WORLDWIDE PDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Dec 15, 2024 – 11:22 AM EST

PDB ID	:	8V8V
Title	:	PI3Ka H1047R co-crystal structure with inhibitor in cryptic pocket near H1047R (compound 7).
Authors	:	Gunn, R.J.; Lawson, J.D.
Deposited on	:	2023-12-06
Resolution	:	2.61 Å(reported)

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

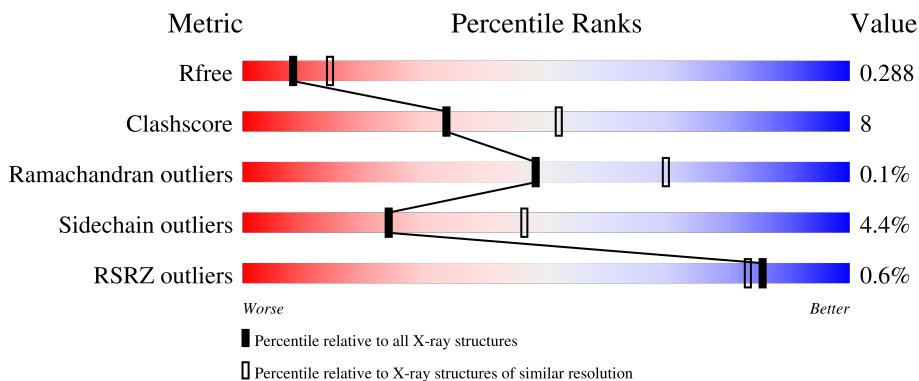|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 2.61 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	Percentile Ranks	Value
Rfree		0.288
Clashscore		8
Ramachandran outliers		0.1%
Sidechain outliers		4.4%
RSRZ outliers		0.6%

Worse   *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	4623 (2.64-2.60)
Clashscore	180529	5071 (2.64-2.60)
Ramachandran outliers	177936	5006 (2.64-2.60)
Sidechain outliers	177891	5006 (2.64-2.60)
RSRZ outliers	164620	4622 (2.64-2.60)

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	1073	74% 18% • 6%
1	C	1073	74% 18% • 7%
2	B	279	42% 9% • 48%
2	D	279	68% 27% • •

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 20130 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 Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1012	Total 8244	C 5278	N 1404	O 1494	S 68	0	0	0
1	C	1002	Total 8140	C 5205	N 1384	O 1482	S 69	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	GLY	-	expression tag	UNP P42336
A	-3	ALA	-	expression tag	UNP P42336
A	-2	MET	-	expression tag	UNP P42336
A	-1	GLY	-	expression tag	UNP P42336
A	0	SER	-	expression tag	UNP P42336
A	1047	ARG	HIS	engineered mutation	UNP P42336
C	-4	GLY	-	expression tag	UNP P42336
C	-3	ALA	-	expression tag	UNP P42336
C	-2	MET	-	expression tag	UNP P42336
C	-1	GLY	-	expression tag	UNP P42336
C	0	SER	-	expression tag	UNP P42336
C	1047	ARG	HIS	engineered mutation	UNP P42336

- Molecule 2 is a protein called Phosphatidylinositol 3-kinase regulatory subunit alpha.

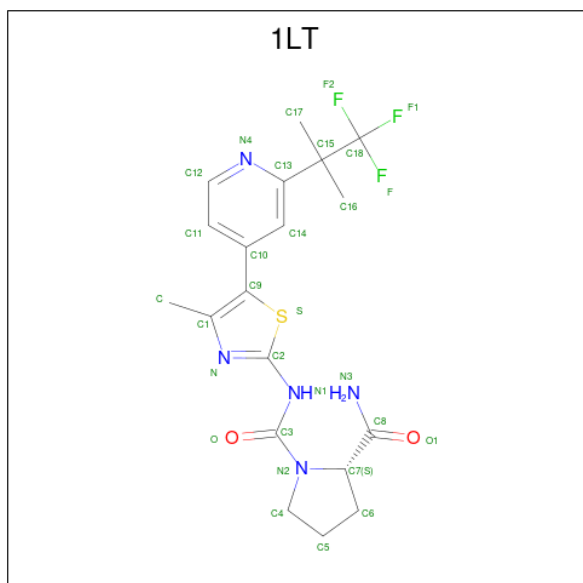| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	144	Total 1246	C 774	N 224	O 243	S 5	0	0	0
2	D	271	Total 2270	C 1421	N 402	O 440	S 7	0	0	0

- Molecule 3 is 2-[[(1 {R})-1-(7-methyl-4-oxidanylidene-2-piperidin-1-yl-3 {H}-pyrido[1,2-a]pyrimidin-9-yl)ethyl]amino]benzoic acid (three-letter code: YQ2) (formula: $C_{23}H_{27}N_4O_3$)

(labeled as "Ligand of Interest" by depositor).
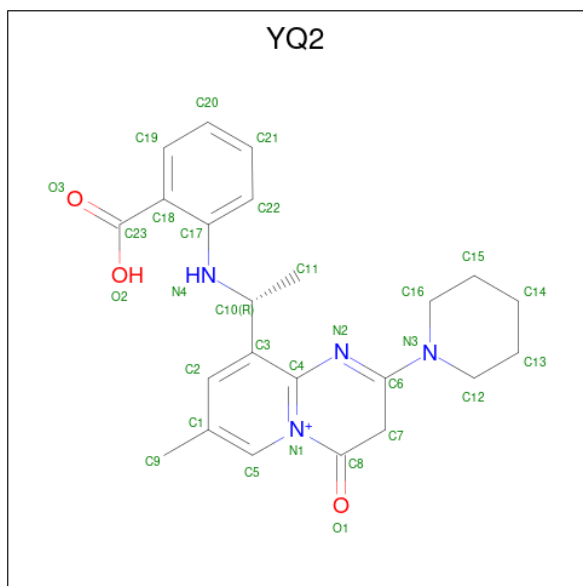
YQ2

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			30	23	4	3		
3	C	1	Total	C	N	O	0	0
			30	23	4	3		

- Molecule 4 is (2S)-N 1 -{4-methyl-5-[2-(1,1,1-trifluoro-2-methylpropan-2-yl)pyridin-4-yl]-1,3-thiazol-2-yl}pyrrolidine-1,2-dicarboxamide (three-letter code: 1LT) (formula: $C_{19}H_{22}F_3N_5O_2S$) (labeled as "Ligand of Interest" by depositor).

1LT

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
4	A	1	Total 30	C 19	F 3	N 5	O 2	S 1	0	0
4	C	1	Total 30	C 19	F 3	N 5	O 2	S 1	0	0

• Molecule 5 is water.
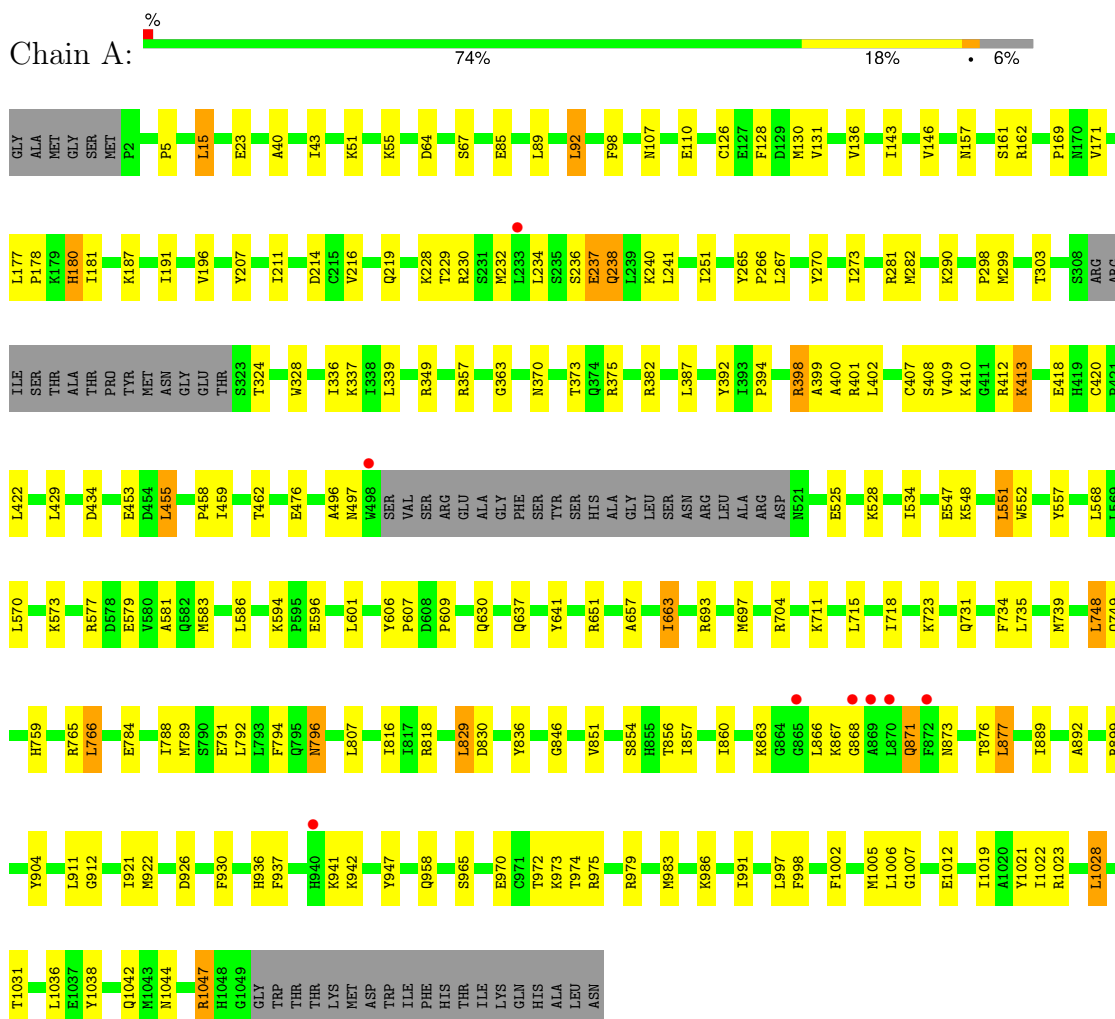
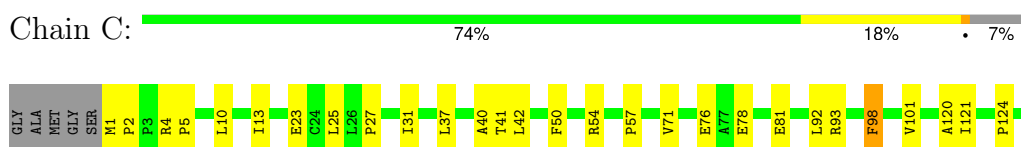| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	63	Total 63	O 63	0	0
5	B	3	Total 3	O 3	0	0
5	C	38	Total 38	O 38	0	0
5	D	6	Total 6	O 6	0	0

