Full wwPDB X-ray Structure Validation Report (i)

Jun 2, 2025 – 02:09 PM JST

PDB ID	:	9L3R / pdb_00009l3r
Title	:	Human PI3KDELTA in complex with Zandelisib
Authors	:	Nagiri, C.; Aburai, K.; Takahashi, Y.; Saito, J.
Deposited on	:	2024-12-19
Resolution	:	2.50 Å(reported)

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

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

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

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

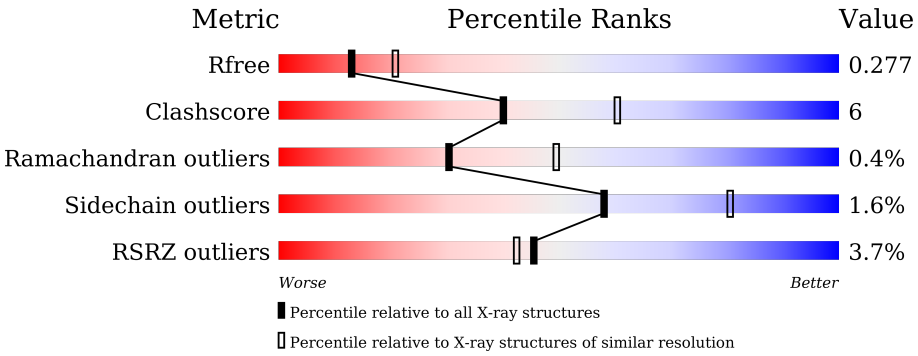
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.50 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}	164625	5504 (2.50-2.50)
Clashscore	180529	6282 (2.50-2.50)
Ramachandran outliers	177936	6191 (2.50-2.50)
Sidechain outliers	177891	6193 (2.50-2.50)
RSRZ outliers	164620	5504 (2.50-2.50)

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	1044	3% 73% 16% 11%
2	B	172	3% 84% 15%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 8947 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 delta isoform.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	934	7420	4750	1260	1357	53	0	2	0

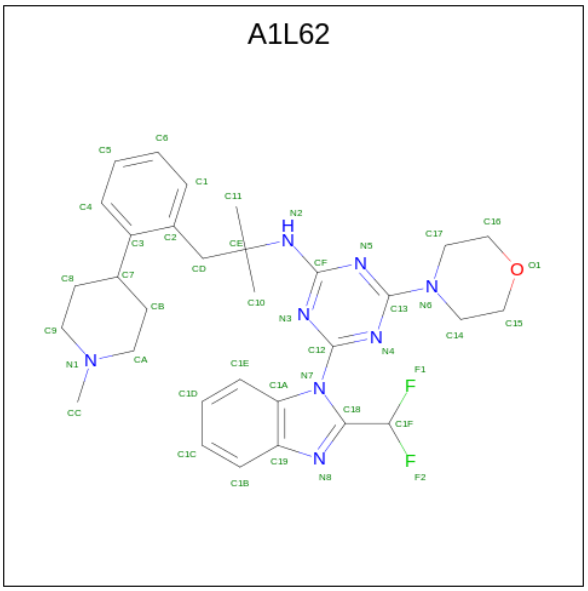
- Molecule 2 is a protein called Phosphatidylinositol 3-kinase regulatory subunit alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	171	1436	896	252	282	6	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	429	ACE	-	acetylation	UNP P23727
B	430	MET	-	expression tag	UNP P23727

- Molecule 3 is Zandelisib (CCD ID: A1L62) (formula: $C_{31}H_{38}F_2N_8O$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C F N O 42 31 2 8 1	0	0

- Molecule 4 is water.

