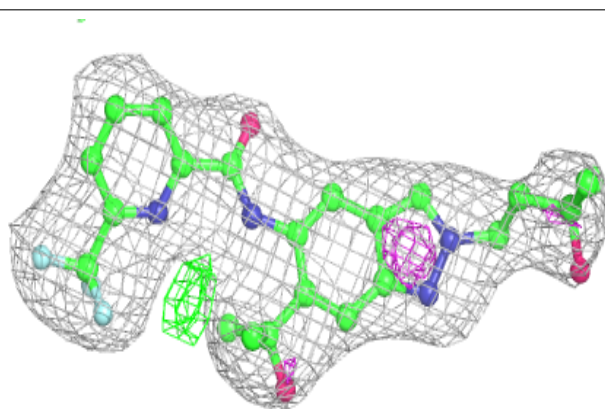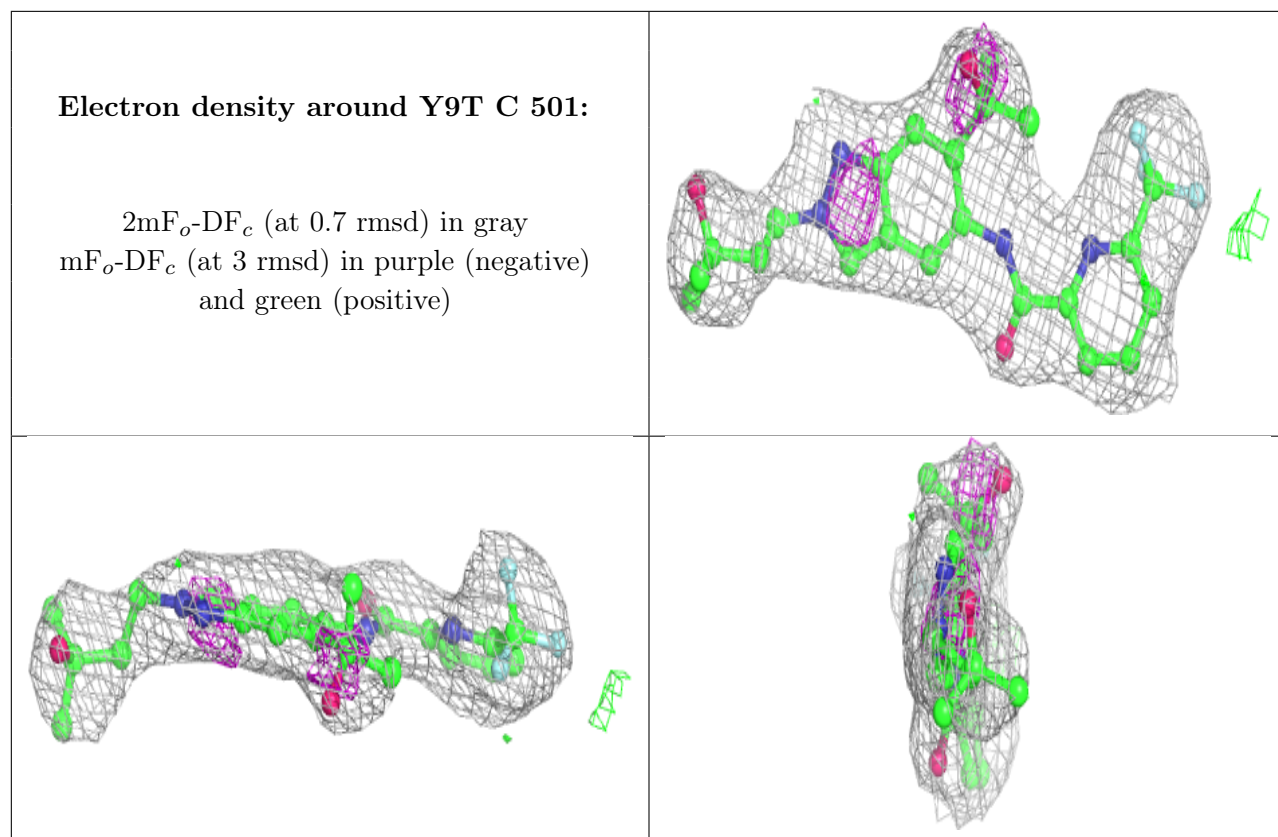
Electron density around Y9T D 501:

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

Electron density around Y9T B 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
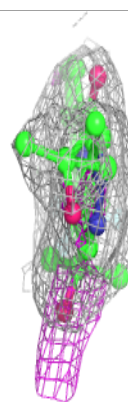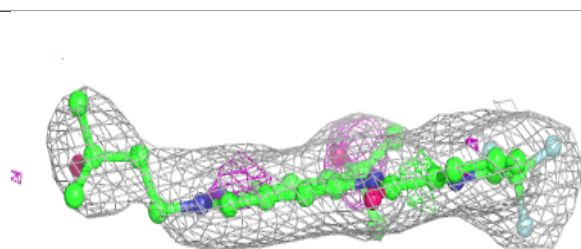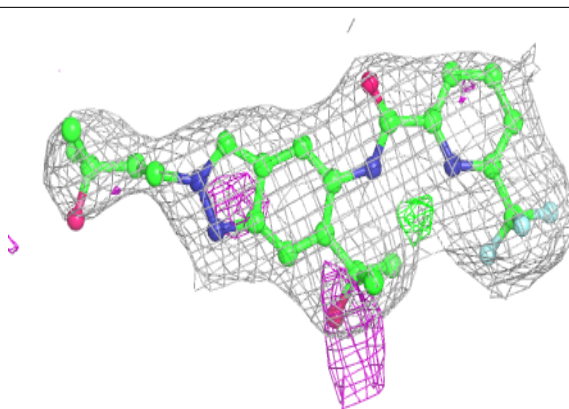
Electron density around Y9T A 501:

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

Electron density around Y9T C 501:

$2mF_o$-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.