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: Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform

• Molecule 1: Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform

● Molecule 2: Phosphatidylinositol 3-kinase regulatory subunit alpha

Chain B:

● Molecule 2: Phosphatidylinositol 3-kinase regulatory subunit alpha

Chain D:

R544 L545 L549 I559 R562 P568 Q572 L573 R574 M582 W583 L584 T585 V589 R590 Q591 N595 E596 W597 N600

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	84.17Å　121.14Å　163.90Å 90.00°　92.04°　90.00°	Depositor
Resolution (Å)	73.77　–　2.61 73.77　–　2.61	Depositor EDS
% Data completeness (in resolution range)	79.5 (73.77-2.61) 79.5 (73.77-2.61)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	0.91 (at 2.62Å)	Xtriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, R_{free}	0.237　,　0.288 0.237　,　0.288	Depositor DCC
R_{free} test set	98019 reflections (1.97%)	wwPDB-VP
Wilson B-factor (Å^2)	56.5	Xtriage
Anisotropy	0.315	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 77.9	EDS
L-test for twinning [2]	$<|L|> = 0.49$, $<L^2> = 0.32$	Xtriage
Estimated twinning fraction	0.028 for h,-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	20130	wwPDB-VP
Average B, all atoms (Å^2)	88.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.63% 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 ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 1LT, YQ2

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	0.27	0/8429	0.51	0/11392
1	C	0.26	0/8316	0.50	0/11243
2	B	0.30	0/1262	0.68	1/1681 (0.1%)
2	D	0.25	0/2306	0.48	0/3092
All	All	0.27	0/20313	0.52	1/27408 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	531	LEU	CB-CG-CD2	-10.16	93.73	111.00

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	8244	0	8257	127	0
1	C	8140	0	8130	133	1
2	B	1246	0	1218	16	0
2	D	2270	0	2225	47	0
3	A	30	0	0	1	0
3	C	30	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	30	0	22	3	0
4	C	30	0	22	1	1
5	A	63	0	0	6	0
5	B	3	0	0	0	0
5	C	38	0	0	6	0
5	D	6	0	0	1	0
All	All	20130	0	19874	302	1

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 8.