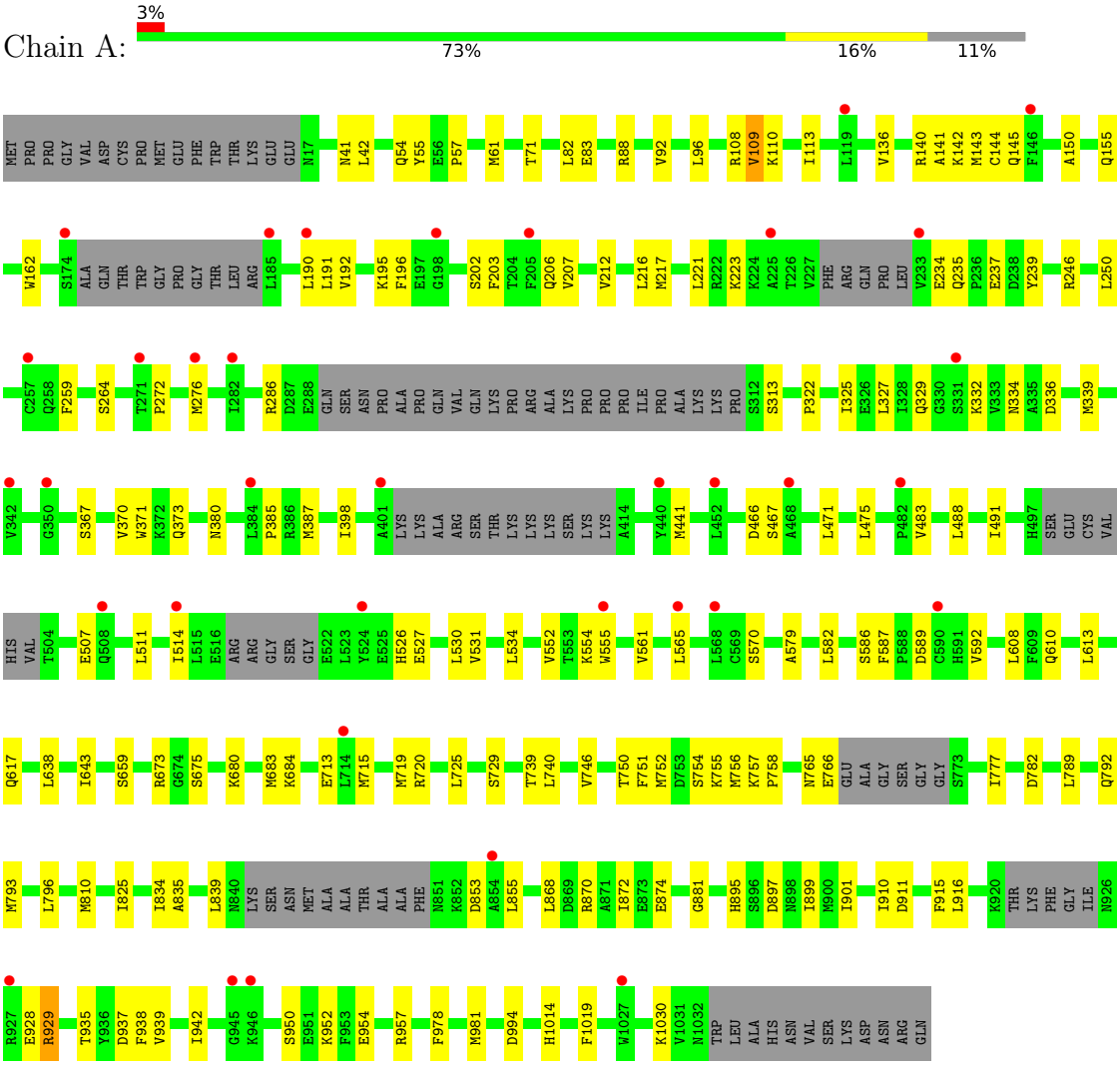
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	40	Total O 40 40	0	0
4	B	9	Total O 9 9	0	0

3 Residue-property plots (i)

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

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

Chain A:



• Molecule 2: Phosphatidylinositol 3-kinase regulatory subunit alpha

Chain B:


ACE429
M430
Y431
Q432
K438
E439
A444
F456
M479
K480
R481
N488
E489
T490
E507
Y508
F512
E515
E520
R523
R542
Q552
E555
Y556
R557
D560
K561
R562
M563
K567
I571
R574
L581
M582
W583
L584
T585
R590
G599
ASN

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	90.89Å 109.08Å 142.44Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	45.45 – 2.50 45.45 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.7 (45.45-2.50) 99.7 (45.45-2.50)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.71 (at 2.51Å)	Xtriage
Refinement program	PHENIX 1.19.2	Depositor
R, R_{free}	0.230 , 0.278 0.230 , 0.277	Depositor DCC
R_{free} test set	2403 reflections (4.84%)	wwPDB-VP
Wilson B-factor (Å^2)	76.2	Xtriage
Anisotropy	0.467	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 59.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	8947	wwPDB-VP
Average B, all atoms (Å^2)	97.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.47% of the height of the origin peak. No significant pseudotranslation is detected.*

[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: A1L62, ACE

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	0.12	0/7592	0.30	0/10286
2	B	0.11	0/1454	0.27	0/1948
All	All	0.12	0/9046	0.29	0/12234

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	7420	0	7284	104	0
2	B	1436	0	1385	17	0
3	A	42	0	0	1	0
4	A	40	0	0	1	0
4	B	9	0	0	0	0
All	All	8947	0	8669	114	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 6.

