Full wwPDB X-ray Structure Validation Report (i)

Jun 16, 2024 – 12:04 PM EDT

PDB ID	:	4Z7H
Title	:	Crystal structure of human IRE1 cytoplasmic kinase-RNase region - complex with imidazopyridine compound 3
Authors	:	Joshi, A.; Bayliss, R.
Deposited on	:	2015-04-07
Resolution	:	2.90 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:

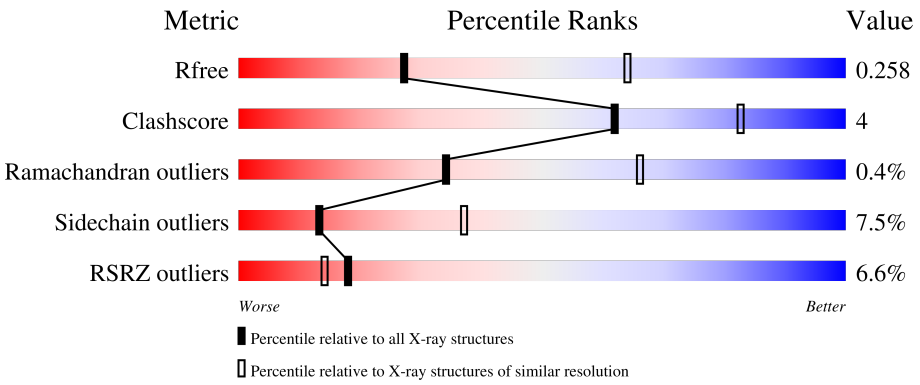
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.90 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	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	416	8% 77% 15% • 7%
1	B	416	4% 77% 14% • 7%

2 Entry composition (i)

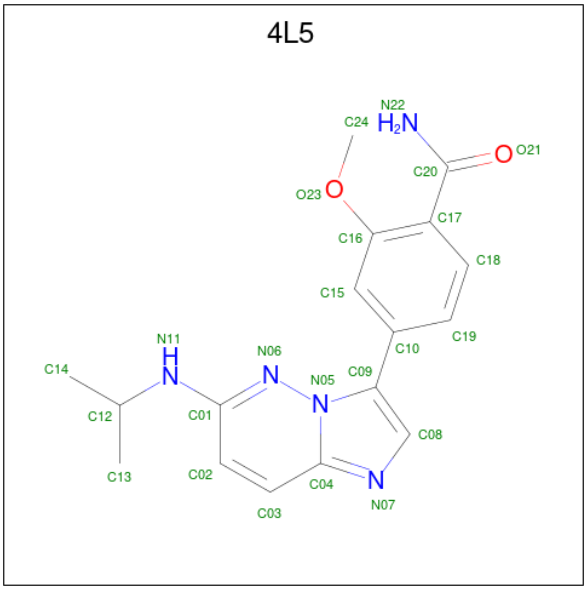
There are 4 unique types of molecules in this entry. The entry contains 6298 atoms, of which 38 are hydrogens and 0 are deuteriums.

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 Serine/threonine-protein kinase/endoribonuclease IRE1.

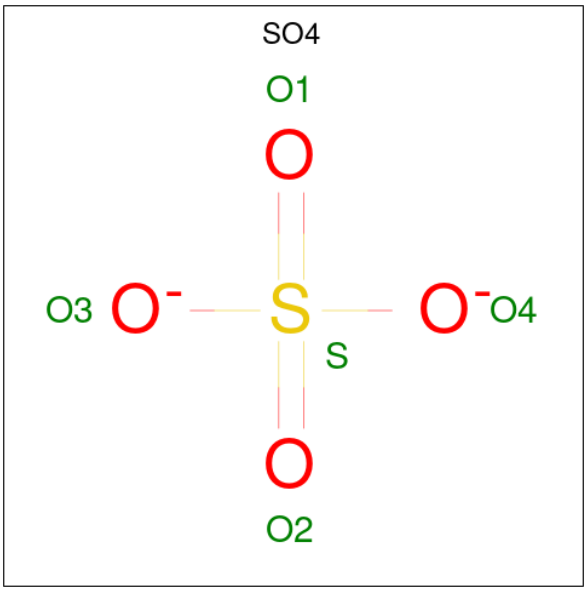
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	385	3072	1962	536	555	19	0	0	0
1	B	388	3114	1991	546	558	19	0	0	0

- Molecule 2 is 2-methoxy-4-[6-(propan-2-ylamino)imidazo[1,2-b]pyridazin-3-yl]benzamide (three-letter code: 4L5) (formula: $C_{17}H_{19}N_5O_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	H	N	O		
2	A	1	43	17	19	5	2	0	0
2	B	1	43	17	19	5	2	0	0

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O_4S).