All (302) 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:C:772:MET:HB2	1:C:778:PRO:HG2	1.63	0.80
1:A:398:ARG:HH12	1:A:434:ASP:HA	1.48	0.77
1:A:970:GLU:HB2	1:A:973:LYS:HD3	1.69	0.75
1:A:55:LYS:O	2:B:523:ARG:NH2	2.21	0.73
1:C:949:ARG:HG2	1:C:951:ARG:HB2	1.71	0.72
1:C:226:ARG:HG2	1:C:239:LEU:HD21	1.72	0.70
1:C:328:TRP:HA	1:C:394:PRO:HB3	1.72	0.70
1:C:961:LEU:HD12	1:C:971:CYS:HB3	1.73	0.70
2:D:350:THR:HB	2:D:354:THR:HG21	1.74	0.69
1:C:5:PRO:HB3	2:D:479:MET:HG2	1.76	0.68
1:A:157:ASN:HB3	1:A:161:SER:HB2	1.76	0.67
1:C:679:THR:HG23	1:C:680:VAL:HG13	1.74	0.67
1:C:873:ASN:HB3	1:C:876:THR:HG23	1.76	0.67
1:A:704:ARG:NH2	1:A:749:GLN:O	2.28	0.67
2:D:445:VAL:HG11	2:D:583:TRP:HE1	1.59	0.67
1:A:829:LEU:HD21	1:A:986:LYS:HD3	1.77	0.67
1:A:525:GLU:HG3	1:C:828:GLY:HA3	1.76	0.66
1:C:160:HIS:ND1	5:C:1301:HOH:O	2.29	0.66
2:D:329:GLN:O	2:D:430:LYS:NZ	2.28	0.66
1:C:523:LEU:HD23	1:C:554:HIS:HD2	1.60	0.66
1:A:107:ASN:HB3	1:A:110:GLU:HB3	1.79	0.65
1:A:936:HIS:ND1	1:A:1012:GLU:OE2	2.29	0.65
1:C:765:ARG:HH21	1:C:784:GLU:HG2	1.62	0.65
1:A:548:LYS:NZ	1:A:570:LEU:O	2.30	0.64
1:C:298:PRO:HG2	1:C:697:MET:HG2	1.77	0.64
2:D:462:GLU:OE1	2:D:465:ARG:NH1	2.30	0.64
1:C:338:ILE:HG23	1:C:473:LEU:HD21	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:942:LYS:NZ	5:A:1306:HOH:O	2.29	0.64
1:A:453:GLU:OE2	2:B:574:ARG:NH2	2.31	0.63
1:A:336:ILE:HD13	1:A:402:LEU:HD22	1.80	0.63
1:C:401:ARG:HD2	1:C:462:THR:HG21	1.80	0.62
1:C:496:ALA:HB2	1:C:581:ALA:HB1	1.80	0.62
1:C:824:TRP:CZ2	1:C:991:ILE:HD11	2.34	0.62
1:A:349:ARG:O	1:A:412:ARG:NH1	2.30	0.62
1:C:253:LYS:NZ	5:C:1305:HOH:O	2.32	0.62
1:C:398:ARG:HH12	1:C:434:ASP:HA	1.65	0.61
2:B:466:LEU:HD22	2:B:559:ILE:HG23	1.83	0.61
1:A:131:VAL:HG21	1:A:136:VAL:HG11	1.83	0.60
1:C:657:ALA:HA	1:C:663:ILE:HG22	1.83	0.59
1:C:358:THR:HB	1:C:402:LEU:HD21	1.83	0.59
1:C:877:LEU:HD12	1:C:963:VAL:HG11	1.84	0.58
1:C:948:LYS:NZ	2:D:591:GLN:OE1	2.30	0.58
1:C:548:LYS:NZ	1:C:570:LEU:O	2.35	0.58
1:A:328:TRP:CE2	1:A:577:ARG:HD2	2.39	0.58
1:C:229:THR:HA	1:C:232:MET:HE3	1.86	0.57
1:C:955:VAL:HG22	1:C:956:LEU:HG	1.86	0.57
1:A:851:VAL:HG23	4:A:1202:1LT:H10	1.86	0.57
1:C:969:GLN:NE2	5:C:1309:HOH:O	2.37	0.57
1:C:453:GLU:OE1	2:D:574:ARG:NH2	2.37	0.57
1:A:972:THR:HG23	1:A:973:LYS:HD2	1.85	0.57
1:C:23:GLU:HB2	1:C:98:PHE:HB2	1.86	0.56
1:C:914:GLY:HA3	1:C:941:LYS:HD3	1.88	0.56
2:B:450:HIS:ND1	2:B:597:TRP:HD1	2.04	0.56
2:D:354:THR:HG22	2:D:426:TYR:HB2	1.86	0.56
1:A:856:THR:HA	1:A:922:MET:HG2	1.88	0.56
2:B:480:LYS:HG2	2:B:545:LEU:HD11	1.86	0.56
1:A:630:GLN:HG3	1:A:818:ARG:HH21	1.70	0.56
1:C:172:GLU:HG3	1:C:274:ARG:HD2	1.88	0.56
2:D:466:LEU:HD22	2:D:559:ILE:HG23	1.87	0.56
2:D:543:ARG:NH1	5:D:701:HOH:O	2.38	0.56
1:C:362:HIS:HB2	1:C:367:LEU:HD11	1.87	0.55
2:D:368:TYR:HB2	2:D:383:ILE:HD11	1.87	0.55
1:A:267:LEU:HG	1:A:273:ILE:HG13	1.87	0.55
1:C:369:ASP:HA	2:D:375:GLY:HA3	1.88	0.55
1:C:31:ILE:H	2:D:527:ASN:HD21	1.54	0.55
1:A:739:MET:HE3	1:A:766:LEU:HD21	1.89	0.55
2:B:595:ASN:O	2:B:600:ASN:HB2	2.07	0.55
1:A:871:GLN:NE2	5:A:1314:HOH:O	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:573:LYS:HD3	1:A:579:GLU:OE2	2.07	0.55
1:C:830:ASP:HB3	1:C:899:ARG:NH1	2.23	0.54
1:C:71:VAL:HG12	1:C:81:GLU:HG2	1.88	0.54
2:D:429:SER:HB3	2:D:432:GLN:HB2	1.89	0.54
1:C:4:ARG:HD2	1:C:93:ARG:HD2	1.90	0.54
1:C:856:THR:O	1:C:860:ILE:HD12	2.08	0.53
1:A:178:PRO:HB2	1:A:180:HIS:CE1	2.43	0.53
1:A:398:ARG:HD3	1:A:609:PRO:HG3	1.90	0.53
1:A:363:GLY:N	1:A:607:PRO:HG3	2.23	0.53
1:C:538:ASP:OD1	1:C:541:SER:N	2.42	0.53
1:C:180:HIS:CE1	1:C:828:GLY:HA2	2.43	0.53
1:A:230:ARG:NH1	5:A:1316:HOH:O	2.41	0.53
2:B:460:SER:HA	2:B:570:LEU:HD11	1.90	0.53
1:C:1006:LEU:HD23	1:C:1013:LEU:HD23	1.90	0.53
1:A:337:LYS:HB3	1:A:476:GLU:HB3	1.91	0.52
1:C:621:LYS:NZ	5:C:1310:HOH:O	2.37	0.52
1:C:398:ARG:NH1	1:C:434:ASP:OD1	2.42	0.52
1:A:234:LEU:HD12	1:A:238:GLN:HG2	1.91	0.52
1:A:791:GLU:HG2	1:A:792:LEU:HD22	1.92	0.52
1:A:1006:LEU:HD21	1:A:1019:ILE:HD11	1.89	0.52
2:D:497:GLN:HG3	2:D:531:LEU:HD11	1.91	0.52
1:A:496:ALA:HB2	1:A:581:ALA:HB1	1.90	0.52
1:A:836:TYR:OH	4:A:1202:1LT:H2	2.09	0.52
1:C:818:ARG:NH1	5:C:1306:HOH:O	2.33	0.52
1:C:941:LYS:HE3	1:C:942:LYS:HE3	1.92	0.52
1:C:633:ILE:HD12	1:C:633:ILE:H	1.74	0.52
2:D:477:ILE:HG23	2:D:549:LEU:HD11	1.91	0.52
1:A:89:LEU:HA	1:A:92:LEU:HD22	1.92	0.52
1:A:146:VAL:HG21	1:A:651:ARG:HG2	1.91	0.52
1:A:693:ARG:NH1	5:A:1318:HOH:O	2.42	0.52
1:C:410:LYS:HE3	2:D:568:PRO:HB2	1.92	0.52
1:A:236:SER:O	1:A:240:LYS:HG3	2.09	0.51
1:C:440:LYS:HA	1:C:476:GLU:HA	1.91	0.51
1:C:1039:PHE:O	1:C:1043:MET:HG2	2.10	0.51
1:C:25:LEU:HD23	1:C:31:ILE:HD13	1.92	0.51
1:A:796:ASN:HD22	1:A:796:ASN:H	1.57	0.51
1:C:960:PHE:O	1:C:963:VAL:HG13	2.11	0.51
1:A:401:ARG:HD2	1:A:462:THR:HG21	1.91	0.51
1:A:657:ALA:HA	1:A:663:ILE:HG22	1.92	0.51
2:B:505:SER:HB2	2:B:509:ILE:HD13	1.91	0.51
1:A:789:MET:HB3	1:A:792:LEU:HD23	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:854:SER:O	4:A:1202:1LT:H21	2.12	0.50
1:C:660:ASN:HB3	1:C:663:ILE:HB	1.93	0.50
2:D:509:ILE:HG23	2:D:513:LYS:HZ3	1.76	0.50
1:A:711:LYS:HB2	1:A:748:LEU:HD11	1.93	0.50
1:A:789:MET:HE3	1:A:792:LEU:HD23	1.93	0.50
1:C:851:VAL:HG23	4:C:1202:1LT:H10	1.94	0.50
1:C:542:GLU:OE1	2:D:358:ARG:NH2	2.45	0.50
2:D:359:ASP:HA	2:D:368:TYR:HD1	1.76	0.50
1:A:178:PRO:HD2	1:A:181:ILE:HD12	1.94	0.50
2:D:494:PHE:HB3	2:D:535:ILE:HG12	1.94	0.49
1:A:23:GLU:HG3	2:B:534:ARG:HH21	1.76	0.49
1:A:1023:ARG:HA	1:A:1028:LEU:HD22	1.93	0.49
1:C:337:LYS:HD2	1:C:386:TRP:NE1	2.28	0.49
1:C:895:ASP:OD2	1:C:899:ARG:NE	2.45	0.49
1:A:889:ILE:HD12	1:A:892:ALA:HB3	1.94	0.49
1:C:229:THR:HA	1:C:232:MET:CE	2.42	0.49
1:A:528:LYS:HE3	1:A:557:TYR:OH	2.13	0.48
2:D:386:ARG:HG2	2:D:396:LEU:HD12	1.93	0.48
1:A:497:ASN:HB3	1:C:528:LYS:HG3	1.95	0.48
1:C:947:TYR:OH	2:D:595:ASN:ND2	2.47	0.48
1:C:616:VAL:HG11	1:C:648:LEU:HB3	1.94	0.48
1:C:344:VAL:HG11	1:C:406:ILE:HG21	1.96	0.48
1:C:830:ASP:O	1:C:899:ARG:HD3	2.14	0.47
1:C:402:LEU:HD11	1:C:404:LEU:HD23	1.96	0.47
1:C:144:LEU:HD13	1:C:305:PRO:HD2	1.96	0.47
1:C:151:VAL:HG11	1:C:302:PHE:HB3	1.95	0.47
1:C:632:LEU:O	1:C:636:VAL:HG22	2.14	0.47
1:C:1023:ARG:NH1	1:C:1029:ASP:OD1	2.38	0.47
1:C:996:ASN:O	1:C:1000:ASN:ND2	2.46	0.47
1:A:298:PRO:HG2	1:A:697:MET:HG2	1.97	0.47
1:C:882:LYS:HG3	1:C:883:ASP:N	2.28	0.47
1:C:371:VAL:HG12	1:C:387:LEU:HD13	1.97	0.47
2:D:409:ARG:HG2	2:D:424:LEU:HB2	1.97	0.47
2:D:480:LYS:HB2	2:D:549:LEU:HD13	1.97	0.46
1:A:23:GLU:HB2	1:A:98:PHE:HB2	1.97	0.46
2:D:373:ARG:NH2	2:D:376:GLY:HA2	2.31	0.46
1:A:128:PHE:O	1:A:131:VAL:HG22	2.15	0.46
2:B:449:LEU:HD11	2:B:577:ARG:HG3	1.96	0.46
1:C:528:LYS:HA	1:C:528:LYS:HD3	1.60	0.46
2:D:491:ILE:HD13	2:D:539:ILE:HG12	1.96	0.46