All (114) 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:A:217:MET:HG3	1:A:276:MET:HE1	1.54	0.87
1:A:61:MET:SD	2:B:508:TYR:OH	2.41	0.78
1:A:554:LYS:HE3	1:A:554:LYS:HA	1.72	0.71
1:A:507:GLU:HB3	1:A:534:LEU:HD11	1.73	0.69
1:A:327:LEU:HD22	1:A:371:TRP:HB2	1.75	0.68
1:A:191:LEU:HA	1:A:206:GLN:HA	1.75	0.66
1:A:332:LYS:NZ	1:A:466:ASP:O	2.28	0.66
1:A:719:MET:HE2	1:A:746:VAL:HG22	1.76	0.66
1:A:441:MET:HE2	1:A:471:LEU:HG	1.78	0.65
1:A:752:MET:HB3	1:A:758:PRO:HD2	1.79	0.64
1:A:511:LEU:HD22	1:A:534:LEU:HD12	1.79	0.63
1:A:336:ASP:HB3	1:A:339:MET:HG3	1.80	0.61
1:A:192:VAL:HG23	1:A:272:PRO:HB2	1.83	0.61
1:A:680:LYS:HA	1:A:683:MET:HE3	1.85	0.58
1:A:954:GLU:OE2	1:A:957:ARG:NH2	2.38	0.56
1:A:329:GLN:HG3	1:A:370:VAL:HG22	1.88	0.56
1:A:466:ASP:H	2:B:481:ARG:HH22	1.54	0.55
1:A:155:GLN:NE2	1:A:286:ARG:O	2.36	0.54
1:A:834:ILE:HD13	1:A:901:ILE:HD11	1.89	0.54
2:B:488:ASN:HB2	2:B:542:ARG:HH12	1.71	0.54
1:A:750:THR:OG1	1:A:751:PHE:N	2.42	0.53
1:A:246:ARG:NH1	1:A:739:THR:OG1	2.42	0.53
1:A:715:MET:O	1:A:719:MET:HG3	2.09	0.52
1:A:916:LEU:HD13	1:A:994:ASP:HB3	1.92	0.52
1:A:910:ILE:HG13	1:A:911:ASP:HB2	1.92	0.52
1:A:853:ASP:N	1:A:853:ASP:OD1	2.40	0.51
1:A:957:ARG:HG3	1:A:1019:PHE:CE1	2.45	0.51
1:A:835:ALA:O	1:A:839:LEU:HG	2.11	0.50
1:A:531:VAL:HG12	1:A:552:VAL:HG21	1.91	0.50
1:A:234:GLU:CD	1:A:235:GLN:H	2.19	0.50
1:A:935:THR:O	1:A:939:VAL:HG23	2.11	0.50
1:A:466:ASP:HB2	2:B:481:ARG:NH1	2.27	0.50
1:A:579:ALA:HA	1:A:582:LEU:HD12	1.93	0.50
1:A:777:ILE:HB	1:A:825:ILE:HB	1.94	0.49
1:A:57:PRO:HG3	2:B:523:ARG:HB3	1.93	0.49
1:A:239:TYR:HD1	1:A:276:MET:HG3	1.78	0.49
1:A:398:ILE:HD12	1:A:398:ILE:H	1.76	0.48
1:A:196:PHE:CZ	1:A:276:MET:HG2	2.49	0.48
1:A:526:HIS:CE1	1:A:527:GLU:HG3	2.48	0.48
2:B:567:LYS:O	2:B:571:ILE:HG13	2.13	0.48
1:A:41:ASN:HA	1:A:88:ARG:HA	1.96	0.48
1:A:870:ARG:O	1:A:874:GLU:HG2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:938:PHE:O	1:A:942:ILE:HD12	2.13	0.48
1:A:610:GLN:HG2	1:A:796:LEU:HD13	1.95	0.48
1:A:109:VAL:O	1:A:113:ILE:HG12	2.14	0.47
1:A:488:LEU:HA	1:A:491:ILE:HD12	1.95	0.47
1:A:765:ASN:HD22	1:A:766:GLU:N	2.12	0.47
1:A:235:GLN:OE1	1:A:237:GLU:N	2.47	0.47
1:A:371:TRP:HB3	1:A:373:GLN:HG3	1.97	0.47
1:A:570:SER:O	1:A:570:SER:OG	2.31	0.47
1:A:855:LEU:HA	1:A:855:LEU:HD23	1.70	0.47
1:A:895:HIS:O	1:A:899:ILE:HD12	2.15	0.47
1:A:144:CYS:HB3	1:A:673:ARG:HD2	1.96	0.47
1:A:713:GLU:H	1:A:713:GLU:CD	2.23	0.47
1:A:207:VAL:HG21	1:A:216:LEU:HD12	1.95	0.47