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

- Molecule 4 is water.

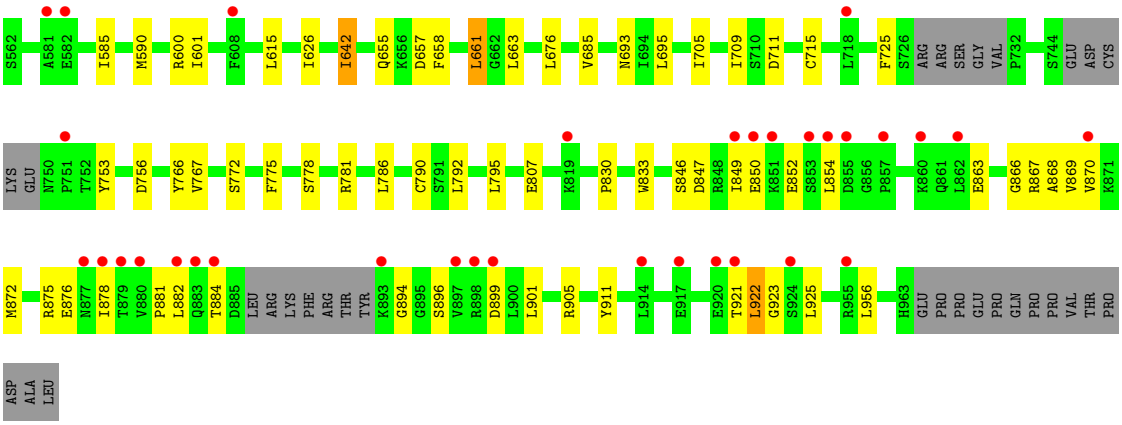
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	12	Total O 12 12	0	0
4	B	9	Total O 9 9	0	0

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.

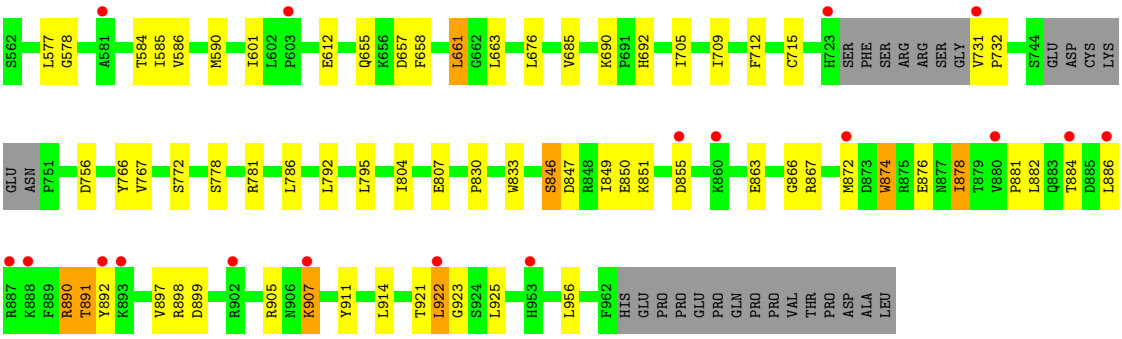
• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1

Chain A:



• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	78.68Å 81.96Å 168.68Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.36 – 2.90 46.36 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.5 (46.36-2.90) 99.6 (46.36-2.90)	Depositor EDS
R_{merge}	0.20	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.76 (at 2.91Å)	Xtriage
Refinement program	BUSTER 2.10.1	Depositor
R, R_{free}	0.200 , 0.225 0.228 , 0.258	Depositor DCC
R_{free} test set	1260 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å^2)	63.8	Xtriage
Anisotropy	0.484	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 72.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.43$, $< L^2 > = 0.26$	Xtriage
Estimated twinning fraction	0.041 for k,h,-l	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	6298	wwPDB-VP
Average B, all atoms (Å^2)	86.0	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 27.84 % 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 2.0486e-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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 4L5, SO4

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	0.48	0/3145	0.69	0/4247
1	B	0.50	0/3189	0.71	1/4307 (0.0%)
All	All	0.49	0/6334	0.70	1/8554 (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})
1	B	890	ARG	C-N-CA	5.13	134.52	121.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3072	0	3026	26	0
1	B	3114	0	3086	26	0
2	A	24	19	19	1	0
2	B	24	19	19	3	0
3	A	5	0	0	0	0
4	A	12	0	0	0	0
4	B	9	0	0	0	0
All	All	6260	38	6150	55	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 4.