1:C:945:PHE:HD2	1:C:947:TYR:HB2	1.79	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:216:VAL:HG22	1:A:219:GLN:HG3	1.96	0.46
1:A:866:LEU:HD22	1:A:867:LYS:N	2.31	0.46
1:A:1038:TYR:O	1:A:1042:GLN:HG2	2.15	0.46
1:A:251:ILE:HG23	1:A:290:LYS:HG2	1.98	0.46
1:A:857:ILE:HG12	1:A:921:ILE:O	2.16	0.46
1:A:975:ARG:O	1:A:979:ARG:HD3	2.16	0.46
1:A:5:PRO:HB3	2:B:479:MET:HG2	1.97	0.46
1:C:37:LEU:HB2	1:C:40:ALA:HB2	1.98	0.45
1:A:207:TYR:OH	1:A:228:LYS:HD3	2.15	0.45
1:A:829:LEU:HD21	1:A:986:LYS:CD	2.45	0.45
1:C:904:TYR:CE2	1:C:930:PHE:HA	2.51	0.45
1:A:281:ARG:NH1	1:A:282:MET:HB3	2.31	0.45
1:C:829:LEU:HD23	1:C:829:LEU:HA	1.80	0.45
1:C:398:ARG:HH22	1:C:434:ASP:HA	1.80	0.45
1:C:25:LEU:HB3	2:D:497:GLN:CD	2.37	0.45
1:A:400:ALA:HB1	1:A:429:LEU:HD12	1.98	0.45
1:A:791:GLU:H	1:A:791:GLU:CD	2.20	0.45
2:D:450:HIS:HB2	2:D:597:TRP:CD1	2.52	0.45
1:A:866:LEU:HD22	1:A:867:LYS:H	1.81	0.45
1:A:407:CYS:SG	1:A:455:LEU:HD13	2.57	0.44
2:B:578:ASP:O	2:B:581:LEU:HB3	2.17	0.44
1:A:162:ARG:NH1	1:A:299:MET:SD	2.82	0.44
1:A:830:ASP:O	1:A:899:ARG:HD2	2.18	0.44
1:A:596:GLU:HB3	1:A:997:LEU:HD13	1.98	0.44
1:A:829:LEU:HD13	1:A:829:LEU:HA	1.77	0.44
1:C:1006:LEU:HD21	1:C:1019:ILE:HD11	1.99	0.44
1:A:534:ILE:HD13	1:A:551:LEU:HD11	2.00	0.44
1:C:418:GLU:OE2	2:D:572:GLN:HB2	2.17	0.44
1:A:912:GLY:HA3	1:A:1021:TYR:HE2	1.83	0.44
1:A:413:LYS:HD2	1:A:413:LYS:N	2.33	0.44
1:C:221:ILE:O	1:C:225:ILE:HG12	2.18	0.44
1:C:328:TRP:CE2	1:C:577:ARG:HD2	2.53	0.44
1:C:365:GLU:OE2	1:C:548:LYS:NZ	2.48	0.44
1:C:400:ALA:HB1	1:C:429:LEU:HD12	1.99	0.44
2:D:585:THR:HA	2:D:589:VAL:HG22	2.00	0.44
1:A:214:ASP:HA	1:A:266:PRO:HB3	1.99	0.44
2:B:510:GLU:HB3	2:B:514:ARG:NH2	2.33	0.44
1:C:237:GLU:H	1:C:237:GLU:HG2	1.60	0.44
1:C:326:SER:O	1:C:329:VAL:HG22	2.17	0.44
1:A:552:TRP:HZ3	1:A:583:MET:HE2	1.81	0.44
1:A:715:LEU:HD21	1:A:735:LEU:HD12	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:979:ARG:O	1:A:983:MET:HG3	2.18	0.43
1:C:989:LEU:HD11	1:C:1036:LEU:HD12	2.00	0.43
1:A:328:TRP:HA	1:A:394:PRO:HB3	2.00	0.43
1:A:373:THR:HG22	1:A:387:LEU:HD21	1.99	0.43
2:D:483:ALA:HB3	2:D:545:LEU:HD21	2.01	0.43
1:A:409:VAL:HA	1:A:418:GLU:O	2.17	0.43
1:A:1036:LEU:HB3	5:A:1307:HOH:O	2.18	0.43
2:D:433:GLN:H	2:D:433:GLN:HG2	1.65	0.43
1:A:765:ARG:CZ	1:A:784:GLU:HG2	2.48	0.43
1:C:4:ARG:HG3	1:C:76:GLU:HG3	2.01	0.43
1:C:278:MET:HB3	1:C:832:ARG:NH1	2.33	0.43
1:C:278:MET:O	1:C:832:ARG:NH2	2.51	0.43
1:A:64:ASP:O	1:A:67:SER:OG	2.35	0.43
1:A:187:LYS:HD2	1:A:187:LYS:HA	1.65	0.43
1:A:723:LYS:O	1:A:731:GLN:NE2	2.47	0.43
1:A:1044:ASN:HA	1:A:1047:ARG:HB2	2.00	0.43
1:C:824:TRP:HZ2	1:C:991:ILE:HD11	1.84	0.43
1:C:914:GLY:O	1:C:916:ARG:HD2	2.19	0.43
1:A:807:LEU:HD12	1:A:846:GLY:HA3	1.99	0.43
1:C:1014:GLN:H	1:C:1014:GLN:HG2	1.73	0.43
1:A:126:CYS:O	1:A:130:MET:HG2	2.18	0.43
1:A:357:ARG:NH2	1:A:370:ASN:HD22	2.17	0.43
2:D:354:THR:HA	2:D:426:TYR:O	2.18	0.43
1:A:143:ILE:HD12	1:A:143:ILE:HA	1.88	0.43
1:A:177:LEU:HD23	1:A:181:ILE:HG22	2.01	0.43
1:A:497:ASN:ND2	1:C:525:GLU:OE1	2.52	0.43
1:C:1:MET:SD	1:C:78:GLU:HA	2.59	0.43
2:D:333:TRP:CE3	2:D:357:VAL:HB	2.54	0.43
1:A:51:LYS:HB3	1:A:51:LYS:HE2	1.77	0.42
1:A:401:ARG:NH2	1:A:458:PRO:O	2.51	0.42
1:C:120:ALA:HB2	1:C:703:ASN:OD1	2.19	0.42
1:C:180:HIS:CD2	1:C:181:ILE:HG13	2.54	0.42
1:C:544:THR:HG21	2:D:382:LYS:HB2	2.00	0.42
1:A:904:TYR:CE2	1:A:930:PHE:HA	2.54	0.42
2:B:528:TYR:CE2	2:B:532:LYS:HE2	2.54	0.42
1:C:42:LEU:HD21	1:C:92:LEU:HD11	2.02	0.42
1:C:689:GLU:OE2	1:C:693:ARG:NH1	2.51	0.42
2:D:437:VAL:HG21	2:D:583:TRP:CD1	2.54	0.42
2:D:450:HIS:CD2	2:D:597:TRP:HA	2.55	0.42
1:A:637:GLN:HG3	1:A:1005:MET:SD	2.59	0.42
1:A:863:LYS:HA	1:A:863:LYS:HD3	1.59	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:10:LEU:HB2	1:C:13:ILE:HB	2.02	0.42
1:C:121:ILE:HD11	1:C:689:GLU:HA	2.00	0.42
2:D:509:ILE:HD11	2:D:524:ILE:HG21	2.02	0.42
1:A:408:SER:HB3	1:A:422:LEU:HD11	2.01	0.42
1:A:601:LEU:HA	1:A:606:TYR:CD2	2.55	0.42
1:C:895:ASP:O	1:C:899:ARG:HG3	2.20	0.42
1:C:1043:MET:HB3	3:C:1201:YQ2:C18	2.49	0.42
1:A:171:VAL:HG11	1:A:265:TYR:CD2	2.55	0.42
1:C:808:ARG:NH1	1:C:1008:SER:O	2.53	0.42
1:A:15:LEU:HD13	1:A:718:ILE:HD11	2.00	0.42
1:A:229:THR:HA	1:A:232:MET:HE2	2.01	0.42
1:A:237:GLU:O	1:A:241:LEU:HG	2.20	0.42
1:A:723:LYS:HE3	1:A:734:PHE:CD1	2.55	0.42
1:C:27:PRO:HD3	1:C:101:VAL:HB	2.01	0.42
1:C:332:SER:N	5:C:1308:HOH:O	2.35	0.42
1:C:366:PRO:HG2	2:D:377:ASN:HB2	2.01	0.42
1:C:791:GLU:H	1:C:791:GLU:CD	2.22	0.42
1:A:169:PRO:HB3	1:A:270:TYR:CE1	2.55	0.42
1:A:191:ILE:O	1:A:282:MET:HG3	2.19	0.42
1:A:651:ARG:NH2	5:A:1309:HOH:O	2.36	0.42
1:A:873:ASN:O	1:A:876:THR:HG22	2.20	0.41
1:A:568:LEU:HG	1:A:583:MET:HE3	2.01	0.41
1:C:735:LEU:HD22	1:C:771:ILE:HG13	2.02	0.41
2:D:528:TYR:OH	2:D:532:LYS:HE3	2.20	0.41
1:C:57:PRO:HD3	2:D:523:ARG:HH21	1.85	0.41
1:C:450:HIS:HB2	2:D:467:TYR:CE2	2.55	0.41
1:C:830:ASP:HB3	1:C:899:ARG:HH11	1.85	0.41
1:A:641:TYR:OH	1:A:1007:GLY:N	2.53	0.41
1:C:50:PHE:O	1:C:54:ARG:HG2	2.20	0.41
1:C:216:VAL:HG13	1:C:217:PRO:HD2	2.02	0.41
1:A:860:ILE:O	1:A:863:LYS:HG2	2.20	0.41
1:A:912:GLY:HA3	1:A:1021:TYR:CE2	2.55	0.41
1:C:180:HIS:HE1	1:C:828:GLY:HA2	1.84	0.41
1:A:941:LYS:HE3	1:A:942:LYS:HE3	2.03	0.41
1:C:392:TYR:CD2	1:C:394:PRO:HG2	2.56	0.41
1:C:799:ILE:HG21	1:C:847:LEU:HD22	2.02	0.41
1:A:860:ILE:HG21	1:A:877:LEU:HD23	2.01	0.41
1:C:171:VAL:HG11	1:C:265:TYR:CD2	2.56	0.41
1:C:1036:LEU:O	1:C:1040:MET:HG3	2.21	0.41
1:C:1040:MET:O	1:C:1044:ASN:ND2	2.40	0.41
2:D:374:LYS:NZ	2:D:422:VAL:HB	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:274:ARG:O	1:C:278:MET:HG2	2.21	0.41
1:C:916:ARG:HH21	1:C:920:ASN:CG	2.24	0.41
1:A:211:ILE:HD12	1:A:211:ILE:HA	1.94	0.41
1:A:991:ILE:HG23	1:A:998:PHE:CE2	2.56	0.41
1:C:124:PRO:HD2	1:C:127:GLU:OE2	2.21	0.41
1:C:195:TRP:CZ3	1:C:206:LYS:HB3	2.56	0.41
1:C:305:PRO:HG3	1:C:693:ARG:HD3	2.03	0.41
1:C:857:ILE:HG12	1:C:921:ILE:O	2.21	0.41
1:C:916:ARG:HH12	1:C:931:HIS:HB3	1.85	0.41
2:D:512:PHE:CZ	2:D:520:GLU:HG2	2.56	0.41
2:D:539:ILE:HG23	2:D:542:ARG:HH21	1.85	0.41
1:A:965:SER:HB3	1:A:974:THR:HG21	2.03	0.41
1:C:440:LYS:HE3	1:C:440:LYS:HB2	1.65	0.41
1:A:816:ILE:HG21	1:A:911:LEU:HD21	2.03	0.40
1:A:43:ILE:HG13	1:A:85:GLU:O	2.21	0.40
1:A:866:LEU:HD11	1:A:868:GLY:O	2.21	0.40
1:A:1047:ARG:HA	3:A:1201:YQ2:C11	2.51	0.40
2:B:449:LEU:HD13	2:B:580:TYR:HB2	2.03	0.40
2:B:510:GLU:HB3	2:B:514:ARG:CZ	2.51	0.40
1:C:534:ILE:HA	1:C:537:ARG:HD3	2.02	0.40
1:A:998:PHE:O	1:A:1002:PHE:HD1	2.04	0.40
1:C:232:MET:HE3	1:C:232:MET:HB2	1.98	0.40
1:C:913:ILE:HG22	1:C:916:ARG:HD3	2.03	0.40
1:A:40:ALA:O	1:A:89:LEU:N	2.55	0.40
1:A:547:GLU:O	1:A:551:LEU:HD22	2.21	0.40
2:D:477:ILE:O	2:D:481:ARG:HG3	2.22	0.40
1:A:399:ALA:HB1	1:A:607:PRO:HB2	2.02	0.40
1:C:173:SER:OG	1:C:627:LYS:HE2	2.22	0.40
1:C:765:ARG:NH1	1:C:796:ASN:HB3	2.35	0.40