1:A:322:PRO:HA	1:A:380:ASN:HA	1.96	0.47
1:A:613:LEU:O	1:A:617:GLN:HG2	2.15	0.46
1:A:195:LYS:HG3	1:A:202:SER:HB3	1.96	0.46
1:A:514:ILE:HD12	1:A:530:LEU:HD23	1.97	0.46
1:A:387:MET:HG3	1:A:589:ASP:HA	1.98	0.46
1:A:752:MET:HE3	1:A:754:SER:HB2	1.97	0.46
1:A:141:ALA:O	1:A:145:GLN:HB2	2.15	0.46
1:A:937:ASP:OD1	1:A:1030:LYS:NZ	2.49	0.46
1:A:793:MET:HE3	1:A:978:PHE:CE1	2.50	0.46
1:A:96:LEU:HD12	2:B:490:THR:HG21	1.98	0.45
1:A:561:VAL:O	1:A:565:LEU:HG	2.16	0.45
1:A:221:LEU:HD12	1:A:221:LEU:HA	1.79	0.45
1:A:325:ILE:HG22	1:A:475:LEU:HD13	1.97	0.45
1:A:608:LEU:HD23	1:A:643:ILE:HD13	1.98	0.45
1:A:952:LYS:HA	1:A:952:LYS:HD3	1.78	0.45
2:B:512:PHE:CD2	2:B:520:GLU:HB2	2.51	0.45
1:A:162:TRP:CD1	1:A:286:ARG:HG3	2.52	0.45
1:A:203:PHE:HB3	1:A:223:LYS:HD3	1.98	0.45
2:B:581:LEU:O	2:B:585:THR:OG1	2.34	0.45
1:A:234:GLU:OE1	1:A:235:GLN:N	2.33	0.45
1:A:190:LEU:HD12	1:A:191:LEU:H	1.81	0.44
1:A:195:LYS:O	1:A:276:MET:N	2.35	0.44
1:A:136:VAL:O	1:A:140:ARG:HG3	2.18	0.44
1:A:810:MET:HE1	1:A:881:GLY:HA3	1.99	0.44
1:A:207:VAL:HG11	1:A:216:LEU:HD12	1.98	0.44
2:B:456:PHE:CE1	2:B:574:ARG:HB2	2.53	0.44
1:A:684:LYS:NZ	1:A:729:SER:O	2.51	0.43
1:A:83:GLU:OE1	1:A:108:ARG:NH2	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:587:PHE:HB3	1:A:592:VAL:HG11	1.99	0.43
1:A:897:ASP:N	1:A:897:ASP:OD1	2.52	0.43
1:A:756:MET:HE3	1:A:782:ASP:HB2	2.01	0.43
1:A:385:PRO:HG3	1:A:555:TRP:O	2.18	0.43
1:A:54:GLN:HG3	1:A:55:TYR:CD2	2.54	0.42
1:A:150:ALA:HB3	1:A:638:LEU:HD13	2.01	0.42
1:A:110:LYS:HD2	1:A:113:ILE:HD11	2.00	0.42
1:A:713:GLU:OE1	1:A:713:GLU:N	2.40	0.42
2:B:560:ASP:HA	2:B:563:MET:HE2	2.00	0.42
1:A:511:LEU:HD12	1:A:511:LEU:HA	1.88	0.42
1:A:868:LEU:O	1:A:872:ILE:HG12	2.19	0.42
2:B:583:TRP:HE3	2:B:584:LEU:HD23	1.85	0.42
1:A:250:LEU:HD22	1:A:259:PHE:HD2	1.84	0.42
1:A:334:ASN:HB3	2:B:561:LYS:HB2	2.00	0.42
1:A:367:SER:OG	2:B:557:ARG:NH2	2.43	0.42
1:A:789:LEU:HD22	1:A:981:MET:HG2	2.02	0.42
1:A:950:SER:O	1:A:954:GLU:HG2	2.20	0.42
1:A:1014:HIS:HB3	4:A:1224:HOH:O	2.19	0.41
1:A:720:ARG:HA	1:A:725:LEU:HD22	2.02	0.41
1:A:88:ARG:O	1:A:92:VAL:HG23	2.21	0.41
1:A:339:MET:HE3	1:A:398:ILE:HG13	2.02	0.41
2:B:552:GLN:HA	2:B:555:GLU:HB2	2.03	0.41
1:A:142:LYS:HG2	1:A:143:MET:HE2	2.02	0.40
2:B:479:MET:HE3	2:B:479:MET:HB3	1.90	0.40
1:A:755:LYS:C	1:A:757:LYS:H	2.29	0.40
2:B:438:LYS:NZ	2:B:444:ALA:O	2.54	0.40
1:A:42:LEU:HD13	1:A:82:LEU:HB3	2.03	0.40
1:A:713:GLU:CD	1:A:713:GLU:N	2.79	0.40
1:A:910:ILE:HD12	3:A:1101:A1L62:N3	2.35	0.40