All (55) 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:B:584:THR:HG22	1:B:601:ILE:HA	1.72	0.72
1:B:577:LEU:HB2	1:B:586:VAL:HG23	1.76	0.67
1:B:658:PHE:O	1:B:661:LEU:HB2	1.95	0.66
1:A:658:PHE:O	1:A:661:LEU:HB2	1.97	0.65
1:A:626:ILE:HD12	1:A:695:LEU:HD12	1.77	0.65
1:A:881:PRO:HG2	1:A:921:THR:HG21	1.79	0.65
1:A:866:GLY:HA2	1:A:868:ALA:N	2.11	0.64
1:B:881:PRO:HG2	1:B:921:THR:HG21	1.79	0.63
1:B:712:PHE:HA	1:B:715:CYS:SG	2.39	0.63
1:A:850:GLU:H	1:A:852:GLU:HB2	1.66	0.60
1:B:907:LYS:HE2	1:B:914:LEU:HD13	1.85	0.57
1:B:921:THR:HG23	1:B:922:LEU:HD12	1.88	0.56
1:A:921:THR:HG23	1:A:922:LEU:HD12	1.89	0.55
1:A:693:ASN:ND2	1:A:711:ASP:HB2	2.24	0.53
1:A:866:GLY:HA2	1:A:868:ALA:H	1.75	0.52
1:B:690:LYS:HE2	1:B:692:HIS:HB3	1.93	0.51
1:A:866:GLY:HA3	1:A:869:VAL:H	1.75	0.51
1:A:626:ILE:HG23	1:A:642:ILE:HD11	1.92	0.50
1:A:911:TYR:OH	1:A:923:GLY:HA3	2.12	0.50
1:B:874:TRP:HD1	1:B:878:ILE:HD12	1.77	0.50
1:A:896:SER:HB3	1:A:899:ASP:HB2	1.93	0.50
1:B:911:TYR:OH	1:B:923:GLY:HA3	2.12	0.49
1:B:612:GLU:HG3	1:B:712:PHE:HB2	1.93	0.49
2:B:1001:4L5:H132	2:B:1001:4L5:N06	2.29	0.48
1:A:846:SER:HA	1:A:849:ILE:HG13	1.95	0.48
1:A:875:ARG:HE	1:A:894:GLY:HA3	1.79	0.48
1:B:663:LEU:HD21	1:B:705:ILE:HB	1.96	0.47
1:A:663:LEU:HD21	1:A:705:ILE:HB	1.97	0.47
1:B:685:VAL:O	1:B:715:CYS:HA	2.15	0.47
1:B:792:LEU:HB3	1:B:795:LEU:HD12	1.97	0.47
1:B:731:VAL:N	1:B:732:PRO:HD3	2.30	0.46
2:A:1001:4L5:H132	2:A:1001:4L5:N06	2.31	0.46
1:B:850:GLU:HA	1:B:898:ARG:HH21	1.81	0.46
2:B:1001:4L5:H132	2:B:1001:4L5:H151	1.98	0.46
1:A:585:ILE:HD11	1:A:600:ARG:NH2	2.30	0.46
1:A:685:VAL:HG22	1:A:753:TYR:CD1	2.51	0.46
1:A:792:LEU:HB3	1:A:795:LEU:HD12	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:615:LEU:HD13	1:A:715:CYS:HB2	1.98	0.45
1:B:847:ASP:OD1	1:B:905:ARG:HD2	2.17	0.45
1:B:850:GLU:HA	1:B:851:LYS:HA	1.79	0.45
1:B:578:GLY:HA3	2:B:1001:4L5:H141	1.98	0.43
1:B:890:ARG:HA	1:B:891:THR:HG22	1.99	0.43
1:A:676:LEU:HD11	1:A:756:ASP:HB3	2.00	0.43
1:A:847:ASP:OD1	1:A:905:ARG:HD2	2.18	0.42
1:A:766:TYR:HA	1:A:772:SER:O	2.19	0.42
1:A:775:PHE:CE2	1:A:790:CYS:HB3	2.54	0.42
1:A:830:PRO:HA	1:A:833:TRP:CD2	2.54	0.42
1:A:882:LEU:HD22	1:A:922:LEU:HD11	2.01	0.42
1:B:766:TYR:HA	1:B:772:SER:O	2.20	0.42
1:B:846:SER:OG	1:B:905:ARG:HD3	2.20	0.42
1:B:676:LEU:HD11	1:B:756:ASP:HB3	2.01	0.41
1:B:830:PRO:HA	1:B:833:TRP:CD2	2.55	0.41
1:B:882:LEU:HD22	1:B:922:LEU:HD11	2.02	0.41
1:B:778:SER:HA	1:B:781:ARG:HD2	2.02	0.41
1:A:778:SER:HA	1:A:781:ARG:HD2	2.03	0.41