All (1) 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)
1:C:233:LEU:CD2	4:C:1202:1LT:C17[2_555]	1.49	0.71

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	1006/1073 (94%)	976 (97%)	29 (3%)	1 (0%)	48	70
1	C	990/1073 (92%)	964 (97%)	25 (2%)	1 (0%)	48	70
2	B	140/279 (50%)	139 (99%)	1 (1%)	0	100	100
2	D	267/279 (96%)	264 (99%)	3 (1%)	0	100	100
All	All	2403/2704 (89%)	2343 (98%)	58 (2%)	2 (0%)	48	70

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1047	ARG
1	C	2	PRO

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	921/976 (94%)	883 (96%)	38 (4%)	26	49
1	C	911/976 (93%)	873 (96%)	38 (4%)	25	48
2	B	134/259 (52%)	131 (98%)	3 (2%)	47	70
2	D	245/259 (95%)	226 (92%)	19 (8%)	10	21
All	All	2211/2470 (90%)	2113 (96%)	98 (4%)	24	46

All (98) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	LEU
1	A	92	LEU
1	A	180	HIS
1	A	196	VAL
1	A	237	GLU
1	A	238	GLN
1	A	303	THR
1	A	324	THR
1	A	339	LEU
1	A	375	ARG
1	A	382	ARG
1	A	392	TYR
1	A	398	ARG
1	A	410	LYS
1	A	413	LYS
1	A	420	CYS
1	A	455	LEU
1	A	459	ILE
1	A	551	LEU
1	A	586	LEU
1	A	594	LYS
1	A	663	ILE
1	A	748	LEU
1	A	759	HIS
1	A	766	LEU
1	A	788	ILE
1	A	794	PHE
1	A	796	ASN
1	A	829	LEU
1	A	871	GLN
1	A	877	LEU
1	A	926	ASP
1	A	937	PHE
1	A	947	TYR
1	A	958	GLN
1	A	1022	ILE
1	A	1028	LEU
1	A	1031	THR
2	B	531	LEU
2	B	534	ARG
2	B	592	LYS
1	C	41	THR
1	C	98	PHE

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Mol	Chain	Res	Type
1	C	191	ILE
1	C	227	LYS
1	C	230	ARG
1	C	287	LEU
1	C	303	THR
1	C	352	ASP
1	C	390	ASP
1	C	392	TYR
1	C	398	ARG
1	C	420	CYS
1	C	440	LYS
1	C	475	LEU
1	C	497	ASN
1	C	517	LEU
1	C	519	ARG
1	C	520	ASP
1	C	528	LYS
1	C	529	GLU
1	C	568	LEU
1	C	744	PHE
1	C	773	SER
1	C	794	PHE
1	C	796	ASN
1	C	882	LYS
1	C	884	LYS
1	C	889	ILE
1	C	916	ARG
1	C	937	PHE
1	C	947	TYR
1	C	948	LYS
1	C	955	VAL
1	C	961	LEU
1	C	963	VAL
1	C	1014	GLN
1	C	1028	LEU
1	C	1031	THR
2	D	330	ASP
2	D	372	LEU
2	D	377	ASN
2	D	401	VAL
2	D	410	ASN
2	D	411	GLU

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Mol	Chain	Res	Type
2	D	415	GLN
2	D	417	ASN
2	D	465	ARG
2	D	478	GLN
2	D	525	MET
2	D	531	LEU
2	D	534	ARG
2	D	540	ASP
2	D	543	ARG
2	D	562	ARG
2	D	582	MET
2	D	583	TRP
2	D	596	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	825	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

4 ligands 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	#$|Z| > 2$
3	YQ2	A	1201	-	29,33,33	3.25	4 (13%)	35,47,47	2.13	10 (28%)
3	YQ2	C	1201	-	29,33,33	3.17	3 (10%)	35,47,47	2.32	9 (25%)
4	1LT	C	1202	-	27,32,32	0.80	0	33,49,49	1.65	8 (24%)
4	1LT	A	1202	-	27,32,32	0.85	1 (3%)	33,49,49	1.84	11 (33%)

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	YQ2	A	1201	-	-	0/16/36/36	0/3/4/4
3	YQ2	C	1201	-	-	3/16/36/36	0/3/4/4
4	1LT	C	1202	-	-	10/27/41/41	0/3/3/3
4	1LT	A	1202	-	-	13/27/41/41	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1201	YQ2	C7-C6	-15.63	1.34	1.49
3	C	1201	YQ2	C7-C6	-14.94	1.35	1.49
3	C	1201	YQ2	C7-C8	-5.55	1.38	1.51
3	A	1201	YQ2	C7-C8	-5.40	1.38	1.51
3	C	1201	YQ2	C6-N2	4.36	1.37	1.29
3	A	1201	YQ2	C6-N2	3.58	1.35	1.29
4	A	1202	1LT	C18-C15	2.24	1.58	1.52
3	A	1201	YQ2	C18-C23	-2.21	1.44	1.49

All (38) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	1201	YQ2	C3-C4-N2	9.41	123.77	115.04
3	A	1201	YQ2	C3-C4-N2	8.03	122.49	115.04
3	C	1201	YQ2	O1-C8-N1	-4.77	115.94	122.49
4	C	1202	1LT	C11-C10-C9	4.37	125.22	121.01
3	A	1201	YQ2	O1-C8-N1	-4.30	116.58	122.49
4	A	1202	1LT	O1-C8-N3	-4.02	115.95	123.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	1202	1LT	F-C18-C15	-3.36	105.30	112.33
4	A	1202	1LT	N1-C3-N2	-3.30	111.80	115.54
3	A	1201	YQ2	C16-N3-C6	-3.25	113.77	122.66
3	C	1201	YQ2	C11-C10-C3	3.21	116.12	111.58
3	C	1201	YQ2	O2-C23-O3	-3.07	116.75	123.35
4	C	1202	1LT	O1-C8-N3	-3.07	117.62	123.04
4	C	1202	1LT	N1-C3-N2	-3.00	112.15	115.54
4	A	1202	1LT	O1-C8-C7	2.96	125.14	120.22
4	A	1202	1LT	F2-C18-C15	2.81	118.22	112.33
4	A	1202	1LT	C11-C10-C9	2.81	123.71	121.01
3	C	1201	YQ2	C5-C1-C2	2.78	120.30	117.28
3	C	1201	YQ2	O2-C23-C18	2.72	123.02	115.28
3	A	1201	YQ2	C5-C1-C2	2.70	120.22	117.28
3	A	1201	YQ2	O2-C23-O3	-2.69	117.57	123.35
3	C	1201	YQ2	C16-N3-C6	-2.63	115.48	122.66
3	C	1201	YQ2	C17-C18-C23	2.52	124.53	121.72
4	A	1202	1LT	C12-N4-C13	2.47	120.68	117.48
4	C	1202	1LT	O1-C8-C7	2.37	124.17	120.22
3	A	1201	YQ2	O2-C23-C18	2.35	121.97	115.28
3	A	1201	YQ2	C1-C2-C3	-2.29	119.64	122.06
4	A	1202	1LT	C11-C10-C14	-2.29	115.08	118.23
3	C	1201	YQ2	O1-C8-C7	2.27	125.08	118.60
3	A	1201	YQ2	C14-C13-C12	2.23	115.32	111.19
4	C	1202	1LT	C4-N2-C7	2.21	115.49	112.01
3	A	1201	YQ2	C9-C1-C2	-2.20	117.94	120.92
4	C	1202	1LT	C12-N4-C13	2.19	120.32	117.48
4	A	1202	1LT	C6-C7-C8	-2.19	108.39	111.29
3	A	1201	YQ2	O1-C8-C7	2.15	124.73	118.60
4	A	1202	1LT	C11-C12-N4	-2.11	121.39	123.97
4	C	1202	1LT	C11-C12-N4	-2.11	121.39	123.97
4	A	1202	1LT	C17-C15-C16	-2.09	101.88	106.37
4	C	1202	1LT	C14-C10-C9	-2.04	119.05	121.01

There are no chirality outliers.