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	916/1044 (88%)	885 (97%)	30 (3%)	1 (0%)	48 69
2	B	169/172 (98%)	161 (95%)	5 (3%)	3 (2%)	7 12
All	All	1085/1216 (89%)	1046 (96%)	35 (3%)	4 (0%)	30 49

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	439	GLU
2	B	515	GLU
1	A	928	GLU
2	B	438	LYS

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	805/927 (87%)	790 (98%)	15 (2%)	52 77
2	B	151/162 (93%)	150 (99%)	1 (1%)	81 93
All	All	956/1089 (88%)	940 (98%)	16 (2%)	58 79

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	71	THR
1	A	109	VAL
1	A	212	VAL
1	A	264	SER
1	A	313	SER
1	A	467	SER
1	A	483	VAL
1	A	586	SER
1	A	659	SER
1	A	675	SER
1	A	740	LEU
1	A	792	GLN

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Mol	Chain	Res	Type
1	A	915	PHE
1	A	929[A]	ARG
1	A	929[B]	ARG
2	B	481	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	51	HIS
1	A	170	GLN
1	A	260	GLN
1	A	610	GLN
1	A	677	HIS
1	A	696	ASN
1	A	748	GLN
1	A	765	ASN
1	A	795	GLN
1	A	838	GLN
1	A	940	HIS
2	B	435	GLN
2	B	579	GLN
2	B	591	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

1 ligand is 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	A1L62	A	1101	-	43,47,47	0.93	1 (2%)	52,68,68	1.86	11 (21%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	A1L62	A	1101	-	-	8/18/44/44	0/6/6/6

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1101	A1L62	C18-N7	2.15	1.40	1.37

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	1101	A1L62	N3-C12-N7	8.60	122.41	115.24
3	A	1101	A1L62	C13-N5-CF	4.93	118.04	113.90
3	A	1101	A1L62	C13-N4-C12	2.83	117.78	113.55
3	A	1101	A1L62	C12-N3-CF	2.74	116.25	113.87
3	A	1101	A1L62	C14-N6-C17	2.69	117.45	111.52
3	A	1101	A1L62	N2-CF-N3	2.67	125.33	117.52
3	A	1101	A1L62	N4-C13-N6	2.57	120.28	117.11
3	A	1101	A1L62	N5-C13-N4	-2.30	122.51	126.31
3	A	1101	A1L62	C11-CE-C10	-2.25	105.99	109.52
3	A	1101	A1L62	CD-C2-C1	-2.18	116.28	120.10
3	A	1101	A1L62	N2-CF-N5	-2.15	111.24	117.52

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1101	A1L62	C2-CD-CE-C10
3	A	1101	A1L62	C2-CD-CE-C11
3	A	1101	A1L62	C2-CD-CE-N2
3	A	1101	A1L62	CD-CE-N2-CF
3	A	1101	A1L62	N3-CF-N2-CE
3	A	1101	A1L62	N5-CF-N2-CE
3	A	1101	A1L62	C11-CE-N2-CF
3	A	1101	A1L62	C10-CE-N2-CF