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	377/416 (91%)	346 (92%)	30 (8%)	1 (0%)	41	71
1	B	382/416 (92%)	349 (91%)	31 (8%)	2 (0%)	29	61
All	All	759/832 (91%)	695 (92%)	61 (8%)	3 (0%)	34	66

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	867	ARG
1	B	867	ARG
1	B	866	GLY

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	333/369 (90%)	311 (93%)	22 (7%)	16	44
1	B	338/369 (92%)	310 (92%)	28 (8%)	11	32
All	All	671/738 (91%)	621 (92%)	50 (8%)	13	37

All (50) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	590	MET
1	A	601	ILE
1	A	642	ILE
1	A	655	GLN
1	A	657	ASP
1	A	661	LEU
1	A	709	ILE
1	A	725	PHE
1	A	767	VAL
1	A	786	LEU
1	A	807	GLU
1	A	854	LEU
1	A	863	GLU
1	A	870	VAL
1	A	872	MET
1	A	876	GLU
1	A	878	ILE
1	A	884	THR
1	A	901	LEU
1	A	922	LEU
1	A	925	LEU

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Mol	Chain	Res	Type
1	A	956	LEU
1	B	585	ILE
1	B	590	MET
1	B	655	GLN
1	B	657	ASP
1	B	661	LEU
1	B	709	ILE
1	B	767	VAL
1	B	786	LEU
1	B	804	ILE
1	B	807	GLU
1	B	846	SER
1	B	849	ILE
1	B	855	ASP
1	B	863	GLU
1	B	872	MET
1	B	874	TRP
1	B	876	GLU
1	B	878	ILE
1	B	884	THR
1	B	886	LEU
1	B	891	THR
1	B	892	TYR
1	B	897	VAL
1	B	899	ASP
1	B	907	LYS
1	B	922	LEU
1	B	925	LEU
1	B	956	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	693	ASN
1	A	909	HIS
1	A	910	HIS
1	B	678	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

3 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	$\#\|Z\| > 2$
2	4L5	A	1001	-	23,26,26	2.17	8 (34%)	28,37,37	1.84	8 (28%)
2	4L5	B	1001	-	23,26,26	2.16	8 (34%)	28,37,37	1.55	6 (21%)
3	SO4	A	1002	-	4,4,4	0.20	0	6,6,6	0.19	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
2	4L5	A	1001	-	-	4/14/14/14	0/3/3/3
2	4L5	B	1001	-	-	6/14/14/14	0/3/3/3

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1001	4L5	C20-N22	5.11	1.42	1.33
2	B	1001	4L5	C20-N22	4.84	1.42	1.33
2	B	1001	4L5	C04-N07	4.51	1.37	1.33
2	A	1001	4L5	C04-N07	4.48	1.37	1.33
2	B	1001	4L5	C03-C02	3.75	1.44	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1001	4L5	C03-C04	3.69	1.46	1.40
2	A	1001	4L5	C03-C02	3.50	1.44	1.36
2	A	1001	4L5	C10-C09	3.16	1.52	1.48
2	B	1001	4L5	C10-C09	3.13	1.52	1.48
2	A	1001	4L5	C03-C04	3.12	1.45	1.40
2	A	1001	4L5	O23-C16	2.98	1.41	1.37
2	A	1001	4L5	C01-N11	2.75	1.43	1.37
2	B	1001	4L5	O23-C16	2.64	1.41	1.37
2	A	1001	4L5	C17-C20	2.21	1.53	1.50
2	B	1001	4L5	C17-C20	2.19	1.52	1.50
2	B	1001	4L5	C01-N11	2.15	1.41	1.37