All (26) torsion outliers are listed below:

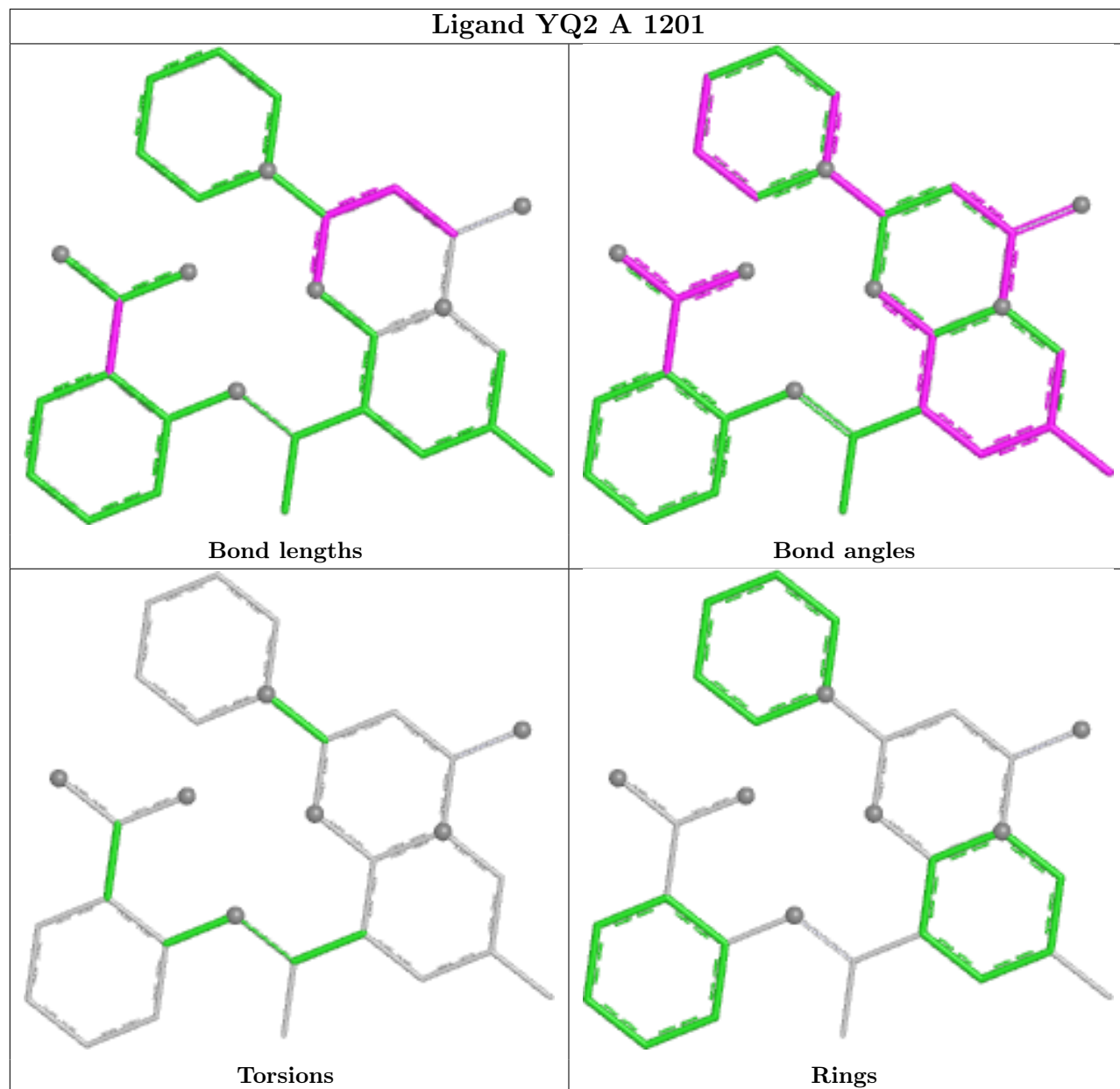| Mol	Chain	Res	Type	Atoms
4	A	1202	1LT	C13-C15-C18-F2
4	A	1202	1LT	C13-C15-C18-F
4	A	1202	1LT	C13-C15-C18-F1
4	A	1202	1LT	C16-C15-C18-F2
4	A	1202	1LT	C16-C15-C18-F

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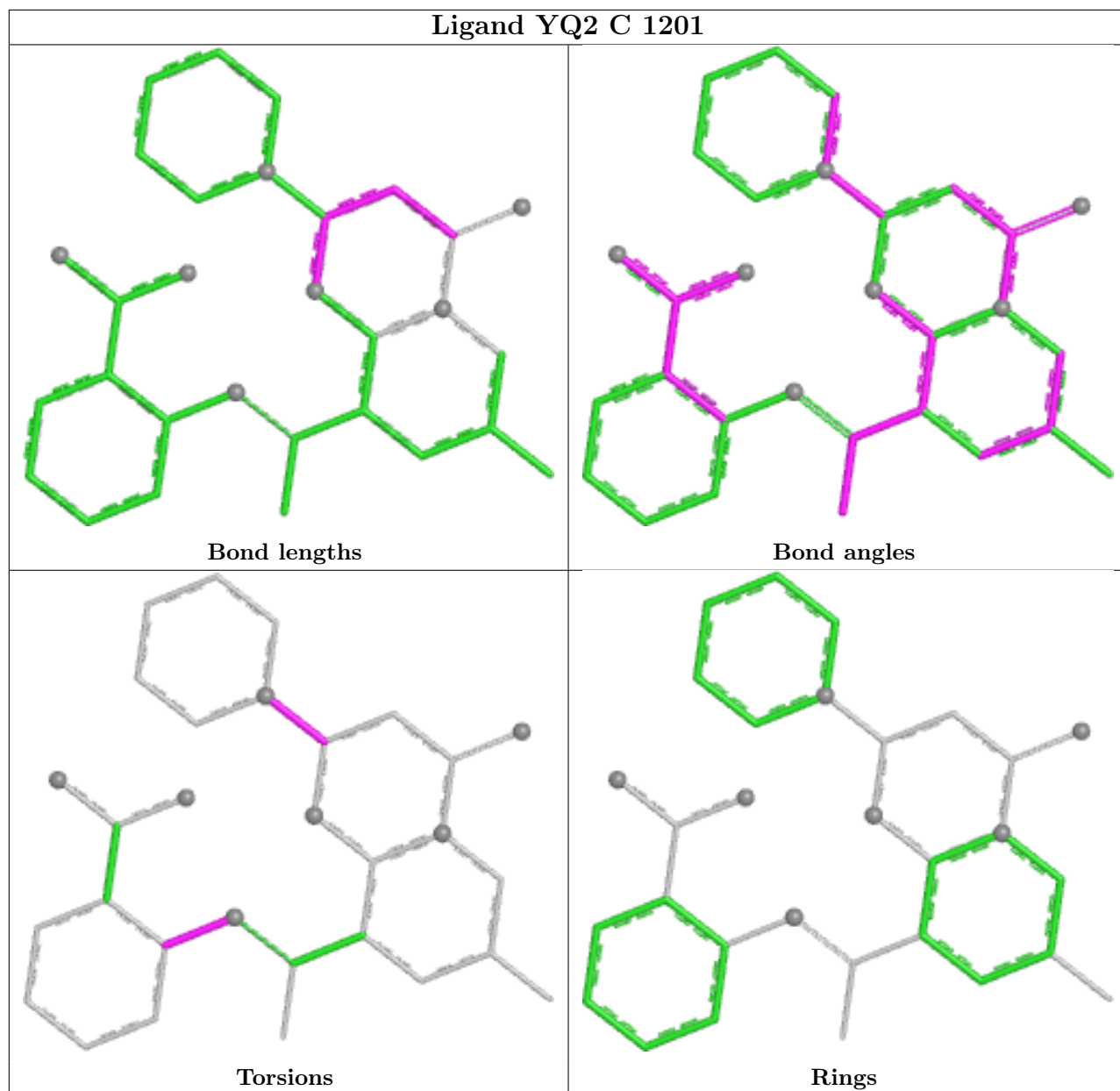| Mol	Chain	Res	Type	Atoms
4	A	1202	1LT	C16-C15-C18-F1
4	A	1202	1LT	C17-C15-C18-F2
4	A	1202	1LT	C17-C15-C18-F
4	A	1202	1LT	C17-C15-C18-F1
4	A	1202	1LT	C6-C7-C8-O1
4	A	1202	1LT	C6-C7-C8-N3
4	C	1202	1LT	C16-C15-C18-F
4	C	1202	1LT	C17-C15-C18-F1
4	A	1202	1LT	C14-C13-C15-C17
4	C	1202	1LT	C16-C15-C18-F1
3	C	1201	YQ2	C18-C17-N4-C10
4	C	1202	1LT	C14-C13-C15-C16
3	C	1201	YQ2	C22-C17-N4-C10
4	C	1202	1LT	C13-C15-C18-F2
4	C	1202	1LT	C13-C15-C18-F
4	C	1202	1LT	C13-C15-C18-F1
4	C	1202	1LT	C14-C10-C9-C1
4	C	1202	1LT	C16-C15-C18-F2
4	C	1202	1LT	C17-C15-C18-F
3	C	1201	YQ2	C7-C6-N3-C12
4	A	1202	1LT	N4-C13-C15-C17

There are no ring outliers.