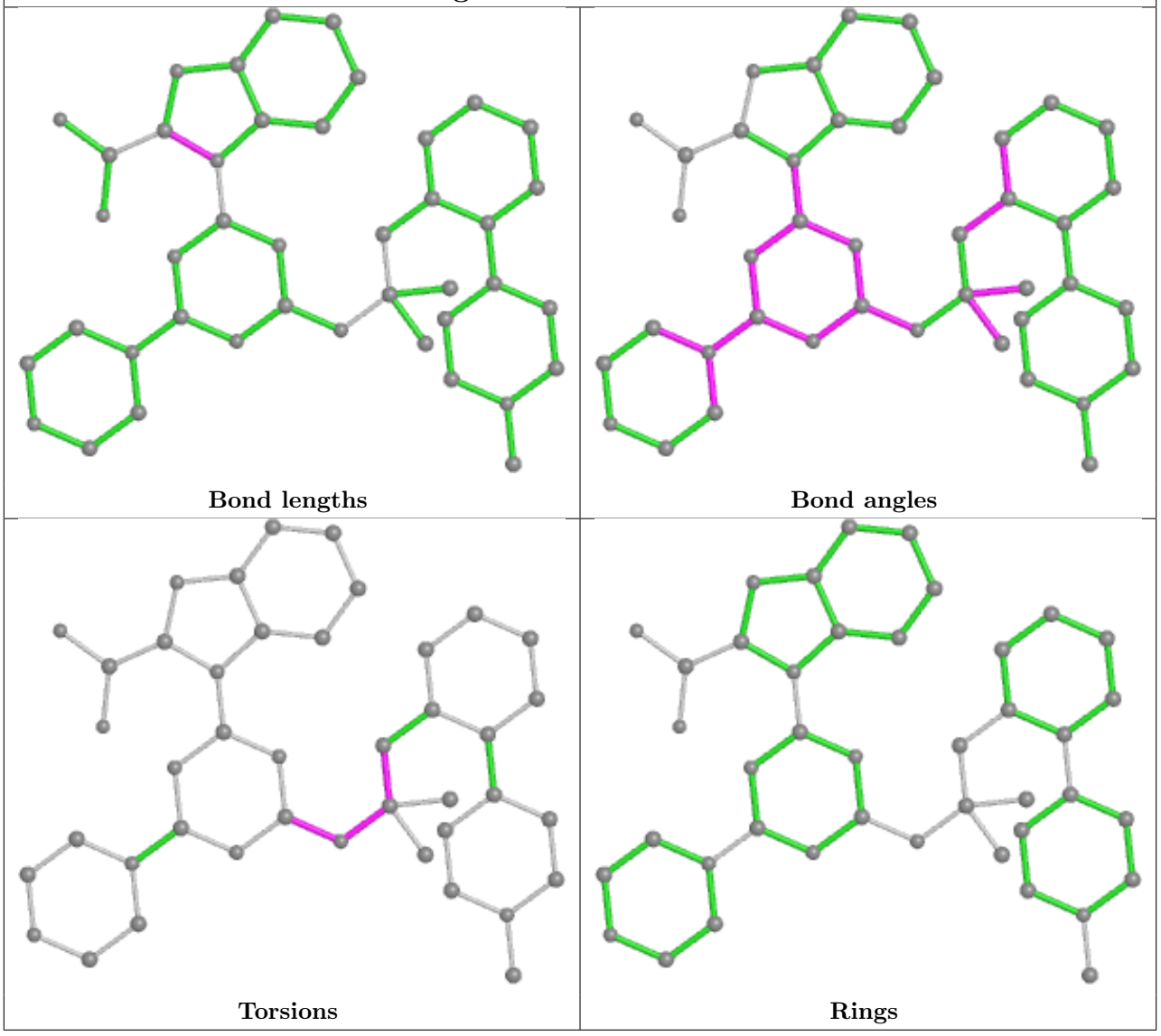
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1101	A1L62	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 A1L62 A 1101



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, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	934/1044 (89%)	0.30	35 (3%) 45 42	44, 94, 144, 196	1 (0%)
2	B	170/172 (98%)	0.26	6 (3%) 47 44	72, 90, 145, 171	0
All	All	1104/1216 (90%)	0.30	41 (3%) 45 42	44, 93, 145, 196	1 (0%)

All (41) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	946	LYS	3.5
1	A	401	ALA	3.3
2	B	599	GLY	3.3
2	B	507	GLU	3.2
2	B	508	TYR	3.2
1	A	384	LEU	3.1
1	A	927	ARG	3.0
1	A	1027	TRP	2.9
1	A	271	THR	2.8
1	A	342	VAL	2.8
1	A	225	ALA	2.8
1	A	257	CYS	2.7
1	A	452	LEU	2.6
1	A	233	VAL	2.6
2	B	590	ARG	2.6
1	A	440	TYR	2.6
1	A	185	LEU	2.5
1	A	568	LEU	2.5
1	A	198	GLY	2.5
1	A	514	ILE	2.5
1	A	508	GLN	2.5
1	A	282	ILE	2.4
1	A	482	PRO	2.4
1	A	331	SER	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	714	LEU	2.3
1	A	555	TRP	2.3
1	A	146	PHE	2.3
1	A	468	ALA	2.2
1	A	565	LEU	2.2
1	A	854	ALA	2.2
1	A	590	CYS	2.2
1	A	205	PHE	2.2
1	A	524	TYR	2.1
1	A	945	GLY	2.1
1	A	190	LEU	2.1
1	A	276	MET	2.1
2	B	431	TYR	2.1
1	A	350	GLY	2.0
2	B	432	GLN	2.0
1	A	174	SER	2.0
1	A	119	LEU	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