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1001	4L5	C16-C17-C20	-4.76	121.81	125.10
2	A	1001	4L5	C10-C09-N05	3.66	128.98	123.44
2	B	1001	4L5	O21-C20-N22	-3.50	117.61	122.58
2	A	1001	4L5	O21-C20-N22	-3.49	117.62	122.58
2	B	1001	4L5	C10-C09-N05	3.29	128.43	123.44
2	A	1001	4L5	O23-C16-C15	-2.79	119.33	124.12
2	B	1001	4L5	C16-C17-C20	-2.78	123.18	125.10
2	A	1001	4L5	O23-C16-C17	2.66	120.42	116.55
2	B	1001	4L5	O23-C16-C15	-2.53	119.76	124.12
2	A	1001	4L5	C17-C20-N22	2.53	122.18	118.29
2	A	1001	4L5	C13-C12-N11	2.46	115.30	109.94
2	A	1001	4L5	C08-C09-C10	-2.36	125.62	128.47
2	B	1001	4L5	C17-C20-N22	2.34	121.89	118.29
2	B	1001	4L5	O23-C16-C17	2.21	119.77	116.55

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1001	4L5	C13-C12-N11-C01
2	B	1001	4L5	C02-C01-N11-C12
2	B	1001	4L5	N06-C01-N11-C12
2	A	1001	4L5	C15-C16-O23-C24
2	A	1001	4L5	C17-C16-O23-C24
2	B	1001	4L5	C15-C16-O23-C24
2	B	1001	4L5	C17-C16-O23-C24
2	A	1001	4L5	N06-C01-N11-C12

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Mol	Chain	Res	Type	Atoms
2	B	1001	4L5	C18-C17-C20-N22
2	B	1001	4L5	C18-C17-C20-O21

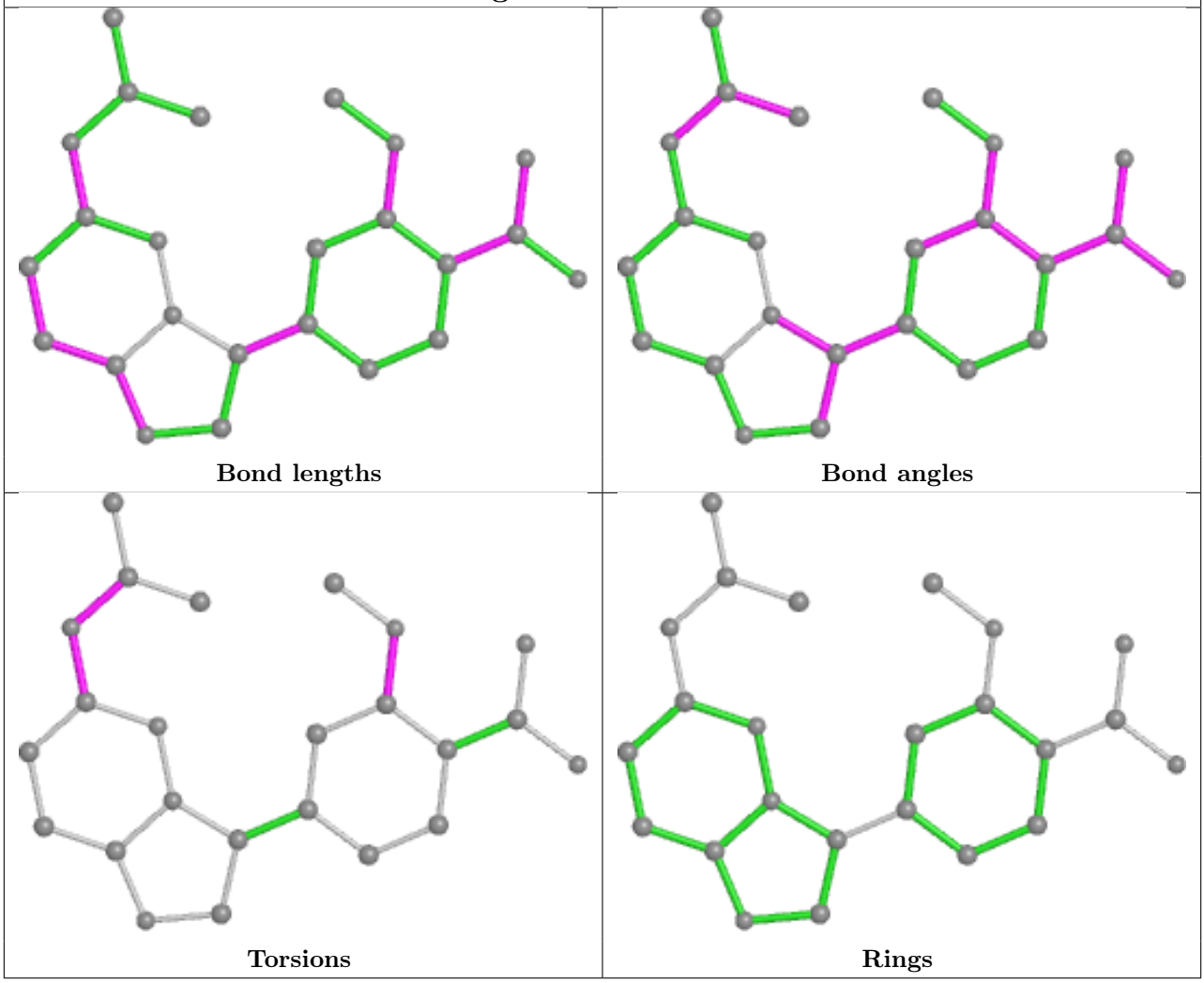
There are no ring outliers.