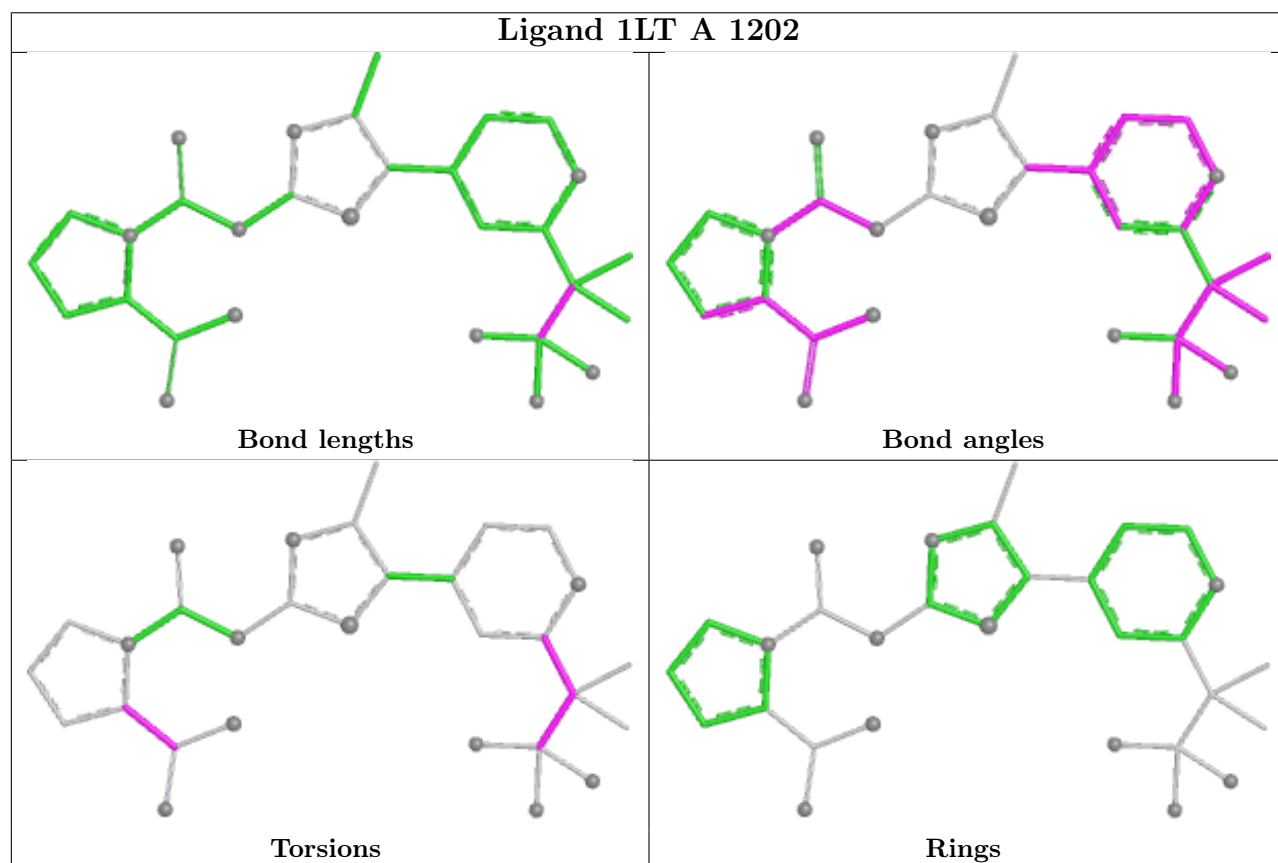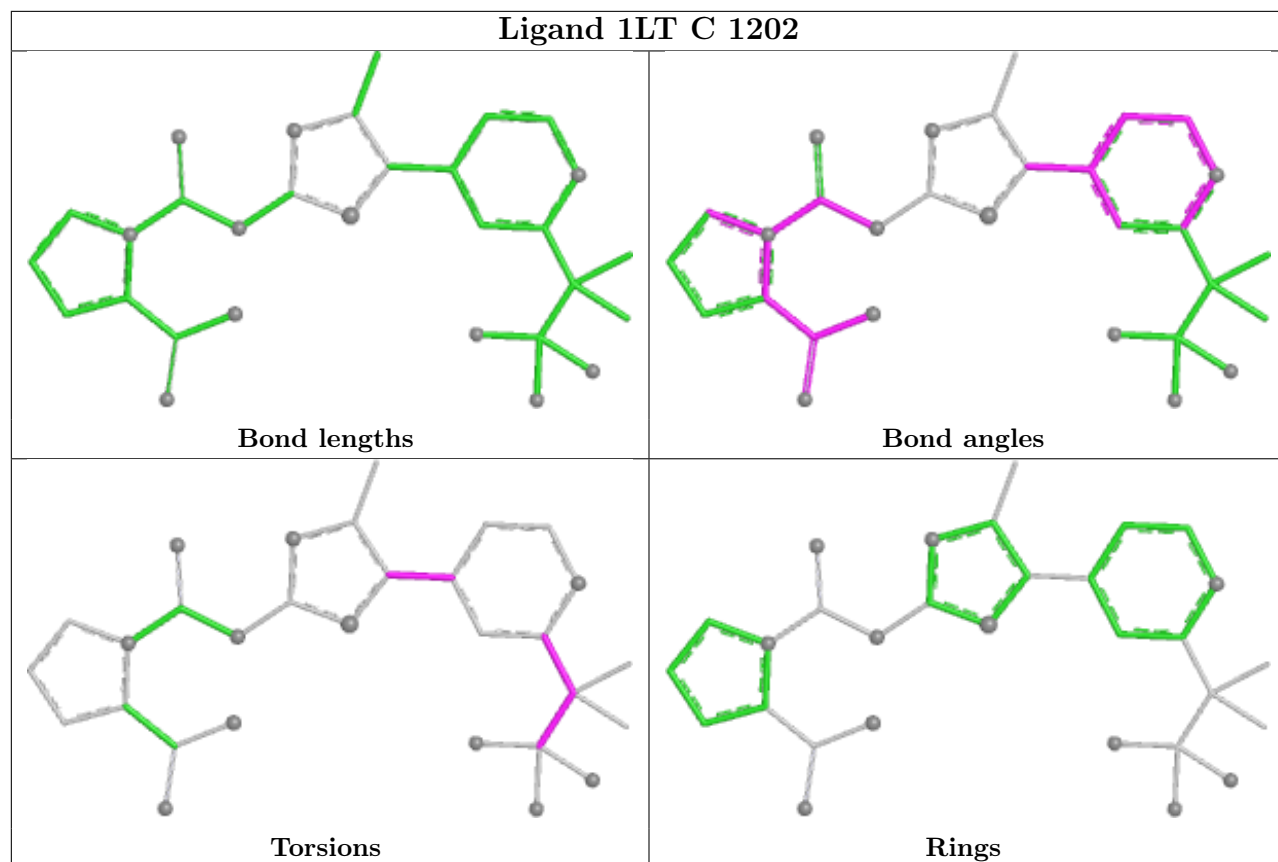4 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1201	YQ2	1	0
3	C	1201	YQ2	1	0
4	C	1202	1LT	1	1
4	A	1202	1LT	3	0

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

equivalents in the CSD to analyse the geometry.

Ligand YQ2 A 1201

Bond lengths

Bond angles

Torsions

Rings

Ligand YQ2 C 1201

Bond lengths

Bond angles

Torsions

Rings

Ligand 1LT C 1202

Bond lengths

Bond angles

Torsions

Rings

Ligand 1LT A 1202

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(Å²)	Q<0.9
1	A	1012/1073 (94%)	-0.44	8 (0%)	82	79	39, 73, 126, 248	0
1	C	1002/1073 (93%)	-0.36	4 (0%)	89	86	47, 80, 140, 245	0
2	B	144/279 (51%)	-0.22	0	100	100	65, 107, 186, 219	0
2	D	271/279 (97%)	-0.22	3 (1%)	77	74	52, 118, 183, 226	0
All	All	2429/2704 (89%)	-0.37	15 (0%)	85	83	39, 80, 157, 248	0

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	865	GLY	4.2
1	A	870	LEU	3.6
1	A	233	LEU	3.1
1	A	869	ALA	3.0
1	A	498	TRP	2.8
1	A	940	HIS	2.8
1	A	872	PHE	2.6
1	C	523	LEU	2.6
1	C	878	HIS	2.5
1	C	864	GLY	2.3
1	C	557	TYR	2.3
1	A	868	GLY	2.3
2	D	442	ILE	2.2
2	D	392	PHE	2.1
2	D	385	HIS	2.1