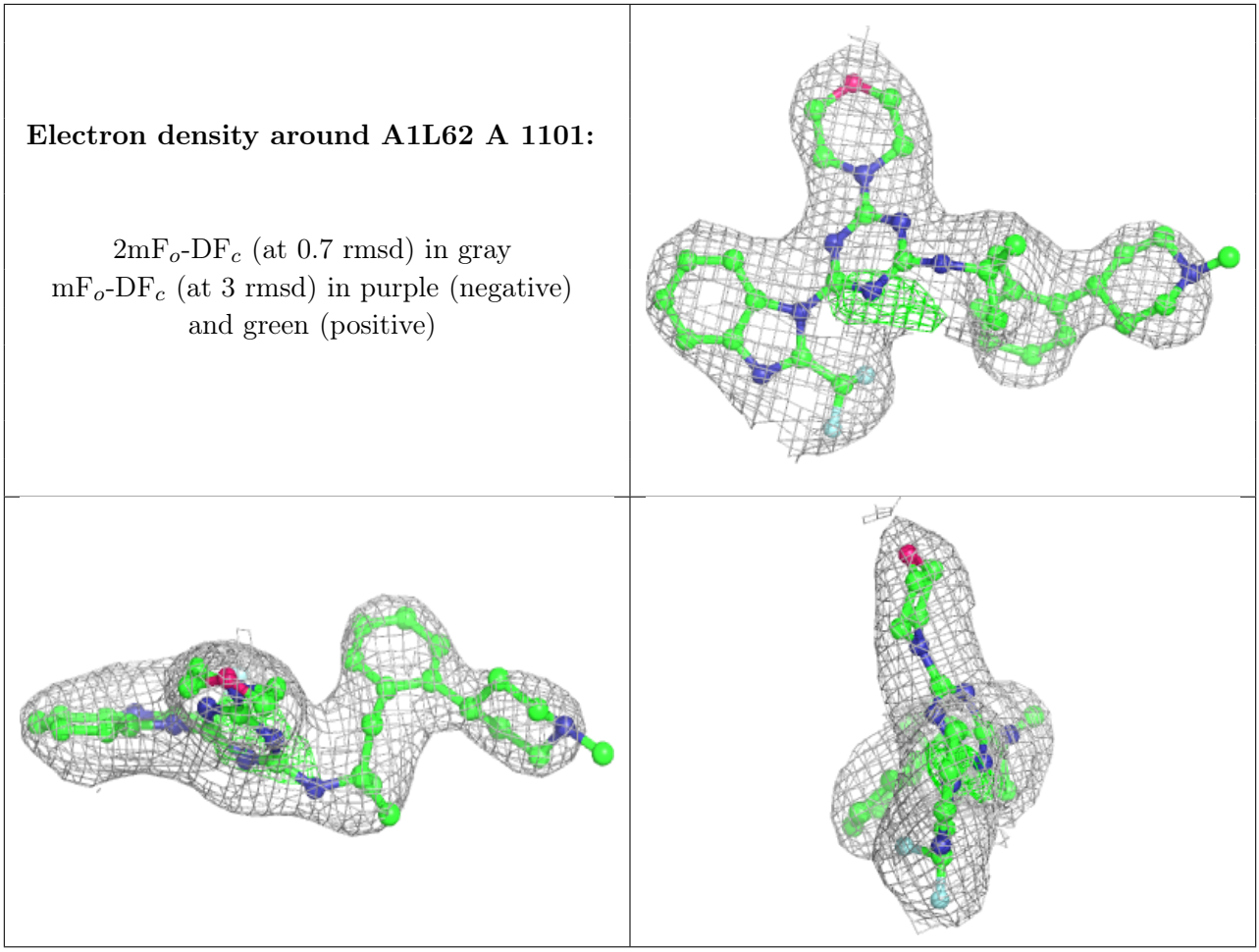
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	A1L62	A	1101	42/42	0.94	0.12	72,78,94,100	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 A1L62 A 1101:

$2mF_o$-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.