2 monomers are involved in 4 short contacts:

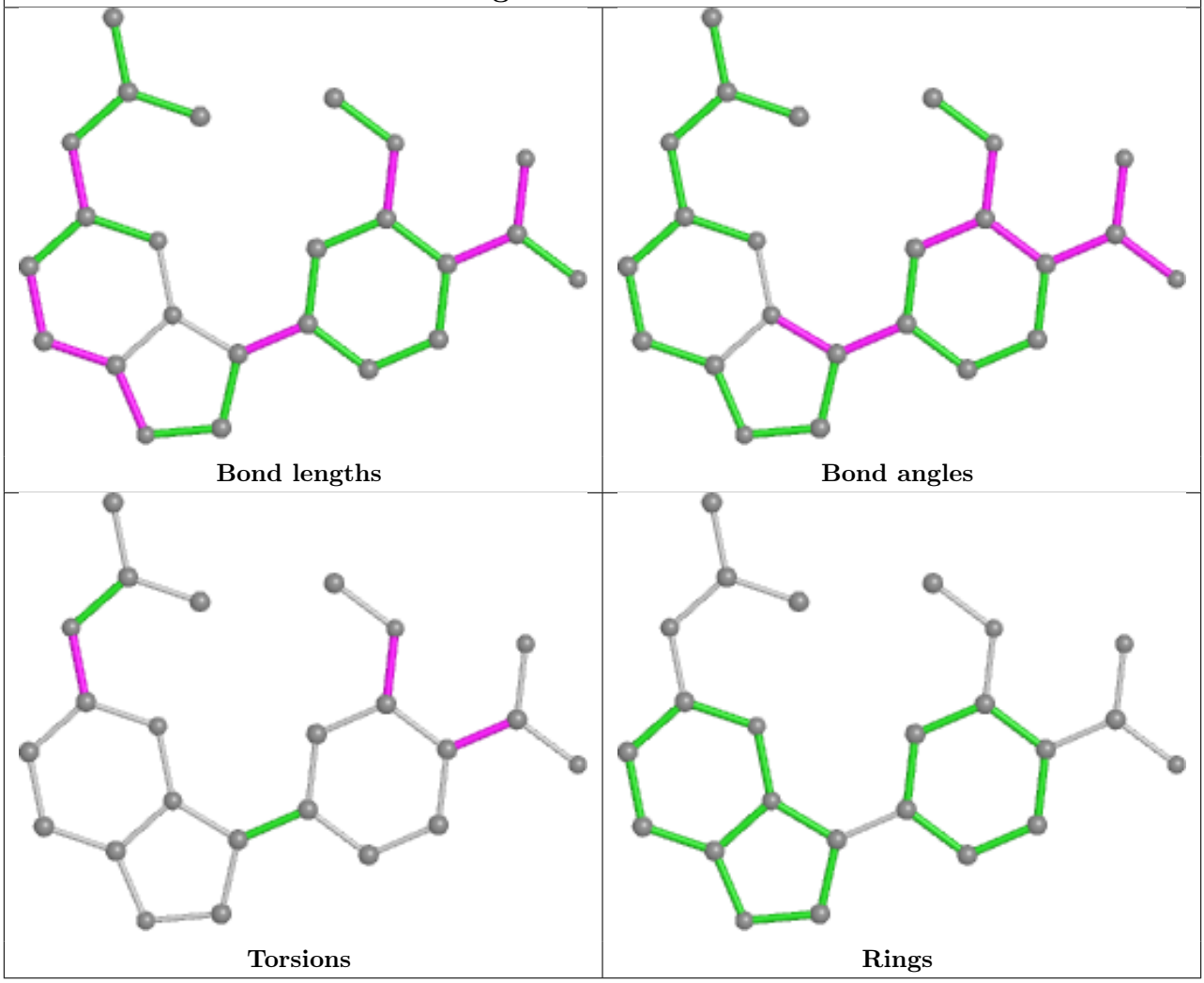
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1001	4L5	1	0
2	B	1001	4L5	3	0