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

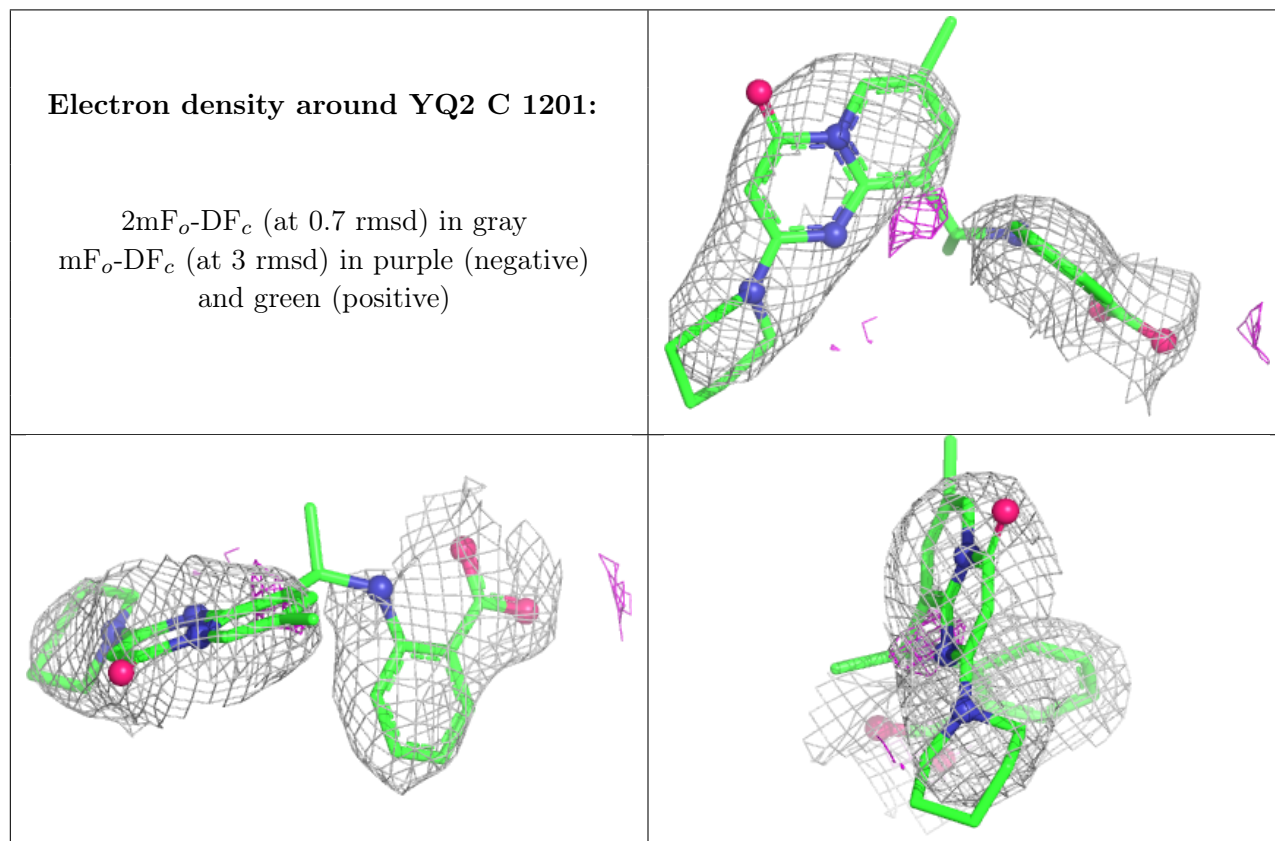There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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
3	YQ2	C	1201	30/30	0.89	0.13	93,106,124,126	0
3	YQ2	A	1201	30/30	0.92	0.12	64,82,100,106	0
4	1LT	A	1202	30/30	0.93	0.15	55,74,101,242	0
4	1LT	C	1202	30/30	0.93	0.11	35,60,88,109	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.
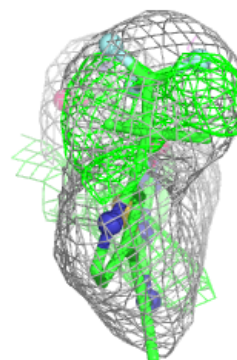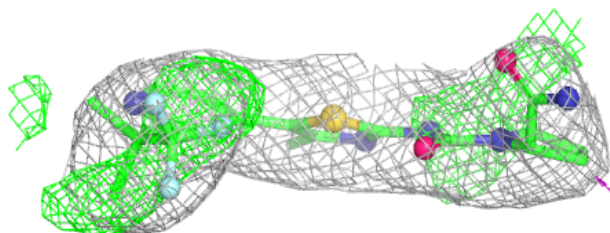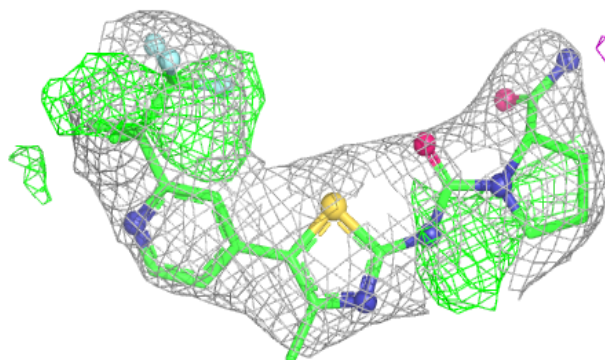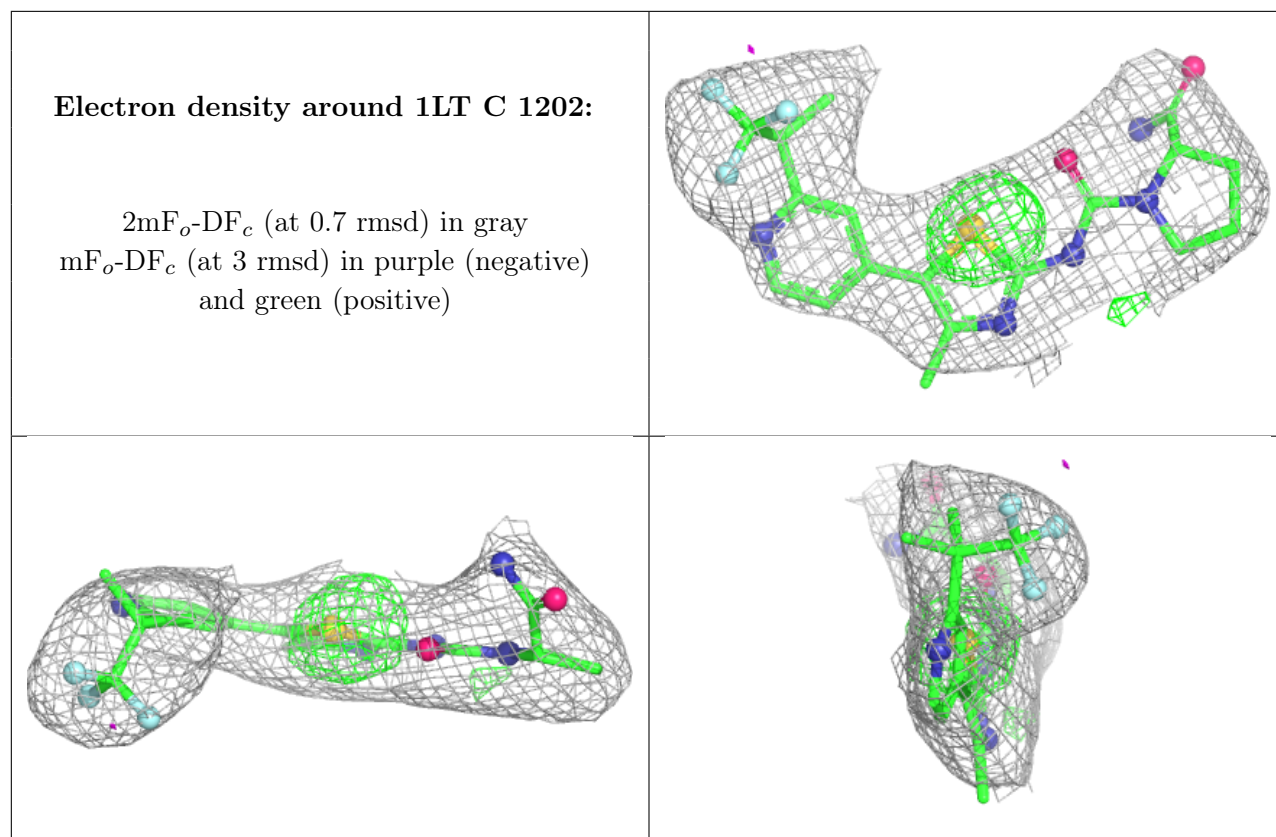

Electron density around YQ2 C 1201:

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

Electron density around YQ2 A 1201:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
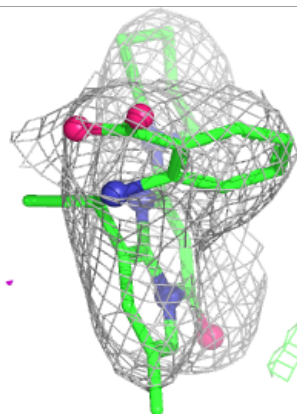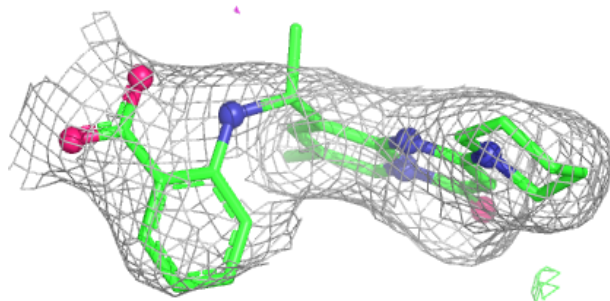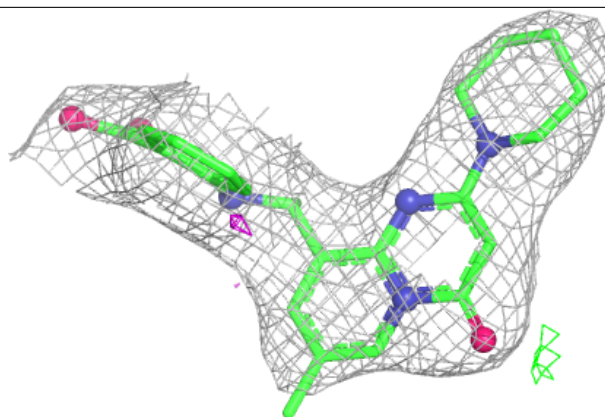
Electron density around 1LT A 1202:

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

Electron density around 1LT C 1202:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.