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 4L5 A 1001



Ligand 4L5 B 1001



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	385/416 (92%)	0.55	33 (8%)	10	8	40, 79, 154, 179	0
1	B	388/416 (93%)	0.39	18 (4%)	32	29	41, 78, 138, 169	0
All	All	773/832 (92%)	0.47	51 (6%)	18	14	40, 79, 146, 179	0

All (51) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	731	VAL	6.3
1	B	855	ASP	6.3
1	B	581	ALA	6.2
1	A	581	ALA	5.5
1	A	884	THR	4.8
1	B	887	ARG	4.7
1	B	892	TYR	4.5
1	A	855	ASP	4.2
1	A	897	VAL	4.1
1	A	898	ARG	3.9
1	A	877	ASN	3.9
1	A	857	PRO	3.7
1	A	924	SER	3.6
1	A	854	LEU	3.6
1	B	880	VAL	3.5
1	B	603	PRO	3.4
1	A	880	VAL	3.3
1	A	893	LYS	3.2
1	B	886	LEU	3.2
1	B	893	LYS	3.1
1	A	850	GLU	3.1
1	A	582	GLU	3.0
1	B	860	LYS	2.9
1	A	849	ILE	2.9

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Mol	Chain	Res	Type	RSRZ
1	A	608	PHE	2.7
1	A	862	LEU	2.7
1	B	884	THR	2.6
1	A	917	GLU	2.6
1	A	819	LYS	2.5
1	A	879	THR	2.5
1	A	882	LEU	2.5
1	A	718	LEU	2.5
1	A	899	ASP	2.5
1	A	870	VAL	2.4
1	B	888	LYS	2.4
1	A	860	LYS	2.4
1	B	953	HIS	2.4
1	A	853	SER	2.4
1	A	920	GLU	2.3
1	B	922	LEU	2.3
1	A	914	LEU	2.2
1	A	878	ILE	2.2
1	B	723	HIS	2.2
1	A	851	LYS	2.2
1	B	907	LYS	2.1
1	B	902	ARG	2.1
1	A	883	GLN	2.1
1	A	751	PRO	2.1
1	B	872	MET	2.1
1	A	921	THR	2.0
1	A	955	ARG	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,

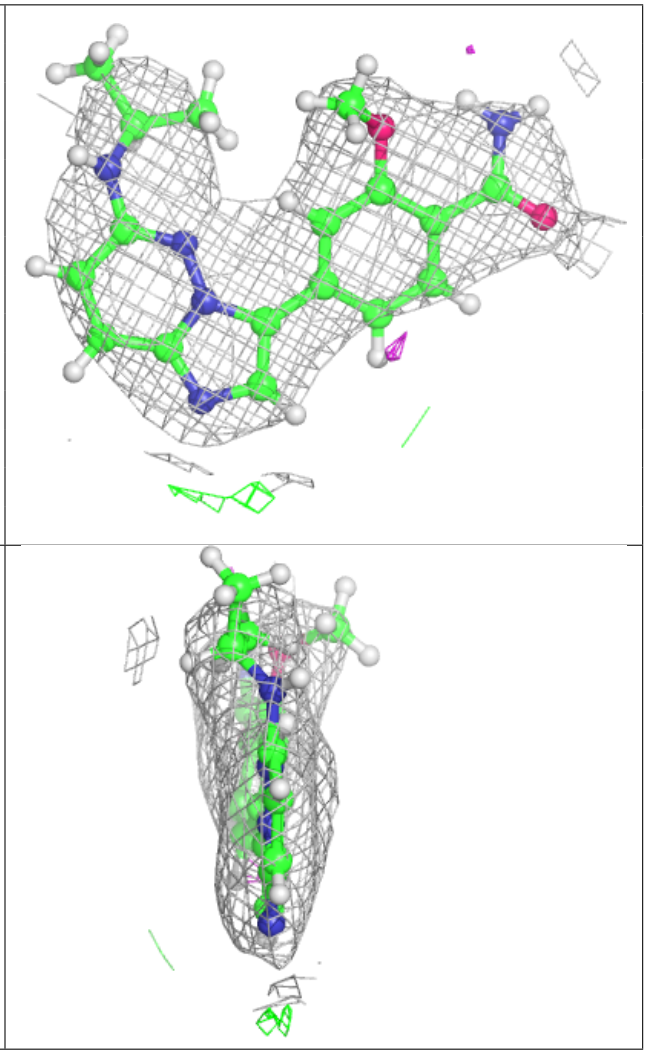
median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	SO4	A	1002	5/5	0.85	0.16	128,128,129,130	0
2	4L5	B	1001	24/24	0.96	0.31	68,77,94,94	0
2	4L5	A	1001	24/24	0.97	0.26	55,61,69,70	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.

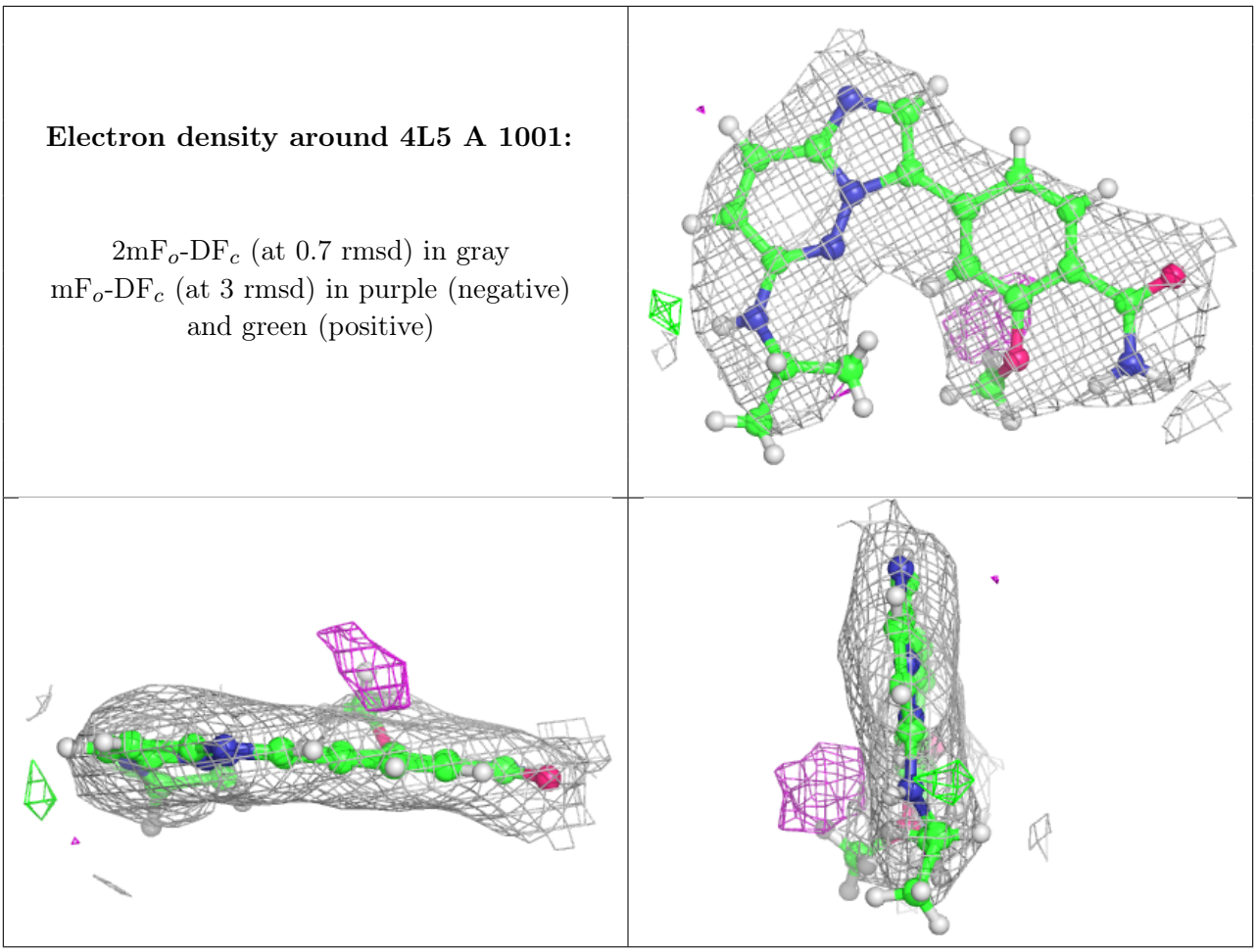
Electron density around 4L5 B 1001:

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 4L5 A 1001:

$2mF_o$-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 (i)

There are no such residues in this entry.